ARKEOGAZTE n°11 : Animals in prehistoric art

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▶ **To cite this version:**

Dario Sigari, Sara Garcês (Dir.). ARKEOGAZTE n°11 : Animals in prehistoric art. 11, 2021. ⟨hal-03807161⟩

HAL Id: hal-03807161

https://hal.science/hal-03807161v1

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HAL Authorization

N.11 Zk. 2021 ISSN: 2174-856X

ArkeoGazte

Revista de Arqueología - Arkeologia Aldizkaria

Edited by: D. Sigari and S. Garcês

ANIMALS IN PREHISTORIC ART
The Euro-Mediterranean region and its surroundings

ANIMALIAK HISTORIAURREKO ARTEAN
Euro-Mediterranear eskualdea eta bere ingurua

LOS ANIMALES EN EL ARTE PREHISTORICO
La región Euro-Mediterránea y su entorno

ArkeoGazte

REVISTA ARKEOGAZTE / ARKEOGAZTE ALDIZKARIA
N. 11., año 2021. urtea 11.
Monográfico: Los animales en el arte prehistórico
Monografikoa: Animaliak historiaurreko artean

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REVISTA ARKEOGAZTE ALDIZKARIA
N.º 11, año 2021. urtea 11. zbk.

Animals in prehistoric art: The Euro-Mediterranean region and its surroundings

Animaliak Historiaurreko Artean: Euro-Mediterranear eskualdea eta bere ingurua

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Revista ArkeoGazte Aldizkaria
Nº 11. Zk., 2021
ISSN: 2174-856X

EDITORIAL

ANIMALS IN PREHISTORIC ART

The new issue of ArkeoGazte is dedicated to the topic of animal figures in prehistoric art and is the first of two volumes (the second volume is in progress and will be out soon).

The focus of this work is to discuss, according to the different chronologies and geographies, the theme of zoomorphs' diversity. We asked different colleagues the question: Are the depictions of specific animals that are related with the contextual environment the result of hunting strategies and associated agency, cultural heritage and the semiotics of a specific group of hunters and gatherers or a combination of these factors?

The subject of animal depiction is one of the most recurrent themes in rock art and is a world phenomenon. Its presence has been recorded in Upper Palaeolithic art as well as in recent times and is characterised by subject matter that has changed through space, time and context. Several publications have been dedicated to this topic, which have been analysed through different perspectives (e.g. DELPORTE, 1989, 1990; FOSSATI, 1994; PETERS and SCHMIDT, 2004; CAMPMAJO, 2006; GROENEN, 2016; PAILLET and MAN-ESTIER, 2016; JAUBERT *et al.*, 2017; BIROUSTE, 2020). Moreover, the subject of animals is a key element in the studies of prehistoric art since it can be used to fix preliminary relative chronologies and so frame the chronology of a site.

The relations between humans and animals extend into socio-cultural aspects that go beyond the mere acquisition of food, meaning that animals constitute cultural resources that play diverse roles in social and cultural systems (VENEZUELA *et al.*, 2015). Therefore, the study of animal figures in prehistoric art is crucial to understanding those past non-literate societies in terms of: a) interaction between human groups and the surrounding environment (e.g. GARCÊS, 2017-2018), b) elaboration of a symbolic language (JORDÁN MONTES, 2001-2002), c) reconstruction of ancient environments and features of the animals that are not visible by studying the fossil record (for instance animal hair) d) definition of cultural groups (e.g. GARCIA-DIEZ *et al.*, 2016; BOURDIER *et al.*, 2017; FUENTES *et al.*, 2019), e) chronology of a site (e.g. MOURE ROMANILLO, 1980; BUENO RAMÍREZ *et al.*, 2007; PIGEAUD, 2007; DOMINGO and ROMAN, 2020; OCHOA *et al.*, 2021; SIGARI and FOSSATI, 2021), and f) lateralisation of the "artists" (e.g. SAUVET, 2006; SCARDOVELLI, 2017).

Quoting Delporte's words: "*À toutes les époques de l'histoire, les rapports entre l'homme et l'animal […] se développant à la fois sous des aspects matériels et sous de aspects qu'on peut appeler "psycho-sociaux". La nature de ces rapports tient évidemment au "potential actif" de l'homme.*" (DELPORTE, 1990: 10).

The animal selection and/or representation is a marker that clearly demonstrates the relationship between humans and the environment. It also implies an idea of appropriation and separation at the same time between humans and animals based on the awareness and the ability to symbolically represent something (VALERA *et al.*, 2014).

Concerning the rock art itself, we see in it "*a record of changing environment. Alongside that is a record of how human beings responded to that environmental change*" (CHIPPINDALE and NASH, 2004: 9). These changes are present in the selected themes and animals are a main subject to investigate human adaptation and their relationship with the environment and the landscape. When referring to the landscape, we refer to the social construct, well defined by Nash and Chippindale (2002: 6), that "is developed within each and everyone's minds". Indeed, it culturally relies on the mechanics of the mind, though it is natural in its physical construction and is certain in its location (CHIPPINDALE and TAÇON, 1998; CHIPPINDALE and NASH, 2004b).

Therefore, we use this topic, focusing on the Basin of the Mediterranean Sea and its various catchments that surround it. In this work, we define two main chronological stages within a wider prehistoric past, each characterised by a unique set of zoomorphic figures.

This special issue of Revista ArkeoGazte Aldizkaria is the first volume of two. It draws on research of a series of case studies on animal figures in prehistoric rock art. This research covers a range of different locations including Portugal, Spain, France, Italy, Norway, Negev, Gobustan, Egypt and different chronologies, together with the Palaeolithic portable art collection of central Europe. It aims to be a valid support for further studies.

The contributing authors provide a synthesis about the animal depictions in rock art sites, address the diversity of rock art sites and animal depictions as well as the variety of approaches that the studies of animal depictions have undergone in the Mediterranean and surrounding areas.

The second volume, currently in progress, will complement the missing chronologies and areas of study, finally providing a full picture of the animal figures in prehistoric rock art around the Mediterranean basin and the surrounding regions. This process clearly shows how the environment strongly influenced socio-economic systems and culture.

The present issue is organised into two sections: hunting-fishing-gathering societies and agrarian societies; each address their respective local chronological sequences, allowing for the subject matter to be placed into a wider context; for example, animals as hunted prey, totemic animals, animal as part of a group narrative, animals as a palaeoclimatic and social marker and animals as cultural and ritual identity with each context applying both wider and narrower themes of investigation to the study.

The volume starts with Mario Reis's contribution about the Palaeolithic rock art of Portugal. This country, in recent years has assumed a major role in Palaeolithic rock art with its richness in open air sites, opposed to the presence of only one decorated cave. The paper offers a first quantification, by type and chronology, of the animal figures recognised so far in Palaeolithic art sites in Portugal.

This paper is naturally followed by "Zoomorphic figures in the open-air Palaeolithic rock art of Spain" by Carlos Vázquez Marcos. Indeed, the technical and morpho-stylistic characteristics of the artistic representations discussed by this author have strong bonds with Palaeolithic parietal and mobile art of Portugal, more specifically with the one of the Côa valley. 7 sites mainly dated between Solutrean and Magdalenian periods and between the second half of the Tardiglaciar and the Early Holocene are described here.

Keeping the focus on the Pleistocene art, we move westwards to central Europe, where, despite the presence of few and still debated parietal art evidence, there is a rich record of portable art since the Aurignacian, with the ivory figures of the Swabian Jura. In her contribution, Ewa Dutkiewicz, provides a discussion about representations of animals, taking into account the different raw materials, themes and comparing the faunal material of some of the sites where the portable art has been found, with animals used for daily survival.

The second section includes two contributions about the Holocene rock art of Italy and France. In the last years, both Renata Grifoni Cremonesi and Anna Maria Tosatti have been dedicating their research to the study of the post-Palaeolithic rock art of the Apennine. Within their contribution, authors offer a systematic documentation and discussion of the known data about the animal figures in the Holocene art of Italy, excluding Valcamonica, which will have a dedicated space in the next issue. The list of the sites has strikingly increased in last years and has further confirmed the maintenance of place value through the time, with resignifications in historical times and connections with other areas. One of this, which is mentioned along the text and played a key role is the Mt. Bego in France.

So, it comes Claudia Defrasne's paper about the zoomorphic figures in the post-palaeolithic rock art of France, including the famous site at the border with Italy, the Mt. Bego. Despite providing a quantification of the animal figures, author approaches the relationship between human and non-human animals.

Looking into the catchments surrounding the Mediterranean Sea, the contribution by Heidrun Stebergløkken takes into account two sites in central Norway to demonstrate how complex and dynamic the creation of rock art can be, suffering a potential resignification that reflects changes of the narratives, by adding or transforming images on the rocks.

Jumping on the southern bank of the Mediterranean, Pawel Polkowski introduces the rock art of Egypt. This country, mostly known for its monumental archaeology, preserves a consistent prehistoric heritage too, including rock art as well. The author briefly offers an overview and characterisation of the main periods of rock art production, from the late Palaeolithic one of Qurta, to the Naqada period with the first agricultural societies. Within the palaeoenvironmental frame, the topic of animal is then discussed.

Moving east to the Mediterranean Sea we have the Negev rock art, described in the paper by Davida Eisenberg-Degen, Lior Schwimer, Liora Kolska Horwitz and Ifat Shapira. Their contribution focuses on camel subject from four surveyed areas in the Negev to demonstrate how stylistic changes over time may be related to transformations in the economic exploitation of this animal and possibly to the introduction of a different camel breed associated with population movement into the region.

The ninth and last paper is the one about an impressive open air rock art site at the gates of Asia, Gobustan in Azerbaijan. Sevinc Shirinli and Rəhman Abdullayev review the previous literature about this open air rock art site including generalised, chronological, interpretative and stylistic approaches, focusing on the animal topic.

The editors are grateful to the authors for providing such wide-ranging and stimulating contributions and to the many anonymous reviewers who gave up their time to assist with the volume's production.

EDITORS OF THIS ISSUE
Dario Sigari
Sara Garcês

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Revista ArkeoGazte Aldizkaria
Nº 11. Zk., 2021
ISSN: 2174-856X

EDITORIAL / EDITORIALA

LOS ANIMALES EN EL ARTE PREHISTORICO
La región Euro-Mediterránea y su entorno

Este nuevo número de ArkeoGazte está dedicado al tema de las figuras animales en el arte prehistórico, y constituye el primero de dos volúmenes (estando el segundo en confección para su publicación posterior).

El objetivo de este trabajo es la discusión, de acuerdo a las diferentes cronologías y geografías, del tema de la diversidad de los "zoomorfos" en el arte prehistórico. Hemos formulado a diferentes colegas la siguiente pregunta: las representaciones específicas de animales, en relación con su contexto medioambiental, ¿son el resultado de estrategias de caza y otras agencias asociadas, del patrimonio cultural, o de la semiótica de un grupo específico de cazadores-recolectores? ¿O más bien, de una combinación de todos esos factores?

La representación animal es uno de los temas más recurrentes en el arte rupestre, constituyendo un fenómeno mundial. Su presencia ha sido registrada tanto en el Paleolítico superior como en épocas más recientes, estando caracterizada por la importancia del sujeto representado, que ha cambiado a lo largo del espacio, el tiempo y el contexto. El tema ha sido objeto de diversas publicaciones, que lo han analizado desde diferentes perspectivas (por ejemplo, DELPORTE, 1989, 1990; FOSSATI, 1994; PETERS and SCHMIDT, 2004; CAMPMAJO, 2006; GROENEN, 2016; PAILLET and MAN-ESTIER, 2016; JAUBERT *et al.*, 2017; BIROUSTE, 2020). Además, el sujeto

ANIMALIAK HISTORIAURREKO ARTEAN
Euro-Mediterranear eskualdea eta bere ingurua

ArkeoGazte aldizkariaren zenbaki berri hau historiaurreko arteko animalien irudiei buruzkoa da, eta bi liburukitako lehena da (bigarrena abian da eta laster aterako da).

Lan honen helburua zoomorfoen aniztasunaren gaia eztabaidatzea da, kronologia eta geografia desberdinen arabera. Hainbat lankideri egin diegu ondorengo galdera: ingurugiroko testuinguruarekin lotura duten animalia zehatzen irudikapenak ba al dira ehiza-estrategien eta horri loturiko agentzia, kultura-herentzia eta ehiztari-biltzaile talde espezifikoen semiotiken emaitza edota faktore hauen konbinazioa?

Animalien irudikapena labar-artean gehien erabiltzen den gaietako bat da eta baita mundu mailako fenomenoa ere. Haren presentzia Goi Paleolitoko artetik gaur egunera arte erregistratu da eta espazioan, denboran eta testuinguruan aldatu den materia izatea du ezaugarri. Gai honi buruzko hainbat argitalpen egin dira, ikuspuntu desberdinetatik aztertu direnak (e.g. e.g. DELPORTE, 1989, 1990; FOSSATI, 1994; PETERS and SCHMIDT, 2004; CAMPMAJO, 2006; GROENEN, 2016; PAILLET and MAN-ESTIER, 2016; JAUBERT *et al.*, 2017; BIROUSTE, 2020). Gainera, animalien gaia funtsezko elementua da historiaurreko artearen azterketetan, aurretiko kronologia erlatiboak finkatzeko erabil baitaiteke eta, hartara, aztarnategi baten kronologia orokorra kokatzeko.

animal ha sido un elemento clave en los estudios de arte prehistórico, ya que puede usarse para contrastar cronologías relativas y/o preliminares, o ajustar el marco cronológico de un yacimiento arqueológico.

Las relaciones entre humanos y animales se extienden a aspectos socioculturales que van más allá de la mera adquisición de alimentos, es decir, los animales constituyen una fuente de recursos que juega diversos roles en los sistemas sociales y culturales (VENEZUELA *et al.*, 2015). Por ello, el estudio de las figuras animales en el arte prehistórico es crucial para entender a las sociedades pasadas sin escritura, en términos de a) interacción entre grupos humanos y su medio ambiente circundante (por ejemplo, Garcês, 2017-2018); b) elaboración de un lenguaje simbólico (JORDÁN MONTES, 2001-2002); c) reconstrucción de condiciones medioambientales y características de los animales que no son visibles a través del estudio del registro fósil (como el pelaje); d) definición de grupos culturales (por ejemplo, GARCIA-DIEZ *et al.*, 2016; BOURDIER *et al.*, 2017; FUENTES *et al.*, 2019); e) aportación cronológica al yacimiento (por ejemplo, Moure Romanillo, 1980; Bueno Ramírez et al., 2007; Pigeaud, 2007; Domingo y Roman, 2020; Ochoa et al., 2021; Sigari y Fossati, 2021); o f) lateralidad de los "artistas" (por ejemplo, SAUVET, 2006; SCARDOVELLI, 2017).

En palabras de Delporte, "*À toutes les époques de l'histoire, les rapports entre l'homme et l'animal […] se développant à la fois sous des aspects matériels et sous de aspects qu'on peut appeler "psycho-sociaux". La nature de ces rapports tient évidemment au "potential actif" de l'homme.*" [1] (DELPORTE, 1990: 10).

La selección animal y/o su representación constituyen marcadores que demuestran

Gizakien eta animalien arteko harremanak alderdi soziokulturaletara zabaltzen dira, elikagaiak eskuratze hutsetik haratago doazenak. Beraz, horrek adierazten du animaliak sistema sozial eta kulturaletan rol desberdinak betetzen dituzten baliabide kulturalak direla (VENEZUELA *et al.*, 2015). Hortaz, historiaurreko artean animalien irudiak aztertzea funtsezkoa da alfabetatu gabeko iraganeko gizarte horiek ulertzeko honako alderdien arabera: a) giza taldeen eta haien ingurunearen arteko elkarreragina (e.g. GARCÊS, 2017-2018), b) hizkuntza sinboliko baten lanketa (JORDÁN MONTES, 2001-2002), d) erregistro fosila aztertuta ikusten ez diren animalien ezaugarriak (adibidez, animalien ilea) eta aintzinako inguruneak berreraikitzea, e) kultura-taldeak definitzea (e.g. GARCIA-DIEZ *et al.*, 2016; BOURDIER *et al.*, 2017; FUENTES *et al.*, 2019), f) aztarnategi bateko kronologia (e.g. MMOURE ROMANILLO, 1980; BUENO RAMÍREZ *et al.*, 2007; PIGEAUD, 2007; DOMINGO eta ROMAN, 2020; OCHOA *et al.*, 2021; SIGARI eta FOSSATI, 2021), g) "artisten" lateralizazioa (e.g. SAUVET, 2006; SCARDOVELLI, 2017).

Delporteren hitzak aipatuz: "*A toutes les époques de l'histoire, les rapports entre l'homme et l'animal […] se développant à la fois sous des aspects matériels et sous de aspects qu'on peut appeler "psycho-sociaux". La nature de ces rapports tient évidemment au "potential actif" de l'homme*" (DELPORTE, 1990: 10).

Animalien hautaketa eta/edo irudikapena, gizakien eta ingurumenaren arteko harremana argi eta garbi erakusten duen adierazlea da. Halaber, gizakien eta animalien artean jabetzaren zein banaketaren ideia dakar, kontzientzian eta zerbait sinbolikoki irudikatzeko gaitasunean oinarritua (VALERA *et al.*, 2014).

Labar-arteari berari dagokionez, bertan ikusten dugu "*a record of changing environment. Alongside that is a record of how human beings responded*

1 "*En todas las épocas de la historia, las relaciones entre hombre y animal […] se desarrollan a la vez sobre aspectos materiales y sobre otros que podemos llamar "psico-sociales*". La naturaleza de esas relaciones depende, obviamente, del "potencial activo" del hombre." Entiéndase "hombre" como sinónimo de ser humano (nota del traductor).

claramente la relación entre los seres humanos y el medio ambiente, lo que, al mismo tiempo, también implica la idea de apropiación y separación entre humanos y animales, basada en la conciencia y la habilidad de representar algo simbólicamente (VALERA *et al.*, 2014).

En sí, en el arte rupestre podemos observar "*un registro del cambio en el medio ambiente. Es además un registro de cómo los seres humanos respondieron a este cambio medioambiental*" (CHIPPINDALE y NASH, 2004: 9). Estos cambios están presentes en los temas seleccionados para su representación, y los animales son un sujeto mayor para investigar la adaptación humana y su relación con el medio ambiente y el paisaje. Cuando hablamos de paisaje, nos referimos a la construcción social definida por Nash y Chippindale (2002: 6), que "se desarrolla en cada una de nuestras mentes y en la de todos". En efecto, esta se basa culturalmente en la mecánica de la mente, aunque es natural en su construcción física y segura en su ubicación (CHIPPINDALE y TAÇON, 1998; CHIPPINDALE y NASH, 2004b).

De esta manera, aplicaremos el tema animal en el arte prehistórico a la cuenca del mar Mediterráneo y varias de las zonas geográficas que la rodean, definiendo, a lo largo del trabajo, dos grandes períodos cronológicos inmersos en un pasado prehistórico mayor, cado uno de ellos caracterizado por un conjunto único de figuras zoomorfas.

Este monográfico especial de Revista ArkeoGazte Aldizkaria es el primero de dos volúmenes. Realiza un boceto de la investigación de una serie de casos de estudio de las figuras animales en el arte rupestre prehistórico, cubriendo un amplio abanico de localizaciones, incluyendo Portugal, España, Francia, Italia, Noruega, el Néguev, Gobustán o Egipto, con diferentes cronologías, así como sobre la colección de arte mueble paleolítico de Europa central, con la aspiración de convertirse en un soporte válido para estudios posteriores.

Los autores que han contribuido en el volumen nos proveerán de una síntesis de las

to that environmental change" (CHIPPINDALE eta NASH, 2004: 9). Aldaketa horiek hautatutako gaietan agertzen dira, eta animaliak gai nagusia dira giza egokitzapena eta ingurumenarekin eta paisaiarekin duten lotura ikertzeko. Paisaiari dagokionez, eraketa sozialaz ari gara zeina, Nash eta Chippindaleen (2002: 6) hitzetan, "is developed within each and everyone's minds". Izan ere, kulturalki adimenaren mekanikaren mende dago, nahiz eta naturala den bere eraikuntza fisikoan eta zehatza den bere kokapenean (CHIPPINDALE eta TAÇON, 1998; CHIPPINDALE eta NASH, 2004b).

Beraz, gai hau aukeratu dugu, Mediterraneoaren arrora eta inguruko isurialdeetara bideratua. Lan honetan bi etapa kronologiko nagusi definitzen ditugu iraganeko historiaurreko garai zabalago baten barruan, horietako bakoitza irudi zoomorfoz osatutako multzo bakar batez bereizia.

Lehen esan bezala, ArkeoGazte Aldizkariaren zenbaki berezi hau bi liburukitako lehena da, eta historiaurreko labar-artean dauden animalia-irudiei buruzko zenbait kasu aztertzen ditu. Gainera, ikerketa honek hainbat leku barne hartzen ditu, besteak beste, Portugal, Espainia, Frantzia, Italia, Norvegia, Negev, Gobustan, Egipto eta zenbait kronologia desberdin, Erdialdeko Europako Paleolitoko arte eramangarriaren bildumarekin batera. Ondorengo ikerketetan baliozko euskarri izan nahi du.

Zenbaki honetan parte hartzen duten egileek animalia-irudiak dituzten labar-artearen kasuen sintesia eskaintzeaz gain, labar-artedun aztarnategien eta animalia-irudien aniztasuna aurkezten dute eta, baita animalia-irudikapenen azterketek Mediterraneoan eta inguruko eremuetan izan dituzten ikuspegi desberdinak ere.

Bigarren liburukiak, gaur egun martxan dagoenak, falta diren kronologiak eta ikerketa-arloak osatuko ditu, azkenik, Mediterraneoko eta inguruko eskualdeetako historiaurreko labar-artean dauden animalien erabateko ikuspegia eskainiz. Prozesu horrek argi erakusten du ingurumenak eragin handia izan zuela sistema sozioekonomikoetan eta kulturan.

representaciones animales en los yacimientos de arte prehistórico, así como de la variedad de enfoques de que se han provisto los estudios sobre figuración animal en el Mediterráneo y otras áreas adyacentes.

El segundo volumen, actualmente en confección, complementará las cronologías y áreas de estudio faltantes, proveyendo finalmente al lector de una fotografía completa sobre las figuras animales en el arte prehistórico alrededor del área mediterránea. Este proceso muestra claramente cómo el medio ambiente ha influenciado vigorosamente los sistemas socioeconómicos y la cultura.

El presente volumen está organizado en dos secciones: sociedades cazadoras-pescadoras-recolectoras y sociedades agropastoriles, cada una de ellas en su contexto cronológico local, lo que permitirá que el tema central pueda ser situado en un contexto más amplio; por ejemplo, animales como piezas de caza, como tótems, como parte de la narrativa de un grupo, como marcadores paleoclimáticos y sociales y como identidades culturales y rituales. Es decir, cada contexto expuesto será aplicando a temas más amplios, para una contribución eficaz al estudio y la investigación de las figuras animales.

El volumen comienza con la contribución de Mario Reis sobre el arte rupestre paleolítico en Portugal. Este país ha asumido, en los últimos años, un rol central acerca de esa temática, principalmente por la riqueza de sus estaciones arqueológicas al aire libre, hecho que se opone a la presencia de únicamente una cueva decorada. El artículo nos ofrece una primera cuantificación, por tipo y cronología, de las figuras animales reconocidas en los yacimientos paleolíticos con arte de Portugal.

A este artículo le sigue, precisamente, otro titulado "*Zoomorphic figures in the open-air Palaeolithic rock art of Spain*" ("*Figuras zoomorfas en el arte parietal paeolítico al airte libre en España*"), por Carlos Vázquez Marcos. En efecto, las características técnicas y morfo-estilísticas de las representaciones artísticas discutidas

Zenbaki hau bi ataletan banatuta dago: ehiztari-arrantzale-biltzaileen gizarteak eta nekazaritza-gizarteak. Horietako bakoitzak lekuko sekuentzia kronologikoak aztertzen ditu, zenbaki honen gai nagusia testuinguru zabalago batean kokatzeko aukera emanez; esate baterako, animaliak harrapakari gisa, animalia totemikoak, animaliak talde-narratiba baten zati gisa, animaliak adierazle sozial eta paleoingurumenaren gisa, eta animaliak kultura- eta erritu-identitate bezala. Hau da, azaldutako testuinguru bakoitza gai zabalagoei aplikatuko zaie, animalia irudien azterketari ekarpen eraginkor bat eskaintzeko.

Liburukia Portugalgo labar-arte paleolitikoaren inguruan Mario Reisek egindako ekarpenarekin hasten da. Herrialde honek, azken urteotan, rol garrantzitsua izan du Paleolitoko labar-artean, batez ere aire zabaleko estazio arkeologikoen aberastasunagatik, apainduriko kobazuloen adibide bakar bat baitu. Portugalgo arte paleolitikoko aztarnategietan orain arte antzemandako animalien lehen kuantifikazioa eskaintzen du artikuluak, motaren eta kronologiaren arabera eginikoa.

Lan horren ondoren, Carlos Vázquez Marcosen "*Zoomorphic figures in the open-air Palaeolithic rock art of Spain*" ("*Irudi zoomorfoak Espainiako aire zabaleko arte paleolitikoan*") izenburua duen beste bat dator. Hain zuzen, autoreak eztabaidatutako arte-irudikapenen ezaugarri tekniko eta morfo-estilistikoek lotura estua dute Portugalgo horma-artearekin eta arte higigarriarekin, bereziki Côako haranekoekin. Horri dagokionez, zazpi aztarnategi interesgarri deskribatzen dira, oro har Solutre eta Madeleine aldien artean datatuak, edo, termino paleoklimatikoak erabiliz, Tardiglaziarraren bigarren erdiaren eta Holozeno goiztiarraren artean.

Pleistozenoko artea ardatz bezala hartzen jarraituz, liburukia Erdialdeko Europaraino doa. Bertan, horma-artearen ebidentzia gutxi eta eztabaidatua egon arren, arte higigarriaren erregistro aberats bat dago Aurignac alditik, batez ere suabiar Jurako bolizko irudietan oinarritua. Ekarpen honetan, Ewa Dutkiewicz-ek animalien irudikapenari buruzko eztabaida bat proposatzen

por el autor presentan fuertes lazos con el arte parietal y mobiliar de Portugal, específicamente con aquellos del valle del Côa. Al respecto, se describen siete yacimientos de interés, de manera general datados entre los periodos Solutrense y Magdaleniense, o, en términos paleoclimáticos, entre la segunda mitad del Tardiglaciar y el Holoceno inicial.

Manteniendo el foco en el arte del Pleistoceno, el volumen viaja hasta Europa central, donde, a pesar de la presencia de poca y debatida evidencia de arte parietal, existe un rico registro de arte mueble desde el Auriñaciense, referido principalmente a las figuras en marfil del Jura suabo. En esta contribución, Ewa Dutkiewicz nos propone una discusión sobre la representación de animales teniendo en cuenta las diferentes materias primas y temas, y comparándola con el material faunístico de algunos de los yacimientos donde este arte mobiliar ha sido encontrado, es decir, con los recursos animales para la supervivencia diaria.

La segunda sección incluye dos contribuciones sobre el arte parietal holoceno de Italia y Francia. En los últimos años, tanto Renata Grifoni Cremonesi como Anna Maria Tosatti han venido dedicando sus investigaciones al estudio del arte parietal post-paleolítico de los Apeninos. En su contribución, las autoras nos ofrecen una documentación sistemática y una discusión de los datos conocidos sobre las figuras animales durante el desarrollo del arte holoceno de Italia, excluyendo Valcamonica, a la que le será dedicado espacio propio en el próximo volumen. Al respecto, la lista de yacimientos se ha incrementado vertiginosamente en los últimos años, confirmándose, por tanto, que el valor de esta zona se ha mantenido en el tiempo, con resignificaciones durante tiempos históricos y lazos con otras áreas geográficas; una de ellas, que es mencionada en el texto y juega un papel clave en todo ello, es Mont Bego, en Francia.

A continuación, Claudia Defrasne nos propone un artículo sobre las figuras zoomorfas en el arte parietal post-paleolítico de Francia, incluyendo el referido y famoso yacimiento de Mont Bego, en el límite con Italia. Aparte de una cuantificación du, lehengai eta gai desberdinak kontuan hartuta, eta arte higigarri hori aurkitu den aztarnategi batzuetako fauna-materialarekin konparatuz, hau da, eguneroko biziraupenerako animalia-baliabideekin.

Bigarren atalean, Italiako eta Frantziako horma-arte holozenoari buruzko bi ekarpen daude. Azken urteotan, Renata Grifoni Cremonesik eta Anna Maria Tosattik Apeninoetako Paleolito osteko horma-artea ikertzen aritu dira. Bere ekarpenean, egileek Italiako Holozenoko artearen garapenean zehar animalien irudiei buruzko dokumentazio sistematikoa eta datu ezagunen inguruko eztabaida eskaintzen dituzte, Valcamonica alde batera utzita; izan ere, espazio propioa eskainiko zaio hurrengo liburukian. Aztarnategien zerrenda izugarri handitu da azken urteetan, eta, beraz, denboran eremu horren balioa mantendu dela berretsi da, garai historikoetan esanahi berriak hartuz eta beste eremu geografiko batzuekin loturak edukiz; horietako bat, testuan aipatzen dena eta zeregin garrantzitsua duena, Mont Bego da, Frantzian.

Ondoren, Claudia Defrasnek Frantziako Paleolito osteko horma-artearen irudi zoomorfoei buruzko artikulu bat proposatzen du, Italiaren mugan dagoen Mont Bego aztarnategi ospetsua barne, dagoeneko aipatua. Animalien kuantifikazioaz gain, autoreak gizakien eta gizaki ez diren animalien arteko harremanera hurbiltzen gaitu.

Mediterraneoko arroaren eremu mugakideetara hurbilduz, Heidrun Stebergløkken-en hurrengo ekarpena Norvegia Erdialdeko bi aztarnategitan oinarritzen da, labar-artearen sorrera zeinen konplexua eta dinamikoa izan daitekeen erakusteko egina. Izan ere, narratibetan aldaketak uztartzen dituzten esanahi berrien eraketa potentzialak ematen dira, arroketan irudikatutako irudiak gehituz edo eraldatuz.

Ondoren, Mediterraneoaren hegoaldera jauzi eginez, Pawel Polkowskik Egiptoko horma-artea aurkeztuko du. Herrialde honek, batez ere arkeologia monumentalagatik ezaguna, historiaurreko ondare garrantzitsua ere badu, labar-artea barne. Labar-artearen ekoizpen-aldi nagusien deskribapena eta karakterizazioa eskaintzen digu egileak, Qurtako Paleolito berantiarretik hasi eta

de las figuras animales, la autora nos acerca a la relación entre seres humanos y animales no humanos.

Acercándonos a las zonas limítrofes con la cuenca mediterránea, la siguiente contribución, de Heidrun Steberløkken, se centra en dos yacimientos de Noruega central para demostrar cuán compleja y dinámica puede ser la creación de arte rupestre, con potenciales resignificaciones que reflejan cambios en las narrativas por adición o transformación de las imágenes representadas en la roca.

Seguidamente, saltando a la zona meridional del Mediterráneo, Pawel Polkowski nos introduce en el arte parietal de Egipto. Este país, mayormente conocido por su arqueología monumental, también conserva un importante patrimonio prehistórico que incluye arte rupestre. El autor nos ofrece una descripción y caracterización de los principales periodos de producción de arte rupestre, desde el Paleolítico tardío de Qurta hasta el período Naqada, ya con las primeras sociedades agrícolas. Sobre esa base, se discute posteriormente el tema animal, todo ello desde un marco paleoambiental.

Posteriormente, Davida Eisenberg-Degen, Lior Schwimer, Liora Kolska Horwitz e Ifat Shapira nos trasladan al este del Mediterráneo a través de la descripción del arte rupestre del desierto del Néguev. Su contribución está centrada en la representación del camello en cuatro áreas prospectadas, con el objetivo de demostrar cómo los cambios estilísticos a lo largo del tiempo pueden estar relacionados con las transformaciones en la explotación económica de este animal y, posiblemente, con la introducción de una raza de camellos diferente, asociada al movimiento de la población en esta región.

El noveno y último artículo del volumen está dedicado al impresionante yacimiento de arte parietal de Gobustán, en Azerbaiyán, en las puertas de Asia. Sevinc Shirinli y Rəhman Abdullayev son los encargados de revisar la literatura previa sobre esta estación al aire libre con arte desde una perspectiva general, en términos estilísticos, interpretativos y cronológicos.

Naqada garairaino, dagoeneko lehen nekazaritza-gizarteekin. Gero, paleoingurumen-esparrutik, animalia gaia eztabaidatzen da.

Jarraian, Davida Eisenberg-Degenek, Lior Schwimerrek, Liora Kolska Horwitzek eta Ifat Shapirak Mediterraneoaren ekialdera eramango gaituzte, Negev basamortuko labar-artearen deskribapenaren eskutik. Haien ekarpenak prospektaturiko lau eremuetan gameluak duen irudikapena eskaintzen du, erakusteko denboran zeharreko aldaketa estilistikoak lotuta egon daitezkeela animalia horren ustiapen ekonomikoan gertatzen diren aldaketekin, eta baita, ziur aski, gamelu-arraza desberdin baten sarrerarekin ere, eskualde horretako populazioaren mugimenduarekin lotuta dagoena gainera.

Liburukiaren bederatzigarren eta azken artikulua Gobustan (Azerbaijan) aztarnategiko horma-arte ikusgarriari buruzkoa da. Sevinc Shirinli eta Rəhman Abdullayev arduratzen dira aire zabaleko estazio horri buruzko literatura berrikusten lan honetan, ikuspegi orokor, estilistiko, interpretatibo eta kronologikoak barne, animalien gaia ardatz hartuta.

Liburukiaren editoreek, lehenik eta behin, eskerrak eman nahi dizkiegu parte hartu duten egileei, ekarpen sorta zabal eta sustagarria duen monografiko hau egiteagatik eta, bigarrenik, baita liburukia garatu eta hobetzeko ordainezina den denbora eskaini duten ikuskatzaile guztiei ere.

ZENBAKI HONEN EDITORIAK
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A los editores del volumen nos gustaría agradecer, primeramente, a los autores participantes, por proveer este monográfico de tan amplia y estimulante gama de contribuciones, así como a los numerosos revisores que han dedicado un tiempo inestimable al desarrollo y mejora del volumen.

EDITORES DE ESTE NUMERO
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Revista ArkeoGazte Aldizkaria
Nº 11, pp. 19-46, year 2021
Received: 19-11-2018; Reviewed: 06-01-2019; Accepted: 04-06-2021
ISSN: 2174-856X

PALAEOLITHIC ART IN PORTUGAL AND ITS ZOOMORPHIC FIGURES

Arte paleolitikoa Portugalen eta bere irudi zoomorfoak

El arte paleolítico en Portugal y sus figuras zoomorfas

Mário Reis (*)

Abstract

Portugal assumes a major role in the recent trend, in Europe and elsewhere, of a substantial increase in the number of open-air Palaeolithic art sites, being the only European country in which these are the majority, together with an equally growing number of portable art sites and the only decorated cave known in Portuguese territory. The present distribution reflects the existence of a large region, the Douro basin, marked by multiple small dispersed sites centred on the vast Côa Valley complex, with other smaller concentrations or isolated sites scattered throughout the rest of the country. If the regional distribution is thus already large and with a tendency to grow, the quantification of motifs, namely of animal figures, already complete in most of the small sites and advanced in the others, gives an overwhelming advantage to the Côa complex, surpassing 4000 inventoried Palaeolithic figures, of which more than 2000 are animal representations of different types. This text presents a first quantification, by type and chronology, of the zoomorphic figures recognized in Palaeolithic art sites in Portugal, in their diverse modalities.

Key words

Portugal; Upper Palaeolithic; Open-air art; Portable art; Cave art.

Laburpena

Portugalek garrantzi handia du berriki eta, modu nabarmen batean, hazi diren aire zabaleko arte paleolitikoa duten lekuen artean, bai Europan eta bai beste leku batzuetan. Hain zuzen ere, bertako arte gehiena aire zabaleko adibideek osatzen duten Europako herrialde bakarra da, arte higigarria duten gero eta leku gehiagorekin eta lurralde honetan ezagutzen den apainduriko kobazulo bakarrarekin batera.

Gaur egungo leku hauen distribuzioak adierazten du eskualde handi bat dagoela, Duero ibaiaren arroa. Gune sakabanatu ugari eta txikiak ditu, Côaren eremu erraldoian zentratuak, eta baita beste kontzentrazio txiki batzuk edo gune isolatuak ere, gainerako eremu nazionalean sakabanatuak. Gaur egungo distribuzioa dagoeneko zabala izanik eta hazkunderako joera duela antzemanez, motiboen kuantifikazioak, bereziki animalia-irudienak, leku txiki gehienetan jada osatua eta gainerakoetan aurreratua, Côaren nagusitasun nabarmena islatzen du, inbentariatutako 4.000 irudi paleolitiko baino gehiago baititu, horietatik 2.000 baino gehiago mota desberdinetako animalien irudiak izanik.

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Testu honek, Portugalgo arte paleolitikoa duten guneetako irudi zoomorfoen lehen kuantifikazioa aurkezten du, motaren eta kronologiaren arabera eginikoa.

Hitz-gakoak
Portugal; Goi Paleolitoa; Aire zabaleko artea; Arte higigarria; Kobako artea.

Resumen
Portugal juega un importante papel en la tendencia existente en Europa y más allá, del reciente y sustancial incremento en el número de sitios con arte paleolítico al aire libre, siendo el único país europeo en el que estos constituyen la mayoría, junto con un número igualmente creciente de sitios con arte mueble y la única cueva decorada conocida en este territorio.
La actual distribución refleja la existencia de una gran región, la cuenca del Duero, con múltiples y pequeños sitios dispersos, centrados en el enorme complejo del Côa, con otras concentraciones más pequeñas o sitios aislados, dispersos por el resto del área nacional. Si la actual distribución regional ya es amplia y tendente al crecimiento, la cuantificación de los motivos, en particular de las figuras animales, ya completa en la mayoría de los pequeños sitios y avanzada en los demás, refleja el abrumador dominio del Côa, que supera las 4000 figuras paleolíticas inventariadas, de las cuales más de 2000 son representaciones animales de diferentes tipos. Este texto presenta una primera cuantificación, por tipo y cronología, de las figuras zoomorfas reconocidas en los sitios de arte paleolítico en Portugal, en sus diversos soportes.

Palabras Clave
Portugal; Paleolítico Superior; Arte al aire libre; Arte mueble; Arte en cueva.

Revista ArkeoGazte Aldizkaria
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Mário Reis (*)

1. Introduction

The revelation of the Côa rock art complex in 1994/1995 brought a whole new dimension to Palaeolithic art in Portugal, not only because along with its discovery many other sites were revealed, but also because its dimension is such that, in a first and hurried view, one could almost say that Portuguese Palaeolithic art is made of the Côa and a few appendices. In a strict quantitative analysis (in number of sites, decorated rocks or motifs) so it is, other sites going unnoticed within the overwhelming quantity of the Côa art. But this would be the wrong way to observe reality, after plentiful new findings in a large geographical dispersion, displaying a complicated network of sites, whose long chronology and crossed relations demonstrate a strong adaptation of Palaeolithic communities to Iberian geomorphology (Figure 1).

A long sequence of discoveries of Palaeolithic art sites suggests we're far from the end, and that those presently known are a small sample of reality: the isolated findings of Escoural in 1963 (Figure 2) and Mazouco in 1979 (Figure 3), followed by scarce discoveries of portable art, preceded the astonishment of the identification of the Côa art in the mid-90's, and the ensuing regular discovery of new sites across the country, with new dynamics in archaeological research and a sharper look at the reality of rock art. Other sites are likely waiting to be discovered: portable art in excavations; new decorated caves, whose scarcity remains a mystery; more open-air sites, for whose existence and enduring preservation the Portuguese geomorphological conditions are particularly apt, namely in the basins of main rivers. Another Côa is unlikely to appear in Portugal, but other open-air sites should exist, maybe just small clusters or isolated rocks or, perhaps, larger sites or small complexes, as Siega Verde or Domingo Garcia in Spain[1].

This text summarizes the current situation of Palaeolithic art in Portugal, like previous ones (BAPTISTA, 2009: 190-193; 2011; 2012; BICHO *et al.*, 2007; SANTOS *et al.*, 2015), with a first quantification of animal figures (Table 1), and an essay on its typological and chronological evolution in the main phases detected in Portugal, mostly based on the Côa's established phasing. Before, the first task is establishing the present reality in the three distinct manifestations of

1 For further information and references on the mentioned open-air Spanish sites, see text in this volume by Carlos Vázquez Marcos.

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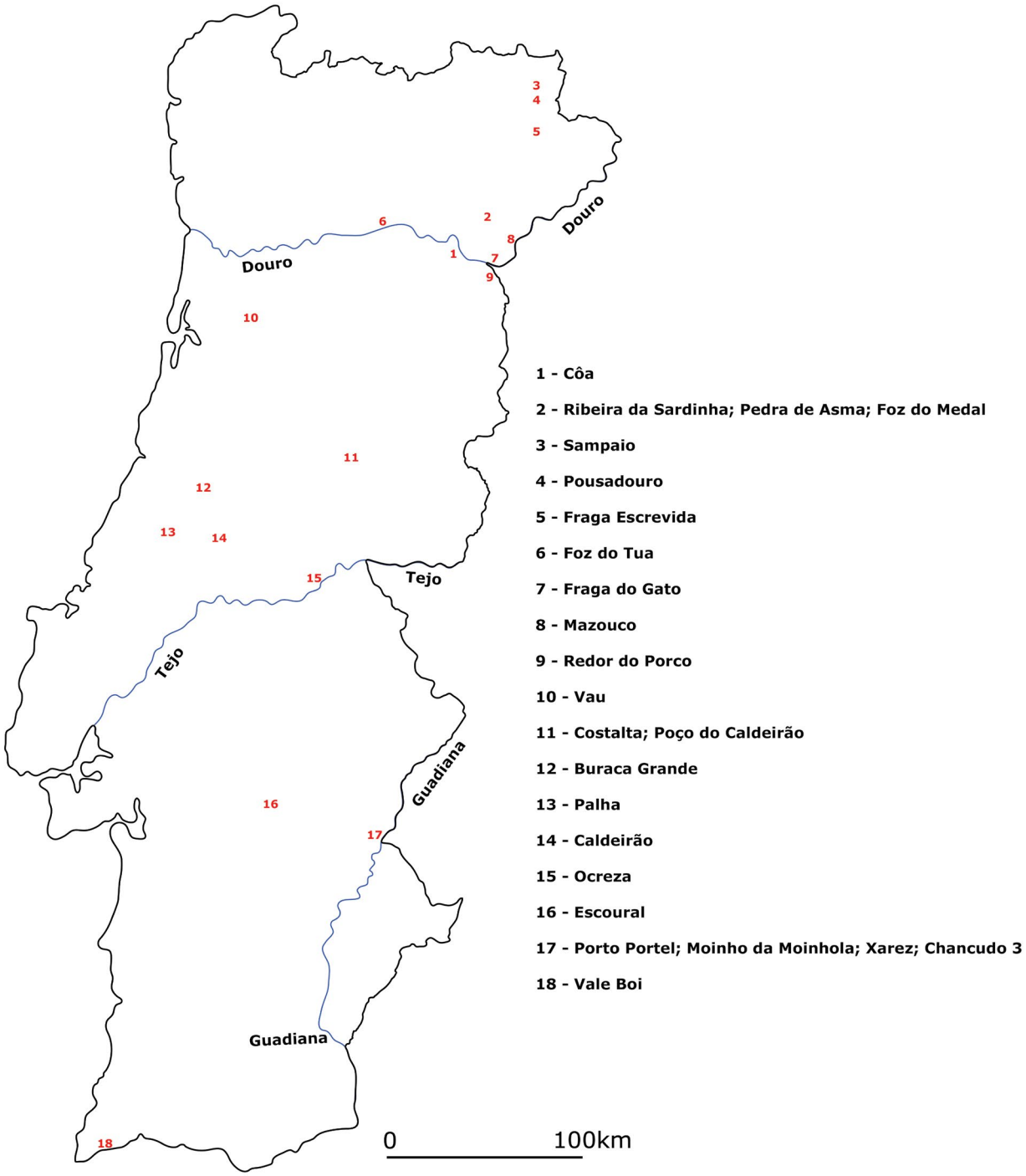

Figure 1. Distribution of Palaeolithic art sites in Portugal.

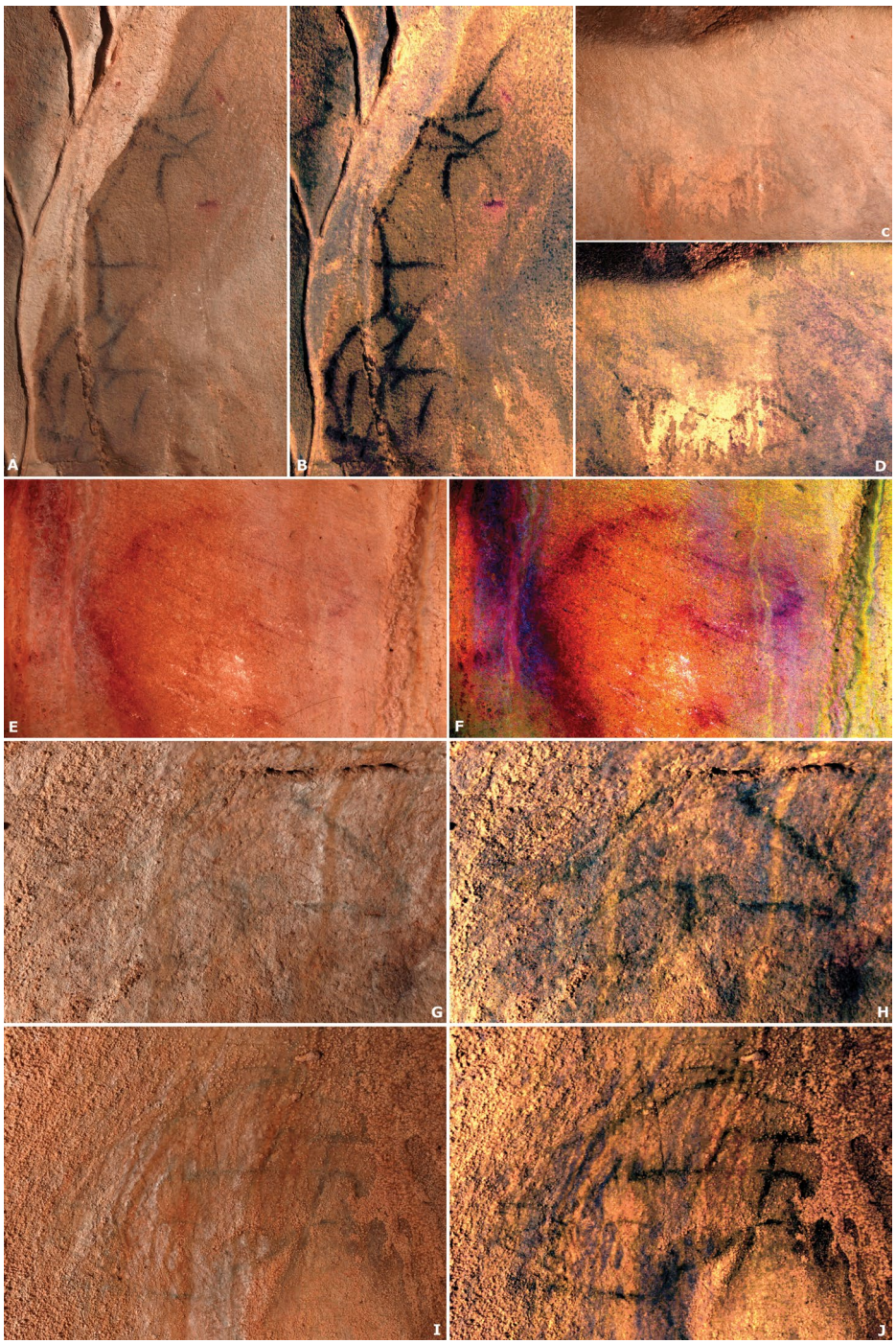

Figure 2. Images of some motifs in the Escoural cave, always contrasting the original with its DStretch treatment. A, B - possible theriantrope in black pigment, with an horse's head; C, D - undetermined black quadruped; E, F - red horse's head; G, H - black horse's head; I, J - black horse and undetermined quadruped (images obtained in October 2018 by the author, with the permission of Direcção Regional de Cultura do Alentejo and the helpful assistance of Sónia Contador, guide of Escoural cave).

Sites	Equine	Aurochs	Cervine	Caprine	Chamois	Fishes	Birds	Feline	Bison	Bears	Musteline	Mixed	Undetermined
Côa (2082)	104	131	45	101	7	1	1	-	1	1	-	-	125
	91	89	72	67	2	-	1	4	-	-	1	1	92
	108	19	358	143	10	73	5	2	-	-	1	-	426
Fariseu (87)	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	4	8	39	10	-	-	-	-	-	-	-	-	26
Cardina (7)	-	-	-	-	-	-	-	-	-	-	-	-	-
	1	-	-	1	-	-	-	-	-	-	-	-	-
	-	-	2	-	-	-	-	-	-	-	-	-	3
Ribeira da Sardinha (1)	-	1	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedra de Asma (1)	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	1	-	-	-	-	-	-	-	-	-
Sampaio (4)	-	4	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
Pousadouro (8)	6	-	2	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
Fraga Escrevida (2)	-	2	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
Foz do Tua (4)	-	-	1	-	-	-	-	-	-	-	-	1	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	2	-	-	-	-	-	-	-
Fraga do Gato (4)	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	1	-	-	-	-	-	-
	-	-	-	1	-	1	-	-	-	-	1	-	-
Mazouco (3)	2	-	1	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
Redor do Porco (1)	-	1	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
Costalta (1)	-	-	-	-	-	-	-	-	-	-	-	-	-
	1	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
Poço do Caldeirão (5)	-	-	2	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
Ocreza (1)	1	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
Porto Portel (1)	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	1	-	-	-	-	-	-	-	-	-	-
Moinhola (2)	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	1	-	-	-	-	-	-	-	-	-	-	-	1
Escoural (34)	21	7	-	-	-	-	-	-	-	-	-	1	5
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
Buraca Grande (3)	-	-	-	-	-	-	-	-	-	-	-	-	-
	1	-	-	-	-	-	-	-	-	-	-	-	2
	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale Boi (4)	-	3	1	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
Vau (6)	-	-	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	1	-
	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 1. Relation of zoomorphic motifs in the sites with Palaeolithic art in Portugal. The Côa art complex is assembled as one, except for the portable art of Fariseu and Cardina. The three-part division for each site corresponds to the main chronological phases: Gravettian/Solutrean; Magdalenian, Late Glacial (see paragraph 6).

Palaeolithic art in Portugal: portable; cave; and open-air art; both in the quantity of sites as in the scope of the research carried out and published.

In all, 83 Palaeolithic art sites are presently (late 2018) known in Portugal. Of these, 60 belong to the Côa art complex. One has portable art (Cardina), two present simultaneously portable and open-air art (Fariseu, Quinta da Barca Sul), and the remaining 57 are strictly open-air. Dispersed along the country are 14 other open-air sites, comprising just one rock or two, eight portable art sites and one decorated cave, so the total amount of sites is as follows:

Open-air art - 71
Open-air and portable art - 2
Portable art - 9
Cave art - 1.

Zoomorphic representations are found in Escoural cave, in four portable art sites outside the Côa (Foz do Medal, Vau, Buraca Grande, Vale Boi) and in all open-air sites outside the Côa. At the Côa, animal figures exist in 48 of the 57 open-air sites, plus in Fariseu (in portable and open-air), Cardina (portable only), and Quinta da Barca Sul (open-air only). There are currently 70 sites in Portugal with zoomorphic figures. Table 1 is based on my own work on the Côa and on publications of the remaining sites, with some adaptations of my own (mostly for Escoural), and with an important novelty for the open-air painted site of Fraga do Gato (Figure 4).

Figure 3. The Mazouco horse, the first Palaeolithic open-air figure to be identified in Portugal, and one of the first in the world. Notice the unfortunate recent enhancement of the trace, made by local people shortly after the announcement of the discovery (note - photograph by the author, as all other photographs in the following Figures).

2. Portable art: few sites, marked disparities

Portugal was, for long, a country with little relevance in Palaeolithic portable art, with the first reliable finding occurring only in 1983, in Caldeirão cave in central Portugal (ZILHÃO, 1988; 1997: Vol. II - 691-692). A second finding occurred in the same region in the early nineties, a schist plaque at the Buraca Grande cave, enriched some years later with a new finding of a deer antler decorated with parallel incisions and dated to approximately 13.000 BP (AUBRY and MOURA, 1993; ZILHÃO, 1997: Vol. II - 843-844). With scarcity came a poor and hard to decipher ichnography in both findings, and an unclear chronological context for the Buraca Grande plaque, although probably Magdalenian.

This uncheering panorama started to change with the Côa revelation and ensuing research. At first with the identification of a few ichnographically poor plaques in the Cardina and Quinta da Barca Sul terraces (AUBRY, 2009; AUBRY *et al.*, 2015; 2017; DIEZ and AUBRY, 2002: 175; DIEZ, 2009). The great leap forward came with the excavations of the Fariseu terrace, providing 89 specimens of portable art. Most, and including all those with significant ichnography, came from a layer dated to the end of the glacial period and early Holocene (SANTOS *et al.*, 2018). Recent and ongoing excavations in Cardina provided 39 more specimens, with a wider diachronic and stratigraphic context than Fariseu (AUBRY *et al.*, 2015: 2017).

There were novelties in other areas of Portugal, mostly connected with public works. Such was the discovery in 2002/2003 of three Late Magdalenian decorated bone fragments in the site of Palha in the karstic area of central Portugal, close to Caldeirão and Buraca

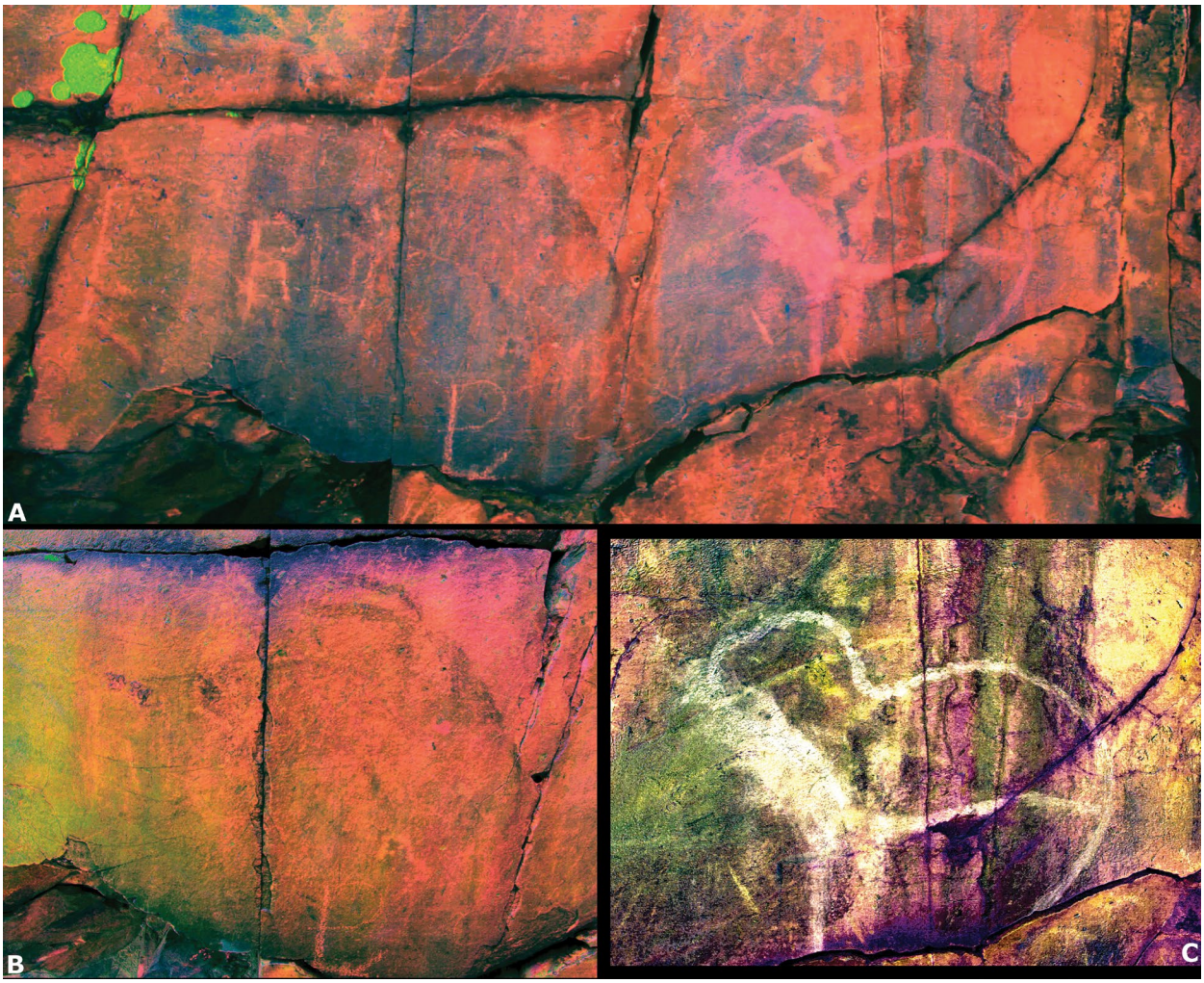

Figure 4. The open-air Palaeolithic paintings of Fraga do Gato, in images filtered by DStretch. A - general view of the painted set, with the owl, musteline and fish on the right, and the possible new caprine on the left; B - detail of the black painted caprine; C - detail of the set composed of the owl, in black and superimposed by the red painted musteline, with the possible fish over its head and chest line.

Grande, with incisions depicting abstract or unrecognizable motifs (BRAZ and GASPAR, 2003). Also, two pebbles with abstract incised figures in the southern Guadiana valley, found within the research undertaken at the construction of the immense Alqueva dam in the late 20th and early 21st centuries, in the sites of Xerez (GOMES *et al.*, 2000: 97) and Chancudo 3 (ALMEIDA *et al.*, 2013: 93-94, 218), near the decorated rocks of Moinhola and Porto Portel.

From the second decade of the 21st century date the Vale Boi findings (VALLEJO *et al.*, 2012), within a research project in the southern coast of Portugal, with two decorated plaques in Solutrean layers with well-identified figures. Another dam brought the discovery of the highly complex Magdalenian Vau plaque, in the Vouga basin in Central Portugal. Published information is scarce (cf. GAMEIRO *et al.*, 2018), but the tracing was recently made available (SANTOS, 2017: Vol. 2 – 328). The most outstanding discovery came

again from the Douro basin and near the Côa, with yet another dam, this time in the Sabor Valley. It's the site of Foz do Medal, with approximately 1500 decorated plaques fragments in different layers: Gravettian, Solutrean and, mostly, Magdalenian (FIGUEIREDO *et al.*, 2014b; 2015; 2016).

Schist was the choice material for portable art, mostly in plaques, with few pebbles (Cardina, Fariseu, Foz do Medal, Caldeirão), and including in karstic areas (Caldeirão, Buraca Grande, Vale Boi). There is limited decoration on quartzite (Fariseu, Xerez, Chancudo 3) or granite pebbles (Fariseu), and there are only two sites where scant non-lithic material was used (Palha, Buraca Grande).

There are obvious quantitative disparities between these findings, with three sites in the Côa and Sabor valleys accumulating many specimens (Cardina, Fariseu, Foz do Medal), and other sites having usually just one specimen, and only occasionally more than one (Buraca Grande, Vale Boi, Palha). The scarcity of known sites (archaeological research of Upper Palaeolithic sites having a low intensity in Portugal) may partly explain this factor, being yet soon to categorically state that campsites in the Douro basin have a larger probability to accumulate large amounts of portable art. Published information on the ichnography of known specimens is provided, with one relevant exception. All cases where the portable art is made of just one or two examples are published. Zoomorphic figures appear on plaques in three sites: Buraca Grande, Vau and Vale Boi. The Fariseu collection is presented in detail (SANTOS *et al.*, 2018). In Cardina, a few published specimens allow a first count of the zoomorphic figures (AUBRY *et al.*, 2015; 2017). The immense amount of decorated plaques in Foz do Medal is due to two factors: a high rate of fragmentation, and an extensive excavation. A summary presentation of the whole has been published and a handful of plaques individually presented, but the set is under study by Sofia Figueiredo and a general inventory is yet unavailable, hence the absence from Table 1.

3. Decorated caves: a very lonely example

Escoural cave, in a small karstic pocket amid the vast plains of southern Portugal, was the first Palaeolithic art site identified in Portugal. It connected ever since the western extremity of Iberia to the universe of European Palaeolithic art and remains even today as Europe's westernmost decorated Palaeolithic cave. With rich and temporally enlarged archaeological remains, both artistic and of different occupations, its discovery, research and preservation have a complicated history, recently summarized by António Carlos Silva (2011).

More than half a century later, it's remarkable that Escoural remains the only cave decorated with Palaeolithic art in Portugal (cave-found portable art excepted, naturally). Portugal has a mostly non-karstic geology, made predominantly of granite and schist terrains. Even so, there are two large karstic regions, both along the seaside but also penetrating deeply inland: the large central limestone strip between the cities of Setúbal and Coimbra, and the Algarve southern coast. Besides, from North to South, mostly on the interior, there are several karstic pockets, usually enough to hold small cavities like Escoural. Plenty of caves are known with remains of ancient occupations, often from the Upper Palaeolithic (cf. ZILHÃO, 1997). Speleologists explore other caves without known archaeological remains, and there are plentiful explorations made by non-specialists. It is thus clear that in the universe of known cavities there aren't any with visually exuberant paintings, otherwise they would have been spotted. The admissible exception is that such obvious remains may be in unexplored or exceptionally hard to reach areas in known caves, or are yet to be found in unknown caves. Another possibility is that decoration may exist in known caves, if made of very indistinct engravings or paintings. This should be seriously considered since, other than Escoural, few, if any, specifically art-oriented works were undertaken in Portuguese caves.

Neither the inventory nor the chronological attributions of motifs are finished

in Escoural. Two early texts provided an overall view of the decoration (GLORY *et al.*, 1965; SANTOS *et al.*, 1981). Later, research works undertaken by Marylise Lejeune lead to the first inventory of its Palaeolithic art (LEJEUNE, 1995; 1996). It was harshly criticized by Mário Varela Gomes, consequently publishing four or five animal figures not present in the inventory[2], and mentioning other unspecified absences (GOMES, 1995; 2002: 155-156). The criticism was seconded in a new study by a team from the Côa Valley Archaeological Park (GARCÍA *et al.*, 2000: 12). Here, in addition to the reinterpretation of some figures, the inventory's incomplete character was reinforced by the identification of a few new motifs (GARCÍA *et al.*, 2000: 6). These were later established as two engraved aurochs, with some signs in association with one of those (SILVA, 2011: 84-87), and also a very effaced black-painted aurochs superimposed on a red-painted horse (BAPTISTA, 2012: 9). Furthermore, came the reinterpretation of Lejeune's figure 59, called a "geometric animal", but clearly interpretable as a horse and another animal, (SANTOS *et al.*, 2015: 127), that I consider to be also a large horse's head (see Figure 2-I/J). Lejeune's inventory also doesn't relate its figures to those previously published, and since that relation is far from obvious in some cases, the doubt remains if they're all contemplated in her inventory. That's an issue mostly relevant for zoomorphic figures, with the first texts mentioning the existence of cervid and caprine, whereas the new inventory refers only horses and aurochs, not always of an evident interpretation. In particular, comparing with the 1965 traced figures (GLORY *et al.*, 1965), the engraved deer of Glory (nº 24) appears to match Lejeune's figure 71 (with photography suggesting her aurochs interpretation to be accurate); Glory's figure 13 matches Lejeune's figure 30; and figure 12, supposedly a caprine, is considered (without further analysis) as non-identifiable traces; but we don't know what happened to Glory's figure 14, supposedly a black-painted aurochs but missing from Lejeune's inventory, the same happening to Glory's figure 9, another black-painted and also engraved aurochs. As for Glory's figure 8, an engraved and black-painted caprine, it clearly matches Lejeune's figure 19 (Figure 2-C/D), interpreted as a painted aurochs, but whereas Lejeune contemplates only the painted legs and belly, Glory includes the engraved head and horns, and it remains uncertain if those engravings actually exist, and if it's caprine, aurochs, or something else. A more detailed comparison to located but non-traced figures by Glory may bring to surface other interpretational divergences. In short, a new inventory would be important, revising all known figures and comparing distinct versions, with a careful viewing of all existing walls, searching for new elements in a relatively small cave.

The chronology of Escoural's decoration is also far from solved. The first more specific study attributes it to the Aurignacian (GLORY *et al.*, 1965). Among different proposals by several authors (cf. LEJEUNE, 1995: 144; SANTOS, 2017: Vol. 1 - 200-202), Santos, Gomes and Monteiro suggested its division in two groups: the first within Leroi-Gourhan's Style II, represented mostly by the large bovine heads and a few signs; the second, represented by the smaller figures and many signs, within Style III, with the possibility of some motifs belonging to later periods (SANTOS *et al.*, 1981: 238). Later, Mário Varela Gomes considers three phases: Late Gravettian/Early Solutrean; Late Solutrean/Early Magdalenian; Middle and Late Magdalenian (GOMES, 2002: 155). Marylise Lejeune (1995: 145; 1996: 237) places the whole in the Solutrean, but not excluding a possible extension to Early Magdalenian, or the existence of some post-glacial figures. Differently, João Zilhão considers that, since Aurignacian and Solutrean are the two well-defined occupation phases in the cave, without obvious remains from other phases, the likelier is for the decoration to belong to one or

2 Four horses, an aurochs and a few signs, but the black-painted horse's head (GOMES, 1995: 151) may correspond to figure 44 of Lejeune's inventory.

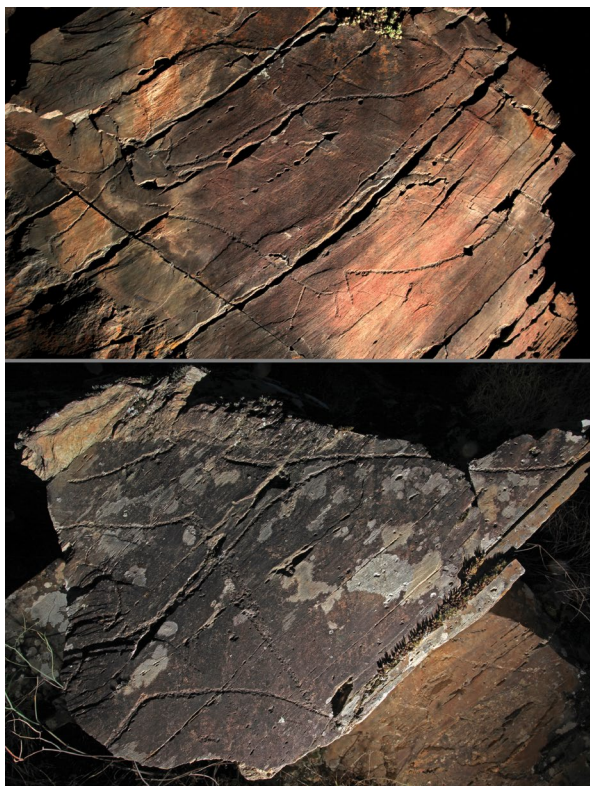

Figure 5. Engraved aurochs in the Sampaio site. A - large aurochs in panel A; B - two-headed aurochs, broken, in panel C.

both these phases, and suggesting the paintings to be Aurignacian, and maybe a few stylistically similar engravings (ZILHÃO, 1997: 101-106). Nuno Bicho, however, considers the oldest occupation phase to be Gravettian, as well as the oldest figures in the cave (BICHO *et al.*, 2007: 117).

I believe the attribution of most or the whole of the decoration to the Aurignacian is stylistically untenable. The paintings, both in black and red, are very homogeneous, namely the horse figures, numerically dominant and almost all with high "brush" mane and "duck-beak" head. The engraved figures are quite different, but also form a rather homogeneous group, with few exceptions. Based on their relative stratigraphy, Lejeune considers the oldest to be the black paintings, followed by engravings with a certain type of trace (including all the animals she inventories), followed by the red paintings, and ending with the remaining engravings with a different sort of trace (all signs) Also, in her opinion, the first three phases were performed in a relatively short time (LEJEUNE, 1995: 142-144; 1996: 229-232). Accepting this reasoning and considering the obvious stylistic similarity of the black and red paintings and their distinction to the engraved figures, we'd have a seemingly implausible evolution: a separate making of painted motifs stylistically similar but in distinct pigments, intercalated by stylistically quite different engravings.

However, comparing Escoural with Parpalló's portable art (BONILLA, 1994), namely the painted and engraved horses (the figures with the better parallels), the image is arguably not all that different from Lejeune's suggestion, albeit with an earlier beginning, and with a less rigid and more varied evolutionary scheme. The painted horses have their finer parallels in Solutrean dated figures, on occasion going back to the Gravettian. As for engraved horses, figures with striated traces on the head or neck appear mostly in Gravettian/Solutrean layers, with a few also comparable to Escoural figures in Early Magdalenian layers. There are hardly any stratigraphically well-marked parallels for the aurochs' figures, but it seems likely they're chronologically related to the rest. A future revision of the Escoural decoration should also check if the figurative superimposition sequence is as rigid and general as Lejeune suggests. If so, it would not just be surprising but also, undoubtedly, very interesting, raising some difficult issues, including the difficulty to conciliate with the Parpalló sequence.

Thus, lacking more accurate data, it appears correct to place most of the Escoural decoration in a single phase, centred on the Solutrean and ranging from the Gravettian to the Early Magdalenian. Some figures may go as far back as the Aurignacian/Early Gravettian, but it's difficult to suggest which. Some others may be chronologically more advanced, from Late Glacial times, but only one is easier to suggest

Figure 6. The main decorated panel in Pousadouro, depicting horses and cervine.

Figure 7. The large decorated panel of Fraga Escrevida. The two Palaeolithic aurochs, measuring over three metres, have broad but very faded traces, hardly noticeable below the many medieval/modern religious motifs.

for this more recent period[3], namely the aurochs corresponding to Lejeune's figure 2, stylistically close to examples in the Fariseu plaques, as in plaque 1 (BAPTISTA, 2011: 132; SANTOS *et al.*, 2018: 83). But it cannot be claimed categorically and, for now, I place it along the others. I believe that the key for understanding the evolution of Escoural's decoration lies in a better precision in the chronology of its engravings, particularly the horse figures, which have greater interpretational divergences.

4. Open air art: many points, an overwhelming centre

It is common knowledge that the open-air rock of Mazouco, at the mouth of a small affluent of the Douro, was among the first to be identified in the world (JORGE *et al.*, 1981; 1982; BAPTISTA, 2009: 194-195; SANTOS, 2017: Vol. 1 - 361-362). This was an early and small step for the implantation of open-air Palaeolithic art paradigm alongside cave art paradigm. A slow change, initially shared with the discovery of isolated rocks in France and Spain and accelerated in the early nineties with the full identification of Siega Verde and Domingo García.

With paradigm change on course, its fulfilment occurs with the discovery of the Côa rock art, with the immense controversy that accompanied it and the scientific awareness brought by the understanding of the magnitude of this complex, still growing today with new findings. Henceforward, both from new dynamics in scientific research and from an increasing attention to the adequate conditions

3 For a different opinion, see SANTOS et al., 2018: 57

Figure 8. Two-headed mixed animal in Foz do Tua rock-shelter. The body and upper head belong to a deer. The lower head was at first that of an aurochs, later transformed into a horse's.

for the existence of open-air Palaeolithic art, new discoveries happened regularly, and will probably continue, both in Portugal and Spain and, actually, in any region with apt geological conditions for the making and long-term preservation of open-air art.

Thus, at the river Sabor close to the Côa, discoveries began in 1997 with the lone aurochs of Ribeira da Sardinha, in low Sabor (TEIXEIRA and RODRIGUES, 1997; BAPTISTA, 2009: 196-197; SANTOS, 2017: Vol. 1 - 359-360), continue in 2001 with three sites in high Sabor (Figures 5, 6, 7): Fraga

Figure 9. Large aurochs in Redor do Porco. A - the whole figure, difficult to visualize due to the size, about 180 cm; B - detail of the backside and tail, with the legs stretched to the rear; C - detail of the front legs, with an extra trace that appears to be the result of a mistake by the engraver; D - detail of the head.

Escrevida, Pousadouro and Sampaio (BAPTISTA, 2009: 197-207; SANTOS, 2017: Vol. 1 - 357-359), closing in 2013 with the identification of rock 7 of Pedra de Asma (FIGUEIREDO *et al.*, 2014a: 195-197), again in low Sabor and close to Ribeira da Sardinha and Foz do Medal campsite. Meanwhile, an original rock with open-air paintings, Fraga do Gato, in a tributary of the Douro between Côa and Mazouco, and firstly identified in the eighties, only later was duly revealed to public notice (BAPTISTA, 2009: 194-195; REBANDA, 2006: 62-63; SANTOS, 2017: Vol. 1 - 362-363)[4]. Still in the Douro and not far from the Côa came the discoveries of the isolated rocks of Foz do Tua (Figure 8) in 2010 (SANCHES and TEIXEIRA, 2013; TEIXEIRA *et al.*, 2016; TEIXEIRA and SANCHES, 2017; VALDEZ-TULLETT, 2013; SANTOS, 2017: Vol. 1 - 363-364) and Redor do Porco (Figure 9) in 2011 (BAPTISTA, 2011; BAPTISTA and REIS, 2011; SANTOS, 2017: Vol. 1 - 348), the last one near the mouth of the Águeda river and almost facing the Spanish site of Arroyo de las Almas. If the discovery of Mazouco is disconnected and occasional, the ones of Fraga do Gato and in the Águeda and high Sabor are connected with the new knowledge and new paradigm brought by Mazouco and the Côa, the same happening with the low Sabor and Foz do Tua discoveries, but now in the context of major public works.

Intercalated in time with the previous, the Centre and South of Portugal witnessed new discoveries, greatly amplifying the geography of open-air art in Portugal. Some resulted from the novel consideration given by occasional passers-by to the reality of open-air Palaeolithic art, others came once again within the research brought by a major construction. So, in Central Portugal, on two distant affluents of the Tagus, in 2000 is identified the isolated horse at the Ocreza river (BAPTISTA, 2009: 208-211; GARCÊS, 2017: Vol. II - 17-19; SANTOS, 2017: Vol. 1 - 367-368), and in 2003, on the margins of the Zêzere, the neighbourly sites of Costalta and Poço do Caldeirão (BAPTISTA, 2009: 216-223; SANTOS, 2017: Vol. 1 - 365-367). In the South, also in 2000 and on the margins of the Guadiana at the construction of the Alqueva dam, were identified the isolated rocks of Moinhola and Porto Portel (BAPTISTA and SANTOS, 2013: 147-148, 149, 220-224, 226), near the larger Spanish site of Molino Manzánez.

All open-air sites beyond the Côa are published, and their zoomorphic figures can be correctly inventoried. In some cases, detailed further ahead in this text, I present small changes regarding the published works, more important in Fraga do Gato, with two new animals. As to the Côa, besides many texts by several authors, some references concern the inventory and characteristics of the Palaeolithic ichnography (BAPTISTA, 1999; 2009; BAPTISTA and GOMES, 1997; REIS, 2012; 2013; 2014; SANTOS, 2012; 2017). However, a full inventory of the Côa motifs isn't ready yet. I am now preparing such an inventory, to be published in a book to come, including also a detailed description of each site. The Côa region[5] has at this point (late 2018) 94 rock art sites (60 Palaeolithic), 1307 decorated rocks or other types of stone supports (591 Palaeolithic) and 13311 individual figures, of which 4218 are Palaeolithic, and (adding open-air and portable art) including 2176 zoomorphic representations of different sorts (Figures 10, 11, 12, 13, 14). These numbers must always be regarded as provisional, through their constant renewal by new findings and an equally constant re-evaluation of already known rocks, with addition of new figures previously unnoticed, or better observation and consequent changes in the typological and/or chronological classification of others.

4 Its public presentation was made in 1986 by its discoverer, the archaeologist Nelson Rebanda, in a congress whose proceedings were never published, so its existence went largely unnoticed (REBANDA, 2006: 62).

5 I will provide in this book a detailed definition of what can be understood as "Côa art region". For now, it suffices to say that sites are roughly restricted along the last 30 kilometres of the Côa and the adjacent 17 kilometres of the Douro.

Figure 10. Horse representations in the Côa region. A - rock 1 of Canada do Inferno, double-headed (Gravettian/Solutrean); B - rock 15 of Quinta da Barca (Gravettian/Solutrean); C - rock 147 of Foz do Côa, with open mouth (Magdalenian); D - rock 41 of Canada do Inferno, with large detail on the head, including a "tear" under the eye (Magdalenian); E - rock 103 of Foz do Côa (Late Glacial); F - rock 49 of Foz do Côa (Late Glacial).

Figure 11. Auroch representations in the Côa region. A - rock 1 of Vale de Figueira (Gravettian/Solutrean); B - rock 3 of Canada do Inferno, made with three different engraving modalities: pecking, abrasion and incision (Gravettian/Solutrean); C - rock 24 of Ribeira de Piscos, with head turned towards the observer (Magdalenian); D - rock 3 of Moinhos de Cima (Magdalenian); E - rock 6 of Vale de José Esteves (Late Glacial); F - rock 148 of Foz do Côa, with a frontal perspective of the horns, forming a circle (Late Glacial).

Figure 12. Cervine representations in the Côa region. A - rock 56 of Quinta da Barca, with open mouth and head superimposed to an aurochs head (Gravettian/Solutrean); B - rock 11 of Penascosa, a pair of deer (Gravettian/Solutrean); C - rock 69 of Foz do Côa (Magdalenian); D - rock 4 of Vale de José Esteves, doe superimposed to signs (Magdalenian); E - rock 69 of Vale do Forno, pair of long antlered deer (Late Glacial); F - rock 1 of Vermelhosa, doe's head (Late Glacial).

Figure 13. Caprine representations in the Côa region. A - rock 8 of Penascosa, with head turned towards the observer (Gravettian/Solutrean); B - rock 11 of Quinta da Barca, a trio of small pecked goats (Gravettian/Solutrean); C - rock 8 of Fariseu, a long horned and long bearded male goat (Magdalenian); D - rock 4 of Vale de José Esteves (Magdalenian); E - rock 1 of Vermelhosa (Late Glacial); F - rock 52 of Foz do Côa, with a small caprine, probably a kid, between two larger adults, within a larger representation of a herd (Late Glacial).

Figure 14. Representations of rare animals in the Côa region. A - rock 1 of Fariseu: chamois, with the characteristic hooked horn (Gravettian/Solutrean); B - rock 5 of Vale de José Esteves: fish, displayed here turned 90º clockwise (Late Glacial); C - rock 4 of Broeira: possible feline (Magdalenian); D - rock 24 of Ribeira de Piscos: possible musteline (Magdalenian); E - rock 69 of Vale do Forno: bird (Late Glacial); F - rock 11 of Vale do Forno: a strange undetermined quadruped, difficult to identify, though it could have tusks in its head (Late Glacial).

5. Geography of Portuguese Palaeolithic art: brief approach

There are still many empty areas in the distribution of Palaeolithic art in Portugal, but it's also clear the growing tendency for it, in different modalities, to begin appearing all over the country, from North to South, inland and coastland. The larger inland concentration is unsurprising, given the better preservation conditions it offers: small population density and corresponding smaller anthropic pressure, and suitable geomorphological conditions with vast areas of schist geology in the basins of major rivers, particularly fit for the making and preservation of rock art. Further open-air sites are anticipated mostly here. It's expectable the identification of more portable art in karstic and other geological areas and it's likely that more decorated caves may be discovered, when research focuses more specifically on this topic, on the two major karstic areas in central and southern Portugal, or on the several small karstic pockets over the country.

Presently, only one region has a large enough group of sites to be consistently considered as a whole: the Portuguese upper Douro basin that, as a Palaeolithic art region, obviously extends into the Spanish Duero. In Portugal it has an immense centre in the Côa, which is surrounded by isolated rocks or small clusters, in a vast area following the routes defined by the Douro's hydrographical network. Stylistically, the art of the Côa, in its enormous abundance and diversity, has parallels all over Iberia and Europe, in another clear example of the geographical extent of the artistic phenomenon of the European Palaeolithic, with its main regional connection in northern Iberia (SANTOS *et al.*, 2015: 127; SANTOS, 2017). Studies on the origins of the Côa's raw-materials demonstrated their wide dispersion (AUBRY *et al.*, 2009; 2012) along the Spanish Douro basin, but also on the Tagus basin, in central Spain and in Portugal's central karstic area. A stylistic proximity between Palaeolithic art from these regions is known, but the scarce portable art from central Portugal doesn't allow for reliable comparisons. In the midst lies the Vau site, whose characteristics, both of the style of the engraved plaque and of the excavated materials, suggest connections with the Côa region (cf. GAMEIRO *et al.*, 2018).

In the South, the main connection of Escoural, Vale Boi and the Guadiana sites is with southern Iberia, as can be seen in the stylistic proximity of Escoural with Parpalló, among other sites, or in the comparisons established for Guadiana and Vale Boi (SANTOS *et al.*, 2015: 130, VALLEJO *et al.*, 2012).

Between the Côa and the South, the Tagus basin has a more diverse reality. The Ocreza horse has strong similarities with the Piedras Blancas horse, in southern Iberia (BAPTISTA, 2009: 211). Further North in the Zêzere valley, the Costalta and Poço do Caldeirão horses are closely connected to Siega Verde in the Douro (BAPTISTA, 2009: 216), but both deer from Poço do Caldeirão have better parallels in the South (SANTOS, 2017: Vol. 1 - 366-367). Findings are yet scarce to define this region's proper identity, but comparisons suggest a broad area of influence, from the North to the South of Iberia.

This panorama fits well with Iberian geography. The northern Douro basin is related mainly to the North, the southern plains are mainly related to the South, and the intermediate region with both. Naturally, this is an excessively simple picture, in a fluid reality in the Upper Palaeolithic that must have had wider and more complex relationships between different regions than those suggested in this simple scheme.

If the Côa art region asserts itself as an immense aggregating area, with decorated sites and rocks close to one another, the geographical dispersion of Palaeolithic art is defined mostly by the small open-air sites. At the Guadiana and Tagus basins they're still insufficient. But in the Douro they allow a more comprehensive look and the placing of a few hypotheses. Of the nine different small sites around the Côa, one is Magdalenian (Fraga do Gato) and three Late Glacial (Fraga do Gato, Pedra de Asma, Foz do Tua).

We could add the Magdalenian and Late Glacial incised engravings of Arroyo de las Almas, located in Spain but geographically very close and with strong affinities to the Côa region. But Gravettian/ Solutrean engravings, always with a broad trace and large or very large dimensions, belong in seven of these sites (including Foz do Tua). It is too early to state categorically that this reflects an actual tendency for an older chronology in smaller sites, or if it is rather a distortion introduced by the much greater visibility inducing the discovery of the larger older motifs. I believe more in the second hypothesis, and that many sites, with different chronologies, implementation and visibility, are yet to be discovered in the region.

Considering the locations for these out-of-the-way motifs, they have different characteristics and it's not always easy to spot the choices behind them. The Pedra de Asma and Ribeira da Sardinha rocks are very discreet in the landscape, but quite close to campsites in the Sabor margins, namely Foz do Medal. Otherwise, within location diversity, there seems to be a deliberate choice of special places: Sampaio lies in a passage route through the Sabor; Pousadouro is a rare and imposing rock-shelter in the Sabor margin; Foz do Tua signals the mouth of an important river, furthermore enhanced with the notorious geological change from schist at the mouth to granite just a few hundred metres inland; Mazouco has a similar drastic geomorphological change, with the decorated rock at the mouth of a small stream, seeming mostly to signal the geological transition from schist (where it lies) to the granite on the opposite bank, where begins the striking and imposing International Douro deep canyon, which climbs for some 100 kilometres until disappearing in to the vast plateaux of the Spanish Meseta.

Fraga do Gato has, simply, the most spectacular implantation of a Palaeolithic rock in Portugal, in a deep and impressive quartzite canyon in Ribeira do Mosteiro, another affluent of the Douro, with the painted motifs presiding over an obvious passing point, from the deep valley to the high plateaux North of the Douro. Something similar, although less remarkable, happens in Arroyo de las Almas, the easiest access from the Douro margins to the high plateaux South of the Douro. Some of its discreet incised engravings lie at the base of large rocky cliffs, visually very appealing. Harder to understand are the choices for Fraga Escrevida and Redor do Porco, whose panels are large indeed, but insignificant in the midst of their slopes, along many other similar outcrops. Maybe to compensate, their motifs are unusually large.

Regardless of varying choices between sites, there are no seemingly functional reasons to place decoration in these sites. That is, it is unlikely they were so placed as signposts to teach passers-by they are indeed in the right course or place (in passing sites, for instance, the decision to take that path had to be taken many hours before). Decoration may rather have the purpose of enduringly marking special spaces, functional or not (routes, limits, etc.), bringing them within the symbolic humanization of landscape brought by open-air art.

6. Animals in the Palaeolithic art of Portugal

So far, Aurignacian figures are absent from Portuguese Palaeolithic art. The possibility of their existence in Escoural is mentioned, but with an obvious difficulty in their identification. At the Côa, the recent excavation of a possible Aurignacian layer in the Cardina campsite (AUBRY *et al.*, 2015: 24; 2018: 63) raises, if confirmed, the hypothesis of coeval figures being hidden among the legion of identified Palaeolithic motifs in the region, but it is too early to suggest which might they be.

Thus, Portuguese known Palaeolithic art begins at the Gravettian. Only the Côa has a clear complete sequence. After an early suggestion of the existence of two large phases: Gravettian/ Solutrean, followed by the Magdalenian, including its final stages (cf. BAPTISTA, 1999; 2009), a recent revision adapts this evolution scheme more to reality (SANTOS, 2012), dividing it in three main phases: Phase 1 corresponding to the Gravettian/Solutrean (~30.000/18.000 BP), Phase 2 to the Magdalenian, probably beginning

in Late Solutrean (~18.000/13.000 BP); Phase 3 in the final moments of the Pleistocene and in the Early Holocene (~13.000/10.000 BP), having a multitude of designations: Late Magdalenian, Azilian, Late Glacial, Style V, even Epipalaeolithic, with "Late Glacial" being used in this text.

Stylistically, differentiation between the three Côa phases is, shortly, the following: in Phase 1 animal figures are naturalistic but also much stereotyped (increasing the difficulty to distinguish evolutionary trends within the phase), with careful attention to the correct proportions but little use of small body details. Figures are generally static and not very expressive although, at this stage, animation by repetition of body parts is often used; in Phase 2, with greater variety and stylistic evolution, extremely naturalistic animal representations are the rule, with strong expressivity and intense use of body details; in Phase 3 most animal figures maintain body expressivity but lose in naturalism, frequently with incorrect proportions and a tendency to geometrize, making it more complicated to recognize the represented species. There is a greater stylistic variety, seemingly evolving towards less naturalism and greater stereotyping.

This three-phase division does not just reflect a simple stylistic evolution, but may correspond to major conceptual phases in the symbolic and ideological expression of Palaeolithic communities, manifested in the conjugation of several factors: among these, style is prominent, but also figure dimension; the degree of naturalism in representation; technical modalities; placement in certain parts of the landscape and the aptitude to be better or worse perceived in it; specific placement in certain parts of the panels; relative proportions in the quantities of different animals and their relationships with one another; connections between animal figures and other representations (human, abstract, or just random traces); connections between art and habitat locations. These and other factors evolve in not always easy to apprehend ways but, put together (and not excluding internal evolutions within each phase), they seem to separately define each of the three major periods mentioned above.

The first two phases are clearly separated by the Solutrean, and the last two at the Late Magdalenian, possibly around 13.000 BP, although the transition mode is yet unclear. Phase 3 plenitude arrives at the end of glacial times, as clearly indicated by dates of Fariseu's portable art layer, with this phase prolonging fully into the Holocene. A distinction may be made (in a change that seems to simultaneously express continuity and rupture) of a new sequential phase that may properly be called Epipalaeolithic, which possibly begins around 10.000 BP. This is represented by several figures, such as the Vale de Cabrões deer or the Faia painted aurochs (BAPTISTA, 1999: 138-139, 159).

This is a well-established phasing for the Côa and is unreservedly applicable to the remaining sites in the Douro and, probably, also to the Tagus basin. It is unclear if such a conceptual evolution is valid in the whole Portuguese territory, namely in Escoural. However, to simplify, the inventory of Table 1 is, for all sites, divided in these phases.

There are some observations concerning Table 1. In Escoural, Lejeune's inventory has 26 animals: 17 horses, seven aurochs and two undetermined. Four figures published by Mário Varela Gomes (three horses, one aurochs) must be added, and also the three aurochs revealed by the PAVC team. Regarding Lejeune's inventory, I'd rather consider figures 40 and 42 to be undetermined quadrupeds, not horses, the same with the headless figures 19 (Figure 2-C/D) and 24, interpreted as aurochs by Lejeune. I doubt if figure 47', interpreted as a horse, is not rather a doe and if there isn't a third figure in that assembly, but here I won't change the inventory. As for figures 7 and 60 (Figure 2-G/H), interpreted as aurochs, they look more like horses to me. Figure 59 corresponds, actually, to two horses (Figure 2-I/J). The most outstanding motif is Lejeune's figure 23. Originally considered a human/horse hybrid (GLORY *et al.*, 1965), but later interpreted as two connected and opposed horse's heads (GOMES, 1995: 152-153; LEJEUNE, 1995: 128; 1996: 159), I now consider the original hypothesis to be likelier, albeit uncertain, after

analysing a recent photographic image (Figure 2-A/B). In short, 34 animals: 22 horses (seven painted), seven aurochs (one painted), four undetermined (two painted), and one possible painted horse-headed therianthrope.

In other sites (and referring to the above quoted references), in Costalta, Pousadouro, Mazouco and Vau I follow the interpretations by André Santos. In Vau, the hybrid figure may be a mix of human and deer. In Foz do Tua I consider a deer and a mixed animal: deer's body and upper head, and a second lower head of another animal. This second head was at first that of an aurochs, later transformed into a horse's head. Three incised fish are also mentioned. However, looking at the presented tracing and after visiting the site, this interpretation seems almost certain in one and possible in a second, but too uncertain in the third. In the Côa, the presented numbers result from my own counting in the course of my continuous work in the region. The mixed animal is a horse on rock 11 of Canada do Inferno, transformed into a deer through the addition of antlers. The figure in rock 2 of Vale Videiro has been considered a hybrid of cervid and caprine (cf. SANTOS, 2017: Vol. I - 307; Vol. II - 206), but I simply take it as a caprine.

There are novelties in Fraga do Gato, after renewed observation using *DStretch* treated images. Already mentioned was a black-painted bird, probably a long-eared owl (*Asio otus*), superimposed by a little naturalistic red-painted mustelid. Their attribution to the Upper Palaeolithic was logical but hypothetical: clearly not historical or from the Iron Age, they decidedly do not fit Late Prehistoric Schematic art canons. They could thus be Epipalaeolithic or Palaeolithic, but the bird's naturalism, with some rare cave art parallels (cf. BAPTISTA, 2009: 227) and the possible existence of musteline on the neighbourly Côa art, besides the general style of the figures, suggest a belonging to the Upper Palaeolithic, albeit with a hard to precise chronology.

Although unmentioned in publication, it was a common voice among PAVC researchers that there could be a fish over the mustelid's head and chest. Being a large red-painted blur, DStretch treatment reinforces this hypothesis, without fully confirming it, differentiating a long oval shape where, with good will, one sees a tail and some possible fins (Figure 4-C). As such, the mustelid hypothesis is reinforced, namely as an otter (*Lutra lutra*). More important was the detection to the left of the known figures of at least another figure[6], black-painted and extremely effaced (Figure 4-B). It is, with reasonable certainty, a caprine, with two distinctive short horns exiting from a possible triangular head, from which also departs an almost straight line composing the back of the animal. It confirms the proposed Palaeolithic chronology and allows for its refinement: the caprine's style, the horn-shape and the straight back suggest a Late Glacial chronology, probably contemporary of the mustelid and fish, the first quite unnaturalistic in a typical Late Glacial manner, the second a common figure in the Côa at this final stage and previously nearly absent. As for the owl, the detail and naturalism suggest a Magdalenian chronology.

Observing Table 1, a tendency is highlighted, which is common to all of Europe, of the absolute domain of four general animal types: equine, bovine, cervine and caprine. However, if it is impossible to know exactly which equine species are represented, bovine are almost always aurochs (*Bos primigenius*), with a single possible bison at the Côa. Cervine figures correspond nearly always to the normal red deer (*Cervus elaphus*), and caprine are one of the Iberian variants of the wild European goat (*Capra pyrenaica*, or similar), usually with the characteristic "S" shaped horns. Exceptions to this tetralogy are almost confined to the Côa, excepting the possible fish in Foz do Tua and, naturally, the remarkable case of Fraga do Gato. But if the four species representation is maintained throughout the Upper Palaeolithic, their relative proportions and relations are not: the early Gravettian/ Solutrean phase sees a domain of the pair horse/ aurochs, with relative importance of caprine and

6 To my knowledge, first spotted in 2017 by Carlos Vázquez Marcos, in a visit we made to the site.

minor quantities of cervine. The Magdalenian maintains the importance of the previous pair, but now with a quantitative similar balance of the four. The Late Glacial has the largest quantitative imbalance, with immense domain of cervine, large ascendancy of caprine, relative loss of the importance of horses and the near disappearance of aurochs. In parallel, at the Côa, fish, which are rare in Palaeolithic art, assume an unusual importance, far above aurochs and not far from horses (despite the uncertainty in the identification of several of the fish figures in the Côa). The remaining odd figures are extremely rare throughout all phases, and often share an uncertain interpretation.

There is much to understand in the intricate relation of the different types of animals with each other and with other multiple factors. These include: the specific location of figures in the panels; the topographic location and relation to the surrounding landscape and nearby figures or decorated rocks; the use or not of natural features in figure design (and their large variety); the static nature of many figures compared to the movement imparted to others (which may or not be through animated repetition of body parts); isolated figures contrasting with compositions; the integration of some figures in certain types of scenes (more often representing natural animal associations); the reusing of parts of pre-existent figures to compose new ones; the perceived associations of new animal representations with older ones (sometimes parted by thousands of years); gender issues, with the deliberate affirmation of the masculine or feminine gender of many figures, and with uncertainty in so many others; the (apparent) emotional neutrality of most representations contrasting with the charged emotionality of a handful. More factors exist, since Palaeolithic art, in its seeming simplicity, actually reveals a large and surprising complexity, in many small cumulative details that, in Portugal, are particularly notorious at the Côa.

Connection with the landscape is an important aspect of open-air Palaeolithic art, also with an intricate general picture, with many questions and few answers. For instance, in small isolated sites, is there a correlation between represented animals and the geomorphological characteristics of the locations? Is it by chance that huge representations of aurochs appear on two distant rocks (Fraga Escrevida, Redor do Porco), both in the middle slope over deep large valleys, in hard to understand location choices? Is it a coincidence that the most spectacular location of a lone rock (Fraga do Gato) also corresponds to the most original open-air paintings presently known, mostly depicting unusual animals in Palaeolithic art? Or, returning to the Côa, and just as an example, it should not again be a coincidence that, on a very specific middle slope sector of the Vale de Moinhos site, only two figures are known - a Magdalenian deer and a Late Glacial doe - separated by several thousand years but on two mutually visible surfaces, even facing each other, something quite rare on the same slope. Still in the Côa, it's hardly coincidental that the main sector of the Ribeira de Piscos site gathers a considerable and very unusual number of figures (animal and human, sometimes integrated in scenes) where the marked and intentional expression of varied emotions can be guessed.

One of the most remarkable aspects of the Côa's glacial art is its maintenance and continuity throughout the long Palaeolithic time. Without any perceptible hiatus along the approximately 20,000 years it endures, several testimonies suggest the enduring knowledge by the successive Palaeolithic communities of the existence of older engravings, with their occasional incorporation in new compositions. Such examples include the relative positioning of later figures in relation with previous ones (whether in decorated surfaces or in the landscape), or the deliberate direct connection of new figures with older ones. Even considering the high number of figures in the Côa, their rate of creation can be considered low, but it was probably steady and, somehow, aware of the past, integrating it into the present in a constant renewal for the future. No general interpretation of Palaeolithic art can pass alongside this long endurance, just as it should not ignore the many small complexities that compose it.

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Revista ArkeoGazte Aldizkaria
Nº 11, pp. 47-73, year 2021
Received: 18-02-2019; Reviewed: 20-09-2020; Accepted: 25-06-2021
ISSN: 2174-856X

ZOOMORPHIC FIGURES IN THE OPEN-AIR PALAEOLITHIC ROCK ART OF SPAIN

Irudi zoomorfoak Espainiako aire zabaleko arte paleolitikoan

Las figuras zoomorfas en el arte paleolítico al aire libre de España

Carlos Vázquez Marcos (*)

Abstract

This article presents the open-air Palaeolithic figurative zoomorphic art identified in a specific geographic space in the Iberian peninsula, which is the Spanish political and administrative territory. It consists of 414 graphics units (UGs), in 7 sites or sets of sites, that were executed by different techniques and modalities of engraving, being the majority of these engravings, assigned, chronoculturally, to the Solutrean and Magdalenian periods and to the end of the Palaeolithic artistic cycle, between the second half of the Tardiglaciar and the Early Holocene, with a generic chronology, *grosso modo*, between ~20,000/18,000 and ~9,000 years ago. The main technical and morpho-stylistic characteristics of the artistic representations discussed in this article, are comparable with Palaeolithic parietal and mobile art of Côa and other important open-air sites in Portugal and Eurasia, as well as art in caves and rock-shelters, since these latter environments don`t have a discrepant dynamic to the one presented in this article. This same cultural tradition suggests the existence of extensive networks of connection, exchange and interterritorial barter between the groups that occupied these spaces, recurrently.

Key words:

Prehistory; Palaeolithic; Rock Art; Engraving; Solutrean; Magdalenian; Late Glacial.

Laburpena

Artikulu honetan, penintsulako eremu geografiko zehatz batean (Espainiako lurralde politiko eta administratiboan) identifikaturiko Paleolitoko aire zabaleko arte figuratibo zoomorfoa aurkezten da. Guztira 414 unitate grafiko (UG) dira, 7 gunetan edo gune-multzotan banatuak, eta hainbat grabatu-teknika eta grabatu-modalitateren bidez gauzatu zirenak. Grafia horietako gehienak, kronokulturalki Solutre eta Madeleine aldietan kokatzen dira eta, baita, Paleolitoko ziklo artistikoaren amaieran, Tardiglaziarraren bigarren erdiaren eta Holozeno goiztiarraren artean, grosso modo, ~20.000/18.000 eta ~9.000 urte BP artean. Hemen jorratutako irudien ezaugarri tekniko eta morfoestilistiko nagusiak, Côa zein Portugal eta Eurasiako aire zabaleko beste enklabe garrantzitsuetako horma-arteko eta arte higigarriko grafismoarekin aldera daitezke, baita kobazuloetakoekin edo aterpekoekin ere. Kultura-tradizio beraren ebidentziak iradokitzen du lurraldeen arteko konexio- eta truke-sare

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zabalak zeudela espazio horiek behin eta berriz okupatu zituzten taldeen artean.

Hitz-gakoak

Historiaurrea; Paleolitoa; Labar-artea; Grabatuak; Solutre aldia; Madeleine aldia; Tardiglaziarra.

Resumen

En este artículo se presenta el arte paleolítico figurativo zoomorfo al aire libre identificado en un concreto espacio geográfico peninsular, que es el territorio político y administrativo español. Se trata de 414 unidades gráficas (UGs), en 7 sitios o conjuntos de sitios, que fueron ejecutadas mediante diferentes técnicas y modalidades de grabado, siendo la mayoría de estas grafías asignadas cronoculturalmente a los periodos Solutrense y Magdaleniense y al final del ciclo artístico paleolítico, entre la segunda mitad del Tardiglaciar y el Holoceno temprano, con una cronología genérica, grosso modo, entre los ~20.000/18.000 y los ~9.000 años BP. Las principales características técnicas y morfoestilísticas de las representaciones aquí tratadas son comparables con el grafismo parietal y mueble paleolítico del arte del Côa y de otros importantes enclaves a la intemperie en Portugal y Eurasia, al igual que los cavernarios o abrigados, ya que estos últimos ambientes no tienen una dinámica discrepante respecto al estudiado. La evidencia de una misma tradición cultural sugiere la existencia de amplias redes de conexión, intercambio y permuta interterritorial entre los grupos que ocuparon estos espacios de forma recurrente.

Palabras Clave

Prehistoria; Paleolítico Superior; Arte rupestre; Grabados; Solutrense; Magdaleniense; Tardiglaciar.

Revista ArkeoGazte Aldizkaria
Nº 11, pp. 47-73, year 2021
ISSN: 2174-856X

ZOOMORPHIC FIGURES IN THE OPEN-AIR PALAEOLITHIC ROCK ART OF SPAIN

Irudi zoomorfoak Espainiako aire zabaleko arte paleolitikoan

Las figuras zoomorfas en el arte paleolítico al aire libre de España

Carlos Vázquez Marcos (*)

1. Introduction

In recent decades, there has been an unnoticed development in research into prehistoric societies which, in part, has led to the uncovering of new and numerous Palaeolithic figures in open-air sites, both figurative and abstract.

For the most part these discoveries have taken place in the geographical area of the Iberian peninsular, especially within the Spanish political and administrative territory (ALCOLEA and BALBÍN, 2006; BALBÍN, 2008; BUENO *et al.*, 2008; COLLADO, 2006; GARATE *et al.*, 2016; JORDÁ *et al.*, 1999; MARTÍNEZ, 2008; REIS and VÁZQUEZ, 2015, 2019; RIPOLL and MUNICIO, 1999; VÁZQUEZ and REIS, 2019), and in Portugal, studied in this volume by Mário Reis[1]. However, we cannot ignore that these graphic findings, although to a lesser extent, have also occurred in other territories of the Eurasian supercontinent (BAHN, 2015; GROTE *et al.*, 2018; SACCHI, 2008; WELKER, 2016), and outside (HUYGE *et al.*, 2011).

Open-air Palaeolithic art, also called "the art of light" (FERNÁNDEZ and BAPTISTA, 2010: 7), must be differentiated, from the perspective of the rock supporting the art and the way the sunlight shines on that support, among other aspects of the inventory in rock-shelters or caves. This difference cannot be understood the artistic figures themselves because they do not have a discrepent dynamic with other known áreas. However, they have specific characteristics due to the environment in which they were created (VÁZQUEZ, 2018). For example, a Palaeolithic sign or symbol would have significant implications on human cognition, since its sheer durability would be creating new forms of self-consciousness (KUNH, 2014: 48).

From the above we can deduce, that this graphic language, symbolic transfer and multimodal information is loaded with symbolism and structural constants that confer a certain unity but also can detect deep differences and peculiarities, in a way of expression in which the conception of the world, between the natural and the supernatural, are fused (ONTAÑÓN, 2018: 19; VÁZQUEZ and ANGULO, 2019). Moreover, this cultural tradition that expresses the modes of artistic representation and appropriation of the

1 For further information and references on the mentioned open-air Portugal sites, see text in this volume by Mário Reis.

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space, suggests the existence of wide connected networks and interterritorial exchange between the groups that recurrently occupied the Iberian peninsula (VÁZQUEZ, 2017, 2018).

It should also be noted, as a brief historical note, that this "absolute" open-air art was scientifically unknown until 1981 (BALBÍN, 2008: 18; JORGE *et al.*, 1981). Since open air art is recognized in other peninsular territories (FORTEA, 1994: 204) or extra-peninsular territories, before 1981 cannot be defined as open air art based on what has been exposed (LAMING-EMPERAIRE, 1962: 295-420). However, there are hundreds of Upper Paleolithic figures that are in the rock shelters of the Cantabrian territories (DE LA RASILLA, 2014: 108-109; GONZÁLEZ, 2000: 258-262; RIVERO and GARATE, 2013: 62-68, 70) and in the South of the Iberian peninsular (BERGMANN, 1996: 10-17) that are considered "external" engravings, illuminated by day light.

Therefore in this proposal, only the Palaeolithic figures located completely in open-air sites will be studied in addition to carrying out a brief description of the main zoomorphic themes inventoried and their essential anatomical features and values by chronocultural phases. This work will allow us to contrast this bestiary with the one that has been observed in the Portuguese territory and in other territories and environments.

This task has been carried out thanks to the methodical work of different archaeological teams and their studies, indicated in the bibliography. This has allowed us to contemplate the now leafy landscape that today shows art in the open-air, and that is no longer limited to two exceptional sites, by their amplitude and diachrony, Domingo García and Siega Verde. Besides two smaller sites, with respect to their graphic content, Piedras Blancas and Arroyo del Manzano, the author will discuss the discoveries

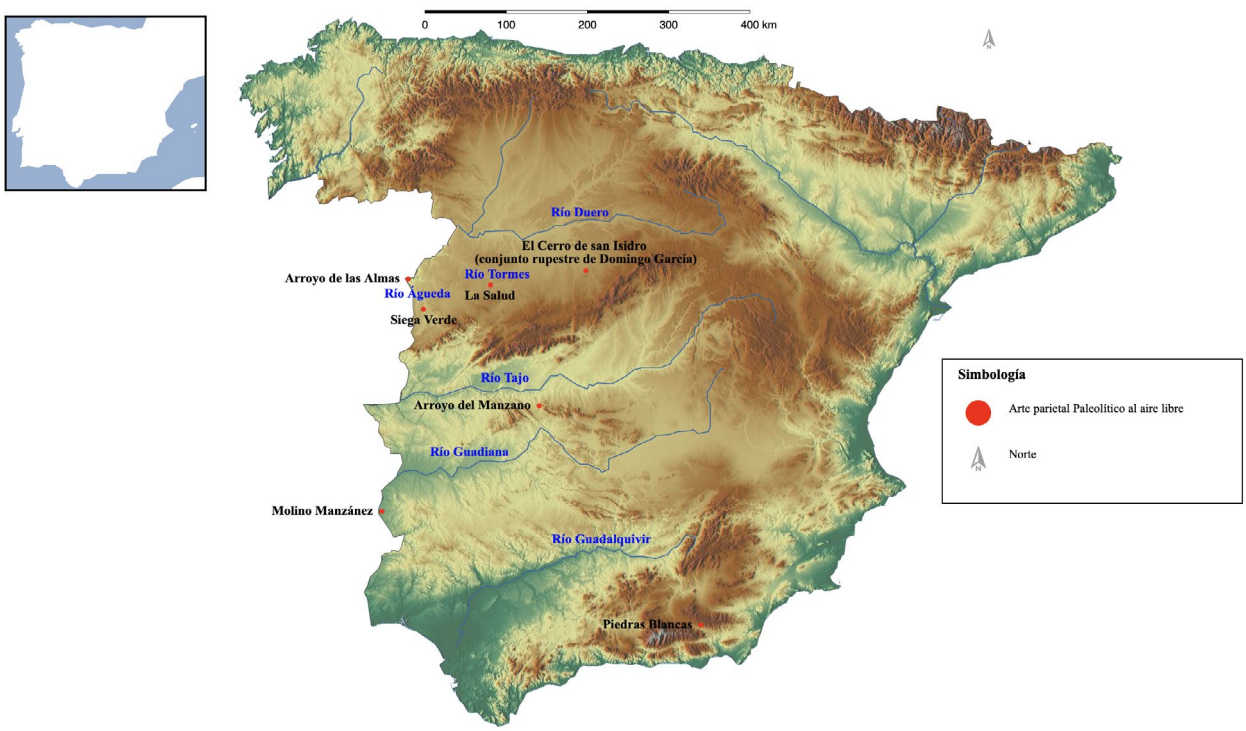

Figure 1. Map. Conjunto de Domingo García. 2. Piedras Blancas. 3. Siega Verde. 4. Arroyo del Manzano. 5. Molino Manzánez. 6. La Salud. 7. Arroyo de las Almas.

that were made in the twenty-first century in Molino Manzánez, La Salud and Arroyo de las Almas (Figure 1). The author will show both its size and its marked territorial component. This is a profuse cultural heritage conserved on slates and schists, made of 7 sites or sets of sites such as the case of Domingo García, and its zoomorphic units. These sites were made around the Solutrean cronocultural period until the end of the Palaeolithic art cycle, in the Early Holocene (VÁZQUEZ, 2018).

Finally, the growing recognition of open-air Palaeolithic art, at the same level as that of other territories, environments or supports in the Iberian peninsula (despite the reticence of some prehistorians who put ideas before reality, and not the other way around) has managed to stop the old ideas of interior depopulation and of the desolate plateau and its rims (AUBRY, 2009, 2015; ALCOLEA and BALBÍN, 2006; CACHO *et al.,* 2010; YRAVEDRA *et al.*, 2018), as well as the weak population size, with continuity since the Last Glacial Maximum (STRAUS, 2018). Demonstrating, likewise, and with solid empirical arguments, that these representations were not scarce, but that they could be the majority on parietal supports (BALBÍN, 2008: 56; BAHN, 2015: 79-91; CLOTTES, 2016: 95).

2. Sites and materials

2.1. Douro river basin

2.1.1. The Palaeolithic parietal art of Domingo García

The first graphic discovery was made at the Spanish site called san Isidro hill (Domingo García, Segovia) in 1970 (BAHN, 2015: 82), when the figure of a pecked equid, almost one meter long, was identified on rock 12 of this site (BALBÍN and MOURE, 1988: 20; RIPOLL and MUNICIO, 1999: 68-69) (Figures 1-3). However, engravings in this region of the Northern part of the Iberian Meseta (which covers an area of more than 110 km²) were first referenced in 1929 (TUÑÓN, 1929: 9-11), but it was not until the 80s that the importance of these figurative complexes became evident (BALBÍN *et al.*, 1982: 8-9; BALBÍN and MOURE, 1988: 16-24).

Figure 2. San Isidro hill (Domingo García, Segovia).

The exemplary works of prospection and archaeological documentation made by the archaeological team led by Sergio Ripoll and Luciano Municio (RIPOLL and MUNICIO, 1999; 2001) authenticated the Upper Palaeolithic sites of san Isidro hill. These included; Las Canteras (Domingo García), Dehesa de Carbonero (Carbonero el Mayor), Valdebernardos-Cañamares (Bernardos), Miguelañez (Miguelañez), Eresma river (Bernardos) and Ortigosa del Pestaño (Ortigosa del Pestaño), which will be discussed in detail.

These 7 sites comprise at least 116 engraved Palaeolithic motifs that include 87 animal forms with different subfamilies or genera (43 equids, 18 deer and 26 bovines, including aurochs, ibex and chamois), plus 29 additional figures of indeterminate categories (RIPOLL and MUNICIO, 1999: 197) of which some will not be animals.

San Isidro hill is the most complex and relevant of the sites, and harbours 57 Palaeolithic figurative engravings including 23 equids (RIPOLL and MUNICIO, 1999; VÁZQUEZ, 2014, 2017), 14 indeterminate animals, 9 cervids, 7 aurochs, 4 goats and 4 chamois (VÁZQUEZ, 2015) (Figure 4).

Figure 3. Night photography of the main equid of the Rock 12. Paula García Bustos: "La fotogrametría digital como herramienta de estudio del Arte Rupestre Paleolítico: aplicación al yacimiento de Domingo García, Segovia", TFG, directed by Dra. Olivia Rivero Vilá (USAL).

At least 19 rocks with Palaeolithic panels mainly oriented Southeast and Southwest compose this site. Chronologically, it is accepted that the stylistic and technical features in addition to the conventions presented by the Palaeolithic motifs, preferably animal forms, correspond to both the final Solutrean and the initial Magdalenian (RIPOLL and MUNICIO, 1999: 236; 2001: 195; CACHO *et al.*, 2010: 127). Based on some reiterative anatomical features and values, and also on formal homogeneity (VÁZQUEZ, 2014: 280; 2015: 852, 857; SANTOS, vol 1, 2017: 349-356), it seems coherent to propose its extension to the most recent Magdalenian (Figure 4) and the end of the Palaeolithic artistic cycle, as sustained by figure 1, rock 26.I (RIPOLL and MUNICIO, 1999: 88-89) and figure 1, rock 39.II, both on panel A (RIPOLL and MUNICIO, 1999: 107-109) (Figure 5).

Canteras is another interesting site that includes 7 rocks with 37 Palaeolithic figures in total. The main represented motifs are zoomorphic pictograms, such as the several goat protomes and other animals from the final Solutrean and initial Magdalenian periods. Together with figure 2, panel C, rock 1 that is difficult to taxonomically due to the abundance of incised lines and non-figurative motifs from the end of the Palaeolithic artistic cycle.

Dehesa de Carbonero has 9 rocks with at least 16 Palaeolithic zoomorphic Solutrean and Magdalenian representations, among which equids are the most ubiquitous with 11 unequivocal figures made by incision (RIPOLL and MUNICIO, 1999: 175-196). It should also be noted that 2 of the 9 rocks do not have figurative

Figure 4. Domingo García. Rock 15, Caprid. Photograph: Javier Angulo Cuesta and Carlos Vázquez Marcos.

Figure 5. Domingo García. Rock 26.I., quadruped indeterminate. Photograph: Olivia Rivero Vilá.

artistic forms although the end of the Palaeolithic artistic cycle is also represented in this figurative complex (e.g. figure 1, panel B, rock 6).

In Miguelañez only 2 zoomorphic Palaeolithic figures are known, both carried out by incision modality. These consist of an indeterminate quadruped and a deer, looking to the right and left respectively. None of them are complete.

Valdebernardos-Cañamares has 2 rocks with Palaeolithic figures, one with 2 zoomorphic figures and another with multiple incised lines (RIPOLL and MUNICIO, 1999: 165-168). The indexed animals are from either the final Solutrean or Magdalenian, and correspond to the protome of an equid without a mane and to a goat with long curvilinear horns. In both cases the animals were engraved by incision.

In Eresma river 2 additional rocks are known, one on the right bank with multiple lines made by incision as well as an acephalous quadruped, and another rock is on the left bank. This last one includes the same motifs and a possible incised equid without distinctive anatomical details.

Finally, it should be noted that in Ortigosa no clear figurative graphism has been published, although panel C has a large number of incised strokes in almost all directions and orientations, that could be representing the back quarter of an animal figure on the right side (RIPOLL and MUNICIO, 1999: 161).

2.1.2. Siega Verde

Siega Verde is located in a territory shared by the district of Serranillo (Villar de la Yegua), which hosts eighty percent of the site, the district of Martillán (Villar de Argañán) and the municipality of Castillejo de Martín Viejo, in the shire of Ciudad Rodrigo (Salamanca) (Figures 1 and 6). This settlement is located near the border of Portugal at the end of the province and in the middle-low course of the river Águeda, around the Unión bridge, is surrounded by thousands of slates with apt planes of schistosity on which the figures were engraved.

The site was discovered on October 17th, 1988, by the archaeologist Manuel Santonja (BALBÍN *et al.*, 1991; VÁZQUEZ, 2018: 63; VÁZQUEZ and ANGULO, 2019). Later, the team led

Figure 6. Siega Verde.

by Rodrigo de Balbín Berhmann from the Spanish University of Alcalá took almost two decades of methodical work and brought to light the immense Palaeolithic legacy preserved in this site (ALCOLEA and BALBÍN, 2003, 2006, 2008; BALBIN *et al.*, 1991; BALBÍN and ALCOLEA, 1994, 2006, 2014; BUENO *et al.*, 2008).

The inclusion of Siega Verde in the list of Unesco World Heritage sites, as an extension of the sites with rock art that make up the Portuguese Côa valley, happened on the 34th Meeting held in Brasilia (Brazil) between the days of July 25th and August 3rd in 2010 (BURÓN and DEL VAL, 2013: 101; FERNANDEZ and BURÓN, 2011) and came to ratify its undeniable relevance. Also its significance has been recently recognized by the distinction "European Rock Heritage" of the Cultural Itinerary of the Council of Europe, in March 2018 (FERNANDES and VÁZQUEZ, 2018: 28-31).

Noticeably, most of the 91 published panels are not far from the riverbed, but we cannot forget that, same as in the Palaeolithic art of Côa and other open-air sites as in Domingo García or Piedras Blancas, some have been located to a distance that exceeds 40 meters of the current water line (SACCHI, 2008). In addition, practically within a kilometer all the engraved panels are located along the West river bank. The archaeological zone is divided into three areas for better understanding (ALCOLEA and BALBÍN, 2006: 62-63) and reaches 44.5 hectares in size. All the engravings are placed below 600 meters above sea level. Also, to the overwhelming predominance of metamorphic rocks, its geomorphological environment emphasizes its position in one of the last accessible fords of Águeda river before it reaches the Duero river. Its special position in a transitional territory could be considered as a natural pathway between the Ciudad Rodrigo pit, the peneplain and the Duero basin, used as a preferential biological communication route in the Iberian peninsula (VÁZQUEZ, 2018).

The total number of figures documented in Siega Verde is 443 (ALCOLEA and BALBÍN, 2006: 229). Of these, 241 correspond to animals, 165 are non-figurative subjects or signs, 3 are anthropomorphic representations, and the remaining are indeterminable figurative images (BALBÍN and ALCOLEA, 2014: 602). Besides, additional figures designated "V-style" (BUENO *et al.*, 2008; BUENO and BALBÍN, 2016) reach at least 25 graphic elements that belong to the final cycle of Palaeolithic art, between the end of the Pleistocene and the Early Holocene (VÁZQUEZ, 2018: 72-78, 2019). New unpublished elements include aurochs, an equid and cervids. All these engravings were made by different techniques and modalities, and are grouped in panels, mostly vertical and less frequently horizontal, that are distributed into 29 sets (ALCOLEA and BALBÍN, 2006: 331-333).

The most represented animal species include 125 equid figures in total (Figures 7 and 11); one of them recently discovered by the author, followed by 42 aurochs figures (Figure 8), and with 16 figures of hind, deer (Figures 7 and 9) and goats (Figure 10) (ALCOLEA and BALBÍN, 2006: 238-242).

These animals are not the only catalogued, as several others have been recognized, including megaceros, bears, bison, reindeer, felines, rhinoceroses and a canid (ALCOLEA and BALBÍN, 2006: 182; LOMBO, 2018: 48) (Tables). Some of these figures are controversial due to conservation difficulties. In the case of the bison and rhinos the main features essential for their recognition can be confused with the natural forms of the rock (CORCHÓN, 2006: 127). Others, such as reindeer, are incontrovertible (Figure 11).

On the proposed chronological attribution for the set of engravings of the site, according to the team of archaeologists directed by Rodrigo de Balbín Berhmann, the initial figures could be Solutrean or style II-III of Leroi-Gourhan (ALCOLEA and BALBÍN, 2006: 68; LEROI-GOURHAN, 1971). The figures in this first phase are scarce and take place in panel 4 (Figure 8), 15 or 21. They are formally, thematically and technically related with the most archaic phase of the Palaeolithic art of Côa valley, and with

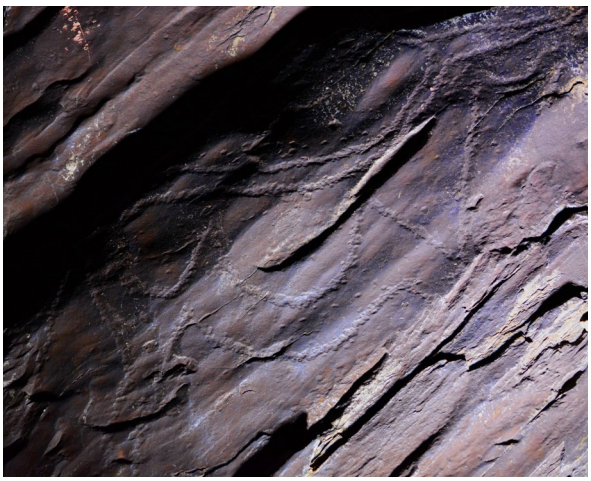

Figure 7. Siega Verde. Panel 46. Equids and Hind.

Figure 8. Siega Verde. Panel 4. Aurochs. Photograph: Mário Reis and Carlos Vázquez Marcos.

Figure 9. Siega Verde. Panel 23. Deer. Photograph: Mário Reis and Carlos Vázquez Marcos.

Figure 10. Siega Verde. Panel 53. Goat. Photograph: Mário Reis and Carlos Vázquez Marcos.

Figure 11. Siega Verde. Panel 67. Equid and Reindeer. Photograph: Javier Angulo Cuesta and Carlos Vázquez Marcos.

other cave sites of the interior of the Iberian peninsula with pre-Magdalenian art, such as Los Casares (Riba de Saelices, Guadalajara), La Griega (Pedraza, Segovia), La Hoz (Santa Maria del Espino, Guadalajara) or El Reno (Valdesotos, Guadalajara) (ALCOLEA and BALBÍN, 2006: 320; ANGULO and MORENO, 2010; BAPTISTA, 2009: 139; CORCHÓN *et al.*, 2012; HERNANDO, 2014: 408-410; RIVERO, 2010: 87-93; SANTOS, vol 1, 2017: 336-348; VÁZQUEZ, 2018).

The highest graphical density is produced later, between the end of the Solutrean and Lower Magdalenian periods, as Leroi-Gourhan advanced style III and old style IV, that corresponds to a chronology between ~18,000 and ~15,000/14,000 years BP (ALCOLEA and BALBÍN, 2006: 315-319) (Figure 9).

The absence of direct numerical information and the inability to relate the human occupation with the inventoried parietal art, do not allow a more precise chronological assessment (CACHO *et al.*, 2010). Despite this, both repetitive anatomical traits and values of formal and stylistic homogeneity proposes that the creation of the vast graphical content was carried out in the Upper Magdalenian, between 14,500 and 11,500 years BP (17,700-13,300 cal BP), as the majority of the figurative evidence was located in the Central and Northern area of the site (VÁZQUEZ, 2017, 2018) (Figures 7 and 10).

Lastly a final phase can be identified mainly in panels 5, 8, 15, 48, 92 and 96, that is characterized by a deliberate artistic and functional change known as: the last glacial period

or style V (BUENO *et al.*, 2008), final Magdalenian/ Azilian (CORCHÓN *et al.*, 1996, 2006), Azilian (AUBRY *et al.*, 2017; SANTOS *et al.*, 2018), final Magdalenian/Epimagdalenian (MARTÍNEZ *et al.*, 2003; VILLAVERDE, 2015, 2018), final Palaeolithic (RIVERO and RUIZ, 2018; VIÑAS *et al.*, 2012) or post-Magdalenian (GUY, 1993). This moment emerges from the Magdalenian cultures, with no chronological interruption, that continues to the naturalistic artistic horizon of the initial Epipalaeolithic or microlaminar culture (GARCÊS, 2017). Marked technical and stylistic differences appear, specifically regarding the positioning in the landscape, the rocks and the proceeding motifs (VÁZQUEZ, 2018, 2019).

The equids mainly recorded in the previous phases lose their numerical privilege. In the last stage the dominant forms are deer, goats and fish-like forms that appear represented for the first time in the periphery of the panels, as in panel 48 of Siega Verde (Figure 12).

The enigmatic disappearance of the aurochs, previously the most represented bovine, must also be emphasized. As for the engraving technique used, the exclusive predominance of the incision should also be highlighted in several of its possible modalities; preferably simple, in unique and repeated strokes.

2.1.3. La Salud

The Palaeolithic open-air site named La Salud (Tejares, Salamanca) was discovered in 2013, although it was not published until 2016 (GARATE *et al.*, 2016: 16) (Figure 1). The work developed by its discoverers, Hernández Morán and Pantriego Pares, and other specialists who joined them later, revealed 4 figurative representations in different areas of the river Tormes valley (Figure 13). According to the authors of the principal study, two of them are depicted as incomplete equids, (this is most likely believed to be intentional) another is a partial cervical and dorsal line and the remaining is likely a goat (GARATE *et al.*, 2016: 22-25). In addition, other non-figurative motifs and isolated traces had been executed with the two dominant techniques. As shown in the tables, we consider it appropriate to propose that one of the equids initially described (GARATE *et al.*, 2016: 20) should be better designated as an indeterminate zoomorph. The cervico-dorsal line of the animal, with absence of mane, does not allow us to support the original hypothesis and could represent another different type of animal (SANTOS, vol 1, 2017: 364-365). Likewise, the figure categorized as a goat should also be designated as an indeterminate animal, since we have not found any anatomical feature to affirm an assignment.

Figure 12. Siega Verde. Panel 48. Goat and Hind. Photograph: Mário Reis and Carlos Vázquez Marcos.

Figure 13. La Salud. Equid (Photograph: Olivia Rivero Vilá).

Figure 14. Arroyo de las Almas and the Douro river. Photograph: Mário Reis.

This site is located more than 750 meters above sea level, in an environment dominated by schistose substrate, as some of the other addressed sites. Similarities between the sites go beyond the geomorphological characteristics, since the stylistic conventions shared between Tormes valley, Siega Verde and Côa valley originate in a transitional moment between Solutrean and Magdalenian periods, also known as Phase II. This period has been well-characterized in the main Palaeolithic art sites in the Meseta both on cave walls and in the open-air (ALCOLEA and BALBÍN, 2006).

Although not published yet, Olivia Rivero Vilá and Julián Bécares, professors of the University of Salamanca, have recently discovered a new equid that would match the indicated chronology.

2.1.4. Arroyo de las Almas

The rock art group of Arroyo de las Almas is located in the municipality of La Fregeneda (Salamanca), on the right bank of the stream (where the name of the site comes from) and in several of its small and adjacent streams. The site is located in a protected natural space between the rivers Águeda, Yeltes, Huebra and Duero (Figures 1 and 14). The Arroyo de las Almas is a small tributary of the Águeda, flowing into it one kilometer up from the mouth of the Águeda into the Duero. A total of 24 rocks with art and more than 600 engravings have been located since september 2015 by Mário Reis and the author of this article (REIS and VÁZQUEZ, 2015, 2019). 5 of these discovered rocks have Paleolithic engravings, with at least 21 motifs. Among them, 13 represent animals and 7 signs, as well as an indeterminable animal. Also a group of engravings that depict lines and sets of apparently unconnected strokes has also been cataloged (VÁZQUEZ and REIS, 2019). Animal depictions include 3 deer (Figure 15), 3 hinds, 2 goats, 4 equids and 1 indeterminate form. From a morphological approach, taking into account both formal and stylistic features, we can propose the relative chronology of the context to be placed at the end of the palaeolithic artistic cycle.

Figure 15. Arroyo de las Almas. Deer. Photograph: Mário Reis and Carlos Vázquez Marcos.

The numerous figurative conventions observed include the: "Y-shaped" extremities, the use of the multiple strokes for filling the body and the extremities, anatomical details (hock, orbital basins, horns, ears, extremities), subnaturalism and geometrization of the animals. It should also be pointed out that at least 4 of these animals that have been represented are incomplete, some of them being headless. On the other hand, other documented figures are reduced to the protome of the animal, a fact repeatedly observed in Domingo García, Siega Verde, Molino Manzánez and also in the Côa.

Incision was the technique used to engrave all figures. In fact this technical modality is the preferred method in peninsular Palaeolithic art, regardless of the rock and environment. However, contour pecking or abrasion may have a very relevant role in certain places. Regarding the chronocultural attribution, two different phases can be assigned. Phase I of the site would correspond to the ancient and recent Magdalenian, with a generic chronology between 17000 and 13000/12000 BP. Phase II begins during the end of the Late Glacial Stage as it transitions to the early Holocene, with a

chronology between 13000/12000 and 9000 BP. Perhaps, the deer located in nucleus I and several of the equids of panel 7, rock 1, nucleus IV could correspond to an initial transitional moment between Solutrean and Magdalenian periods if we consider some parallels on parietal and portable art in the nearest archaeological context (SANTOS *et al.*, 2018).

Taking into account the geographical situation in the Northern Meseta, its formal characteristics, type of support, chronology, environment and conservation status, this allows the Las Almas site to be not only one of the most relevant palaeolithic art sites in the province of Salamanca, (together with Siega Verde) but also one of the most noteworthy in all Castilla-León.

2.2. Andarax river basin

2.2.1. Piedras Blancas

The Palaeolithic art site of Piedras Blancas (Las Tres Villas, Escúllar, Almería) was discovered on may 21, 1987 (MARTÍNEZ, 2010: 42) (Figure 1). It is located more than 1,400 meters above sea level in Sierra de los Filambres. The main and most complete figure of the site is a Palaeolithic

Figure 16. Piedras Blancas. Equid. Photograph: Julián Martínez.

equid represented on a slightly inclined slate rock (Figure 16). The main technique used was pecking though there was wide and deep or abraded traces after pecking, however, the scraping technique can also be observed in the fronto-nasal line. This 74 cm long equid in absolute profile looking Eastward, and was made in an inclined position. Its main anatomical features include the tail that stands out as a continuity of the cervico-dorsal line, the unfinished duplicated extremities, a round body and a double lined belly. This peculiar belly and extremities simulate the animation of the animal. Some of its essential and reiterative features are comparable to the dominant equids of the oldest phase of Palaeolithic art in Côa (REIS, 2014; SANTOS, vol 1, 2017: 203) or in Ocreza (BAPTISTA, 2009: 210-211; GARCÊS and NASH, 2017: 75) and also with other zoomorphs in caves or in the portable art of pre-Magdalenian chronologies (MARTÍNEZ, 2008: 240-241; 2010: 43; VILLAVERDE, 2015: 151).

These chronocultural proposals, based on style, have been ratified by homogeneity studies, and some of these zoomorphs may even refer to pre-Solutrean times (CORTÉS *et al.*, 2015: 142).

In 2005, Rodrigo de Balbín, Primitiva Bueno and other researchers found 3 new zoomorphic figures (BALBÍN, 2008: 25-27) that included an indeterminate animal and two incomplete equids (personal communication from Jesús Gallego). What is noteworthy is the technical and chronocultural diversity of these zoomorphs created both by incision and by pecking of contours (BALBÍN, 2008: 27).

2. 3. Tajo river basin

2. 3.1. Arroyo del Manzano

At the Western end of the Montes de Toledo (La Jara region, La Nava de Ricomalillo, Toledo), on the Southern slopes of the Tajo basin, an interesting and dense set of prehistoric engravings and paintings were documented in the 90s (JORDÁ *et al.*, 1999) (Figure 1). The most relevant rock and panel appears in a small slate outcrop located on the right bank of El Manzano brook, a tributary to the La Parrilla stream and secondary tributary to the Huso river, which also flows into the Tagus at the height of the Azután reservoir (JORDÁ *et al.*, 1999: 282-285). To date, an upper Palaeolithic zoomorphic figure consisting of a chamois protome has been published (Figure 17) (JORDÁ *et al.*, 1999: 286-287).

This small engraved animal directs its head to the left and was engraved by a thin incised stroke, on a small panel oriented Southeast. It retains a triangular head, jaw, ears and horn depicted by two converging lines. However, it is difficult to see the typical hook shape of this zoomorph. When compared with other chamois in Côa (Fariseu, Penascosa, Quinta da Barca, Vale de José Esteves) and Domingo García (RIPOLL and MUNICIO, 1999: 135 -138, 142; BAPTISTA, 2009), or with similar engravings in Cantabrian caves (HERNANDO, 2014: 398) we observe the irrefutable technical and conventional parallels that reaffirm the proposal that it belongs to the late Magdalenian.

Figure 17. Arroyo del Manzano. Chamois. Photograph: Jesús F. Jordá Pardo.

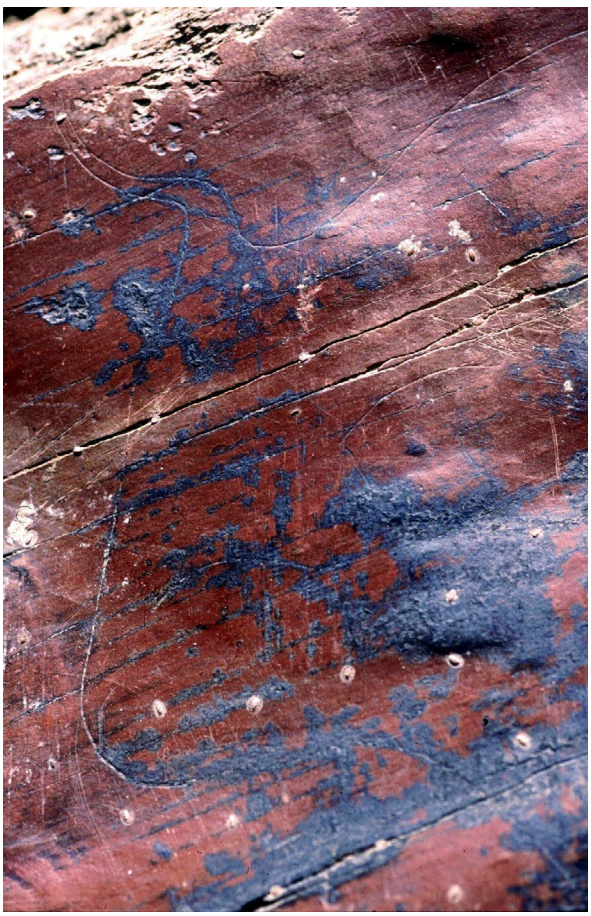

Figure 18. Molino Manzánez. Aurochs. Photograph: Hipólito Collado Giraldo.

2.4. Guadiana river basin

2.4.1 Molino Manzánez

The Palaeolithic art documented in the Guadiana river basin, as it passes through the Spanish territory, is located on the left bank of this river. Most of this rock art complex belongs to Molino Manzánez (Alconchel, Badajoz) and a smaller part to Molino da Volta (Cheles, Badajoz) (COLLADO, 2006: 47) (Figure 1).

This site with open-air engravings was scientifically unveiled after the first prospective tasks started in 2000 and with valuable information provided by natives and archaeology enthusiasts (COLLADO, 2006: 4). The subsequent works developed by Hipólito Collado and his team, throughout 2001 and 2002, brought to light 570 panels and almost 5000 figures (COLLADO *et al.*, 2006: 148), althought the popular motifs that were submerged since february 2002 when the Alqueva dam closed its floodgates. The monographs produced by this scientific team (COLLADO, 2008) are our main source of information.

At least 19 engraved Upper Palaeolithic zoomorphic figures were identified on slate rocks oriented horizontally or sub-horizontally (COLLADO, 2006: 247), with an extensive proposed temporal sequence (COLLADO and GARCÍA, 2010: 1175). A first phase from the end of Solutrean and Lower Magdalenian is limited to 2 deer (COLLADO *et al.*, 2006: 150) and a wide set of non-figurative imagery throughout the site. A second figurative Phase, from the recent Magdalenian, includes 5 horses, 6 deer, 3 aurochs (Figure 18) and 3 indeterminate animals (Tables).

However, there is an attractive and dissenting debate centered on this chronocultural proposal (BAPTISTA and SANTOS, 2013: 235-253), as it can be discussed whether the initial stage would be more recent and that the site would therefore not have such a wide diachrony. In addition, the discussion would also affect the second chronocultural period and its content (COLLADO *et al.*, 2006: 166) since some of these animals (the same as in Domingo García, Siega Verde, Arroyo de las Almas or in the art of the Côa) should be chronocologically placed between the second half of the Late Glacial and the Early Holocene, mainly defined as Phase IV.

3. Analysis and conclusions

In the distribution of these 7 sites and sets of Palaeolithic parietal sites in the open-air, we do not observe a pattern of territorial continuity such as in the Côa Valley. In reality, what is perceived is the existence of diverse geographic spaces where there is a high figurative concentration, as opposed

to others with few representations and which, despite their thematic, technical, chronological or geographical location and meanings, allow us to establish a series of common characteristics that refer to wide interterritorial contact networks (VÁZQUEZ, 2017, 2018).

This justifies that we have carried out a common analysis on Palaeolithic art in the open, as it is usually carried out with Palaeolithic cave art (VILLAVERDE, 2018: 66). Both open air art and cave art do not have a discrepant dynamic in areas such as the Iberian peninsula's interior and its edges, and the Southern basin of the river Duero's axis, among other "regions".

With respect to chronocultural, thematic and technical aspects, relevant similarities are observed between Siega Verde and Domingo García, such as zoomorphic representations and a degree of thematic diversity. At the beginning, they were assigned to the premagdalenian period prior to ~18,000 years BP. Comparing with other sites and their animal figures there are recurrent features, some are more homogeneous and synchronous like Arroyo del Manzano or La Salud, or feature a shorter occupation, such as Molino Manzánez, Arroyo de las Almas or Piedras Blancas.

However, it is in Siega Verde, the La Salud site and Piedras Blancas where the first phase would have as its main characteristics the monumentality, (with animals around a metre of maximum length) the area of influence given by the Palaeolithic artists to these zoomorphs on the panel, the abrasion or engraving in a wide and deep stroke together with the pecking of contours as the only techniques used in their creation (Figures 8 and 16). Also the prevalence of contours and the "art of silhouette" (PIGEAUD, 2005: 10); on quantifiable details and anatomical values of later stages (VÁZQUEZ, 2014, 2015, 2017, 2018), the incomplete extremities, the "illusionist art" (BAPTISTA, 2012: 326), also called "animated graphism by decomposition" (LUIS, 2012: 74). This specific feature would have been inventoried in La Salud, although this could be ascribed to the Magdalenian as this happens with the art of the Côa. The figures belonging to this pre-Magdalenian phase would be meagre and would only correspond to equids and aurochs (Tables).

With regard to the subject matter, these two animals are the most abundant in open-air Palaeolithic art, together with the cervids, habitual in the intermediate and final phases.

The first ones, equids, have been engraved in 6 of the 7 sites or sets of sites. They are the zoomorphic graphic symbol par excellence, as happens in Eurasian Palaeolithic art, although not in the Cantabrian territory (GALVEZ, 2016: 55; VÁZQUEZ, 2017, 2018), with 185 open-air figures; almost 45% of the animals inventoried. The deers, hind and aurochs are somewhat more frequent in the older phases.

It is in Siega Verde and Domingo García (decorated in different chronocultural time periods) that their presence becomes common. These animals are linked to the environmental transformations and migratory behaviors. It is true that this reflection is sustained only by the number of figures and should therefore be completed with a comparison of the skeletal remains of these animals (GABRIEL and BEÁREZ, 2009: 332). To date this fact is impossible to corroborate due to the inexistence of projects that work on archaeological remains as well as settlements, even though they may have disappeared due to post-depositional alterations (CACHO *et al.*, 2010).

In Phase II we observed the coexistence between contour pecking and incision; although the first is the dominant technique in some enclaves such as Siega Verde, El Cerro de San Isidro or La Salud (Figures 3, 9 and 13). On those sides vertical panels dominate the assemblage (Figure 11) and there is a wide zoomorphic diversity in which the equids dominate but also with a numerous presence of aurochs and cervids (Figure 14) and to a lesser extent, of goats and other species of ungulates (Tables). In addition, there are some formal features such as: elongated and disproportionate heads (the dimensions of

SITES	ZOOMORPHIC FIGURES
Domingo García (1981)	116
Piedras Blancas (1986)	4
Siega Verde (1988)	258
Arroyo del Manzano (1999)	1
Molino Mánzánez (2000)	19
La Salud (2013)	3
Arroyo de las Almas (2015)	13

Site	Equids	Aurochsen	Deers and Hinds	Caprids	Indeterminate	Other Bovids	Other cervids	Reindeers	Canids	Fishes	Bears	Total
Domingo García	43 (8)	9 (3)	18 (8)	15 (3)	29 (15)	2	0	0	0	0	0	116
Piedras Blancas	4	0	0	0	0	0	0	0	0	0	0	4
Siega Verde	125 (11)	42 (7)	28 (4)	16 (3)	32	4	3	3 (1)	1	2	2 (1)	258
Arroyo del Manzano	0	0	0	1 (1)	0	0	0	0	0	0	0	1
Molino Manzánez	5	3	8	0	3	0	0	0	0	0	0	19
La Salud	1	0	0	0	2	0	0	0	0	0	0	3
Arroyo de las Almas	4	0	6	2 (1)	1	0	0	0	0	0	0	13
Total	**182**	**54**	**60**	**34**	**67**	**6**	**3**	**3**	**1**	**2**	**2**	**414**

Table 1. Sites, and the year of the discovery, and zoomorphic figures in the open-air Palaeolithic rock art of Spain.

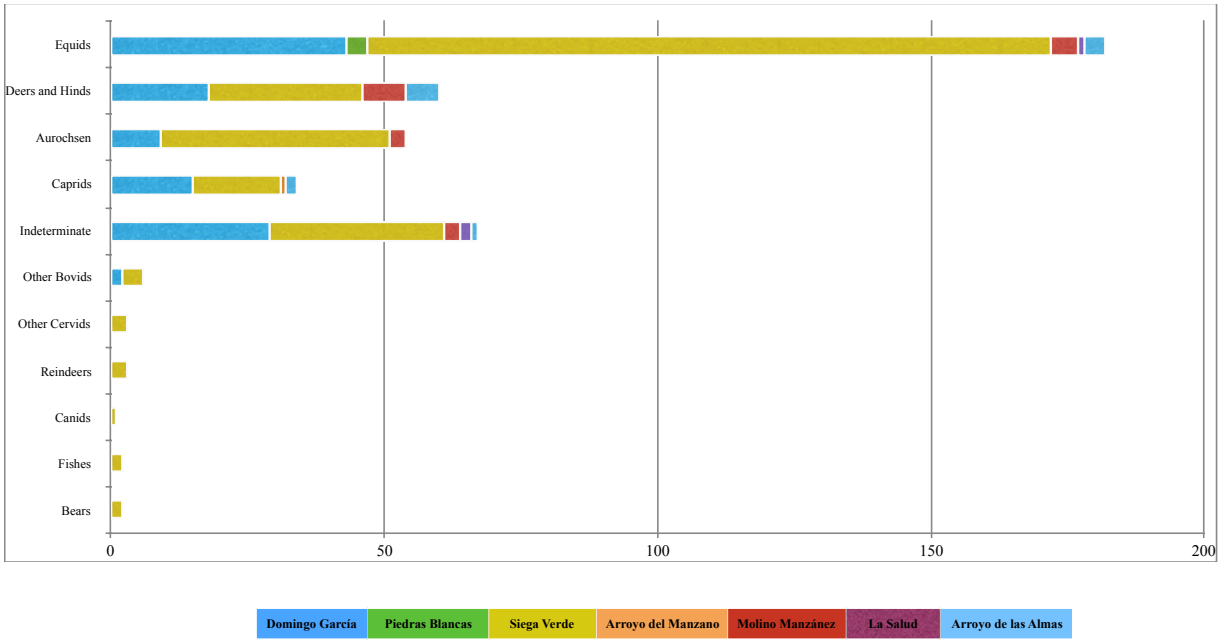

Table 2. Sites and zoomorphic figures in the open-air Palaeolithic rock art of Spain.

which continue to exceed, on occasion, 70 cm of maximum length), the predominance of the absolute profile, the concave or straight cervico-dorsal lines, the convex bellies or engraved anatomical features that are nevertheless more frequent than the previous phase like the hoofs or the branched horn representations (Figure 9). These features would be represented between the end of the Solutrean and Lower Magdalenian, between ~18,000 and ~15,000/14,500 years BP.

The main characteristics of phase III; exclusively Magdalenian (between 15,000/14,500 and 11,500 years BP), are the incision being the dominant technique although not the only one utilized, as pecking would also have been used but to a lesser extent, the increase in cervids, the general decrease in the size of the representations, the ventral shape «in M» among the Siega Verde equids (VÁZQUEZ, 2017) (Figure 8), the greater "animation", the changes in the dominant perspectives or the more generalized use of natural features of the rock and pre-existing forms (although they had already been previously detected) (FERNANDES *et al.*, 2017), as well as complete anterior or posterior extremities (Figure 4), tails finalized as a continuation of the cervico-dorsal line or anatomical details that in the preceding phases had been rarely quantified as hock, helmet, collar, hooves, eyes, double chin or mouths (Figures 4, 10, 17 and 18).

The last phase was developed between the second half of the Tardiglaciar and the early Holocene, from Interestadial GI 1 (Greenland Interstadial 1) to OIS 1, after passing through glacial phase GS 1 (Greenland Stadial 1), between ~12,000 and ~9,000 years BP (14,000-10,500 cal BP) (JÖRIS and ÁLVAREZ, 2002: 314-315). This information has been corroborated both by indirect and stratigraphic numerical data, as well as by the direct data offered by the 5 samples of various representations that dated between 11,470 ± 110 and 10,950 ± 100 years BP, from the Palomera Cave paintings (Ojo Guareña, Burgos) (CORCHÓN *et al.*, 1996: 42-46) or by the dates of Cova Eirós (Triacastela, Lugo) (STEELMAN *et al.*, 2017: 160-161), amongst others (SANTOS *et al.*, 2018).

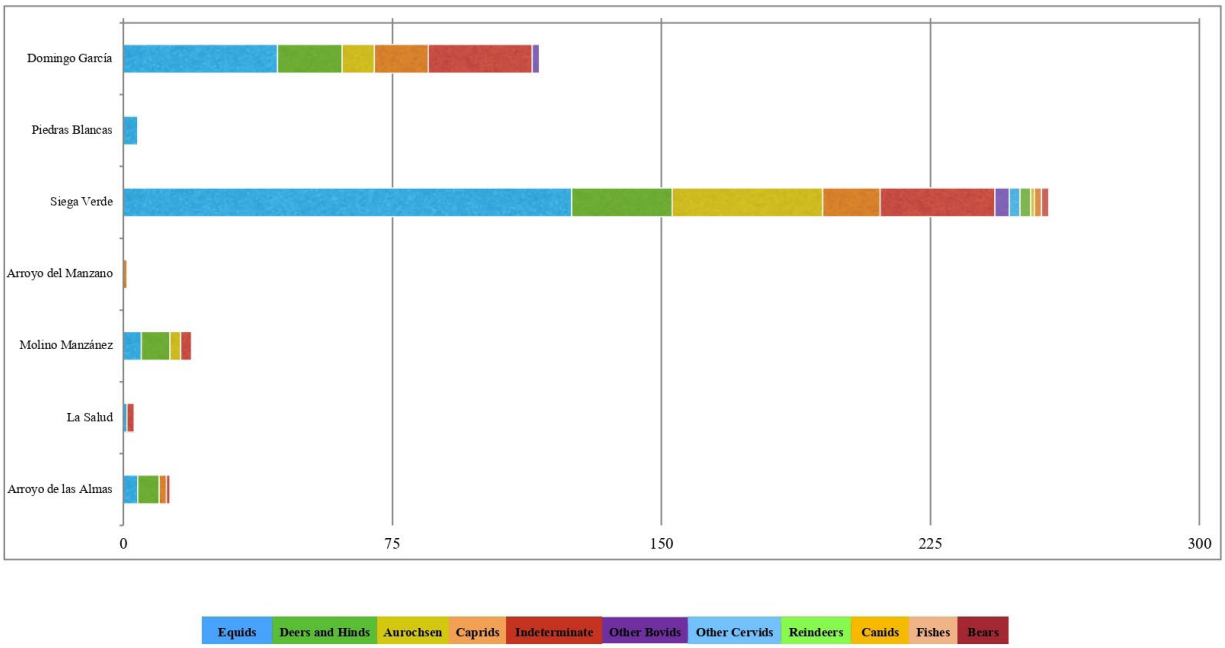

Table 3. Sites and and zoomorphic figures in the open-air Palaeolithic rock art of Spain.

I would like to stress that this graphic cycle has not only been inventoried in the open-air, with 35 safe figurative images, since it has also been inventoried in sheltered environments in the Northernmost Mediterranean and even in other extrapeninsular territories (MARTÍNEZ *et al.*, 2003) or on movable or parietal rock supports (GARCÍA and CACHO, 2015; SANTOS *et al.*, 2018), with a process of simplification and faunal variability that has also been detected in the zoomorphic representations of the classic peninsular regions in cave environments.

Some of the main characteristics are: the morpho-stylistic homogeneity in the zoomorphic representations (cervids, caprids, equids and fish), with a sub-naturalist style, geometric tendency, fusiform bodies, reduced dimensions, abundant internal fillings (made with different incision methods), a deliberate lack of attention to the capital parts, narrow necks and projected forward, small heads with triangular tendency and extremities (these are not always short or may be engraved in different perspectives) that assiduously end in convergent lines made by bundles of lines. In addition, there is different visual information provided, to the preceding and infraposed figures (VÁZQUEZ, 2018: 76) (Figure 12).

After what has been written, it is shown that our knowledge of Palaeolithic parietal art in the open-air was intimately linked to the everyday life of the prehistoric human societies that created it (BALBÍN and ALCOLEA, 2017: 14), has changed substantially in recent decades. Long standing projects, in addition to identifying and studying Palaeolithic art in the open, and their surroundings, have provoked the reconsideration of the previously used approaches.

We therefore have the necessary imperatives that should serve as a guide the new researchers investigating these Upper Palaeolithic artistic figures, starting with the consideration of corridors and natural roads as obligatory passages between regions that communicate an open territory with respect to other more closed adjacent areas. The possibility should also be considered that sites of raw material collection

and inter-group points of contact existed. New projects should be designed considering the mobility of these groups but also from the perspective of sedentarization (VÁZQUEZ, 2018; VÁZQUEZ and ANGULO, 2019).

Acknowledgements

Este trabajo no se habría podido realizar sin la colaboración desinteresada de muchos amigos y amigas. Mi agradecimiento, por haber cedido generosamente su magnífico material fotográfico para este artículo, a Olivia Rivero Vilá, Paula García Bustos, Hipólito Collado Giraldo, Jesús F. Jordá Pardo y Mário Reis, y a David Casarejos Moya, Javier Angulo Cuesta y Mário Reis por la trascendental corrección de mi inglés macarrónico. Este texto también es suyo, ya que sin su inestimable colaboración no tendría el mismo vigor. Por último, no quiero olvidarme de Sara Garcês, por la confianza mostrada al invitarme a participar en este monográfico, y por las sugerencias de los editores que han colaborado puliendo, aún más, el texto.

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Revista ArkeoGazte Aldizkaria
Nº 11, pp. 75-111, year 2021
Received: 13-05-2019; Reviewed: 11-06-2020; Accepted: 25-06-2021
ISSN: 2174-856X

ANIMAL DEPICTIONS IN THE PORTABLE ART OF CENTRAL EUROPE

Animalia irudiak Erdialdeko Europako arte higigarrian

Las figuras animales en el arte mueble de Europa central

Ewa Dutkiewicz (*)

Abstract

Animal depictions in the Paleolithic art of Central Europe are a widespread phenomenon. Unlike other regions of Europe, very few examples of parietal art are known, most of which are debatable. Instead, there is a long continuity of portable art, beginning with the ivory figures of the Swabian Aurignacian cave sites, and followed by the figures of ivory and burnt clay in the open-air sites of the Pavlovian. With the Magdalenian, major changes are apparent. Animals were depicted on a wide range of media using different raw materials. In contrast to the three-dimensional statuettes from the previous techno-complexes, in the Magdalenian engravings on slate plates dominate, most of which come from the open-air sites of Gönnersdorf and Andernach (Germany). While great herbivores and carnivores are the dominant themes in the Aurignacian and Pavlovian, in the Magdalenian horses and mammoths are the most frequently depicted species. A comparison with the faunal material of some of the sites where the portable art originates shows that it was not the animals that were used for daily survival that were represented in the art, therefore the species that are represented in the art must have been selected for other reasons.

Key words

Mobile art; Aurignacian; Gravettian; Pavlovian; Magdalenian; Fauna; Animals; Central Europe.

Laburpena

Erdialdeko Europako arte paleolitikoko animalien irudiak fenomeno zabala dira. Europako beste eskualde batzuetan, berriz, oso adibide gutxi ezagutzen dira, eta horietako asko zalantzan daude. Hala ere, jarraitutasun luzea ageri da arte higigarrian, Suabiako kobazuloetako Aurignac aldiko aztarnategietako bolizko irudietatik hasita, aire zabaleko Pavlov aldiko aztarnategietako bolizko eta terrakotazko irudiekin jarraituz. Madeleine aldian aldaketa nabariagoak hautematen dira: animaliak material askoren gainean eta hainbat baliabideren bidez egiten dira, lehengai ugari erabiliz. Lehenagoko tekno-konplexuetako estatuatxo tridimentsionalen aldean, Madeleine aldian arbelezko euskarrietan eginiko grabatu gehiago daude, horietako asko Gönnersdorf eta Andernach-eko (Alemania) aire zabaleko aztarnategietatik berreskuratuak. Belarjale handiak Aurignac eta Pavlov aldietako gai nagusiak badira, Madeleine aldiko espezie adierazgarrienak zaldiak eta mamutak izango dira. Arte higigarria dagoen zenbait aztarnategitako fauna-aztarnekin egindako konparazio

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batek adierazten du, irudikatutako animaliak ez direla eguneroko dietako berdinak eta, beraz, beste arrazoi batzuengatik hautatu zirela espezieak.

Hitz-gakoak

Arte eramangarria; Aurignac aldia; Gravette aldia; Pavlov aldia; Madeleine aldia; Fauna; Animaliak; Erdialdeko Europa.

Resumen

Las figuras animales en el arte paleolítico de Europa central son un fenómeno amplio. A diferencia de otras regiones de Europa, donde son conocidos muy pocos ejemplos, y muchos de ellos están en duda. Sin embargo, se constata una larga continuidad en el arte mueble, empezando por las figuras en marfil de los yacimientos auriñacienses en las cuevas de Suabia, junto a las figuras en marfil y terracota de los yacimientos pavlovienses al aire libre. Durante el Magdaleniense se evidencian cambios mayores.: los animales se realizan sobre muchos materiales y a través de diferentes medios, usando una amplia gama de materias primas. En contraste con las estatuillas tridimensionales de los tecno-complejos anteriores, en el Magdaleniense se constatan más grabados en soportes de pizarra, muchos de ellos provenientes de los yacimientos al aire libre de Gönnersdorf y Andernach (Alemania). Si los grandes herbívoros son el tema dominante en el Auriñaciense y el Pavloviense, en el Magdaleniense las especies más representadas son los caballos y mamuts. Una comparación con el material animal de algunos yacimientos, donde se ha producido arte mueble, muestra que los animales representados no son los mismos de la dieta cotidiana, sino que la selección de las especies se realizó por otras razones.

Palabras Clave

Arte mueble; Aurignaciense; Gravettiense; Pavloviense; Magdaleniense; Fauna; Animales; Europa central.

Revista ArkeoGazte Aldizkaria
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ISSN: 2174-856X

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1. Introduction

In the Paleolithic of Central Europe, there are only very rare and questionable examples of parietal art (FLOSS and CONARD, 2009; FLOSS and PASTOORS, 2018). Instead Central Europe shows a long continuity of portable art throughout the Upper Paleolithic (BOSINSKI, 1981, 1982; CONARD and DUTKIEWICZ, 2017; DUTKIEWICZ *et al.*, 2018; FLOSS, 2000, 2005, 2007; HAHN, 1986; LÁZNIČKOVÁ-GONYŠEVOVÁ, 2002; LEROI-GOURHAN, 1965; MÜLLER-BECK, 1987; MÜLLER-BECK and ALBRECHT, 1987; OLIVA, 2017; STEGUWEIT, 2008; VALOCH and LÁZNIČKOVÁ-GALETOVÁ, 2009). Portable art describes all kinds of artistic expressions that are not fixed to a canvas, like cave walls or rocks. Usually, these are small to medium-sized objects that can be carried around and are easily displaced. These objects are either artworks in themselves, or the artistic expressions appear on tools like perforated batons, spearthrowers, or on personal ornaments. Thematically, animals play a large role in Paleolithic art. Mostly herbivores like mammoths, rhinoceroses, bison, or horses are depicted, but also carnivores, especially felids, are represented. Smaller animals, like birds or fish, appear in reduced amounts. Human or anthropomorphic/therianthropic depictions are common as well, but will not be discussed further in this paper (see therefore e.g. ANTL-WEISER, 2008; BOSINSKI, 1991; BOSINSKI *et al.*, 2001; CONARD and KÖLBL, 2010; MELLARS, 2009; VERPOORTE, 2001; WEHRBERGER, 2013).

For the Aurignacian (AUR) of Central Europe, it is the Swabian Jura of southern Germany with the cave sites of Vogelherd, Hohle Fels, and Geißenklösterle that preserve a large assemblage of animal depictions. These are mainly figurines made from mammoth ivory that are carved in astonishing detail, and are among the oldest figurative artworks worldwide. The represented animals are mainly mammoths and felids. Horses, bears, musk oxen, waterfowls, and fish are also depicted in the Swabian Aurignacian (CONARD, 2018; DUTKIEWICZ *et al.*, 2018; FLOSS, 2007; HAHN, 1986). The portable art of the Gravettian (GRA) in Central Europe is best attributed to the region of Moravia at the sites of Dolní Věstonice, Pavlov, and Předmostí. This particular regional form of the Gravettian is called the Pavlovian (PAV). These rich open-air sites contain an extremely large assemblage of animal depictions. Large herbivores, like mammoths and rhinoceroses, but also felids and bears are the main topics. There are two distinct forms of animal depictions: figurines made from mammoth ivory,

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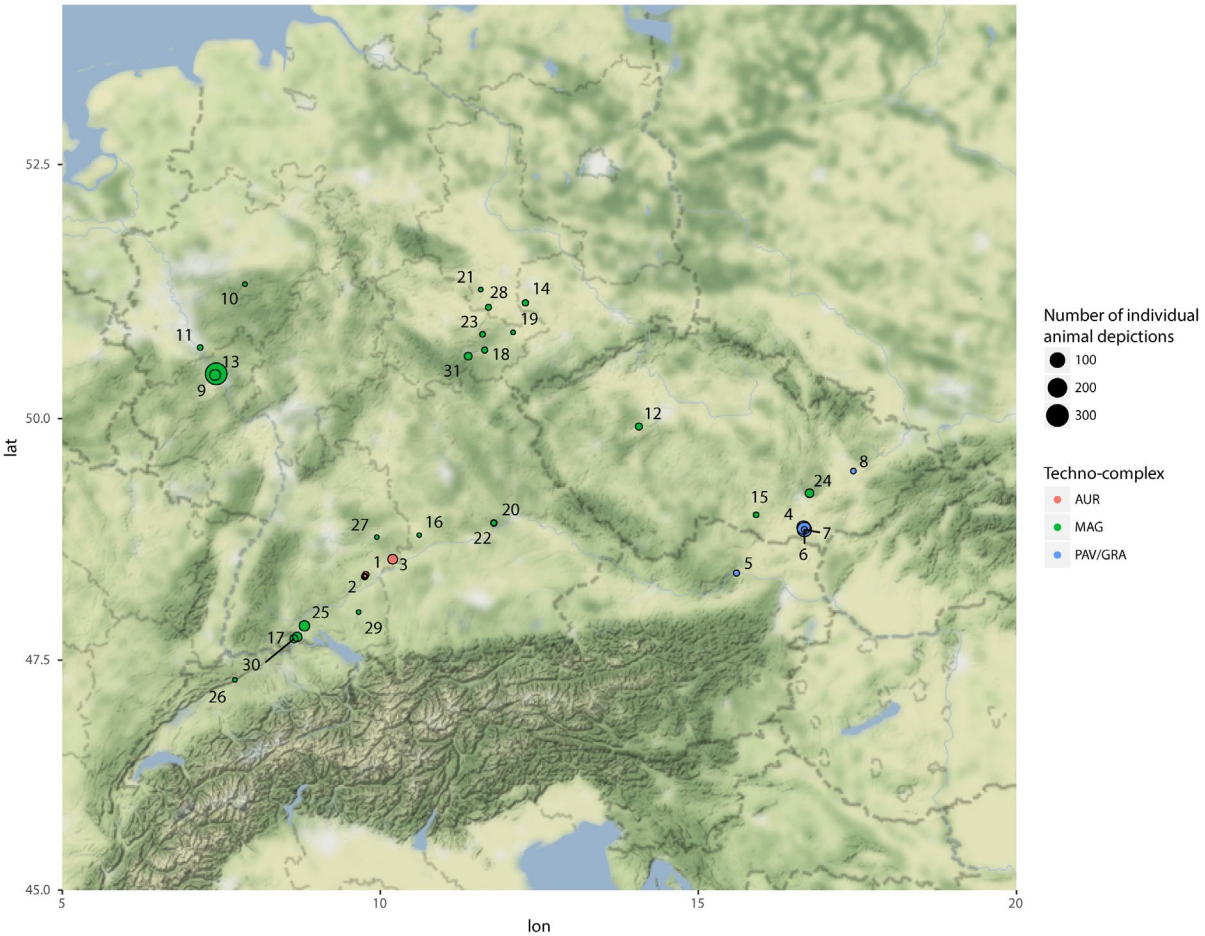

Figure 1. Map of the sites with animal depictions in the mobile art of Central Europe analyzed in this study.

and figurines made from fired clay (BOUGARD, 2011; GARCÍA DIEZ, 2005a, 2005b; KLÍMA, 1997; SOFFER and VANDIVER, 1994; SVOBODA and FROUZ, 2011; SVOBODA *et al.*, 2015; VANDIVER *et al.*, 1989; VERPOORTE, 2001). While in the Aurignacian and the Pavlovian there are distinct centers of art production, portable art in the Magdalenian (MAG) is a widespread phenomenon across Central Europe (Table 1 and Figure 1). Animal depictions are found in many sites in Germany, Switzerland, and the Czech Republic. In contrast to the former techno-complexes, horses have become the dominant species in portable art. Mammoths also play a large role but become less prominent. Although animal depictions are widespread, it is the site of Gönnersdorf in the Rhine Valley that dominates this period. Here, more than 300 individual animal depictions have been verified. The predominant form of artwork are engravings on slate plates, which are often excessively superimposed, and difficult to read (BOSINSKI, 1971, 2007; BOSINSKI and FISCHER, 1980; BOSINSKI and GÜTH, 2008). The site of Andernach, located on the opposite bank of the Rhine shows similar artworks and is closely related to Gönnerdorf (BOSINSKI, 1994; BOSINSKI and BOSINSKI, 2007). Other important assemblages of animal depictions come from the sites of Petersfels, Kesslerloch, and Schweizersbild in southern Germany and Switzerland (ALBRECHT *et al.*, 1994; BOSINSKI, 1982; BRAUN, 2005; HEIERLI, 1907; HOLDERMANN *et al.*, 2001; MAUSER, 1970; MERK, 1875; MÜLLER-BECK and ALBRECHT, 1987; NÜESCH, 1896; PETERS, 1930), from several sites

Techno-complex	Site	Country	Number of individual animal depictions	Total
Aurignacian	1 Geißenklösterle	Germany	4	
	2 Hohle Fels	Germany	4	
	3 Vogelherd	Germany	27	35
Pavlovian/Gravettian	2 Hohle Fels	Germany	1	
	4 Dolní Věstonice I	Czech Rep.	77	
	5 Krems-Wachtberg	Austria	3	
	6 Pavlov I	Czech Rep.	95	
	7 Pavlov VI	Czech Rep.	3	
	8 Předmostí	Czech Rep.	2	181
Magdalenian	9 Andernach	Germany	39	
	10 Balver Höhle	Germany	1	
	11 Bonn-Oberkassel	Germany	2	
	12 Deravá skála	Czech Rep.	7	
	13 Gönnersdorf	Germany	301	
	14 Groitzsch	Germany	4	
	15 Hostim	Czech Rep.	2	
	16 Kaufertsberg	Germany	1	
	17 Kesslerloch	Switzerland	23	
	18 Kniegrotte	Germany	3	
	19 Lindenthaler-Hyänenhöhle	Germany	1	
	20 Mittlere Klause	Germany	4	
	21 Nebra	Germany	1	
	22 Obere Klause	Germany	2	
	23 Oelknitz	Germany	2	
	24 Pekárna	Czech Rep.	17	
	25 Petersfels	Germany	35	
	26 Rislisberghöhle	Switzerland	1	
	27 Rosenstein-Kleine Scheuer	Germany	1	
	28 Saaleck	Germany	3	
	29 Schussenquelle	Germany	1	
	30 Schweizersbild	Switzerland	12	
	31 Teufelsbrücke/Saalfeld	Germany	11	474

Table 1. Sites with animal depictions analyzed in this study by techno-complex (see Figure 1) and the total number of animal depictions for each site.

in Central Germany (BOSINSKI, 1982; BRAUN, 2012; FEUSTEL, 1974, 1980; HÖCK, 2000), and cave sites in the Czech Republic, like Deravá skála and Pekárna (ABSOLON and CZIŽEK, 1932; KLIMÁ, 1965; LÁZNIČKOVÁ-GONYŠEVOVÁ, 2001, 2002; SVOBODA *et al.*, 2000; VALOCH and LÁZNIČKOVÁ-GALETOVÁ, 2009).

To gain a better understanding of the nature of animal depictions throughout the Upper Paleolithic in Central Europe, in this paper I address the following questions: 1) Which animals are represented in portable art? 2) What are the differences throughout the Upper Paleolithic, and how can they be described? Are there differences

in the themes, but also the techniques and general form of depiction? And 3) What is the relationship between the depicted species, and the hunted and processed animals?

2. Material and Methods

To answer my research questions, I collected extensive data about animal depictions. This information is about each object itself, such as the provenance, material, the type of artifact, preservation, and the dimensions, but also information about the type of genre, such as whether it is a figurine, engraving, relief, or contour découpé. On analysing the art I noted the theme, which might be of a zoomorphic nature, which includes herbivore, carnivore, marine mammal, bird, fish, amphibian, reptilian or insect and also the number of individuals appearing on one object. The latter allows the ability to detect scenic depictions with individuals interacting with each other.

To gain a better insight into animal depictions, a taxonomic identification has been done with the following classifications: subphylum, class, order, family, genus, and species. According to the "quality" of depictions, the classification has been conducted with as much precision as possible. Additionally, information about gender and age has been collected, if available. Of course, one has to keep in mind, that thematic and taxonomic definitions according to this criteria is only a vague approach to what motivated past people to select specific animals. The categories correspond to our modern views on nature and its order and must by no means have been considered as such in the Paleolithic. For example, from ancient Mesopotamian lexical lists, it is known that animals and objects were classified in different ways and for different reasons than we do today (see therefore CAVAIGNEAUX, 1983; LANDSBERGER, 1934; LANDSBERGER and VON SODEN, 1965). Our classifications, for example in herbivore vs. carnivore, are just one way to organize animals. Another might be size, the similarity in appearance, color, solitary lifestyle vs. social lifestyle, the value as a food source, or any mythological significance.

To analyze the significance of the animal depictions in the respective assemblages, I made a cross-sectional comparison with the hunted and processed animals of selected sites. For this, I used the minimum number of individuals (MNI) as given by the archaeozoological studies. The MNI is not uncontroversial compared to the NISP (number of identified specimens) (CANNON, 2013; DOMÍNGUEZ-RODRIGO, 2012; MARSHALL and PILGRAM, 1993). In this study, I chose the MNI since the determination of animal representations in the art also gives a minimum number of individuals and is, therefore, comparably better with the archaeozoological MNI.

3. Animal depictions in the portable art of the Aurignacian

A large assemblage of Aurignacian animal depictions in Central Europe comes from the Swabian Jura. This region is particularly well known for the early appearance of the Aurignacian, dating from around 43,000 to 32,000 cal BP (CONARD and BOLUS, 2003, 2006, 2008; CONARD *et al.*, 2015; HIGHAM *et al.*, 2012; KIND *et al.*, 2014). Three cave sites yielded a rich assemblage of animal figurines made from mammoth ivory: Hohle Fels and Geißenklösterle in the Ach Valley, and Vogelherd in the Lone Valley. In most cases, these figurines depict Pleistocene animals, but human and therianthropes are also present (CONARD, 2003, 2007, 2009, 2018; CONARD *et al.*, 2015; CONARD and FLOSS, 2013; DUTKIEWICZ *et al.*, 2018; FLOSS, 2007; HAHN, 1986; MÜLLER-BECK, 1987).

Excavations at Vogelherd took place in 1931 under the direction of Gustav RIEK (1932a, 1932b, 1934) and 2005 to 2012 under the direction of Nicholas Conard (CONARD *et al.*, 2007; CONARD and MALINA, 2006; CONARD *et al.*, 2013; CONARD *et al.*, 2016). Excavations at Geißenklösterle Cave took place with interruptions from the 1970s until the 1990s under the direction of Joachim Hahn (HAHN, 1988, 1992; HAHN and WAGNER, 1975), and from 2001 to 2002 under the direction

Figure 2. Vogelherd, selection of figurines from Gustav Riek's excavation in 1931. Horse, mammoth, undetermined animal, felid, mammoth-relief, bear or lion. Except for the mammoth-relief on the antler object, all figurines are made from mammoth ivory (J. Lipták © Universität Tübingen).

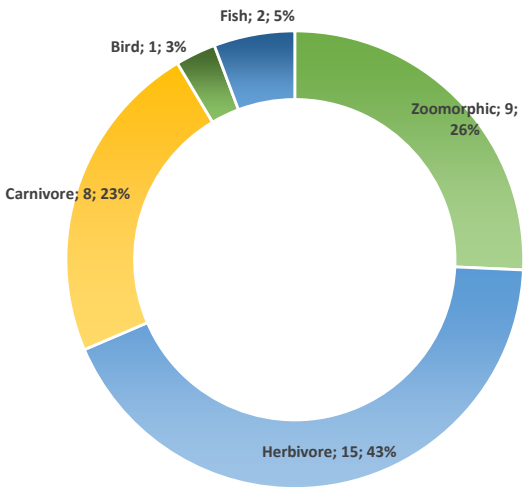

Figure 3. Aurignacian, Swabian Jura, animal themes, n=35.

of Nicholas Conard (CONARD and MALINA, 2002, 2003). Modern standard excavations in Hohle Fels Cave started in the late 1970s under the direction of Joachim Hahn (HAHN, 1978; HAHN and WAIBLINGER, 1997), and since 1997 the excavations have continued anually until present under the direction of Nicholas Conard (CONARD and FLOSS, 2000; CONARD and JANAS, 2018; CONARD *et al.*, 2017; CONARD *et al.*, 2003; CONARD and MALINA, 2009; CONARD and UERPMANN, 1999). Animal figurines are found at Vogelherd in the Aurignacian layers V and VI (Figure 2), and in the backdirt from these layers. To date, a total of 67 figurines and fragments of figurines have been identified. Another 108 pieces are possible fragments of figurines (CONARD *et al.*, 2016; DUTKIEWICZ *et al.*, 2018). Eleven definite and two possible figurines come from the Aurignacian layers of Hohle Fels Vb up to IId. In Geißenklösterle five definite figurines and one possible figurine were found in layer II (for an overview of the stratigraphical provenience of the figurines see CONARD *et al.*, 2015; DUTKIEWICZ, 2015; DUTKIEWICZ, 2021; DUTKIEWICZ *et al.*, 2018; HAHN, 1986, 1988).

Concerning the animals, a total of 35 identifiable zoomorphic figurines are attested for (for a slightly different analysis see CONARD, 2018). Except for one *Mammuthus primigenius* (woolly mammoth) relief in antler (see Figure 2), all of them are made from mammoth ivory. Ivory was not used only for figurines, but also for flutes, personal ornaments, and tools, like points, awls, and perforated batons (DUTKIEWICZ *et al.*, 2018; HAHN, 1995; HILLER, 2003; MALINA and EHMANN, 2009; WOLF, 2015a, 2015b; WOLF *et al.*, 2013). Almost all of the animals are depicted as sculptures of single individuals. There are two exceptions to this: 1) the above mentioned mammoth relief on an antler artifact (which has a suspension hole on the side. The function remains unclear) (DUTKIEWICZ, 2021; LEROY-PROST, 2002), and 2) a rather schematic and unclear depiction which resembles a fish and has been produced as an engraving. For the themes, there is a large proportion of herbivores (43 %), followed by carnivores (23 %), and non-identifiable zoomorphic figures (26 %). Birds and fish are present with one and two individuals, respectively (Figure 3).

Regarding the taxonomic identifications, a clear dominance of Carnivora and Proboscidea is apparent (Figure 4). With the carnivores, however, it should be noted that one of them is a bear. It is not possible to determine, whether it is *Ursus spelaeus* (cave bear) or *Ursus arctos* (brown bear) due to the state of preservation. In another case, it is not even possible to determine if a bear or a felid is depicted (CONARD *et al.*, 2013). Besides the large and dangerous mammals, which led Joachim HAHN (1986) to describe Aurignacian art as an expression of *Kraft und Aggression* (strength and aggression), there are also smaller animals. Examples of these smaller animals include one member of the order Eulipotyphla (shrews/hedgehogs), one bird (very likely Anseriformes, or waterfowl) (Figure 6), and two fish (Osteichthyes) are documented (Figure 7). The depictions are not clear enough to go further with the taxonomic determination.

Although in some cases the species can be identified, I will stay at the genus level, because not all of the animals can be described further than this with certainty (Figure 5). The determination of felids further than *Panthera* does not seem to be clear, but as in the faunal material there

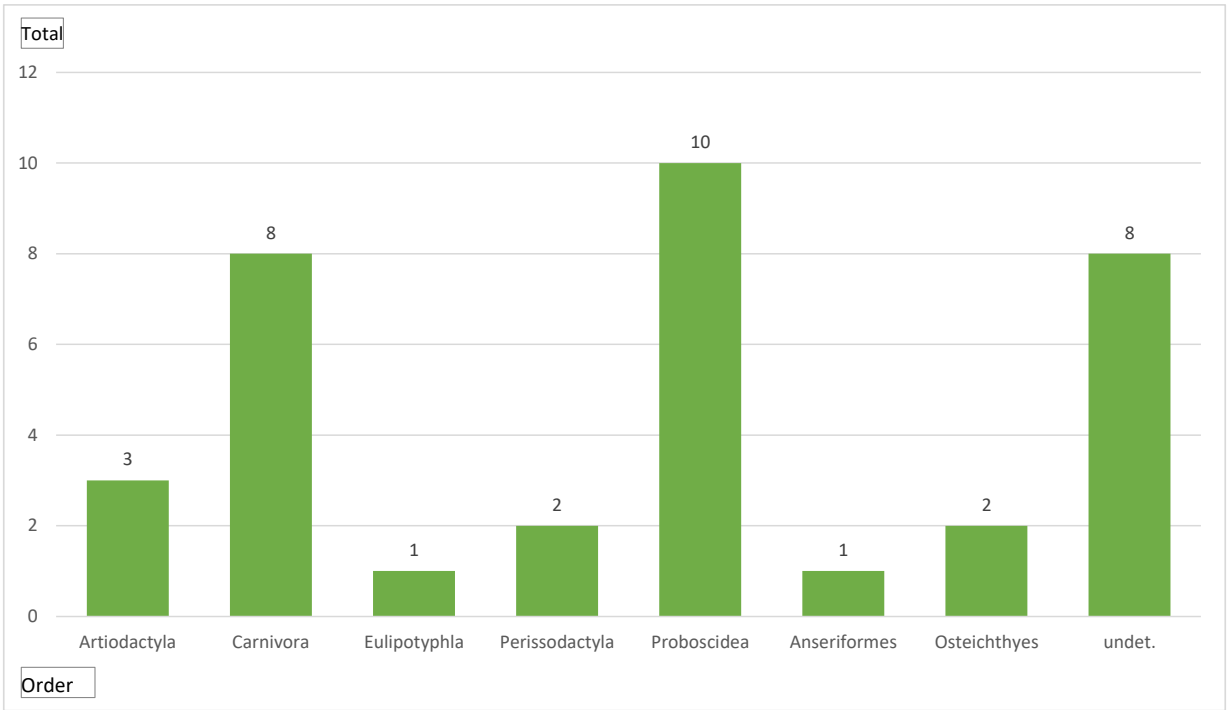

Figure 4. Aurignacian, Swabian Jura, identified taxonomic order of animals in mobile art (n=35).

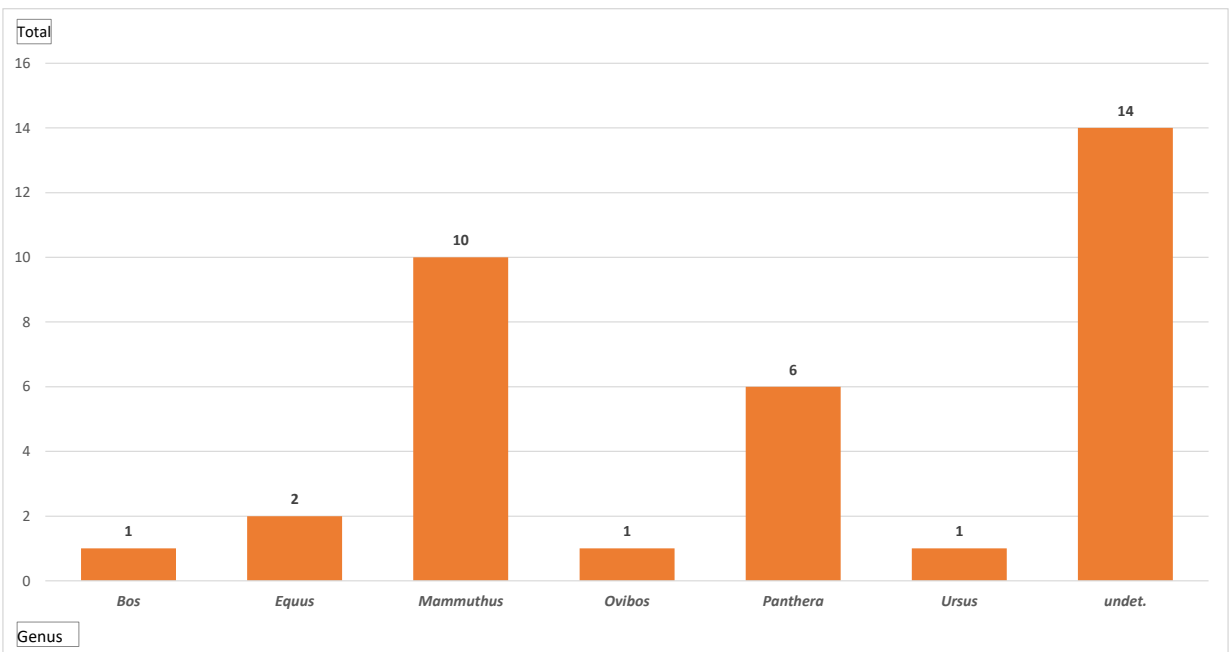

Figure 5. Aurignacian, Swabian Jura, identified taxonomic genera of animals in mobile art (n=35).

Figure 6. Hohle Fels, waterfowl, mammoth ivory, length 48 mm (H. Jensen © Universität Tübingen).

Figure 7. Vogelherd, fish figurine from the recent excavations 2005–2012, mammoth ivory, length 70 mm (H. Jensen © Universität Tübingen).

is only *Panthera leo spelea* (cave lion), it is very likely that this is the animal that was represented. Concerning bovids, the depictions are clear, while it is difficult to distinguish *Bos primigenius* (aurochs) or *Bison priscus* (steppe bison) in the faunal material. In the Swabian Aurignacian, there is one depiction of *Bison priscus*. Another one from Geißenklösterle was recently identified as *Ovibos moschatus* (muskox) (DUTKIEWICZ, 2021). It is not possible to determine the gender of any of the subjects. There are some hints, like the pose of the horse from Vogelherd, which can be interpreted as a "dominance position," indicating a male. Another case is the extremely large "dome" (head) in some of the mammoth representations, but this is highly speculative. Mostly adult animals are present (n=34). Only the relief of a mammoth made on antler depicts a juvenile subject (Figure 2).

Comparing the portable art from the Swabian Aurignacian with the faunal material from the Aurignacian levels of Vogelherd (NIVEN, 2006, 2007), the hunted and processed animals differ from the represented ones (Table 2 and Figure 8). *Panthera*, an animal that plays a major role in the art, is very rare in the faunal material. *Equus ferus* (horse) and *Rangifer tarandus* (reindeer), were animals that were hunted and processed in large quantities and were not depicted as much in the art. Only mammoths are commonly found in both the art and faunal material.

4. Animal depictions in the portable art of the Gravettian/Pavlovian

For the Gravettian/Pavlovian in Central Europe, the region of Moravia in the Czech Republic has preserved the largest assemblage of portable art. Objects from other regions are usually depictions of female or male humans and shall not be discussed in this paper (see therefore e.g. ANTL-WEISER, 2008; BOSINSKI, 1982; CONARD and MALINA, 2005). Only one animal depiction from the Gravettian of Hohle Fels shows an animal; it is an engraving of a herbivore, very likely a cervid or bovid on a modified antler (FISCHER *et al.*, 1993).

The Pavlovian is a regional variation of the Gravettian, mainly found in Moravia, northern Austria, and southern Poland. It was named after the large settlement of Pavlov and dates to around 30,000 to 27,000 cal BP (JÖRIS *et al.*, 2010; OLIVA, 2017; SVOBODA, 2015). It is characterized by large open-air-settlements, like Pavlov, Dolní Věstonice, Předmostí, and Milkovice in the Czech Republic, as well as Willendorf and Krems-Wachtberg in Austria. Many of these sites have burials. The intense usage of organic materials like bone, antler, and ivory is one of the characteristics of this archaeological culture. Tools, weapons, construction parts, but also

	Vogelherd MNI	AUR animal depictions MNI
Bos/Bison	6	1
Canis lupus	7	
Cervus elaphus	3	
Coelodonta antiquitatis	12	
Crocuta spelaea	2	
Equus ferus	27	2
Felis silvestris	2	
Gulo gulo	1	
Lepus sp.	3	
Mammuthus primigenius	28	10
Ovibos moschatus		1
Panthera leo spelaea	2	6
Rangifer tarandus	28	
Rupicapra rupicapra	1	
Sus scrofa	1	
Ursus spelaeus/arctos	9	1
Vulpes/Alopex	7	
Birds	8	1
Total	**147**	**22**

Table 2. MNI (Minimum Number of Individuals) from the Aurignacian at Vogelherd Cave (NIVEN, 2007) in comparison to the identified genera of animal depiction in the Aurignacian.

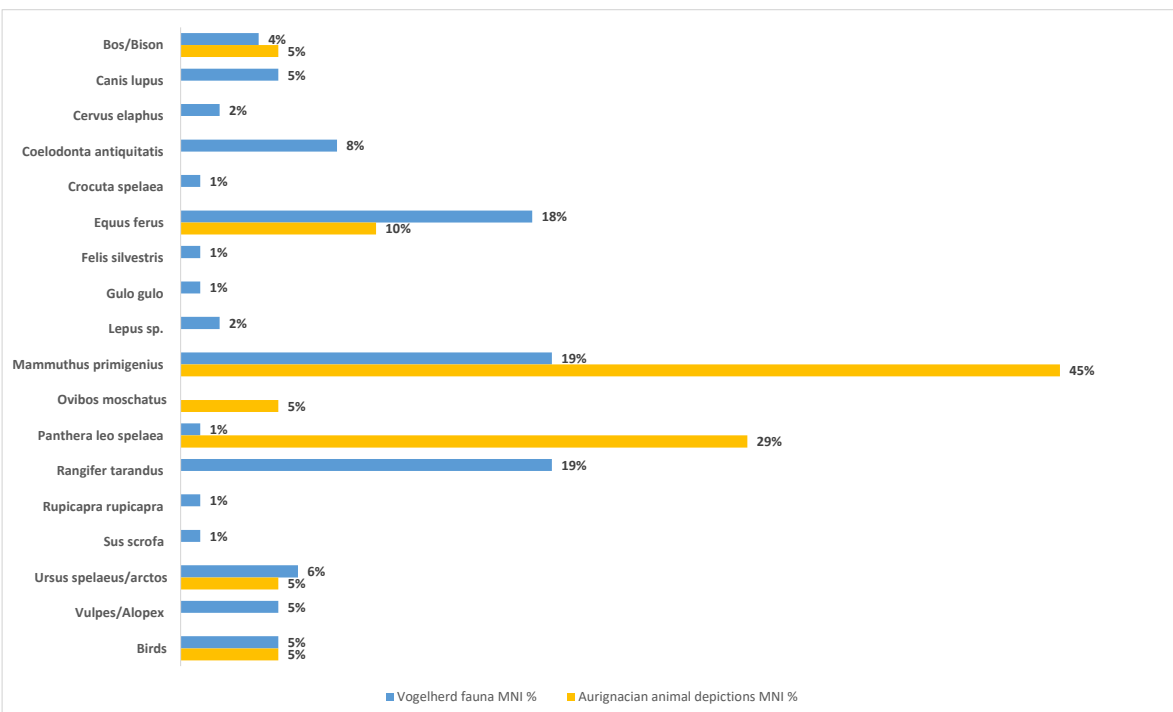

Figure 8. Aurignacian, the percentage of MNI of mammal species in the zooarchaeological record of Vogelherd Cave (NIVEN, 2007) in comparison to the animals in the mobile art.

Figure 9. Two ivory animal figurines from the Pavlovian: 1) Předmostí, mammoth, length 116 mm (with courtesy of P. Neruda, Moravian Museum, Brno); 2) Pavlov I, felid in contour découpé, length 214 mm (after VALOCH and LÁZNIČKOVÁ-GALETOVÁ, 2009, p. II.36, with the courtesy of M. Novak, Czech Academy of Sciences, Institute of Archaeology, Brno).

personal ornaments were made from these materials. Mammoth ivory was also extensively used for figurative depictions and artworks like female, mammoth, or felid statuettes (GARCÍA DIEZ, 2005b; KLÍMA, 1997; OLIVA, 2015, 2017; SVOBODA, 2015; SVOBODA and FROUZ, 2011; VALOCH and LÁZNIČKOVÁ-GALETOVÁ, 2009). Imprints in lumps of clay prove a rich production of textiles and woven fiber materials (ADOVASIO *et al.*, 1996). Another characteristic feature of the Pavlovian is the production of objects made from baked clay. Ceramic figurines were often found close to kilns where they were fired. Most of these figures have damage that was caused during the burning process and might have been intentional. Studies of fingerprints suggest that children, adolescents, and women were involved in the production of these figurines (BOUGARD, 2011; BUDJA, 2016; GARCÍA DIEZ, 2005a; KRÁLÍK, 2011; OLIVA, 2015; SOFFER and VANDIVER, 1994; SVOBODA *et al.*, 2015; VANDIVER *et al.*, 1989; VERPOORTE, 2001).

The main Pavlovian sites with animal

Figure 10. Selection of ceramic animal figurines from the Pavlovian. Dolní Věstonice I, head of a felid, length 45 mm; Dolní Věstonice I, head of a rhinoceros, length 42 mm; Dolní Věstonice I, bear, length 75 mm; Dolní Věstonice I, probable juvenile bovid, length 47 mm (after OLIVA, 2015, modified. With courtesy of P. Neruda, Moravian Museum, Brno).

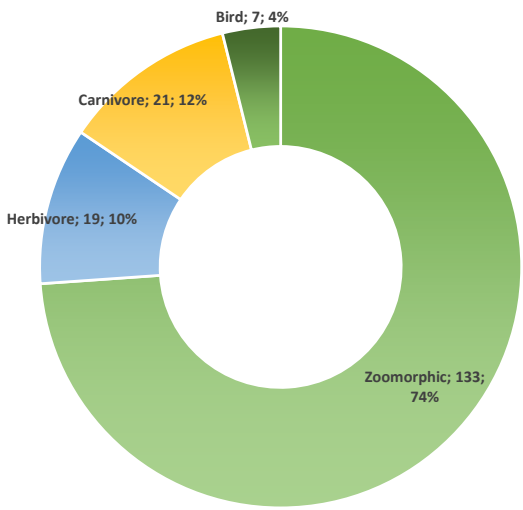

Figure 11. Pavlovian, animal themes (n=180).

depictions are Dolní Věstonice I, Pavlov I, Pavlov VI, and Předmostí in Moravia, as well as Krems-Wachtberg in Austria (for a summary of the research history concerning clay and ceramics in the Pavlovian see KRÁLÍK, 2011, pp. 207-208). Excavations at Dolní Věstonice I date back to 1922 with the first works of Hans Freising, Karel Absolon, and Assien Bohmers (ABSOLON, 1938; OLIVA, 2014; SVOBODA, 2015; 2016, p. 385). Large-scale excavations were conducted by Bohuslav Klíma from 1947 with breaks until 1979 and by Jiří Svoboda in 1990 and 1993 (KLÍMA, 1963, p. 385; SVOBODA, 2015, 2016). Pavlov I was excavated by Bohuslav Klíma in 1952–1965 and 1971–1972 and by Jiří Svoboda from 2013 to 2015 (KLÍMA, 1954; SVOBODA, 1994, 2015; 2016, p. 385; SVOBODA *et al.*, 2016). Excavations at Pavlov VI were conducted by Jiří Svoboda in 2007–2011 (SVOBODA, 2015, 2011). The site of Předmostí was discovered in the late 19th century. Excavations took place between 1884 and 1930 (ABSOLON and KLÍMA, 1977; SVOBODA *et al.*, 1994). Krems-Wachtberg in Lower Austria was excavated in 1930 by Josef Bayer (EINWÖGERER, 2000) and from 2005–2015 by Christine Neugebauer-Maresch, Thomas Einwögerer, and colleagues (EINWÖGERER, 2000; HÄNDEL *et al.*, 2009; NEUGEBAUER-MARESCH, 2008).

In the Pavlovian, there are two distinct ways of producing animal figurines. One way is carving ivory (Figure 9), the other was forming in clay (Figure 10). The choice of these raw materials is certainly related to the function of these objects. The ivory figurines were very likely used for a longer period and other purposes than the roughly made, burnt, and probably intentionally broken ceramics. The difference could be described as a long-term vs. short-term function (GARCÍA DIEZ, 2005b; SVOBODA, 2015; SVOBODA and FROUZ, 2011). The damage of the ceramic figurines can make it complicated to determine what is being represented since often only the extremities or fragments of the body are preserved. Therefore, often the ability to determine whether the objects show zoomorphic or anthropomorphic features remains unclear.

A total of 180 zoomorphic depictions were collected from the Pavlovian for this study. This number gives only an approximation of the total number of animal depictions, as the information was collected from the literature where a large number of objects are difficult to determine due to the state of preservation (BOUGARD, 2011; SVOBODA, 1994, 2011; SVOBODA *et al.*, 2015; VANDIVER *et al.*, 1989). Seven depictions (4%) were made of ivory, and 173 (96 %) were made of ceramic. Most of the objects (n=174, 97 %) are figurines, and there are four cases of contour decoupée (n=4, 2 %). The other genres play a minor role (engraving n=1, relief n=0, undetermined n=1). All of the ceramic objects are single figurines depicting one animal. For the ivory objects, there are three pendants, three figurines of single individuals, and one plate. When it comes to the themes, there is a large portion (74 %) of undetermined zoomorphic depictions. Besides those, carnivores and herbivores appear in a rather similar portion of 12 %, and 10 % respectively. Seven birds have been recorded, and there are currently no depictions of fish (Figure 11).

Concerning taxonomic order, carnivores strongly dominate the assemblage. As in the Aurignacian, it is not possible to distinguish between *Ursus spelaeus* and *Ursus arctos*, as both species may appear. Proboscidea also plays a major role in the depictions, followed by a large number of birds, mainly owls (Strigiformes). Ungulates – Artiodactyla and Perissodactyla – are represented with four individuals. The largest portion of the depictions remain undetermined (Figure 12). Regarding the taxonomic genus, *Mammuthus* is the most commonly depicted animal, followed by *Panthera* and *Ursus*. The strong dominance of mammoths and felids is similar to animals depicted in the Swabian Aurignacian. An animal missing in the Swabian record is *Coelodonta* (woolly rhinoceros), which is represented in the Pavlovian three times. *Equus* and *Rangifer* rarely appear (Figure 13). Concerning gender, no case of clear identification has been noted. For the age, there is only one ceramic figurine that possibly represents a young bovid (Figure 10).

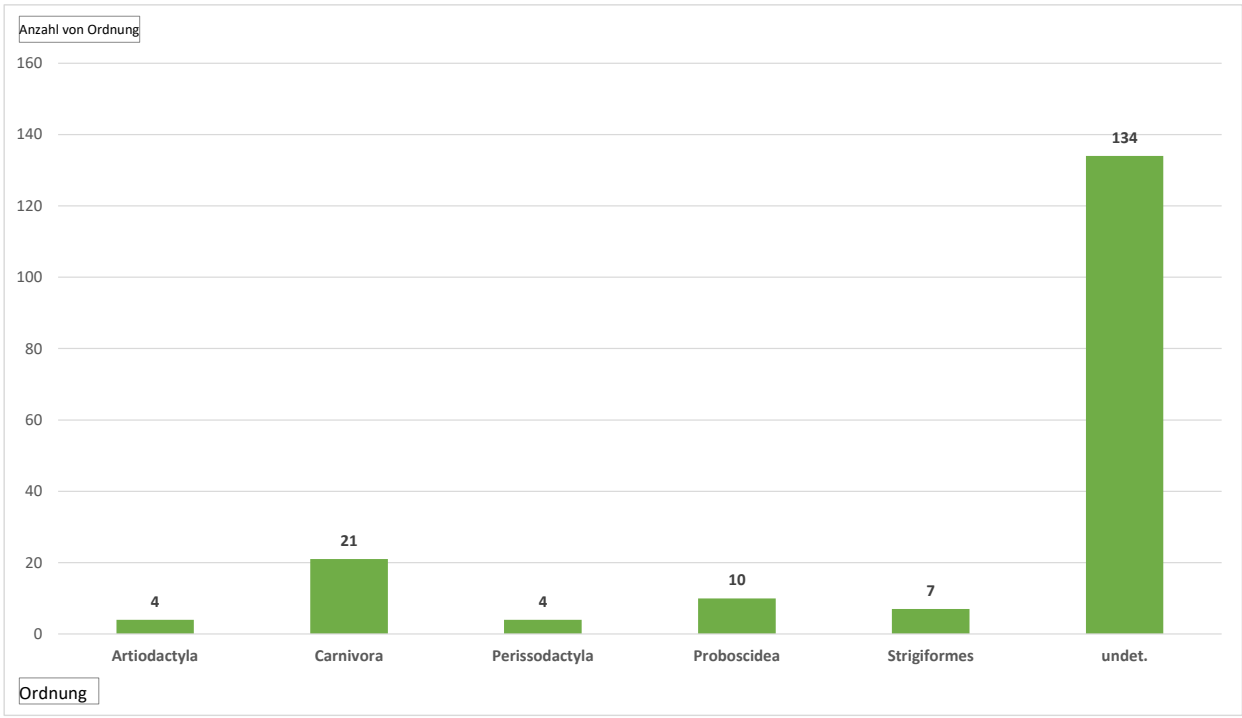

Figure 12. Pavlovian, identified taxonomic order of animals in mobile art (n=180).

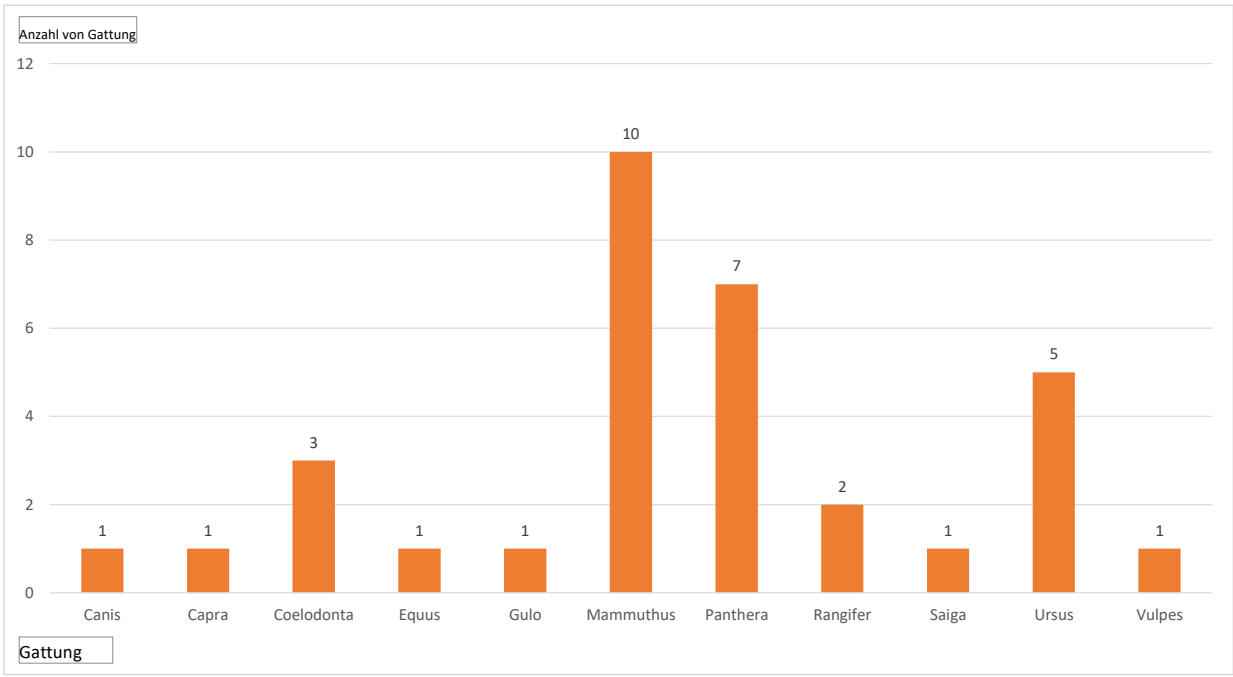

Figure 13. Pavlovian, identified taxonomic genera of mammals in mobile art (excluding undetermined) (n=33).

	Dolní Věstonice I - MNI	Pavlov I - MNI	PAV animal depictions MNI
Alces alces		1	
Bos/Bison	1	1	
Canis lupus	57	33	1
Cervus elaphus	1	1	
Coelodonta antiquitatis	1	1	3
Equus ferus	10	8	1
Gulo gulo	10	8	1
Lepus sp.	192	5	
Lynx lynx		1	
Mammuthus primigenius	7	17	10
Panthera spelaea	3	1	7
Rangifer tarandus	56	18	2
Ursus sp.	4	2	5
Vulpes sp.	123	52	1
Total	**465**	**149**	**31**

Table 3. MNI (Minimum Number of Individuals) of Dolní Věstonice I and Pavlov I (WILCZYŃSKI *et al.*, 2015; WOJTAL *et al.*, 2012) in comparison to the identified species of animal depiction in the Pavlovian.

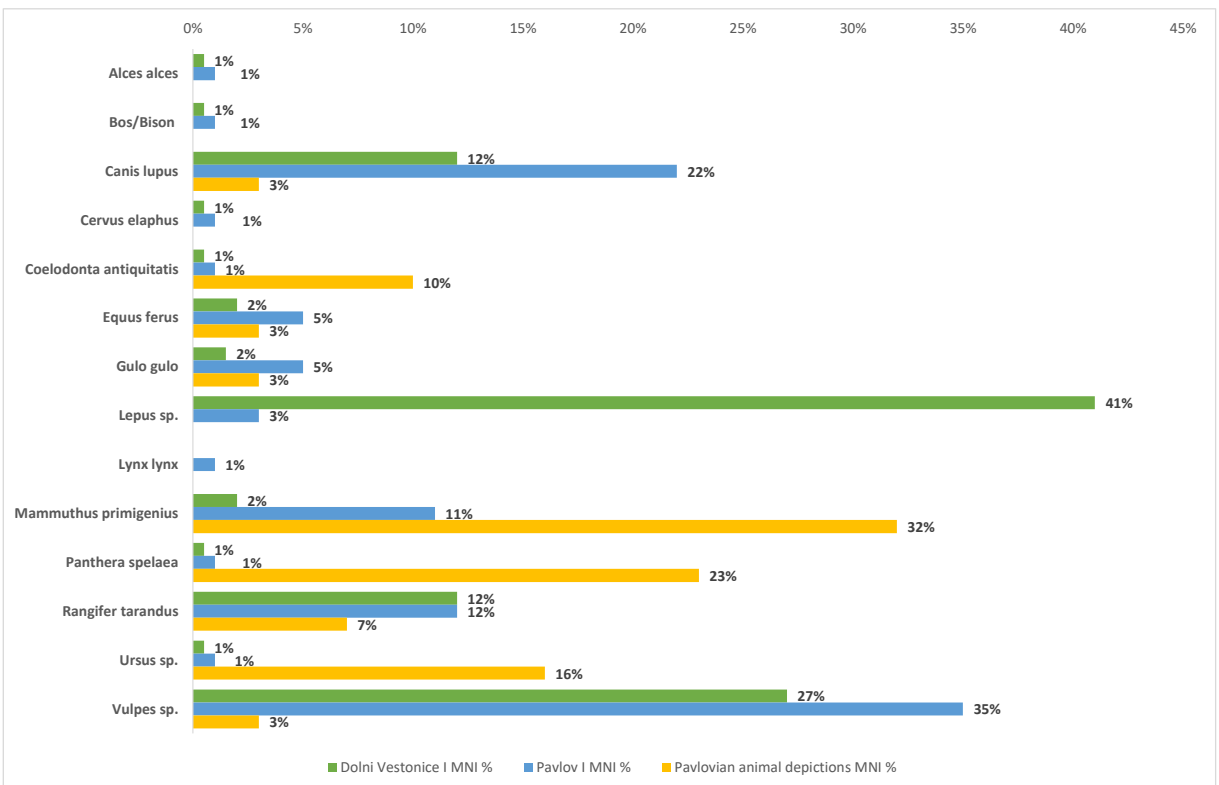

Figure 14. Pavlovian, the percentage of MNI of mammal species in the zooarchaeological record of Dolní Věstonice I (after WILCZYŃSKI *et al.*, 2015) and Pavlov I (after WOJTAL *et al.*, 2012) in comparison to the animals in mobile art.

To compare the animal depictions with the archaeozoological record, I used the MNI of Dolní Věstonice I and Pavlov I as presented by WILCZYŃSKI *et al.* (2015) and WOJTAL *et al.* (2012). There is a clear difference between the number of individuals within the fauna record, mainly dominated by *Lepus sp.* (hare), *Vulpes sp.* (fox), Canis lupus (wolf), and *Rangifer tarandus* (Reindeer) and the identified species in the art, dominated by *Panthera sp.* (Panthers), *Ursus sp.* (Bears), *Mammuthus primigenius* (Wooly Mammoth), and *Coelodonta antiquitatis* (Wooly Rhinocerous) (Table 3 and Figure 14).

5. Animal depictions in the portable art of the Magdalenian

Animal depictions made in the Magdalenian of Central Europe are widespread. In Germany, there are the sites of Gönnersdorf and Andernach in the Rhine Valley (Rheinland-Pfalz), which contain the largest assemblage of portable art, mainly in the form of engraved slate plates. The site of Andernach-Martinsberg was discovered and excavated by Hermann Schaaffhausen in 1883, followed by large-scale excavations in 1977, 1979, and 1981–1983 by Stefan Veil (BOSINSKI, 1994; BOSINSKI and VEIL, 1978b). Gönnersdorf was discovered in 1968 during the construction of a building and then excavated until 1976 by Gerhard Bosinksi (BOSINSKI, 1974, 1979; BOSINSKI and GÜTH, 2008; BOSINSKI and VEIL, 1978a; TERBERGER and BOSINSKI, 1997). The excavations extended over a surface of 687 m² and recovered an enormously rich assemblage from the late Magdalenian, dating to around 13,000 BP. Both sites, Gönnersdorf and Andernach, show strong similarities and were very likely connected (see Figure 23 and Figure 24). In western Germany, there are also the sites of Bonn-Oberkassel (BOSINSKI and VEIL, 1978c) and Balver Cave (BOSINSKI, 1982; GÜNTHER, 1964). Further to the east, there are the sites of Oelknitz (BOSINSKI, 1982), Kniegrotte (BOSINSKI, 1982; FEUSTEL, 1974; HÖCK, 2000), Teufelsbrücke/ Saalfeld, Lindenthaler-Hyänenhöhle (BOSINSKI, 1982; FEUSTEL, 1980) in Thuringia, Nebra and Saaleck in Saxony-Anhalt (BOSINSKI, 1982), and Groitsch in Saxony (BOSINSKI, 1982).

In southern Germany, there are the sites of Schussenquelle, Petersfels, Rosenstein-Kleine Scheuer, and Hohlenstein-Nördlinger Ries in Baden-Württemberg (BOSINSKI, 1982) that contained portable art. Schussenquelle was excavated by Oscar Fraas in 1867 when he first recognized the presence of human artifacts in association with extinct animals (FRAAS, 1867; SCHULER, 1994). In Petersfels Cave Eduard Peters carried out extensive excavations in the years 1928–1933. The cave itself and parts of the area in front of the cave were examined and yielded a rich Magdalenian assemblage. Further research by Gerd Albrecht from 1974–1976 and in 1979 allowed for a better chronologial sequence of the cultural layers through a series of 14C-dates spanning between 13,200 and 16,600 BP (ALBRECHT *et al.*, 1994; ALBRECHT *et al.*, 1983; MAUSER, 1970; PETERS, 1930; PFEIFER, 2016). In Bavaria, there are the sites of Kaufertsberg, Mittlere Klause, and Obere Klause which contained portable art (BOSINSKI, 1982). The Klausen Caves in the Altmühl Valley have a long research history, with the first excavations taking place in early 1900. Obere Klause was examined by Joseph Fraunholz in 1900–1908, and by Ferdinand Borkner in 1908. Further excavations in the different caves were conducted by Hugo Obermaier together with Ferdinand Birkner, Joseph Fraunholz, Gero von Merhart and Paul Wernert in 1912 and 1913. Mittlere Klause was later excavated again by the University of Erlangen in 1960 and 1961 (KAULICH, 1994; ZOTZ, 1961).

In Switzerland, the sites of Kesslerloch, Schweizersbild, and Rislisberghöhle preserved portable art from the Magdalenian. Kesslerloch by the town of Thayngen was first excavated in 1874/75 by Konrad MERK (1875), followed in 1898/99 by Jakob NÜESCH (1904) and in 1902/03 by Jakob HEIERLI (1907). Due to the early age of the excavations, little information about the stratigraphy is available. The rich assemblage found during the excavations dates to the Magdalenian, but probably to different phases. Several artifacts belong to an early phase of the

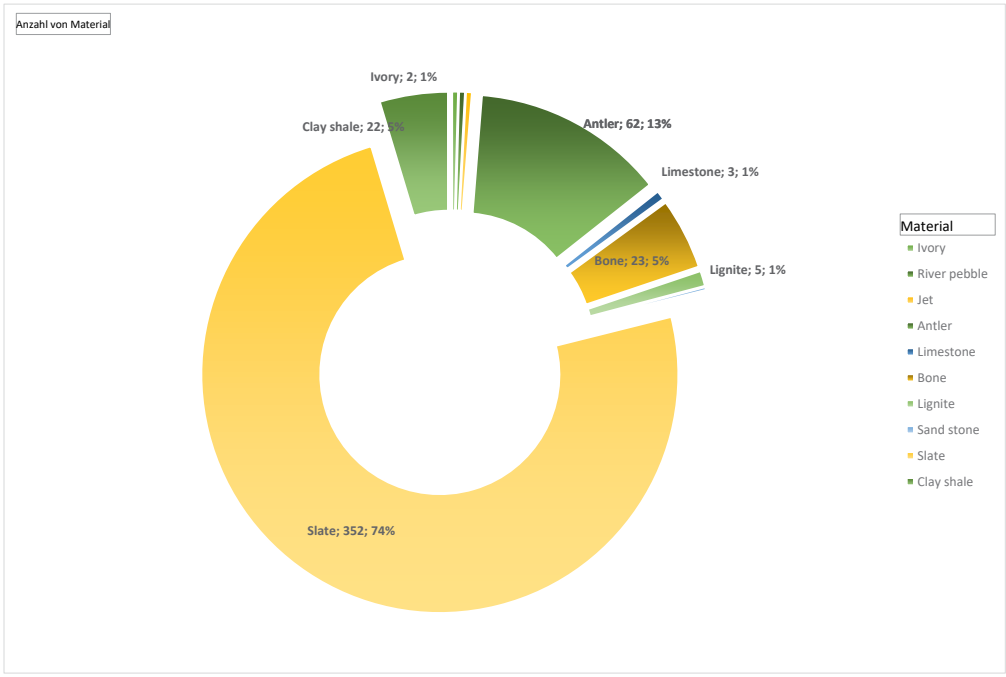

Figure 15. Magdalenian, materials used for artistic expressions (n=474).

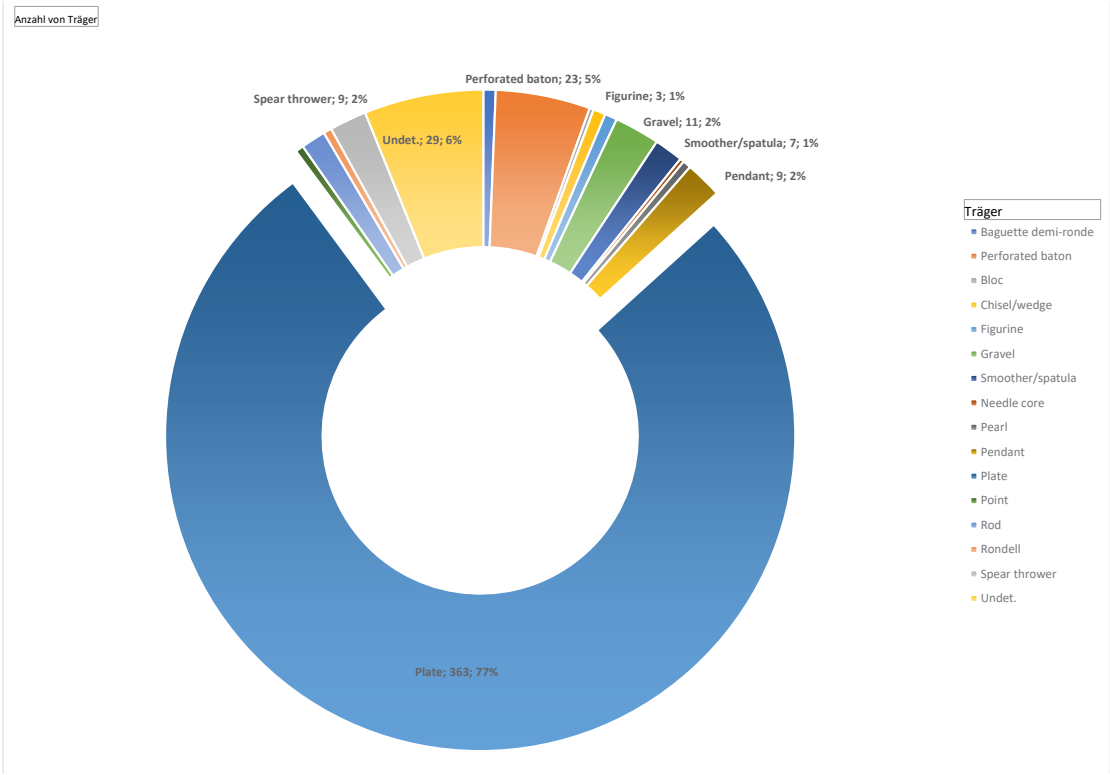

Figure 16. Magdalenian, media for artistic expressions (n=474).

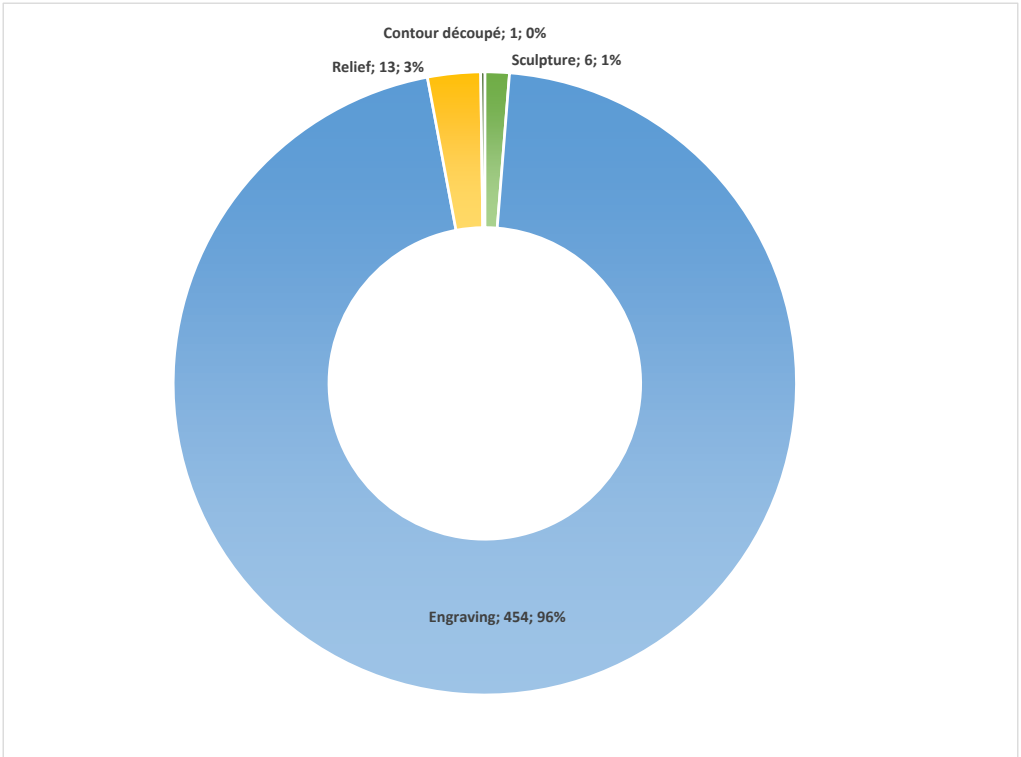

Figure 17. Magdalenian, genres of artistic expression (n=474).

Magdalenian (BOSINSKI, 1982). Within the city of Schaffhausen lies the Abri Schweizersbild. Like Kesslerloch, this site was excavated in 1891–1893 by Jakob NÜESCH (1896). Besides a Neolithic occupation, an important assemblage from the Late Magdalenian was found at Schweizersbild.

In the Czech Republic, there are the sites of Býčí skála, Deravá skála, Hostim, and Pekárna (OLIVA, 2017; VALOCH and LÁZNIČKOVÁ-GALETOVÁ, 2009). The largest assemblage comes from Pekárna Cave. The first excavations took place in the late 19th century by Jan Knies, Heinrich Wankel, and Martin Kříž. Extensive work in the cave was done by Karel Absolon from 1925 to 1930 (ABSOLON and CZIŽEK, 1926-1927, 1932). Bohuslav KLIMÁ (1965) worked at the front of the cave in 1954 and 1961–1965, and later Jiří Svoboda in 1986–1987 (SVOBODA *et al.*, 2000).

The collective information about the Magdalenian portable art included in this paper was collected from various publications (ABSOLON and CZIŽEK, 1926-1927, 1932; ALBRECHT *et al.*, 1994; BOSINSKI, 1971, 1982, 1994; BOSINSKI and FISCHER, 1980; BOSINSKI and GÜTH, 2008; BRAUN, 2005, 2012; FEUSTEL, 1974, 1980; GÜNTHER, 1964; HOLDERMANN *et al.*, 2001; KLIMÁ, 1965; LÁZNIČKOVÁ-GONYŠEVOVÁ, 2001, 2002; MAUSER, 1970; MÜLLER-BECK and ALBRECHT, 1987; PETERS, 1930; PFEIFER, 2016; SCHMIDT, 1912; VALOCH and LÁZNIČKOVÁ-GALETOVÁ, 2009). A total of 474 animal depictions are present in the Magdalenian of Central Europe. In contrast to the Aurignacian and the Pavlovian, the artists used a broader spectrum of materials and media for portable art. Slate is the predominant material with 74 %, mostly coming from the sites of Gönnersdorf and Andernach, but there is also a significant use of antler (13 %), bone, and clay shale (both 5 %), as well as many other materials. Only 1% of animal depictions are made of ivory (Figure 15). During the Aurignacian and the Pavlovian, figurative depictions of animals mainly come in the form of sculptures of single individuals. However, in the

Figure 18. Examples of engraved animals from the Magdalenian. 1) Bâton percé from Petersfels, with two male reindeer following each other (after MAUSER, 1970, modified); 2) Bâton percé from Schweizersbild with two horses, probably a mare and her foal (Beat Scheffold, with courtesy of K. Schäppi, Kantonsarchäologie Schaffhausen); 3) engraved herbivore rib from Pekárna Cave with three bisons, two probably engaging in a fight (drawing after LÁZNIČKOVÁ-GONYŠEVOVÁ, 2002; photograph after OLIVA, 2015, modified. With courtesy of P. Neruda, Moravian Museum, Brno), and 4) engraved herbivore rib from Pekárna Cave with grazing horses (after LÁZNIČKOVÁ-GONYŠEVOVÁ, 2002).

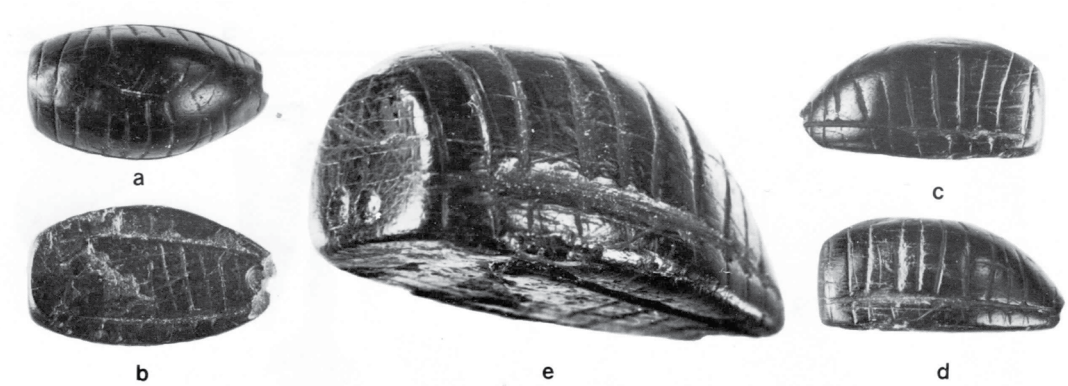

Figure 19. Rosenstein-Kleine Scheuer, small figurine of an insect larva made from lignite, probably a botfly (Oestridae) (after BOSINSKI, 1982, Taf. 36.4).

Magdalenian the assemblage is dominated by engraved plates (76 %), followed by perforated batons (5 %) and other different types of tools and personal ornaments (Figure 16).

Another big difference to the previous techno-complexes is the genre of artistic expressions. While before it was mainly small figurines, in the Magdalenian there is a strong shift to engravings (96 %) (Figure 17). Another change concerns the number of depicted animals on one object. Since most pieces of art in the Aurignacian and Pavlovian are sculptures, there are mostly single individuals that are depicted. In the Magdalenian, where the predominant genre is the engraving, up to 23 individuals appear on one object, sometimes clearly interacting with each other (Figure 18). The themes also change considerably. In the Aurignacian and the Pavlovian there was more or less the same ratio of herbivores and carnivores. However, in the Magdalenian the portion of carnivores shrinks to 3 %. The main subject is herbivores with 79 %, in addition to a large variety of other animal themes, such as marine mammals (3 %), birds (6 %), fish (5 %), and even amphibians, reptiles, and insects (Figure 19 and Figure 20).

Regarding the taxonomic order (Figure 21), ungulates, both Perissodactyla and Artiodactyla, are the most represented. Horses are dominant, mammoths are also highly represented, but it is mainly Gönnersdorf where these animals appear. What is striking is the occurrence of pinnipeds, all originating from Gönnersdorf and Andernach. Birds are a recurrent topic (n=27), showing a great variety (see Figure 23 and Figure 24). Fish were identified in 21 cases, though usually not specified any further and are sometimes depicted very schematically. Noteworthy are the cases of Anura (frog, n=1) and Testudinata (turtle, n=2) from Gönnersdorf, as well as Diptera (fly, n=2) and Coleoptera (beetle, n=1) from southern Germany.

Looking at the genera (Figure 22) horses and mammoths dominate the Magdalenian portable art (Figure 23 and Figure 24). Both species are very often depicted in Gönnersdorf. The mammoths are particularly common in Gönnersdorf and appear rarely at other sites. This is interesting because the late Magdalenian was a period of climatic warming and mammoths must have already started to retreat from Central Europe (GAUDZINSKI *et al.*, 2005; SHER, 1997; STUART *et al.*, 2002). Nevertheless, these animals are represented in large numbers and stunning detail. Other typical Pleistocene animals like *Rangifer*, *Coelodonta* (Figure 24), *Saiga* (saiga antelope), and *Ovibos* appear in considerable quantities. Therefore, these animals must have been present, and people must have been in close contact with them. The marine mammals, which are identifiable to the family Phocidae,

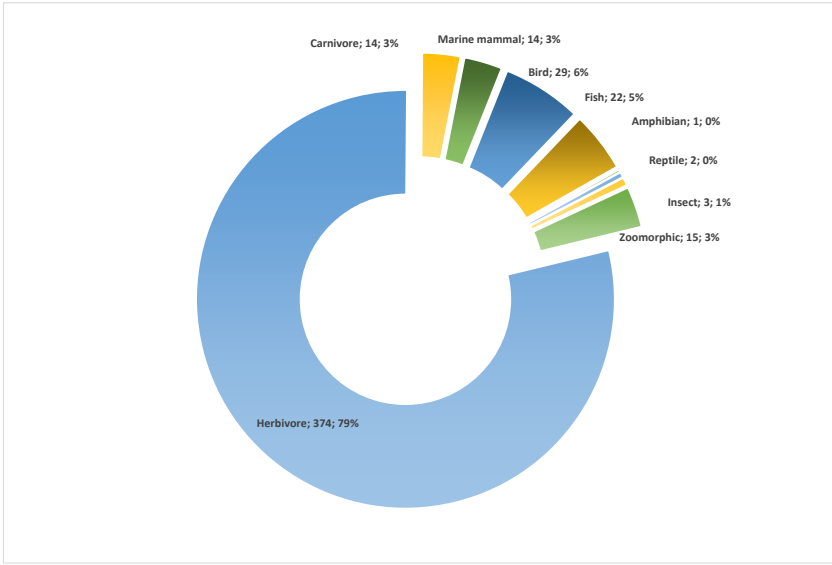

Figure 20. Magdalenian, themes for animal depictions (n=474).

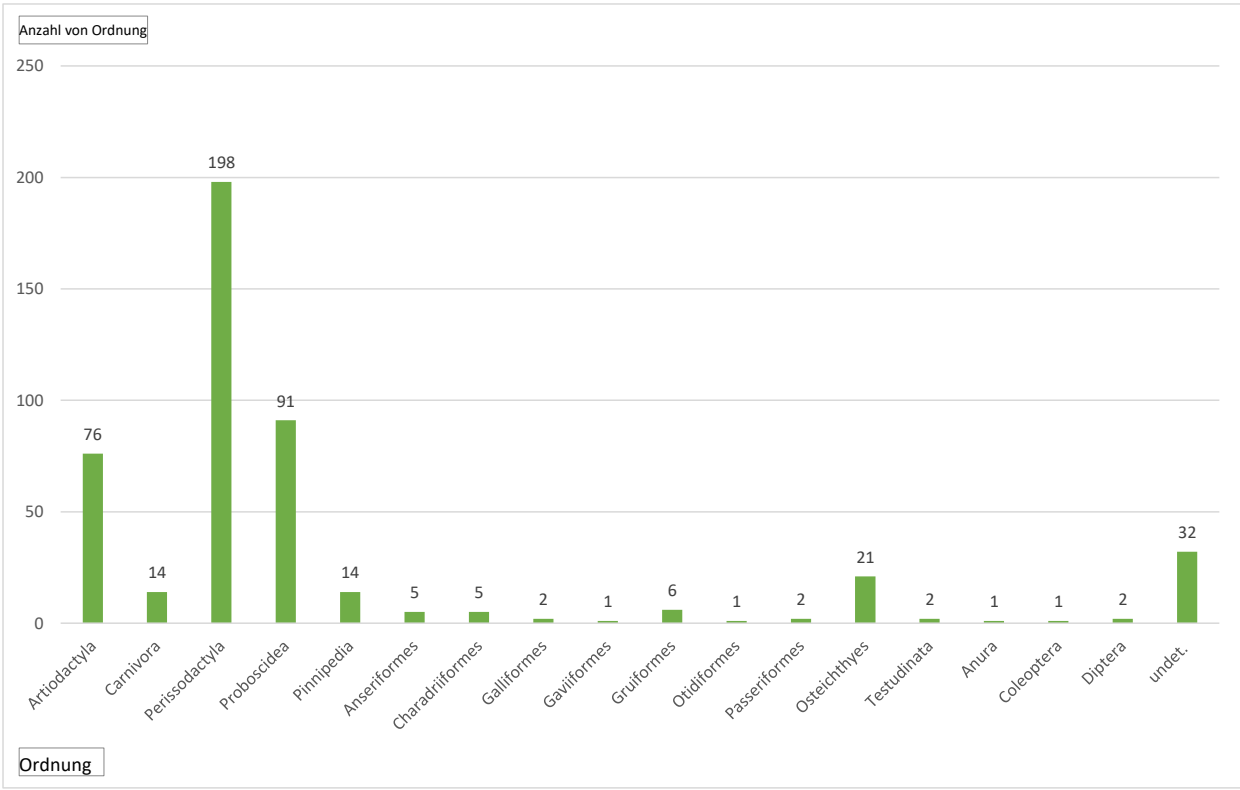

Figure 21. Magdalenian, identified taxonomic order of animals in mobile art (n=474).

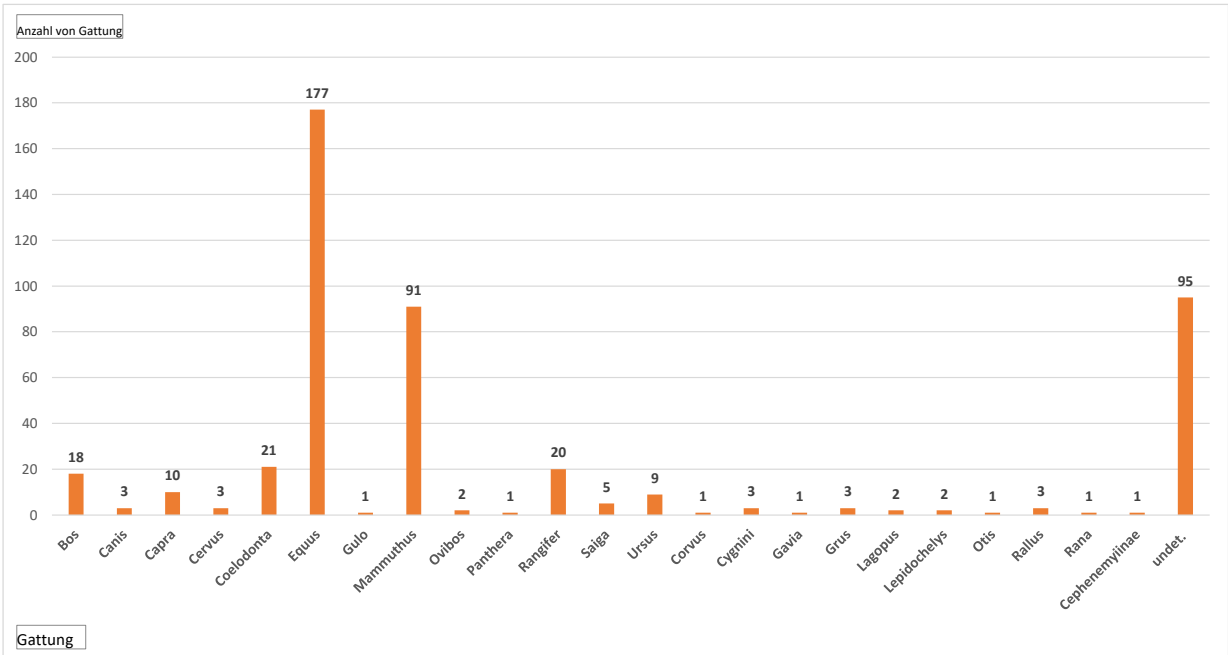

Figure 22. Magdalenian, identified taxonomic genera of animals in mobile art (n=474).

are also interesting. They do not appear in the faunal record at Gönnersdorf, so it seems that the people must have spent time in places where they would have seen these animals. As the aminals are depicted in an astonishingly anatomically correct way, it is to be assumed that people have seen them before. A large variety of birds are represented. Mostly there are various waterfowl, but also *Lagopus* (snow grouse, Figure 24) and Corvids are depicted. Unusual animals, such as the turtle and frog, expand the spectrum. The rather schematic fish depictions are difficult to identify; in only a few cases Salmonidae and Acipenseridae are apparent. Most of the subjects are adults (n=315), 23 are juvenile and there are two instances of larval insects; 134 subjects remain undetermined. Concerning gender, most of the depictions remain undetermined (n=447). Nonetheless, six subjects are confirmed to be female and another five may also be female. There are 15 confirmed cases of male subjects and another case may also be male.

To compare the depicted animals with the faunal material, I used the assemblages from Gönnersdorf (POPLIN, 1976; STREET and TURNER, 2013) and Petersfels (MAUSER, 1970). The horse is among the most depicted animals, and also one of the mainly hunted and processed species. Other animals that play a major role in the faunal material, like *Lepus*, *Rangifer*, or *Vulpes*, are not among the preferred motifs for art. The large herbivores like *Bos/Bison*, *Coelodonta*, and *Mammuthus* appear often in the art but are rarely found in the faunal material. Birds and fish appear regularly in the art as well as in the faunal material (Table 4 and Figure 25).

6. Summary and Conclusion

Animal depictions in the Paleolithic portable art of Central Europe are a widespread phenomenon. They first appear around 40,000 years ago in the Swabian Aurignacian. Here, a total of 35 identifiable animal depictions were discovered. The figures are a few centimeters large and usually made from mammoth ivory. They were personal items worn close to the body as adornment as it is evidenced by holes that served as eyelets for hanging and were

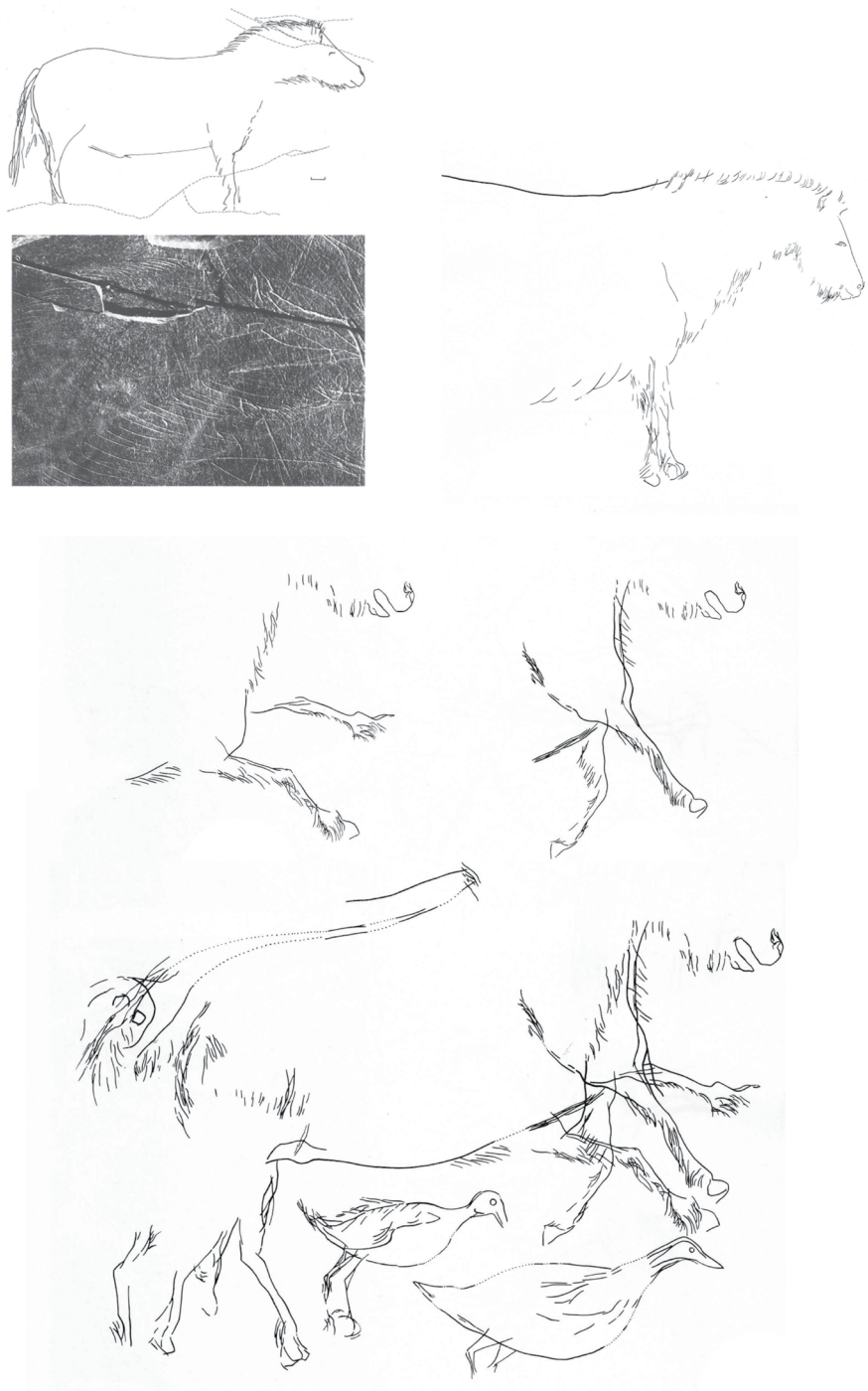

Figure 23. Examples of horse engravings on slate plates. Andernach, Platte 1, detail photography and drawing (after BOSINSKI, 1994, modified); Gönnersdorf Platte 20, drawing (after BOSINSKI and FISCHER, 1980, modified); Gönnersdorf Platte 168, drawings of details (after BOSINSKI and FISCHER, 1980, modified). The latter shows several horses running, two birds (Anatidae and Rallus aquaticus), one cervid and an anthropomorphic figure.

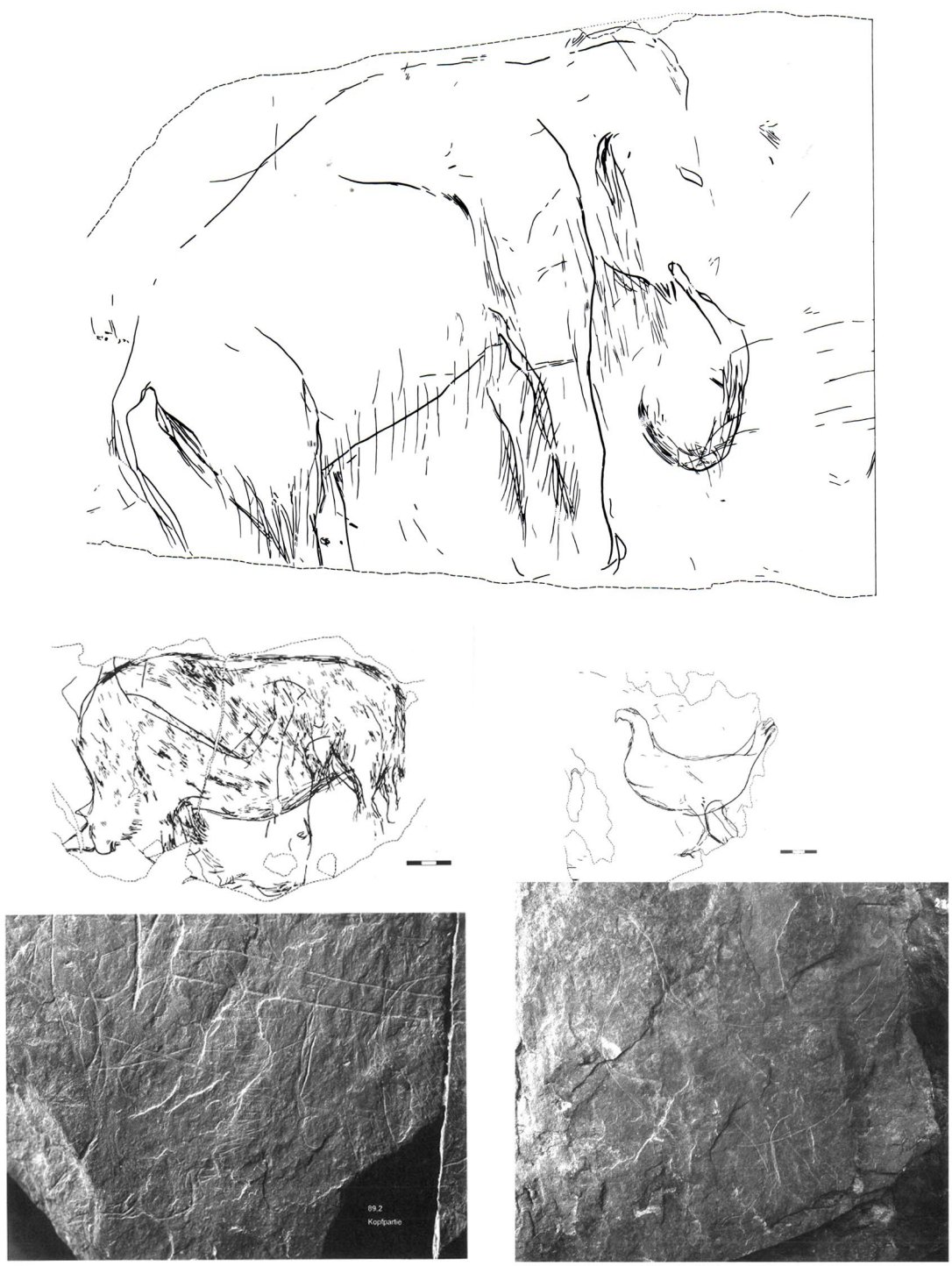

Figure 24. Gönnersdorf, engraved slates plates. Platte 98, extremely detailed mammoth engraving (after BOSINSKI and FISCHER, 1980, modified); Platte 89, wholly rhinoceros (after BOSINSKI and GÜTH, 2008, modified); Platte 270, Lagopus mutus (after BOSINSKI and GÜTH, 2008, modified).

	Gönnersdorf MNI (POPLIN, 1976)	Gönnersdorf MNI of K I, II, III, IV, SW (STREET & TURNER, 2013)	Petersfels MNI (MAUSER, 1970)	MAG animal depictions MNI
Alces alces		1		
Bos primigenius/Bison priscus		4		18
Canis lupus	2	3		3
Capra ibex				10
Cervus elaphus	5	2		3
Coelodonta antiquitatis				21
Equus ferus	13	58	100	177
Gulo gulo				1
Lepus sp.	7	27	870	
Mammuthus primigenius	1			91
Ovibos moschatus				2
Panthera spelaea				1
Rangifer tarandus	4	7	640	20
Rupicapra rupicapra		2		
Saiga tartaica		1		5
Ursus sp.				9
Vulpes sp.	33	35	45	
Birds	8	16	249	22
Fish	2			22
Total	**75**	**156**	**1904**	**405**

Table 4. MNI (Minimum Number of Individuals) of Gönnersdorf (after POPLIN, 1976; STREET and TURNER, 2013) and Petersfels (after MAUSER, 1970) in comparison to the identified species of animal depiction in the Magdalenian.

possibly connected with spiritual beliefs. Polish on prominent parts indicate that the objects were in use for a long time (DUTKIEWICZ, 2021; MARSHACK, 1976). They were usually found in a settlement context, which indicates their everyday use. Almost all animal figures are designed as three-dimensional figurines. The most common animals depicted are the mammoth (10) and the cave lion (6). In addition, there are horses (2), bison (1), muskox (1), and bear (1). This focus on large and impressive animals has already been described by Joachim HAHN (1986). However, recent excavations also revealed some small animals: fish (2), waterfowl (1), and a small insect eater, possibly a hedgehog (1). Although "strength and aggression," as described by Hahn, was certainly a driving factor in the imagination of the Aurignacian people in the Swabian Jura, nevertheless there is a broader spectrum of representations, which also requires other explanations. From archaeozoological studies, it is known that the people of the Aurignacian supplemented their diet with fish (CONARD and MALINA, 2012), a circumstance that perhaps also led to the artistic engagement with these animals. However, the fact that the depictions were not influenced solely by dietary familiarity becomes clear when comparing the percentage of the depicted animal species with the faunal remains. In the Aurignacian layers of Vogelherd, the most frequently hunted and processed animals are horses and reindeer, as well as mammoths (NIVEN, 2006, 2007). Horses appear only twice and reindeer appear with no secure evidence. Only for mammoths is there a similar number of artistic representations and faunal material. However, it should be noted that many of the mammoth bones could have been

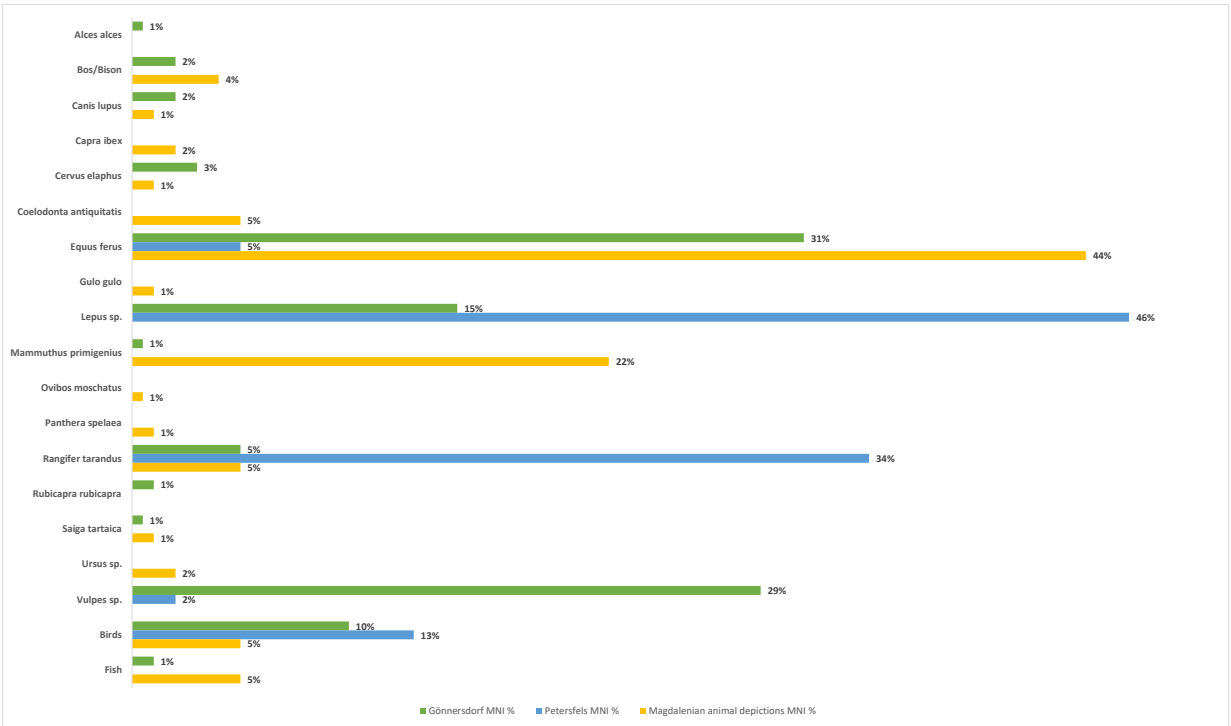

Figure 25. Magdalenian, the percentage of MNI of species in the zooarchaeological record of Gönnersdorf (counted together after POPLIN, 1976; STREET and TURNER, 2013) and Petersfels (after MAUSER, 1970) in comparison to the animals in mobile art.

introduced into the cave in a skeletal state, as indicated by some accumulations of large bones and tusks (DUTKIEWICZ, 2015; NIVEN, 2006, 2007; RIEK, 1934).

In the Gravettian, the Swabian Jura was no longer a center of artistic creation in the same way it had been during the Aurignacian. Except for the engraving of an ungulate carved on an antler from Hohle Fels, no further animal representations are recorded. During this time, the center of the creation of art in Central Europe was in the region of Moravia. The local phenomenon is called the Pavlovian, after one of the major sites in this region. Large open-air sites, that are extremely rich in all kinds of archaeological remains, including figurative artworks, are typical. The sites Pavlov I and Dolní Věstonice I contain the richest assemblages. Single finds of typical Pavlovian animal figurines are also found in Krems-Wachtberg (Austria). Small animal figurines are characteristic, but what is striking is the use of a new raw material: most of the figures were made of clay and then fired in special kilns. During the firing process, the objects were destroyed, so that the figures are mostly preserved in fragments. The shaping and subsequent destruction was part of the use and purpose of these objects. The damage and the fact that the figures often seem quite coarse and quickly made makes it difficult to determine what the figurines are supposed to represent in many cases. Besides the burnt clay figurines ivory remains in use. Figurines, but also numerous personal ornaments and decorative objects, were made of ivory. They were carefully crafted and apparently intended for long term use. Concerning the depicted animal species, there is a similar picture to the Aurignacian; there are mainly large carnivores, such as felids (7) and bears (5), and large herbivores such as mammoth (19) and woolly rhinoceros (3) which were the

preferred types of species to depict. Smaller and medium carnivores - wolf (1), wolverine (1) and fox (1), and herbivores – ibex (1), horse (1), reindeer (2), and saiga (1) – are occasionally present. Birds have been identified eight times, always in the form of owls (Strigiformes). This speaks to a special meaning of these birds in the Pavlovian (HUSSAIN, 2018). In contrast to the Aurignacian and the following Magdalenian, fish are not depicted at all. The comparison between the fauna and the artistic depictions shows that there are again significant differences between the animals that were hunted and processed and the depicted animals. Small and medium-sized carnivores as well as hares are the most commonly identified animals in the faunal material of Dolní Věstonice I and Pavlov I, even though these animals were barely depicted. Woolly rhinoceros, lion, and bear were frequently depicted, but are underrepresented in the faunal material. For horses, wolverines, and reindeer, the relationship is balanced, with a slightly higher proportion in the archaeozoological record. Mammoth is the most commonly represented animal and it is also quite common in the faunal material. Elk, bovid, deer, and lynx are occasionally present but play no role in the art. In the Pavlovian, as in the Aurignacian, there is a significant difference between the hunted and processed animals, and the species that found their way into the artistic imagination.

In the Magdalenian, the strongest changes in artistic expression compared to the previous techno-complexes appear. First of all, the wide distribution of animal representations is noticeable. While there are veritable centers with large assemblages of figurative art in the Aurignacian and Gravettian/Pavlovian, in the Magdalenian there is a total of 23 sites with animal representations (Table 1). Gönnersdorf has the largest collection of representations but is by no means the only one that has a large inventory. Most of the sites (16) have 1-10 representations, six sites have 10 to 50, and the richest site, Gönnersdorf, has yielded a collection of 301 individual animal representations. In addition to the proliferation of animal representations, there is also a much greater variation in the use of raw materials for the production of artistic expression within the Magdalenian. Although slate is the dominant material due to its abundance in Gönnersdorf, a large variety of other raw materials, such as antler, bone, clay, shale, lignite, and others are present. This broad spectrum of variation is also reflected in the artistic media. Plates, which are again greatly utilized at the site of Gönnersdorf, are the most used medium, but also tools, such as perforated batons, smoothers, spear-throwers, or personal ornaments bear animal representations. Interestingly, animal representations are rarely seen as three-dimensional figurines, in strong contrast to the Aurignacian and Gravettian/Pavlovian. This is also reflected in the artistic technique, for example in the Magdalenian, almost all animal depictions are engravings, both on the plates and the numerous other media. There is a total of 13 reliefs; sculptures are only identified in six cases.

Thematically, there is also a big change. While the percentage of carnivores and herbivores in the Aurignacian and the Gravettian/Pavlovian is balanced, the carnivores disappear almost completely from the Magdalenian representations, and if they are present then they only show up in the form of bears (9). In only one single case is a felid identified. Mammoths are still common (91), but they are far behind the number of horse depictions (177). Large and medium-sized herbivores such as woolly rhinoceros (21), bovids (18), ibex (10), and reindeer (20) are common. From Gönnersdorf and Andernach marine mammals (14) are also known. Other species are occasionally recorded. The large proportion of birds (29) is striking. They are mainly from Gönnersdorf and show a very wide range of different species. Fish (22) are common but are usually represented very schematically so that a taxonomic identification is impossible with a few exceptions. Unusual representations like frogs, turtles, and insects are also present. For the Magdalenian, there is a strong thematic selection for horses and mammoths, while the accompanying fauna shows great variability in species. If one compares this with the faunal material from Gönnersdorf and Petersfels, it is clear that despite the focus

on herbivores, the hunted and processed fauna is by no means reflected in the art. Horses, by far the strongest component in art, play a much smaller role in the faunal material. Reindeer is among the main hunted and processed species, yet it appears rarely in the art. The animals that were most frequently hunted in the two reference sites – rabbit and fox – are not present in the depictions. Birds, though represented in considerable numbers, play a significant role in the faunal material. The mammoth, the second most commonly depicted animal, is almost absent in the faunal material. Mammoth, as well as the wooly rhinoceros, retreated from Central Europe by the end of the last glaciation but both remain a striking component in the figurative art.

In summary, it can be said that the animal representations in the Paleolithic of Central Europe are subject to drastic changes over time. The themes, the species, and the way to represent animals changes palpably. In the Aurignacian, small sculptures made of ivory mainly show large and impressive animals such as lions and mammoths. The predilection for impressive animals remains in the Gravettian/ Pavlovian, but there seems to be a change of use. While the tradition of manufacturing carefully crafted figures in ivory continues, a new type of depiction of animals emerges at this time: short-lived quickly crafted clay figures. The thematic similarities between Aurignacian and Gravettian/Pavlovian, are striking, as is the manner of making three-dimensional figurines. The largest change appears in the Magdalenian. The media, the raw materials, the style, and the themes change significantly. Although there is a much wider range of variation in raw materials and media, the themes are much more limited: horse and mammoth dominate the art whereas the variety of all the other species appear only in few specimens. Animals are no longer designed as three-dimensional figures but mostly made as engravings.

How can these similarities and changes in the artistic expression be explained? The beginning of figurative art is usually brought into connection with the appearance of anatomically modern humans in Europe. The spread and development of the Early Upper Paleolithic in Eurasia is widely considered as a result of this migration, colonization, and very likely interaction with Neanderthals and other human populations (e.g. CONARD and BOLUS, 2003, 2008; MELLARS, 2005; ROEBROEKS, 2008). Studies of mtDNA show that the migration of modern humans with the Haplogroup M into Eurasia started around 50,000 BP. Around 37,000 BP, the "basal Eurasian" population is founded, which can be traced up to modern times. Individuals dating from around 37,000 BP (Kostenki14) up to around 14,000 BP (Villabruna Cluster), all seem to derive from "one single ancestral population with no evidence of substantial genetic influx from elsewhere" (FU *et al.*, 2016). The Věstonice Cluster, associated with the Gravettian/Pavlovian lies within the "Basal Eurasian" population but does not show genetic connections with the individual from Mal'ta1 in Siberia. Although there are cultural connections manifested, for example in the female figurines that are typical for this period, FU and colleagues (2016) states that no genetic exchange happened. The differences in the style of the figurines support the model in the sense that there is a diffusion of ideas but not of people. The Last Glacial Maximum (LGM) from roughly 24,000 to 19,000 cal BP is a period where large parts of Central Europe were depopulated or only scarcely inhabited. The populations withdrew and formed techno-complexes like the Solutrean and Badegoulian in the Southwest or the Epi-Gravettian in the Southeast (OLIVA, 2017; OTTE, 2018; OTTO-BLIESNER *et al.*, 2006; SHIN *et al.*, 2003; TERBERGER and STREET, 2002). Some population movement within the pre-LGM period has been identified in two different branches of the Aurignacian population. GoyetQ116-1 (AUR) has not been identified in the population of the Věstonice Cluster but prevails in the Iberian El Mirón Cluster. The latter is associated with the Magdalenian population that spread across Europe after the LGM around 18,000 BP from Southwest Europe. Form 14,000 cal BP on, with the Villabruna Cluster, all European individuals show genetic connections to the Near East (FU *et al.*, 2016). When it comes to the material culture, and particularly the portable art, the population

dynamics seem to be reflected in the art. There is a rather gradual change from the Aurignacian to the Gravettian/Pavlovian, and a more abrupt change with the Magdalenian after the LGM. The strong concomitant change in material culture and cultural norms/ideas after the LGM is connected to the establishment and spread of new populations during the Magdalenian repopulation of Central Europe. Although genes say nothing about the cultural ideas and values, they support the observations that were made in the archaeological material. Migration movements and above all the great wave of depopulation and repopulation of Central Europe around the LGM can be directly correlated with the immigration of a new population. These people were exposed to new challenges and had to find their way in new living conditions and environments. Something that has certainly also found expression in their values, cultural practices and in their stories, which is preserved to this day in their works of art.

Furthermore, there remains the question, why are animal depictions in Central Europe limited to certain regions, like the Swabian Jura or the Pavlovian sites, and other regions, like today's Poland or Austria, show hardly any animal representations. Besides the "centers" of artistic creation, portable art is present in other regions, but in the form of human depictions and mostly in isolated pieces. For the Aurignacian, there are the sites of Stratzing in Austria and Breitenbach in Germany, that yielded possible female depictions. In the Gravettian, there are Brillenhöhle, Mainz-Linsenberg, and Weinberghöhlen/Mauern in Germany, as well as Willendorf and Krems-Wachtberg where female figurines were found. In the Magdalenian, human depictions in the form of female figurines and engravings expand the occurrence of portable art into Poland at Dzierżysław, Maszycka, Obłazowa Cave, and Wilczyce. The scarcity of portable art and particularly animal representations may have several reasons. Some parts of Central Europe were only sparsely populated in certain periods due to climatic conditions and accessibility. Other parts may be influenced by taphonomic processes, which did not allow for the conservation of the raw materials, or be subject to erosions or alluvials, that may have destroyed the art objects. People also may have used more perishable materials for art production. Another reason might be population densities. The more people that lived in a certain region, the more likley art might have been produced and therefore there is a greater chance of conservation and finding of artistic objetcs. There are good hints that some places, like the Swabian caves, the open-air-sites of Moravia, or the Magdalenian sites of Gönnersdorf and Andernach, were inhabited for longer periods of time suggesting that some groups/populations may have even been semi-sedentary. Therefore, an accumulation of artistic expressions in combination with favorable conservation conditions, as well as cultural behavior that enhances artistic production may be the reason why certain sites or regions have very rich assemblages of animal depictions whereas others only have human depictions or none at all.

The last question is, what the motivation for chosing particular animal species for artistic expressions may have been. The comparisons with the faunal material show that it is not the animals that were hunted and processed that most often dominated the art. The represented species are animals that were present in the environment, as proven by the detailed depictions and the archaeozoological studies. However, the percentages of certain depicted species show an under-, or overrepresentation caused by the selection as motives for artistic expression. Cave lions, for example, were present in the Aurignacian paleoenvironment, but certainly did not represent 30 % of the fauna; mammoths that are a common topic of Magdalenian art with 22 %, were at the brink of extinction and while still being around, were not the dominant species at the end of the Pleistocene. Rather, it turns out that the representations seem to be manifestations of human concepts – perhaps stories or myths that people told of special encounters, animals of a "higher" status, the interest because of the rarity of certain animals, genealogies, or relationships

with certain animals. While the faunal remains tell us a lot about everyday life, the animals in art give us insights into the thoughts and beliefs of Paleolithic people.

Acknowledgements

I would like to thank Dr. Britt Starkovich and Dr. Sibylle Wolf for their extremely helpful comments. I thank Professor Dr. Gerhard Bosinksi, Professor Nicholas Conard Ph.D., Dr. Martina Galetová, Dr. Petr Neruda, Dr. Martin Novák, and Katharina Schäppi for the permission to use the pictures of the artworks mentioned in this paper. I thank an anonymous reviewer for reading this text and the very useful comments. Finally, I thank Dr. Dario Sigari and Dr. Sara Garcês for their work in editing and publishing this book.

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Revista ArkeoGazte Aldizkaria
Nº 11, pp. 113-143, year 2021
Received: 11-02-2019; Reviewed: 20-10-2020; Accepted: 29-07-2021
ISSN: 2174-856X

ZOOMORPHIC FIGURES IN THE POST-PALAEOLITHIC ROCK ART OF THE ITALIAN PENINSULA AND ISLANDS

Irudi zoomorfoak penintsula italiarreko Paleolito osteko labar-artean

Las figuras zoomorfas en el arte rupestre post-paleolitico de la peninsula italiana

Renata Grifoni Cremonesi (*)
Anna Maria Tosatti (**)

Abstract

This work examines animals' representations of the post-Palaeolithic rock art that can be found on walls of caves and shelters located in the Italian peninsula, along the Apennine ridge, and in the main islands. The rare represented animals are Neolithic cervids in hunting scenes and very schematic figures of quadrupeds, few birds and fishes, datable between Chalcolithic and Bronze Age. Representations of anthropomorphic and abstract figures are dominant. Images of horses and riders, dogs and cervids, depicted more realistically and in motion, can be surely related to the Iron Age.

After an analysis of evidence identified from Liguria to Sicily and the islands, attention is directed to the opposition of this lack of images in rock art, which are often located in places with a high symbolic and sacral value in addition to their function of controlling routes and territories, to the abundant frequency of domestic and wild animals' remains observable in several cave and outdoor sites surely related to cults and ritual offers.

The sacred significance of deers, bulls (represented with protomes), canids, horses, can be observed too: as their presence in many mythologies and in Christian symbologies demonstrate, their symbolic meaning has been perpetuated until historical periods.

Key words

Italian Rock Art; Italian Prehistory; Prehistoric zoomorphic figures; Neolithic engraves; Italian Chalcolithic.

Laburpena

Lan honetan, penintsula italiarreko kobazulo eta aterpeetan, Apenino mendikatean eta uharte handienetan dauden Paleolito ondorengo labar-arteko animalien irudikapenak aztertzen dira. Oso ohikoak ez diren animalia irudi hauek, ehizako eszenetan agertzen diren zerbido neolitikoek eta Kalkolito eta Brontze Aroen artean kokatzen diren koadrupedo oso eskematikoek (hegazti eta arrain gutxirekin) osatzen dituzte. Irudi antropomorfiko eta abstraktuak dira nagusi. Zaldi- eta zaldun-

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irudiak, zein txakur eta zerbidoen irudiak, modu errealista batean eta mugimenduan margotuak, Burdin Aroarekin erlaziona daitezke.
Ligurian, Sizilian eta beste uharte batzuetan identifikatutako ebidentziak aztertu ondoren, aurkakotasun bat nabarmendu da: alde batetik, labar-artean antzematen den irudi horien eskasia (askotan, balio sinboliko eta sakratu handiko lekuetan aurkitzen direnak, bideak eta lurraldeak kontrolatzeko eginkizunekin batera) eta, beste aldetik, kobazulo eta aire zabaleko aztarnategietan aurkitu diren animalia basatien eta etxeko animalien aztarna ugariak, gurtzei eta erritu-eskaintzei lotuak. Oreinen, zezen (protomoetan irudikatuak), kanidoen eta zaldien esanahi sakratu bat ere hautematen da: hauen balio sinbolikoa garai historikoetaraino iritsi dela nabaria da, kristau sinbologian zein mitologia askotan duten presentziak adierazten duenez.

Hitz-gakoak
Italiar labar-artea; Italiar historiaurrea; Historiaurreko irudi zoomorfoak; grabatu neolitikoak; Kalkolito italiarra.

Resumen
Este trabajo aborda las representaciones animales del arte rupestre post-paleolítico que se encuentran en las paredes de las cuevas y los abrigos de la península italiana, en la cordillera de los Apeninos y en las mayores islas. Estas poco frecuentes figuras animales están compuestas por cérvidos neolíticos de escenas de cazas y cuadrúpedos muy esquemáticos, con pocas aves y peces, datables entre el Calcolítico y la Edad del Bronce. Las representaciones antropomórficas y abstractas son las dominantes. Las figuras de caballos y caballeros, perros y cérvidos, pintados de forma realista y en movimiento, pueden ser puestas en relación con la Edad del Hierro.
Después del análisis de las evidencias identificadas entre Liguria y Sicilia y otras islas, se ha puesto atención en la oposición de la falta de estas imágenes en el arte rupestre, que frecuentemente se encuentran en sitios con un valor simbólico y sagrado muy fuerte, junto a sus funciones de control de los caminos y de los territorios, con la abundante frecuencia de restos de animales salvajes y domésticos que se evidencia en muchas cavidades y sitios al aire libre, ligados a cultos y ofrendas rituales. Se observa también un significado sagrado de los ciervos, toros (representados en prótomos), cánidos y caballos: tal y como nos enseña su presencia en muchas mitologías y en simbologías cristianas, su propio valor simbólico se ha mantenido hasta los periodos históricos.

Palabras Clave
Arte Rupestre italiano; Prehistoria italiana; figuras zoomorfas prehistóricas; grabados neolíticos; Calcolítico italiano.

Revista ArkeoGazte Aldizkaria
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ISSN: 2174-856X

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Renata Grifoni Cremonesi(*) & Anna Maria Tosatti(**)

1. Introduction

The predominance of animal figures in the prehistoric art, especially the Palaeolithic expressions, decreases in successive periods: hunting scenes representing men with bows chasing cervids and bovids seem to begin during the Mesolithic period and are typical of the Spanish Levant where they are numerous between the Neolithic and the Iron Age (BELTRAN, 1968).

During the Neolithic period, there are very few examples of rock art, the only known paintings are in the Western Alps. An example includes the hunting scene with the archer and a horned quadruped (likely an Alpine ibex) on a little wall in the "Gias des Peintures" (Val d'Enfer, Tende: MANO 1995; FOSSATI and ARCÀ 2012: 176, figure 2: 4). A few other examples of Neolithic art (engravings and paintings) can be found in the Central-Southern Italy and in the islands. In the most ancient phase, they are characterized by hunting scenes. Representations of deer are located in the Riparo Rinaldi of Tuppo dei Sassi (Potenza) (GRAZIOSI 1973: 147, XLC; BORZATTI von LOWENSTERN and INGLIS, 1990), in the Apulia region. They can be found in the Grotta dei Cervi in Porto Badisco near Otranto (LE) and in the Grotta Cosma (Santa Cesarea Terme, LE) GRAZIOSI, 1973: 146, figure 168;1980). The representations of deer are chased by men with bows. Another hunting scene can be seen in the Grotta di Su Longu Fresu in Sardinia (GRADOLI and MEADEN, 2011).

The anthropomorphic figures of the Grotta Cala del Genovese in Levanzo (Egadi Islands, TP) can be dated to the Neolithic period too. These figures are accompanied by three images of big fish and by other zoomorphic figures (GRAZIOSI, 1973).

Since the late Neolithic period, a specific style of schematic art starts to prevail. This style is expressed with stylised symbols that now seem to refer to a world where the dominant element has male features. In the Alps these symbols consist of knives, halberds, axes, taurine protomes, ploughing scenes with yoked bovines, which can also be found in the statue-stelae together with necklaces and cloaks. Anthropomorphic figures continue to be represented whilst grids, zig zags, chains of rhombuses and five-pointed stars abound. The comparison of these symbols with the objects found in the Copper Age male

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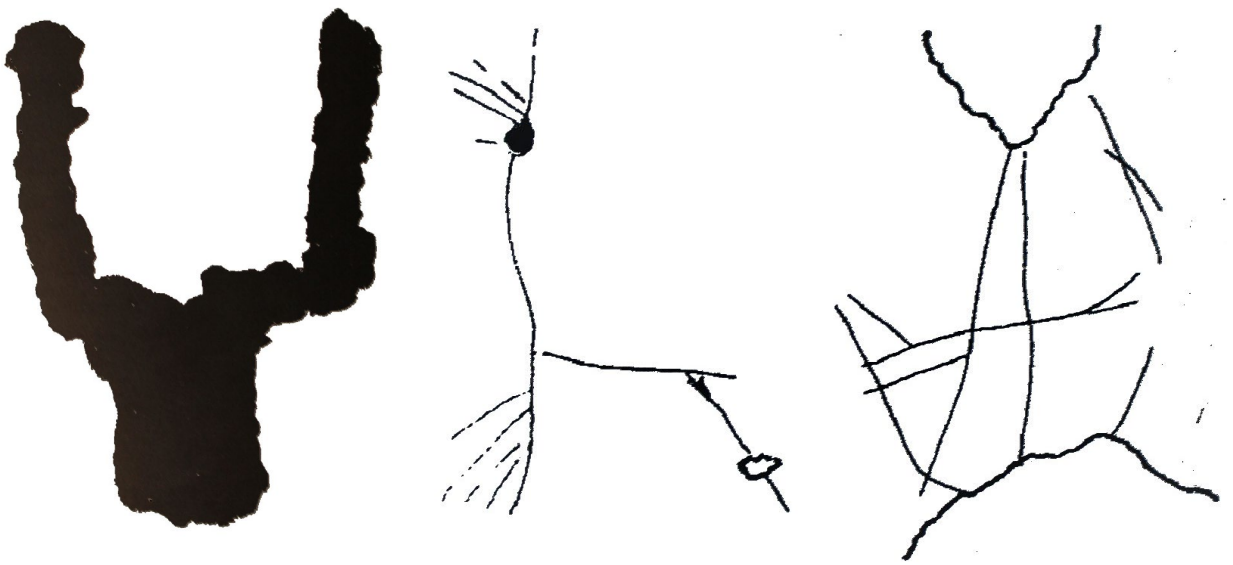

Figure 1. Riparo dei Buoi (Finale Ligure, SV), taurine protome (PRIULI and PUCCI, 1994) (left). Arma della Moretta (Finale Ligure, SV), long horned theriomorphic figure hunting (?) deer (PRIULI and PUCCI, 1994) (right).

graves is obvious and surely indicates a change of ideologies based on the value of weapons and on socio-economic transformations (metallurgy, introduction of the use of ploughs, bovines and control of agricultural and mining areas, etc.). In this wide panorama, zoomorphic symbols seem to be missing or are at least very rare. Sometimes they are difficult to recognize amidst the chaos of overlapping signs engraved or painted onto the walls of small shelters or on the rocks and boulders which are always located in high visibility points in order to control routes and territories.

Below there is a list of zoomorphic representations identified among the engravings and paintings on the rocks along the Apennine ridge and the Tyrrhenian islands. These sites are described with a geographic parameter. Regions and provinces are presented starting from the North with the Liguria region proceeding down the peninsula with other regions where cases of zoomorphic engravings have been reported (Tuscany, Umbria, Abruzzo, Molise, Lazio, Basilicata, Apulia) and concluding with the Sicily and the Sardinia islands. Corsica is also included (politically French, but geographically Italian). A small description of the environmental situation and an essential bibliography are provided for each site.

2. Liguria

2.1. Province of Savona - Territory of Finale Ligure

In the coastal area Finale Ligure extends from Capo Caprazoppa to Capo Noli and it is characterised by the “Pietra di Finale”, a dolomitic limestone. It is rich in hydrography including caves and shelters. It has been inhabited many times since Prehistory. On wide stone planks (called “ciappi”) human groups left several engravings. Some examples are Ciappo de Cunche, Ciappo dei Ceci, Ciappo del Sale.

- Riparo dei Buoi: A rock shelter near Ciappo de Cunche, partially utilized by men in order to make it more comfortable. They created seats, columns with pilaster strips and benches. At the bottom there is a series of complex linear, geometric and cruciform engravings. A

zoomorphic element of the site is represented by a taurine protome type Mount Bego (Figure1a) (PRIULI and PUCCI, 1994:42; PRESTIPINO, 2007: 41).

- Roccia dell'Altare (Val di Nava): Roughly a 20 smq wide rocky outcrop, located on a cliff with, at its center, a big quadrangular basin featuring many gutters, cup marks and crosses. An engraved "bucranio" (bull's skull) can also be found too (PRIULI and PUCCI, 1994: 50; PRESTIPINO, 2007:44).

- Arma della Moretta: A small cave, which is known for the linear and thin engravings covering its floor and ceiling. Among several figures including cruciforms and geometric lines are a linear zoomorphic quadruped with five lines originating from its head (most likely a deer) and an armed (potentially a spear?) anthropomorphic figure with a horned head are worth considering. This is because the quadruped figure has a particular stylistic comparison with the engravings from Southern Italy (cf. Riparo Il Cavone in the territory of Bari. ASTUTI, *et al.*, 2008) and Southern France (Figure 1b) (GIUGGIOLA, 1979; PRIULI and PUCCI, 1994: 53 figure 137).

- Rocca Carpanea: A little hill in the Aquila Valley with linear engravings. Between these engravings there are schematic anthropomorphic figures similar to Ciappo de Cunche's ones. Nearby, there are non-ancient engravings as an image of the game of "tris" (merels) can be found near to an empty outline of a fish (PRIULI and PUCCI, 1994: 48-49).

2.2. Territory of the Massiccio of Mount Beigua (now Geopark)

This area features a complex of boulders engraved with various symbols such as cruciforms, "polissoir" engravings or sharpeners. Engraved surfaces are generally pointed towards South-East.

- Complex of the "Roccia del dolmen": This site is composed of several engraved rocks located next to a perennial stream. The most significant rock has a wide surface area and is explicitly pointed towards North. It is covered with linear motifs such as filiforms, cruciforms, ladder-shaped figures, crosses (maybe for Christianization), sharpeners, a grid with micro cup marks and an anthropomorphic figure. A figure of a deer is also reported to have been found (PRESTIPINO, 2007: 43; COIMBRA, 2014:9, footnote n° 9).

- Pietra Scritta: This site is located beyond the watershed, in the North-West area of Mount Beigua, near the source of the Rio Traversa. This great outcropping stone (measuring 7m x 3,50m) is characterized by a sloped surface and it is one of the richest sites for engravings in the Ligurian region. These engravings are created with the "repeated scratch" technique ("a graffito ripetuto" T.N.) by pecking and with the schematic linear technique. There are both aniconic and figurative elements. These can be shaped geometrically, five-pointed star-shaped, vulvar, solar, comb-shaped, tree-shaped, cruciform, phi-shaped, anthropomorphic figures, games of "tris", Christian figures, modern acronyms and dates. Among these signs, some bull's skull figure can be maybe recognized (PRIULI and PUCCI, 1994: 72-75, figure 204).

3. Tuscany

3.1. Province of Massa Carrara

- Grotta di Diana (Canossa, municipality of Mulazzo): This site is in a little shelter on the cliff. It is fully engraved and has several aniconic signs similar to cup marks and grooved lines as well as figurative ones such as handprints and anthropomorphic figures. There are two taurine protomes type Mount Bego. At the bottom of the cave, next to a grid pattern (this could potentially be interpreted as a fence or trap?) there is an anthropomorphic figure with triangular body near an adult deer's antler, ramified with several tines (CARRERA and TOSATTI, 2015: 6, figure 1B2). There is also a likely snake figure on the western

Figure 2a. Grotta di Diana (Mulazzo, MS), scene with an anthropomorphic figure, antler of adult deer and grids (TOSATTI and CARRERA p.p.).

Figure 2b. Grotta di Diana (Mulazzo, MS): snake (courtesy Stefano Pucci).

Figure 2c. Masso di Terrinca (Stazzema, LU), taurine protomes (courtesy Giorgio Citton).

wall positioned vertically. A pair of long horns maybe belong to a caprin. The cave overlooks the valley floor of Magra River, where several statue-stelae were found (Figure 2a,b).

• Masso di Ciampa del Diavolo.2 (Monte Brugiana, municipality of Massa): This site can be found at the entrance of the Frigido River Valley. It is upstream from the city of Massa, above the chalcopyrite mines, along the mountainside path that heads towards a Northernly direction where many boulders are located. These boulders are engraved with encircled cup marks and small cup marks. On one of these boulders next to a conical cup mark is a filiform anthropomorphic figure with scissor-shaped limbs and slightly bent open arms with "brush-like" hands. Above this figure can be found a complex sign that has been renewed over time. This first sign/figure was a taurine protome, with long horizontal horns and an underlying triangular element (TOSATTI, 2010; 2011; 2017: 81, figure 14).

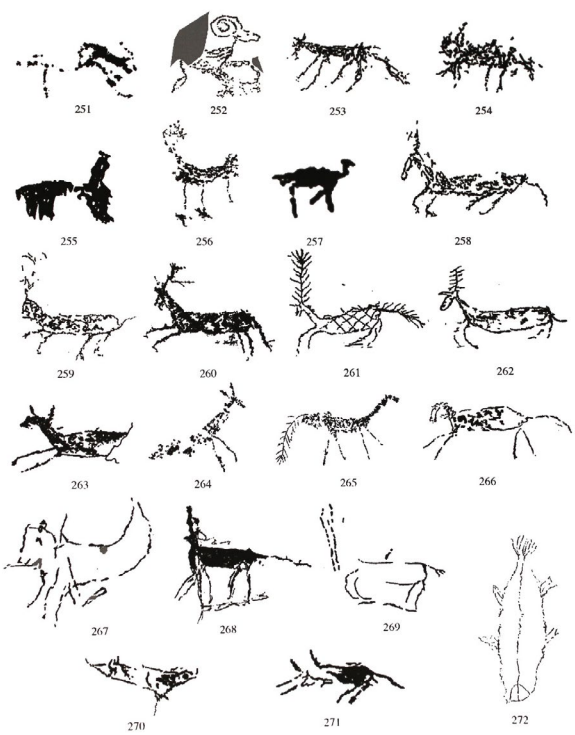

Figure 3. Mattioli 2007, plate 9: n° 251, 267, Riparo delle Mummie (Ferentillo, Terni); n° 252 Riparo Santo Spirito III (Roccamorice, Pescara); n° 253-54, 258-63, 266, 268-271 Riparo Roberto (Sezze, Latina); n° 256 Riparo San Bartolomeo II (Roccamorice, Pescara); n° 257 Grotta dell'Eremo di Nerone (Carpineto della Nora, Pescara); n° 264-265 Riparo Santo Spirito I (Roccamorice, Pescara); n° 272 Riparo di Pacentro (Sulmona, L'Aquila).

3.2. Province of Lucca

• Masso di Terrinca (Stazzema): This site is a petroglyph located on a mountainside path of the Giardino Channel Valley. It features fully engraved cruciform figures and other almost indistinguishable figures. One of these figures, probably two taurine protomes with long falcate horns, are engraved with a very thin line and are difficult to see (Figure 2c) (CITTON& PASTORELLI, 2000; TOSATTI, 2010: 144, 145, figure 10; 2017: 86, figure 23).

• Greppolungo (Camaiore): This site is located near the Roccia dei Pennati at 580 m a.s.l. on a calcareous vertical boulder. The engraving seems to represent a small fish (15cm x 2,5cm). The second engraving which is very close to the first one, illustrates a near indistinguishable shape, but may be a much bigger fish that is similar to the former (80cm x 15cm) (https://www.versiliatoday.it/wp-content/uploads/2015/02/IMG-20150124-WA0000-1024x768.jpg).

4. Umbria

4.1. Province of Terni

• Riparo delle Mummie (Ferentillo): This site is a small shelter located at 375 m a.s.l.. It features paintings and engravings on the walls of the site which are covered by concretions. On these concretions a one-meter-high red strip was obtained with a layer of ochre. In addition to anthropomorphic and tree-shaped figures, a quadruped (potentially equid?) figure can be seen, both painted in black on the red layer

Fig. 4a

Fig. 4b

Fig. 4c

Fig. 4d

Fig. 4e

Fig. 4f

Fig. 4g

Fig. 4h

Figure 4. Parete Manzi and Riparo di Cicco II (Civitaluparella, Montelapiano, CH): Fishes (courtesy DI FRAIA).

(Figure 3)[1] (MATTIOLI, 2007:28, figure 19 e tav. 9 n. 251 e 267).

5. Lazio

5.1. Province of Latina

- Riparo Roberto (Sezze Romano): This site is a wide rock shelter above the Pontine plain featuring many figures painted in black on its walls. Among them several key figures can be identified. These include two canids, five running deer, two equids, three undeterminable zoomorphic figures, a probable flying animal, six or seven anthropomorphic figures, gridded figures, wavy lines and a tree-shaped figure. The heavy degradation of the paintings and the acts of vandalism at the site make it difficult to properly identify the possible overlaps. Inside the shelter there are also cup marks and linear grooves. Due to the stylistic features found here, it seems possible to attribute the zoomorphic figures to the late Bronze Age/Iron Age (Figure 3) (PRIULI and SGABUSSI, 1992 figures 2-6; MATTIOLI, 2007: 30-33, tav. 9).

1 In the volume MATTIOLI 2007, several images of straddling men are illustrated in the plate n. 7 and almost all of them belong to a recent age. As the Author specifies on page 189, they consist of figures related to straddling Carabinieri which fought, during the 19th century, brigandage and the resistance of groups loyal to the Bourbons after the Italian Unification in 1870. The figure of the straddling Carabiniere is widespread still today in the folklore of Southern Italy, as is shown by several whistles made of terracotta especially in Apulia.

Figure 5a. Morricone del Pesco (Isernia), equids (courtesy SIGARI).

Figure 5b. Riparo Ranaldi (Castel Lagopesole, Potenza): complex red scene with globiforms, reeds and anthropomorphic figures.

6. Abruzzo

6.1. Province of L'Aquila

- Riparo di Pacentro: This site can be found in a little rock shelter. Below the red painted anthropomorphic figures there is a black painted fish (GRIFONI CREMONESI, 1969 figure 26) (Figure 3).

6.2. Province of Pescara

- Grotta dell'Eremo di Nerone (Carpineto della Nora): This site features a complex of walls in the Grotta di Nerone-Eremo di Sant'Anna, on which there are eight anthropomorphic figures painted in black and one zoomorphic figure (a flying animal) (Figure 3) (DE POMPEIS, 1992:541; MATTIOLI, 2007: 96, figure 82: 517/6).

- Riparo di San Bartolomeo II (Roccamorice): This site is a big shelter with walls where stalagmitic concretions have covered the paintings. These paintings consist of several anthropomorphic figures represented in scenic compositions. A lengthened figure surrounded by short segments could be interpreted as a fish (Figure 3) (DE POMPEIS, 1993: figure 7; MATTIOLI, 2007: 71, figure 54: 503-522).

6.3. Province of Chieti

- Parete Manzi (Montelapiano): This site is located at 550m a.s.l. on the wall made of yellowish rock that overlooks the Sangro river valley. There are various anthropomorphic figures painted in red, as well as crosses and a knife dagger. In addition to other thinly engraved figures several fishes can be identified with underlined fishbones or fins (similar to the one found in San Bartolomeo, seen above). Some of them have been interpreted as cetaceans. Next to these figures are other figurative images interpreted as probable harpoons (Figure 4) (CUOMO *et al.*, 2018: 70-72, tables 62-65).

- Parete di Cicco II (Civitaluparella): iThis site is an isolated rock formation, partially covered by a greyish patina . It site has pecked representations of an anthropomorphic figure and a fish, sometimes interpreted as a dolphin (Figure 4) (CUOMO *et al.*, 2018: 57, tav. 19).

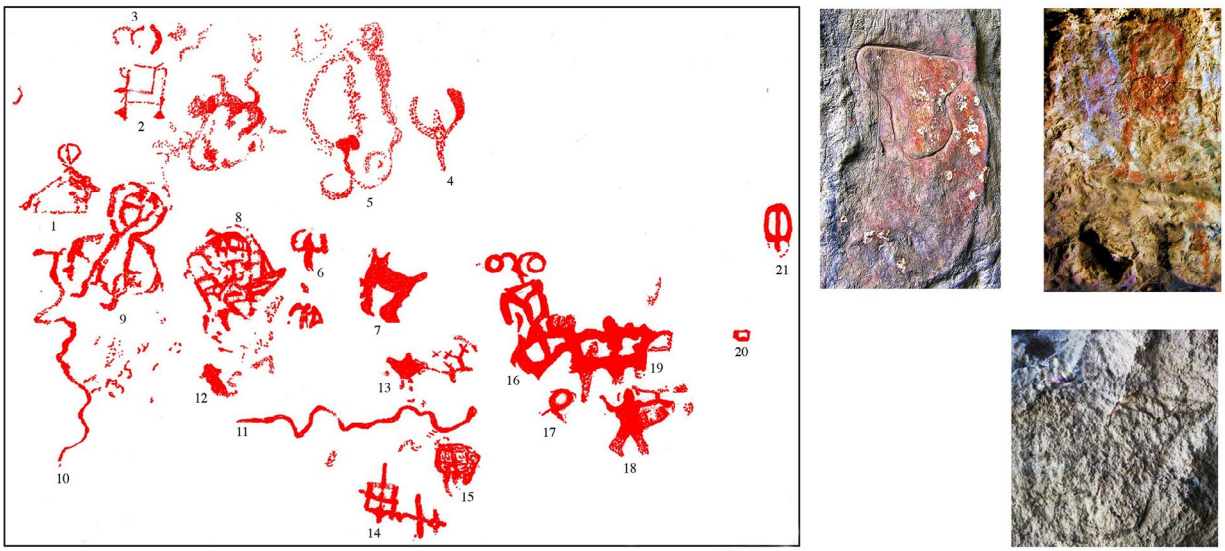

Figure 6a. Grotta Pazienza (Rignano Garganico, FG): two serpentiform figures painted in red ochre.

Figure 6b. Grotta B di valle del Sorbo (San Giovanni Rotondo, FG): red painted archers and an equid (GRAVINA, 2017).

Figure 6c. Grotta A di valle del Sorbo (San Giovanni Rotondo, FG): red painted taurine protome (GRAVINA, 2017).

7. Molise

7.1. Province of Isernia

• Morricone del Pesco: This site is composed of three areas of a steep shelter. There are black engraved and painted figures:

Sector a): This sector features engraved figurative and aniconic figures. There are also zoomorphic quadrupeds painted with a black profile line. If they were considered to be equines, they would be referred to the Early Iron Age;

Sector b): This sector features a probable zoomorphic figure painted in black, presumably dated to the upper Palaeolithic (bovid);

Sector c): features There are figurative and geometric elements along with anthropomorphic ones. These anthropomorphic figures feature a grid pattern and heads with a double profile line (cf. types from Pacentro: GRIFONI CREMONESI, 1979). There is a schematic zoomorphic upon a floral motif and higher above it is a meander (Figure 5a) (SIGARI *et al.*, 2014: 36 figures 4-5).

8. Basilicata

8.1. Province of Potenza

• Riparo Ranaldi (Tuppo dei Sassi – Castel Lagopesole): This site is an arcuate rock shelter. On the vertical wall it presents a complex scene painted in red ochre with anthropomorphic figures. On the left, one of these figures is composed by three globes (tree-shaped, polilobated or "hyper-anthropic" figure). On the right there is an anthropomorphic figure with rod-shaped head and potentially scissors-like arms. This figure is not easily visible because it overlaps an underlying zoomorphic figure; cervids and comb-shaped figures are present as well. Potentially two different chronological phases can be distinguished: Neolithic and Eneolithic phases (GRAZIOSI, 1973: 147 tav. XVC; BORZATTI VON LOWENSTERN and INGLIS, 1990: figure 2; ARCÀ and BOZZARELLI) (Figure 5b).

9. Apulia

9.1. Province of Foggia

• Grotta Pazienza (Grignano Garganico): This site features two zig-zag-shaped or serpentiform figures (interpreted as lightning bolts) painted in red ochre. These are seen among anthropomorphic figures of various typologies. Such typologies include "prayer" type figures, a rod-shaped figure with a T-shaped head, a figure with an empty oval-shaped head and triangular chest (with the vertex pointing down). For the authors it could be a scene with two big characters, a male and a female (GRAVINA, 2008: figure 4; GRAVINA and MATTIOLI, 2010: 109, figure 7: 10-11) (Figure 6).

• Grotta A di Valle del Sorbo (San Giovanni Rotondo): This site features a red painted wall with various figures among which a T-shaped taurine protome (Figure 6c).

• Grotta B di Valle del Sorbo (San Giovanni Rotondo): This site features red painted images featuring an archer and a quadruped, potentially an equid (Figure 6b).

9.2. Province of Bari

• Riparo Il Cavone (Spinazzola, BA): This shelter is located on the first hill chain of the Murge plateau. At this site, a flat and intensely smoothed (maybe intentionally done) surface has been identified. This surface has a dense series of thin engravings forming organized and complex patterns.

The position of the spur on which this shelter is located overlooks the landscape, representing an excellent observation point in

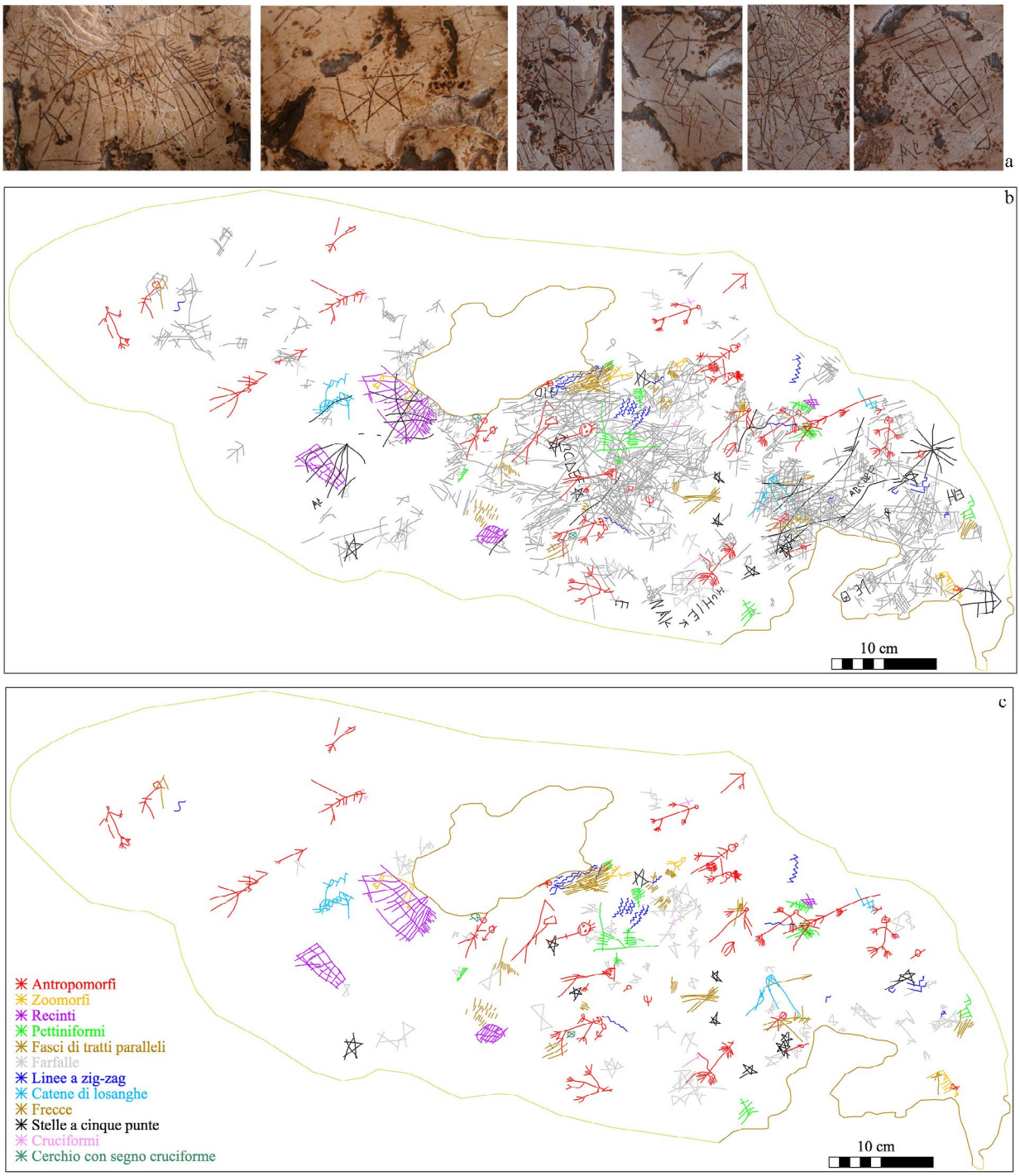

Figure 7a.: Riparo Il Cavone (Spinazzola, Bari): schematic anthropomorphic and zoomorphic figures in traps or fences (ASTUTI *et al.*, 2008).

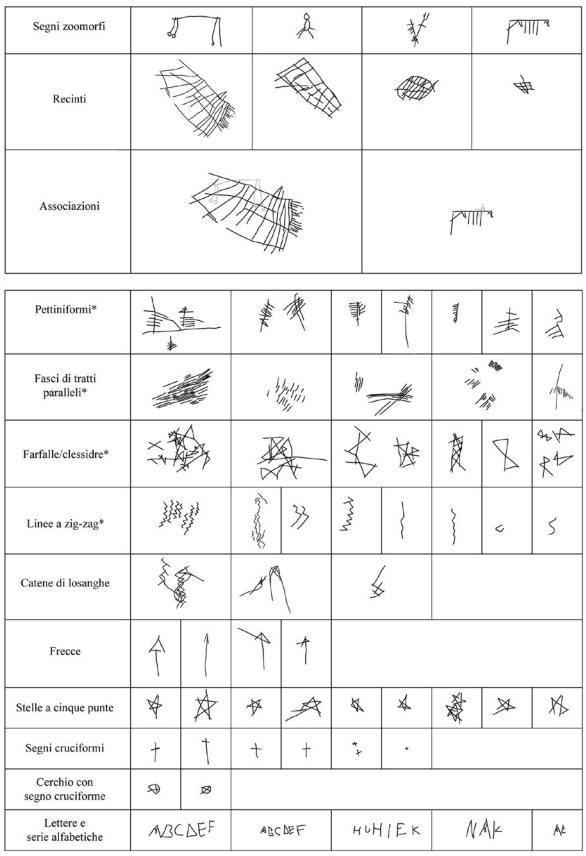

Figure 7b. Riparo Il Cavone (Spinazzola, Bari) (ASTUTI *et al.*, 2008).

Fig. 8a

Fig. 8b

Fig. 8c

Figure 8a-c Grotta dei Cervi, Porto Badisco (LE): red and black painted hunting scenes, deers, various figures, "pettiniformi" (GRAZIOSI, 1980).

the general valley area. This develops in a SE-NW direction along the trajectory connecting the Ionian Sea with the Ofanto River.

This site seems as though it was part of a connection network for territorial control of the main valley.

On the smoothed surface there is a scene composed of many types of anthropomorphic figures. They are nearly organized in a circle around other anthropomorphic figures that are lying down. These figures are surrounded by five-pointed stars, hourglasses and zigzags. There are also four schematizations of traps or fences which have two extremely schematic zoomorphic figures inside these designs. The identifiable ones are:

A quadruped with paws ending in small circles and another very small quadruped. Both of which are both enclosed in fences;

A deer antler drawn with parallel lines;

A little ornithomorphic figure (?) (ASTUTI *et al.*, 2008: figure 11, 14) (Figure 7 a, b).

9.3. Province of Lecce

- Grotta dei Cervi (Porto Badisco): This site features a cave with two entrances and it is organized in to three corridors. In one of them there is a small lake with dripping water and two burials have been discovered with the fictile materials dated between Neolithic and Bronze Age. The white calcareous walls highlight

Fig. 9a

Fig. 9b

Figure 9a-b. Grotta dei Cervi (Porto Badisco, LE): several hunting scenes with archers and deers; a dog. (GRAZIOSI, 1980).

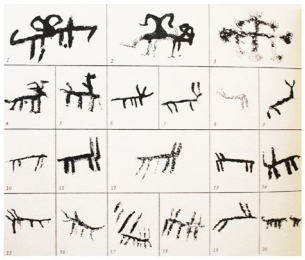

Fig. 10a

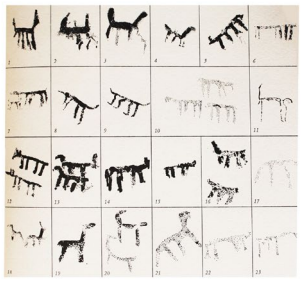

Fig. 10b

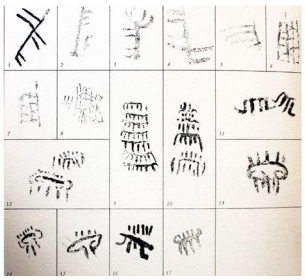

Fig. 10c

Figure 10a-c. Grotta dei Cervi, Porto Badisco (LE): tables (GRAZIOSI, 1980).

Figure 11. Grotta Cosma (Santa Cesarea Terme, LE): hunting scene with archer near a dog pointing to a snake.

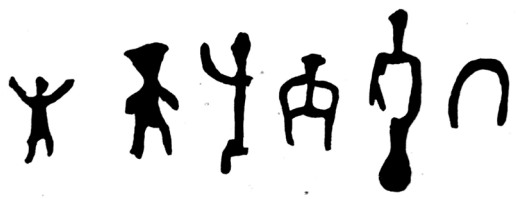

Fig. 12a

Fig. 12b

Figure 12. Grotta Mirabella (San Giuseppe Jato, Palermo): red painted cervid and dog (?) in motion.

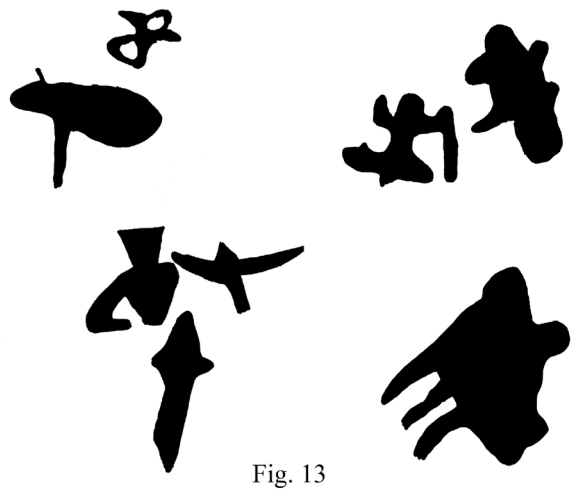

Fig. 13

Figure 13. Grotta dell'Ucceria (Favignana, TP): survey of black painted anthropomorphic and zoomorphic (bovids? ovines?) figures (MANNINO, 2017).

paintings made with red pigments or with a mixture of bat guano.

The figurative paintings: These can be found on a small wall, some red figures (potentially even older than the aforementioned) show the presence of a hunting scene with archers and cervids. The other figures painted in black are found in the innermost corridors, where guano was used. The figurative paintings consist of anthropomorphic figures (some with and some without bows) and quadrupeds.

The non-figurative paintings: These include theriomorphic elements and non-figurative elements with a zoomorphic origin. These paintings are simple or speculatory comb-shaped figures possessing many abstracted and geometric elements. These were identified and interpreted by prof. Graziosi as an increasingly marked abstraction of the human body turning

Figure 14. Grotta del Genovese (Levanzo, TP): survey of the painted figures (GRAZIOSI, 1973).

Fig. 15a

Fig. 15b

Figure 15a-b. Grotta del Genovese (Levanzo, TP): photoes of the black painted figures.

Figure 16. Grotta di Su Longu Fresu o del cranio (Cagliari): black painted hunting scene.

into geometric figures. In the first corridor there are deer hunting scenes with dogs and a shepherding scene. This shepherding scene is the only one in the whole cave. In this painting the anthropomorphic figure can be seen holding a probable cane and it is possible to see quadrupeds (caprines) and a dog. More hunting scenes are found in the second and third corridors where there are schematic animals and comb-shaped figures organized in columns (GRAZIOSI, 1973: figure 166a).

The total amount of representations consists of twenty hunting scenes (including complex ones) alternating with symbolic images, interpreted as extreme abstractions of human figures. These are organized in geometric patterns, in overlaps of spiral elements and in probable representations of objects such as horned hats, wineskins, potentially axes, semicircles with a hunter holding a ring. Animals represented in the art (except for a boar and a dog) are always schematic and culminate in comb-shaped figures (GRAZIOSI, 1973, 1980) (Figure 8-10).

- Grotta Cosma (Santa Cesarea Terme): This site consists of various chambers and corridors. In one of these corridors there are paintings in black and red. These paintings feature two anthropomorphic figures, one with bow (a hunting scene) next to a small quadruped (dog?) pointing towards a serpentiform. Next to this painting are abstracted-symbolic figures, similar to the one of the contiguous Grotta dei Cervi in Porto Badisco (Figure 11) (GRAZIOSI, 1973: 146, figure 168; 1980).

10. Sicily

10.1. Province of Palermo

- Grotta Tonnara: This site is a little cave in the district of Carini in a hemicycle of sea cliffs. In 1947 two taurine protomes with long horns of the Mount Bego type were photographed by Giovanni Mannino. Mannino described it as “two frontal taurine heads, one almost twice the size of

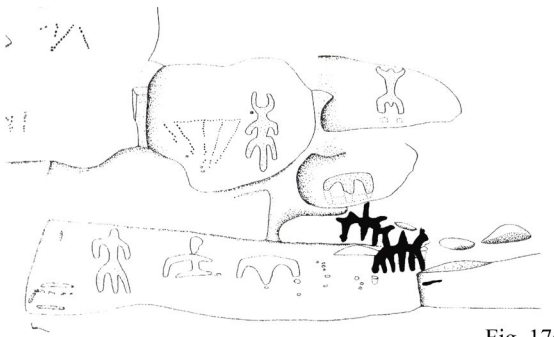

Fig. 17a

Fig. 17b

Figure 17a-b. Grotta Scritta (Olmeta di Capocorso, Bastia): complex scene with anthropomorphic and zoomorphic figures (t-shaped corniform) (WEISS 1998).

Fig. 18a

Fig. 18b

Fig. 18c

Figure 18a-c. Gias des Peintures (Tende, France): a - External area of the cave (courtesy Musée de Tende, Dr. S. Sandrone, ph. André Soriano (Monaco); b – The red painted hunting scene (courtesy J.M. Strangi CD06 - Musée départemental des Merveilles); c– survey of the painted scene (VICINO, BERNARDINI in MANO 1995).

the other", it was created with deep engravings. Now they no longer exist due to the construction work for a military storehouse (MANNINO, 2017 : 112, figure 23.1).

- Grotta Mirabella (San Giuseppe Jato): This site is a naturally illuminated funnel-shaped cave. The figures painted in red are located at eye level to the left of the entranceway. Among the ten figures there are three zoomorphic figures (one of which is faded), a probable female cervid and a dog turned to the left with the front paws bowed as if running. Each one measures about ten centimeters. The other seven figures consist of frontal anthropomorphic designs. Each of these designs is related to a particular typology (MANNINO, 2017: 113-118, Figures 26.1, 26) (Figure 12).

10.2. Province of Trapani

- Grotta dell'Ucceria o del Cervo, (Favignana, Isole Egadi): This site is a small cave that belongs to a complex of three caves (called "del Faraglione"). It is positioned around twenty meters from the sea. Two scenes with anthropomorphic and zoomorphic figures can be found here and are painted in black. The first

scene is a potential bovid facing left and found between three different anthropomorphic figures (One frontal with a truncated-conical hairstyle or mask. One on the right and possibly a part of another cruciform anthropomorphic figure. One below with an idoliform representation of about 12 cm). The second scene represents a rural context: two zoomorphic figures (probably two bovids), can be seen from the top and a frontal anthropomorphic figure (the shepherd) that is crouched and potentially holding a cane (Figure. 13) (MANNINO, 2017: 248-51, Figures 65.1-3).

- Grotta del Genovese (Levanzo, Isole Egadi): This site features a rich set of animal representations that were engraved during the upper Palaeolithic and three anthropomorphic figures. One of these anthropomorphic figures are sumptuously dressed and possess a mask. Isolated from the rest of these figures is a female figure painted in red ochre half-lying on a sinuous line and is just below a quadruped with enlarged body (this may be a bovid or an ovine). At the bottom of the cave there is a long frieze with black paintings divided into three areas, two on

Fig. 19a

Fig. 19b

Figure 19a-b. Domus de Janas (Sardinia): taurine protomes (TANDA 2012).

the walls and one on the stalactitical wall hanging from the ceiling. From these can be identified:

Schematic anthropomorphic figures with stocky bodies and thin arms, that are often ithyphallic;

Some painted zoomorphic figures: A deer, three fish (tuna or dolphins), a canid (turned to the left, and appears to look at the anthropomorphic figure next to it), bovids, two swine, a caprine and, potentially two taurine protomes;

A selection of idoliforms (Figures 14, 15 a, b) (GRAZIOSI, 1973, 1980; TUSA, 2003; MANNINO, 2017:251-260, figures 66.8b-66.13).

11. Sardinia

11.1. Province of Nuoro

- Grotta di Su Longu Fresu o del Cranio (Cagliari): This site is a narrow and long cave inside a system of nine "ritual" caves in the territory of central Sardinia in the Barbagia area. It has eight lateral recesses in which water flows. There were human and animal bones with prestigious obsidian goods and a small greenstone axe have been found. A cranium attached to the bottom wall was dated by the Oxford Laboratories to the V millennium BC. Next to it, on a small vertical wall is a scene painted in black featuring an anthropomorphic figure with the head adorned with long horns (could this be a theriomorphic figure?) hunting a horned zoomorphic figure (GRADOLI& MEADEN, 2011: 224, figure 6) (Figure 16).

12. Corsica

- Grotta Scritta (Olmeta di Capocorso, Bastia): This site is a rock shelter with signs and stylized figures painted in red ochre. These include ithyphallic anthropomorphic figures with arms up or down, a horned element, T-shaped corniforms with descending sides, one of which is covered by one of the two quadrupeds (potentially with a rider). Two potential phases can be identified, a prehistoric phase (potentially Neolithic) and the other phase is dated to the Iron Age due to the presence of probable riders (GROSJEAN, 1959; 1969; WEISS, 1998: figure 15, phase IV (Iron Age?) (Figures 17 a, b).

13. Observation

The collected data illustrates that during the Neolithic period in the Italian peninsula the parietal representations are few and are restricted to hunting scenes with deer or horned quadrupeds. Some feature the presence of dogs, some other non-well identifiable quadrupeds, a few snakes and extremely rare fish. On the contrary, in the same period, the archaeological data shows a lot of artistic manifestations documented by both small fictile or stone statuary (BAGOLINI and CREMONESI, 1992; GRIFONI CREMONESI and PEDROTTI, 2012) and painted and plastic decorations on pottery, surely provided with a symbolic value (GIMBUTAS, 1974, 1991; COPPOLA, 1999-2000; GRAZIOSI, 1980; GRIFONI CREMONESI, 2004; OTTE 2012; WASILEWSKA, 1994). However, the use of artistic manifestation in caves seems to disappear, or at least became a rarer phenomenon. There is less evidence that can be attributed to the Neolithic period not only in Italy, but also in the rest of the Mediterranean, the European world and in the Near East.

Painted deer hunting scenes dated to the early Neolithic period are also located in the Anatolian site of Çatal Hüyük where there are representations of other animals (bulls, leopards, vultures), all painted or carved inside domestic spaces, interpreted as sanctuaries (MELLAART, 1967). As reported above, there are three deer hunting scenes in the previously mentioned red paintings of Grotta Cosma, Grotta dei Cervi of Porto Badisco in Apulia, and in Grotta del Cranio in Sardinia. An Alpine ibex hunting scene can be found in the small shelter of "Gias des Peintures" in the Mount Bego region (France) (Figure 18). In the Riparo Rinaldi of Tuppo dei Sassi in Basilicata,

there are anthropomorphic figures among the deer. A larger one of these figures is located in the center of the scene, which may refer to hunting.

The deer hunting is part of a larger scope of figurative manifestation that, since the earliest prehistory, gives this animal a special value. This can be observed from the remains of antlers that are located in many Epi-gravettian and Mesolithic burials as well as in the atrophic canines used for personal decorations and in their stone or bone imitations made by Neolithic people[2] . The symbolic connotation also continues into the late Neolithic, with crania found at the Manfredi hypogeum next to a selection of refined vases of the Serra d'Alto culture (GENIOLA and SANSEVERINO, 2014) and in successive periods, with sacrificial depositions in many sites (MIARI, 1995; MANFREDINI, 2011-2013, GRIFONI CREMONESI, p.p.).

This high symbolic value of the deer continues even in successive periods, maybe in relation to a warrior aristocracy in the Bronze and Iron Ages. It then appears in the Greek and Roman myths and continues up until the Middle Ages when this animal is the main character of magical hunts and legends about various Saints (GRIFONI CREMONESI, p.p.). As an example, the church of St. Eustache in Rome features a deer head with a cross between its horns on the church itself, but more importantly, the legends about St. Humbert, who saw the Cross between golden deer horns, and the legend about the King Theodoric of the Ostrogoths (sung by Heinrich Heine and then by Giosuè Carducci) supply an interesting context. Theodoric, as a punishment for his political acts that ran contrary to the Church, rode a black horse (a symbol of the devil) and had to chase a deer with golden horns along the whole Italian peninsula until it pushed him into the Stromboli, a volcano considered the entrance of hell.

Regarding the stricter aspects of the post-Paleolithic art, the progressive transition from a veristic art to an abstract art through schematic forms can be observed. This is pointed out by many authors and, above all, by Paolo Graziosi (1980) for Porto Badisco. These schematic forms gradually became completely abstracted symbols. For example: in the hunting scenes, these symbols alternate with anthropomorphic figures, armed with bows and zigzags, grids, five-pointed star-shaped elements, pentacles, or spirals. Even animals are more schematic, often reduced to comb-shaped elements, i.e., sketched out with horizontal lines and orthogonal segments, parallel to each other.

In successive periods, from Chalcolithic to the Bronze Age, shelter and cave representations along the Apennine ridge feature more anthropomorphic figures. The more recurring signs refer to anthropomorphic figures often in "narrative" compositions whilst animals are almost absent, except for some rare examples. The more interesting examples are the hunting scenes with a probable theriomorphic figure as a main character in Arma della Moretta in Liguria and the zoomorphic figures of the further Riparo Il Cavone in Apulia. In both cases the animals are extremely stylized, and, in the Riparo Il Cavone, they seem to be enclosed in cages or traps. Such stylistic comparisons bring us, for both sites, to the sites of Southern France, e.g., in the Grotte des Oiseaux in Herault (ABELANET, 1986: figure 73 n. 9; ASTUTI *et al.*, 2008: figures 11, 14).

Many scenes with painted deers, alpine, ibex and snakes are known in Southern France's caves and shelters (GARIDEL and HAMEAU, 1997; HAMEAU, 2018).

In Northern Italy, mostly in the region of Valcamonica and also in the exceptional figurative representations of Mount Bego, recurring animal figures can be found. Here in particular, during the Copper Age, the figure of a bull (symbolized by a bucranium with long horns) is represented in many ways. It is predominant and associated with the dagger and zig-zags (symbol of water or lightning) (DE LUMLEY, 1995).

2 This phenomenon continues even later as evidence can be observed in the bone imitation found in the burials of Laterza Chalcolithic culture in the Mound 7 of Salve near Lecce (APRILE *et al.*, 2018).

In the Valcamonica area, from the Neolithic period to the beginning of the historical era, several various animals appear in the engravings. In addition to deer examples include Alpine ibexes, canids, wolves, swine and, in the later phases, birds and fish can be found beside horses and horsemen (ANATI, 1979; FOSSATI, 1991, 2004). Bovids, with rod-shaped bodies and long horns, when present on menhirs and in the rock art of the Copper Age, are represented ploughing while yoked.

The bull cult (of which a lot has been written about) seems to already appear at the end of the IV millennium BC in Western Europe. This is especially the case if considering the images on Gavrinis' dolmen. It assumes importance especially in the Mount Bego complex, where half of the engravings consist of its symbol and, besides ploughing scenes, it appears in compositions with very schematic anthropomorphic figures, bucrania and knives daggers[3]. So much repetitive and symbolic manifestations are not present along the Apennine ridge and on the Alps, and we have just few bucrania in Liguria, High Tuscany and Sicily. However, they are abundant in Sardinia, where, during Prehistory, the bull had great importance. Here figurative depictions present long horns and bucrania which are carved in a remarkable number on the walls of artificial sepulchral little caves (domus de janas) and on some menhirs (TANDA, 2012) (Figure 19).

Moreover, during the Bronze Age there are a lot of horned handles on vases, interpreted as bull's symbols as well. They are also associated with solar or lunar cults but are considered to be astronomical symbols in any case.

Any reference to other animals seems to be absent in Sardinia, except for the Grotta di Su Longu Fresu (or the Grotta del Cranio). At these sites a zoomorphic figure is painted with long horns in a hunting scene where the archer is adorned with the same long horns. As in the Arma della Moretta, it seems possible to hypothesize the presence of a horned theriomorphic figure (this could be a bovine or perhaps an Alpine ibex) (GRADOLI and MEADEN, 2011).

On the Island of Corsica, there is just one painted scene with quadrupeds from Grotta Scritta that is potentially older because it seems to be partially overlapped by other figures appearing as taurine protomes (or caprins?) (WEISS, 1998). This is believed to be the only evidence of taurine presence among the island's symbologies. The existence of a bull cult in the Mediterranean West has been thoroughly discussed in order to find connections with the great Mediterranean and Eastern manifestations of this cult which dates back to the Minoan Bronze Age (Minotaur's Myth and bullfighting), Greek mythology (Abduction of Europa), the Assyrian-Babylonian world and in Egypt (sacred bull Apis). Even in the Bible there is a reference to this cult in relation to the golden calf which was destroyed and cursed by Moses. However, the cults of the bull are an ancient phenomenon developed in different ways and times in various cultural areas, the origins and manners of which are lost to the distant past. There are traces of this ancient practice even today (besides the corrida) in the use of decorating the red oxen and cows during some celebrations and the apotropaic use of the red horn as a lucky charm.

Other cases of engravings with zoomorphic figures must be attributed to later periods, probably the late Bronze Age – Iron Age, as the animals of the Riparo Roberto of Sezze in the Lazio region (PRIULI and SGARBUSSI, 1992), while some fish engraved in the shelters of the Abruzzo and Molise regions are hardly datable (CUOMO *et al.*, 2018).

14. The archaeological data

It is evident how during the Copper and Bronze Ages rock representations along

3 According to some authors, compositions with ploughs and oxen suggest a farming world where daggers and halberds wouldn't be warrior symbols, but instead be agricultural tools (knives and sickles) and the bull wouldn't have an astronomical meaning in this context (ABELANET 1986). See also the Horned God in the Bronze Age of Cyprus.

the Apennine ridge do not exclusively consist of animals, but these are present in the votive depositions of caves and burials. It seems appropriate therefore to analyze this with a short paragraph on the topic by which another discussion may start.

Since the ancient Neolithic period there are already depositions of sheep, pigs and dogs in cave burials (GRIFONI CREMONESI, 2007; DI FRAIA and GRIFONI CREMONESI, 1996; WILKENS, 1995) and some offerings associated with specific burials are known too. This parting between rock art and archaeological data could mean a lot for a possible reading as a symbol related to a religious, ritual and/or magical superstructure.

The case of Grotta Patrizi in the Lazio region (GRIFONI CREMONESI and RADMILLI, 2000-2001) is interesting for the purpose of observing the symbolic value of some animals. Besides deer there are semi-carbonized remains of ox, sheep, pig, dog, hare, wolf and roe deer which were found together with millstones. These were found in the Neolithic funerary context dating to 4100 circa BC and consist of the front and rear quarters of the animals which have cuts to their shoulders and thighs. These cuts are in slightly different positions for the different animals such as the shoulder for sheep and pigs, the front hooves for the ox, rear paws for wolf and rear hooves for roe deer and the thigh in the case of the hare. Three hare tibiae were furthermore placed under an individual with a drilled cranium. They were buried with a rich supply of decorated vases, millstones and bone assegais, in a small isolated chamber of the cave. We remember that in many cultures until the present day, the hare paw has always had a strong value as talisman. The hare (and in many places around the world, the rabbit too) is linked to the moon and considered as mediator with the chthonian world.

It must also be remembered that the singular and well-known case found in the circles of the Grotta dei Piccioni of Bolognano in Abruzzo, inside late Ripoli cultural layers dated to 2900/2800 BC consist of humeri of Anas boscas, Fulica atra, Columba palumbus and of a hare metatarsal. All of which were found with little balls made of clay and red ochre at one extremity in the XI and II circles. The ritual and symbolic value of the hare is more than evident (CREMONESI, 1976). Inside the circle there were also domestic and wild fauna remains.

Other animals with a strong symbolic value include dogs which can be found in the burials of some Neolithic females and, more frequently, in those of Copper Age warriors (DE GROSSI MAZZORIN, 2001:393). Few cases of little domestic animals' ritual depositions are well-known in the funerary contexts of the prehistoric age. This is a practice documented since the Neolithic period up until the Roman period[4].

Some animal bones were treated and butchered in caves where human bones have also been found. These are dated to the early Neolithic period (BARRA *et al.*, 1989; WILKENS, 1995, a dog was at the feet of a woman in Ripoli's village in Abruzzo). Whilst those in the late Neolithic period (CREMONESI, 1965) can be connected to the ones in the important necropolis of Chiozza di Scandiano in Emilia (MARTINI, 2006 with bibliography).

In the case of the Copper Age, depositions of dog are found in burials of armed males with rich supplies and belong to diversified cultural aspects during the III millennium in the Italian peninsula (cultures of Rinaldone, Gaudo, Ortucchio, Laterza) (NEGRONI CATACCHIO and ASPESI, 2016; DE GROSSI MAZZORIN, 2001).

In the so-called burial "della Vedovella" (the widow) in Ponte San Pietro (VT) (MIARI, 1993), a dog was located on the external slab of a burial containing a man with weapons, jewelry, high quality pottery, and a woman with fractured cranium. Another example can be seen in the necropolis of Fontenoce (Recanati) where two animals were located (SILVESTRINI and PIGNOCCHI, 1997): an adult male dog (with

4 For a very interesting documentation about the meaning of animals in the Middle Age's art and religion see FRUGONI 2018

its cranium disjointed) was found in a recess that was separated from the human burials. It was hypothesized that this animal was a sort of "guardian" of the necropolis with evident connection with the chthonian world and infernal forces. The other animal is a young swine found without head and with a hoof bent on the ribs, it is believed to have probably had a "food" function, making it a ritual offering (WILKENS, 1995).

In the burial of Mirabella Eclano in Campania (BAILO MODESTI and SALERNO, 1988 with bibliography) and in the burial of Tursi in Basilicata (CREMONESI, 1978) the inhumed were buried with vases, weapons (daggers and arrowheads), a sandstone shaft (interpreted as symbol of command) and a dog. In the Mirabella Eclano site, the dog was buried next to the inhumed, while in Tursi it was buried upon the lithic case with the human burial. In this case the presence of the dog in these burials could be interpreted as guardians too.

Other dogs in burials can be found in Casa del Dolce near Rome and in the caves of Mount Cetona in Tuscany next to a human crania (DE GROSSI MAZZORIN, 2001).

The dog is also related in many myths with the chthonian world and therefore assumes a strong symbolic value too, in addition to the one of man's companions.

There is further evidence for other animals that are dangerous but connected to the chthonian world anyway. Examples include: two snakes found in burial 20 in Guidorossi Street in Parma, the remains of a bear and a wolf (among which penis bones can be found in the Romita of Asciano near Pisa), (PERONI, 1962-63) are present in many sites as well (BERNABÒ BREA and MAZZIERI, 2011-2013; GRIFONI CREMONESI, p.p.; MANFREDINI, 2011-2013).

The horse is also a symbolic animal used during the late Bronze Age. This appears, with a cult value already in the Bronze Age village of Maccarese (Rome). Here a horse was buried in a pit with two dog puppies (MANFREDINI, 2005), as well as in the small fictile statuary of the terramare. Horses appear frequently in engraved scenes of war or hunting in the Valcamonica area and are moreover painted on the walls of: Riparo Roberto of Sezze Romano (Latina), Riparo Morricone del Pesco in Molise and in the Grotta Scritta in Corsica. They demonstrate the concept of the chariot of the sun which was drawn by horses.

In the same ideological sphere, during the Late Bronze Age and at the beginning of the Iron Age, water birds (anatids, swans) are very important. They link to the cult of the sun, whose boat was drawn by them (BETTELLI, 1997). These animals are often represented on pendants which are found, along the whole Adriatic Sea, from Apulia to Veneto, connected in particular with one female figure (a theriomorphic one), potentially the Reitia goddess.

An important example of the cult value of various animals is provided by the Alpine site of Pigloner Kopf in the Eastern Alps (OBERRAUCH, 2014). At this site copper objects and remains of burned animals and birch resin (that is believed to be a type of incense) were found in a shelter dated to the mid III millennium BC and was also frequented in the successive periods afterwards. Fauna remains indicate both domestic species (goat/sheep, pig, ox, dog) and wild species (deer, boar, roe deer, chamois, brown bear, wolf, beaver, otter, testudo). Among the remains included edible animals but also other animals with a symbolic value (in addition to fur animals or dangerous creatures such as the bear or the wolf) found in many other funerary or cult contexts. The place was surely sacred, in relation to both its position on the top of the mountain and the geothermal manifestations of steam that, in several sites, have shown evidence of cults (GRIFONI CREMONESI, 1999, 2005).

Wild fauna seems therefore to have had a specific meaning in contexts related to agricultural or funerary cults or to ceremonies with religious meaning where sheep and pigs have great importance, and which are located in many ritual pits. There is no trace of these animals in rock art

however, where prevalent figurative elements include the human figure and abstracted symbols with a difficult meaning except for the deer, the bull and the snake[5].

15. Conclusions

In this case it is not necessary to focus too much on the possible meanings of symbols recurring in the large area that comprises the Italian peninsula, France, and the Iberian Peninsula. What we are trying to show is that they represent a great cultural and ideological koine extending through a large part of Europe. They express with symbols and signs that are incomprehensible to us or just intelligible in their various forms, from the simplest forms using only colour (black, red, but also white in pottery) to the more complex forms (paintings, sculptures, engravings, etc.) (WASILEWSKA, 1994; WHITEHOUSE, 1992; GIMBUTAS, 1974, 1991; GRIFONI CREMONESI, 2004; COPPOLA, 1999-2001). Some of these symbols are present in the whole Italian peninsula and on the islands. They are represented by typologies which become increasingly similar even if interpreted with different techniques such as engravings which are often very thin and paintings which can be coloured red or black. The black style of painting continues into even the most recent times. Many sites have evident traces of medieval or modern frequentations, with crosses and other Christian symbols.

Unfortunately, we don't have enough data regarding dating except for a few pigments. The few dates that are available to us allow us to visualize a part of the known artistic production in a chronological range from the late Neolithic to the Bronze Age. Regarding the recent Neolithic period, the presence of some abstracted symbols painted on the walls of Grotta dei Cervi at Porto Badisco can be helpful. These symbols are identical to the ones on the ceramics of Serra d'Alto culture, dated between 5740-5330 BC cal.2σand 3969-3710 BC cal. 2σ. These symbols express, in an extremely abstract way, the human figure in artistic compositions with several individuals (GRAZIOSI, 1980). Based on stylistic comparisons with Malta Island, the paintings of Grotta Cala del Genovese at Levanzo are attributed to a chronological period roughly between the late Neolithic and the beginning of the Copper Age. Most of the artistic representations in the Italian peninsula can be dated back to the Chalcolithic period and to the Bronze Age in relation to several comparisons with Western Mediterranean sites. For example, the pigments of the Riparo di Pale site in Umbra are dated to 5661±36 - 1569±4 BC and the pigments of Grotta la Pileta (Malaga) to 2394 -1975 BC (MATTIOLI, 2006, 2008).

In some sites and near to some shelters ceramic fragments were discovered and were dated to the early and middle Bronze Age, as in Civitaluparella in Abruzzo and in the Riparo Il Cavone in Apulia.

The wider problem about the meaning of the choice of these sites in relation to territory and landscape is discussed in many recent studies. In the first place, the choice of the space is presented in the following features: little shelters, singular natural formations, dominant position, orientation, rock colours and the presence of water. The evidence of artistic manifestations in sites that are often almost unreachable but where there are even overlapping symbols of many periods (from the Calcholithic-Bronze Age to the Christian era, with crosses and mostrances) let us hypothesize a strong sacredness to these places, but this does not exclude a use for controlling economic activities. The concept of sacredness found in these particular places is well-known and concerns particularly mountains, most of which believed to be abodes for deities (Olympus, Sinai, and probably also Mount Bego and other peaks with a particular appearance) but also cliffs, sources, woods, rivers and lakes (OTTO, 1917). These are sites with a meaning incomprehensible to us but have continued to be frequented in historical periods until the present day. This is the

5 Oxen are known in many burials of the Bronze and Iron Age in continental Europe (TECCHIATI 2018). An ox is also buried in the Beakers village of Semitella near Florence (SARTI &MARTINI 1993, table 41).

case of some caves which became sanctuaries or collapsed shelters that had seen continuous votive depositions even after they had lost every other functionality (GRIFONI CREMONESI, 1969b; 1996,1996b).

The decorated sites of the Bronze and Iron Age are usually far from inhabited and farming areas, so it can be hypothesized that there is a need for controlling grazing lands or mining areas. In some research it has been the importance of visual angles has been highlighted along with route crossings and fluvial valleys which are useful positions for controlling territory and roads (CHIARENZA *et al.*, 2010; CARRERA, TONARELLI and TOSATTI, 2021). Connections with rocks decorated with cup marks are also important, as well as their distribution in relation to routes and areas of exploitable resources (CAVULLI, 2005; TOSATTI, 2013, 2014; ARCÀ and RUBAT BOREL, 2017). In some cases there are signs of the presence of dripping water such as in the Riparo di Pale and especially in the Grotta dell'Arco di Bellegra. Red and black anthropomorphic figures located inside Grotta dell'Arco di Bellegra are almost exactly the same as the figures in Levanzo but are partially covered by concretions. Due to these concretions the art can be related to cults of dripping or galactofore waters (BERNABEI and GRIFONI CREMONESI, 1996). The relation with water running off the walls along fissures is also reported in many shelters in Southern France and in the Mount Bego site. In Liguria, the Pietra Scritta and the complex site around the Roccia del Dolmen in the Geoparco del Beigua, are near or next to perennial streams or water sources. The Masso di Zingola, was located directly on the flowing water of the Giardina stream in the Versilia area (Stazzema, Lucca) and has an engraved spiral with six double spins (twelve coils) (CITTON and PASTORELLI, 2000; TOSATTI, 2005).

In this quite complex panorama, that sees a strict correlation with animals as an economic resource, regarding rearing, pastoralism and hunting, their presence is not so evident in the symbols. Instead they highlight the importance of the human figure and sometimes, the connection with the uranic world too. The symbolic and, in a certain way, religious value of animals shows up in the offers to entities connected with natural phenomena (water, geothermal energy, plants), in an ostentatious manner but it doesn't benefit, at least for a certain period, the association with other manifestations of artistic expressions.

The fact that representations in the peninsula's shelters are mostly about anthropomorphic figures and abstracted symbols, while animals are well documented in cave burials and votive offerings is very impressive.

The absence or rarity of zoomorphic figures in some periods does not mean the loss of consciousness of their importance in human life, but a change of meaning in rock art. This new artistic medium expresses with symbols regarding mostly the human figure and others, connected with beliefs or myths controlled and worshipped by the communities that inhabited them but in a different manner from the previous use of these natural places.

Acknowledgements

We would like to thank Dr. Silvia Sandrone and Jean-Marie Strangi (CD06 - Musée Départemental des Merveilles), André Soriano (Monaco), Gianni Giusti (Massa) for providing photos; Dr. Mariarita Foti for the support for the translation.

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Revista ArkeoGazte Aldizkaria
Nº11, pp. 145-171, year 2021
Received: 07-05-2019; Reviewed: 23-11-2021; Accepted: 26-06-2021
ISSN: 2174-856X

ZOOMORPHIC FIGURES IN THE POST-PALAEOLITHIC ROCK ART OF FRANCE OR PAST SOCIETIES AS HYBRID COMMUNITIES

Irudi zoomorfoak Frantziako Paleolito osteko labar-artean edo iraganeko gizarteak komunitate hibrido gisa

Las figuras zoomorfas en el arte rupestre post-paleolítico de Francia o sociedades pasadas como comunidades híbridas

Claudia Defrasne (*)

Abstract

To study zoomorphic figures in prehistoric graphic representations is to study the relationship between human and non-human animals during Prehistory. The presence of these figures in the system of graphic representations testifies to their essential role as social agents and emphasises the importance of considering non-human animals and the non-human in general when studying and interpreting past societies. We are not only dealing with human societies but with hybrid communities. Engraved or painted animal species and/or types of interactions with human figures are different for each culture or chronological period. Here, the focus is on three Neolithic imageries, the engravings of the Armorican megaliths and of the Bego area and the schematic art from southern France and the western Alps, and one Iron Age imagery from the Maurienne valley, Savoie.

Key words

Rock art; Non-human animals; Neolithic; Iron Age; Interspecies social relationships; Hybrid communities.

Laburpena

Historiaurreko irudikapen grafikoetan irudi zoomorfoak aztertzea, historiaurrean gizakiak diren eta ez diren animalien arteko harremana ikertzea da. Irudi horiek irudikapen grafikoen sisteman egoteak, gizarte-eragile gisa duten funtsezko funtzioa erakusten du, eta nabarmendu egiten du garrantzitsua dela iraganeko gizarteak aztertzen eta interpretatzen direnean gizakiak ez diren animaliak eta, oro har, gizakia ez dena, kontuan hartzea. Ez dira soilik giza gizarteak, baita komunitate hibridoak ere. Grabatutako edo margotutako animalia-espezieak eta/edo giza irudiekiko dituzten interakzio-motak desberdinak dira kultura edo aldi kronologiko bakoitzean. Hemen, hiru konplexu neolitikotan oinarritzen da ikuspegia: Armorica eta Bego inguruko megalitoetako grabatuak, Frantzia hegoaldeko eta mendebaldeko Alpeetako arte eskematikoa eta Maurienne ibarrean (Savoya) dagoen Burdin Aroko multzo bat.

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Hitz-gakoak

Labar-artea; Gizakiak ez diren animaliak; Neolitoa; Burdin Aroa; Espezien arteko gizarte-harremanak; Komunitate hibridoak.

Resumen

Estudiar las figuras zoomorfas en las representaciones gráficas prehistóricas es estudiar la relación entre animales humanos y no humanos en la Prehistoria. La presencia de estas figuras en el sistema de representaciones gráficas testifica su función esencial como agentes sociales y enfatiza la importancia de considerar los animales no humanos y lo no humano en general, cuando se estudian e interpretan las sociedades pasadas. No se trata de solo sociedades humanas, sino también de comunidades híbridas. Las especies animales grabadas o pintadas y/o los tipos de interacciones con figuras humanas son diferentes en cada cultura o periodo cronológico. Aquí, el enfoque es sobre tres complejos neolíticos: los grabados de los megalitos armoricanos y del área del Bego, el arte esquemático de Francia meridional y de los Alpes occidentales, y un conjunto de la Edad del Hierro en el valle Maurienne, en Savoya.

Palabras Clave

Arte rupestre; Animales no-humanos; Neolitico; Edad del Hierro; Relaciones sociales inter-especies; Comunidades híbridas.

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1. Introduction

To study zoomorphic figures in prehistoric graphic representations is to study the relationships between human and non-human animals during Prehistory. In the same way that multispecies ethnography argues that "*we cannot adequately understand humanity in isolation from nonhuman species implicated in human life*" (LOCKE, 2018). Archaeology cannot appreciate prehistoric societies without considering relationships between human groups and non-human beings sharing the same environment. Zoomorphic figures in prehistoric rock paintings and engravings demonstrate that humans and non-human animals maintained dynamic and interspecific social relationships (MLEKUZ, 2007: 267; WEISMANTEL and PEARSON, 2010: 31; INGOLD, 2013) significant enough to be part of ideational universes whose graphic systems are the material evidence. Engraved or painted animal species should not be considered as symbolic resources or totemic entities used by humans for their own benefit in ritual purposes (OVERTON and HAMILAKIS, 2013). Rather, their presence testifies that human and non-human animals were engaged in mutual relationships in which animal species played an active social role alongside humans and contributed to the constitution of hybrid communities (LATOUR, 1991; INGOLD, 2013). Animals, as well as other beings inhabiting the environment (such as plants), were engaged with humans in mutually influential relationships (HARAWAY, 2008; HILL, 2011; OVERTON and HAMILAKIS, 2013). They were part of prehistoric societies and participated in their structure, their functioning and development. Being autonomous and having their own agency, non-human animals should consequently be studied as archaeological subjects (LESTEL *et al.*, 2006; LOCKE, 2018; STÉPANOFF and VIGNE, 2018). Therefore, the study of zoomorphic figures in prehistoric graphic representations requires avoiding and rejecting interpretations based on western and modern dualisms, in other words, naturalist dichotomies between nature and culture, subject and object, human and animal as well as wild and domestic which have no equivalent in many traditional societies (DESCOLA, 2012; LOCKE, 2018). We know from ethnography, that even in agrarian societies the variety of interrelations between humans and non-humans is wide. "*What within this diversity of relationships allows us to tease out two overarching categories (wild and domestic) to which we assign such a priori importance?*" (MORRIS, 1998: 125; POLLARD, 2006: 137; ORTON, 2008: 28). We should also keep in mind that the wild/domestic dichotomy

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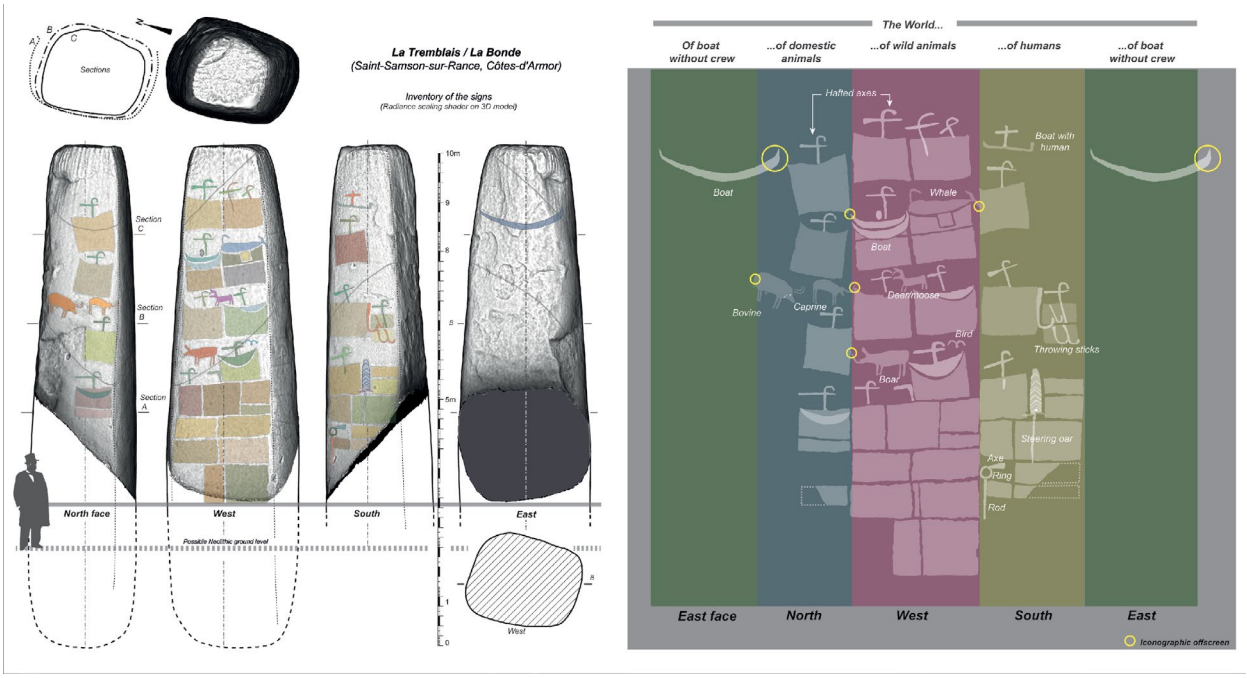

Figure 1. The Tremblais stela (Saint-Samson-sur-Rance, Côtes-d'Armor) (CAD: S. Cassen).

is not perfectly aligned with the nature/culture one. In some societies, the notion of wild is used to qualify artificial spaces (DESCOLA, 2005: 77). Formulating interpretations of past societies from such dualisms risks not identifying or understanding possible connections between the opposed categories. Such dualistic interpretations should only be envisaged when the archaeological data suggests them. However, dualisms are part of human cultures and, as western archaeologists, our methods and ways of thinking are completely determined by our "*naturalist ontology*". Therefore, even if our interpretations should not be based on them, dualisms, just as scientific methods, could be used to question archaeological data and try to reveal clues for past ways of being in the world. We should be aware that they depend on our own ontology and that we should relativise their role in the conclusions we draw. As an example, species categories, often considered as dictated by ecological facts, are culturally built and can also be considered controversial (BENSON *et al.*, 2017). It is a cultural way to group beings on similarities and separate them on differences. Moreover, the use of such categories could hide personal stories or biographies of non-human individuals taking part in transspecies socialising (LANGFORD, 2017). However, the use of such methods and categories can sometimes reveal some essential aspects of the functioning of prehistoric societies that an empirical approach could not. These are not immutable results but working hypotheses that other studies should support (DEFRASNE, 2018). Consequently, informative categorisation should be identified and researchers should consider their own cultural background when proposing anthropological conclusions.

Regardless, it is important to underline that to question zoomorphic figures and the evidence they represent of the status and role of non-human animals in past societies, these zoomorphic figures need to be considered against their iconographical and archaeological context. In France, the main imageries of post-Palaeolithic rock art which include zoomorphic figures are the engravings of the megalithic stone structures from western France (5th millennium BC), the engravings of the Mont Bego area (5th – 2nd millennia BC), the

Neolithic schematic representations composed of paintings and engravings (5th – 3rd millennia BC) and the Iron age engravings of the Maurienne valley. The studies of these series are at various stages of advancement and publication (recent systematic studies, studies in progress, studies that need to be revised) and the level of accuracy of the different parts of this chapter depends on these circumstances.

2. Zoomorphic figures in the engraved imagery of Atlantic Megaliths

One of the earliest and most important post-Palaeolithic imageries including zoomorphic figures is represented by the engravings from Neolithic megalithic graves and stelae of western France. This imagery dates back to the 5th millennium BC and is linked to the emergence of a new unequal political organisation represented by the building of gigantic stone structures (funerary and symbolic) and the accumulation of rare and long-distance materials, some of which are objects in alpine jade. As evidenced by similar iconographical representations from Armorica to the alpine region, for example, in the engraved imageries of the Paris basin, Burgundy, the Drôme, the Aosta valley (Italy), Wallis (Switzerland) and maybe even the Bego Area (Alpes-Maritimes, France), ideas connected to such a social phenomenon have been diffused alongside the circulation routes of polished stone axes (CASSEN, 2012; CASSEN 2017a and b). This Armorican engraved imagery, material traces of ancient myths on stones erected or gathered on the ocean shore, at the limit of the unknown, accompanied the emergence of new ways of thinking and seems to reflect new social divisions in the context of passage phenomenology (CASSEN, 2009; CASSEN *et al.*, 2015). Semiotic and structural analyses have been performed by Serge Cassen from the 1990s (CASSEN, 2000; CASSEN and VAQUERO LASTRES, 2003; CASSEN, 2007; CASSEN, 2009a and b; CASSEN, 2012). This review of the zoomorphic figures in the context of the Armorican imagery is based on his work.

The engraved Armorican imagery (like other prehistoric graphic representations) gathers artefacts, human figures, possible elements of the environment and non-human animals on the same rock surfaces, clues indicating they belong to the same stories and to the same myths. The Armorican engravings are composed of polished stone axes, evoking a possible sexual symbolism when associated with a stone ring, crooks, and bows (CASSEN *et al.*, 2015). These weapons become signs, conveying the idea of force, and are engraved for ideational reasons, beyond their original function. Axes and staffs, violent weapons engraved according to the gesture they require, figured in a static (straight) or a dynamic (oblique) way, are part of a semantic association between cutting (axes) and striking (staffs).

In addition, the myth expressed through this imagery is also built on animals. Some of the animals come from areas located beyond the ocean: the sperm-whale and the pigeon, a migratory bird coming from Eurasia to gather in autumn on the ocean shore of western France before heading to the Atlantic Iberian Peninsula (CASSEN, 2005). As suggested by Serge Cassen, these wild animals are systematically opposed to boats, to weapons or to domestic animals from the human world: bovids and caprinae. On stelae, these horned (and dangerous) animals, whose male character is emphasised just as for the sperm-whale, are often figured in couples. Their structural opposition to objects from the human world underlines ideational connections between both classes of entities. The composition of the Tremblais stela (Saint-Samson-sur-Rance, Côtes-d'Armor) may express such oppositions (Figure 1). On the north and west faces are engraved what Serge Cassen identified as an opposition between domestic (cattle, goats) and wild animals (suids, cervids, birds, cetaceans), on which horns and tusks are clearly visible and exaggerated and which are figured in confrontation. Some of them are sometimes represented with human feet, a possible mark of transformation. Such animals may consequently appear as a mediator with which the human fuses therefore increasing his or her power (CASSEN and VAQUERO LASTRES,

2003). As for the south face, it is reserved for the human figure and for iconic artefacts (polished axe, throwing stick, ring disk, steering oar). Static domestic animals are associated with weapons and/or tools and spatially separated from dynamic birds and sperm-whales. However, each face is engraved with boats, probably as part of the myth of the boat of a hero or as a means to reach the island of the Dead (CASSEN *et al.*, 2017). The interpretations as put forward by Serge Cassen can be summed up by this narrative sentence: "[…] *un cachalot sorti survolant de l'inconnaissable s'affronte aux armes des humains et aux animaux des hommes, tandis qu'une crosse en pleine poussée descendante de sa frappe assommante entrave une voie au pigeon terrassé venu d'un au-delà de l'horizon méridional... Images contraignantes énonciatrices des hiérarchies et du pouvoir, mythes cosmogoniques répondant aussi à l'interrogation: qui sont les plus puissants: dieu ou ange? Homme ou animal?*" (CASSEN, 2005). Here, the Armorican imagery appears as the story of a confrontation between competing powers aiming to justify the origin and place of humans in the world and probably the exceptional status of some men in society. In spite of the presence of the aforementioned animals previously cited, the presence of the snake is also worth mentioning (Carnac, orthostate 8 in Gavrinis (Bailloud et al 1995), La Bretellière (Raux and Joussaume 2000; Joussaume and Raux 2006): it is considered a chthonian animal, sometimes associated with the bird both in the imagery of the stone architectures and in contemporaneous pottery. It is worth noting that the snake also appears in the mainly abstract/schematic imagery of Irish megaliths (ROBIN, 2012).

To complement the analysis of the role of animals in these Neolithic representations, discoveries of animal bones in some of the megalithic graves should be detailed. For example, beads made of bird bones have been discovered in the Mont-Saint-Michel in Carnac and in the Saint-Germain tumulus in Erdeven. In a central grave of the Teste du Fief de la Hougue-Boëte tumulus, where a horse has been buried close to a human(?) male (Boujot et Cassen 1992), two bird feet were discovered in a clay layer covering the whole burial. In Kercado (Carnac, Morbihan), bird bones are associated with human bones. Other discoveries also attest to the sacrifice of bovids, buried for example under the Er Grah tumulus in Locmariaquer.

A strict selection of non-human animal species, gathering birds, mammals and maybe reptiles is consequently part of myths accompanying one of the most striking phenomena of the European Neolithic. In the interpretation by Serge Cassen, and from the structural analysis he performed, they are included in this imagery because of their dangerous character and the biotope they represent, as symbols of the opposition between two universes. This includes the wild one and the human and domestic one.

3. Zoomorphic figures in the Neolithic engraved imagery of the Mount Bego area

The Armorican imagery previously described is probably, at least partially, contemporaneous to another well-known graphic assemblage: the 36 000 engravings from the Bego area (Alpes-Maritimes), one of the main prehistoric European rock art sites located in the southern Alps from 2000 to 2700 m.a.s.l. A recent study (HUET, 2012; 2017) based on the statistic seriation of the engravings proposed a revision of the chronology of the site. Fringed figures, interpreted as schematic human figures, would be the earliest images attributed to the second half of the 6th millennium BC. They are part of the figurative assemblage shared along the circulation routes of the alpine jade described earlier (CASSEN, 2012; CASSEN 2017a and b). The fringed figures seem to predate the "*geometrical figures*", also called "*topographical figures*" attributed to the middle Neolithic. Then, the horned figures, which are either isolated or part of ploughing images, could have been engraved from the middle of the 4th millennium BC to the Early Bronze Age and are partly contemporaneous with daggers and halberds probably engraved from the end of the 4th millennium BC.

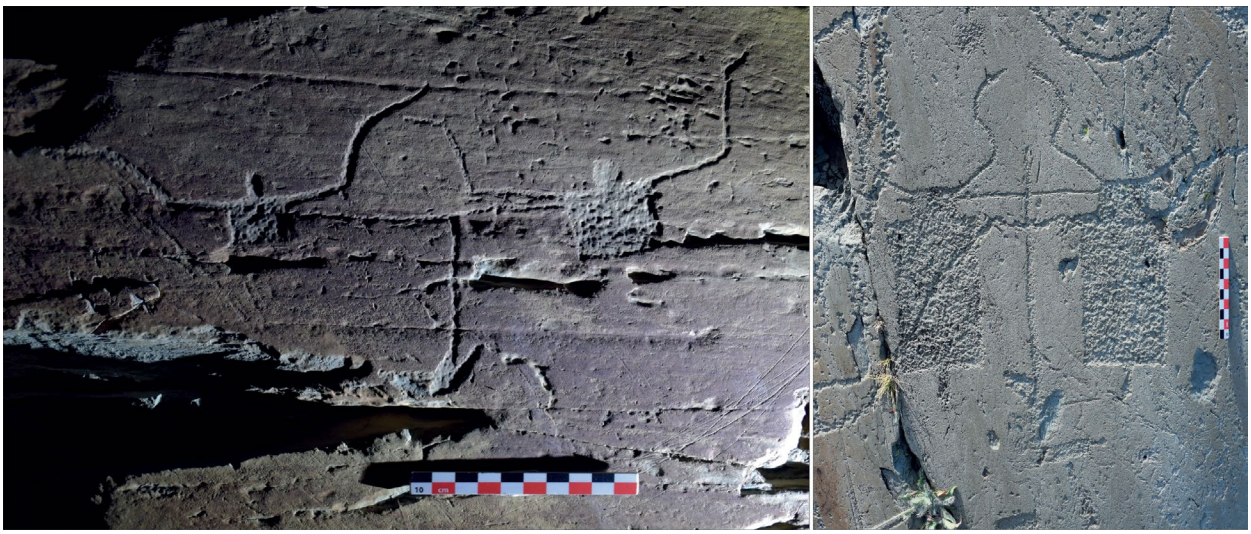

Figure 2: Horned figures from the Mont Bego site (photo: J. Masson-Mourey).

3.1. Bovids as the only zoomorphic figures

As for the zoomorphic figures engraved in the Bego area, they are exclusively "*horned figures*" (14098, i.e. 39% of the entire set). The most widespread interpretation of these typical engravings is that they represent cattle heads and horns. This is supported by the fact that, even if most of them are isolated (13 144, 93%), some are engraved as part of "*ploughing/traction scenes*" (779 are only associated with a plough (5%), 175 (1.2%) are associated with a plough and a human figure driving the team (mainly masculine) (HUET, 2012; 2017) (Figure 2). However, other interpretations have been proposed for some compositions of aligned horned figures: herds of sheep going to altitude pastures (BIANCHI, 2016). Here, the interpretation that the figures represent bovids is preferred because of the iconographical, archaeological and ideational context of the final Neolithic, even if the interpretation of some of the horned figures should probably be reconsidered.

Bovids are represented from above, a perspective different from other contemporaneous sets in which zoomorphic figures are preferentially figured in profile. However, when a human figure is associated with the bovids and the plough, it is represented from the front along the axe of the plough or perpendicular to it. This appears clearly as a cultural choice. Two way of representing bovids have been identified, either with legs and tail or with only the horns. Isolated figures and bovids associated with a plough are generally of this second type (horns only) whereas bovids associated with a plough and a human figure driving the team are preferentially of the first type (legs and tail) (HUET, 2017).

A quantitative approach is essential but insufficient to understand the prehistoric imageries and the hegemony of bovids on the rock outcrops of the Bego area. Even if the main proportion of the horned figures are isolated bovids, the social role of this animal species as essential partners in ploughing and more largely in towing carts or travois appears particularly striking in this imagery. This social and ideational value of such a technical innovation is reminiscent of the male statue-menhirs of the central Alps in the 3rd millennium BC and the use of such images in the conception of male identities (FEDELE, 2006, 2012; DEFRASNE, 2018). The Bego imagery and the status of the engraved bovids should consequently be interpreted against the archaeological background.

3.2. Ploughing: the archaeological background

The spread of animal traction (yoke, drawbar, plough or wheeled vehicle) is well documented in the dated archaeological contexts of the north alpine and Jura lakeshore settlements. If the first elements may be dated to the 38th century BC, the earliest indisputable material proofs (new organisation of settlements and discoveries of yokes) date back to the 35th and 34th centuries BC in eastern Switzerland and to the 33rd-32nd centuries BC in western Switzerland and the French Jura (PÉTREQUIN *et al.*, 2006: 371). A yoke and a travois have been discovered in Chalain 19 in a context dating back to the 31st century BC. This spread seems to coincide with the Horgen expansion (PÉTREQUIN *et al.*, 2006: 372). Proof of animal traction increases during the 28th and 27th centuries BC (PÉTREQUIN *et al.*, 2006: 98-99). As for wheeled vehicles, they are documented from the 34th century in Slovenia and during the 32nd and 31st centuries on the Zurich lakeshore and in southwestern Germany (Zurich AKAD, Seekirch/Stockwiesen and Seekirch/Stockhausen). They are followed by an increase in Lüscherz and Corded archaeological contexts in the lakeshore sites of western and central Switzerland and in southwestern Germany (RUOFF, 2006). Finding a plough is rare in archaeological contexts prior to the Bronze Age, with the notable exception of the Lavagnone discoveries in northern Italy (MARZATICO, 2006). Additionally, a plough from Ezerovo in Bulgary may date back to the 3rd millennium BC (PÉTREQUIN *et al.*, 2006b: 16).

In the southern Alps, material evidence of animal traction in archaeological contexts of the 4th millennium BC are rare. Fossilised furrows have been discovered in Chur/Areal Ackerman in a context dating back to the 34th century BC and in Castaneda/Pian del Ramit in the first half of the 3rd millennium BC (2350 – 2780 BC) (RAGETH, 1992a and b; SHERATT, 2006; PÉTREQUIN, 2006d: 361). Other discoveries have been interpreted as ploughing furrows in Canton di Trescore/Balneario and Cemmo (POGGIANI KELLER, 2006b; POGGIANI, 2009: 213) but should be reconsidered (SHERRATT 2006: 338). In northern Italy, no plough or yoke has been discovered in an archaeological context prior to the Bronze Age (MARZATICO, 2006).

The earliest figurations of animal traction are probably the scale models of sleds and the one of wheeled vehicles from eastern Europe dating back to the 4th millennium BC (Tripolje and Boleraz cultures). Other representations are characteristic of the ceramic ware from the TRBK Culture (35th century BC) and Baden (3300 – 2900 BC) cultures. Such figurations are also engraved in the Züschen megalithic grave in Central Germany dated to the 35th century BC (MATUSCHIK, 2006). Finally, the deposit from Bytyń in Poland is composed of two copper statuettes of bovids and copper axes (MATUSCHIK, 2006: 285) attesting of the social and ideational value of animal traction. Such figures appear on the erratic boulders of Valcamonica in the Central Alps and on the rock outcrops of the Bego area at the end of the 4th millennium BC (FEDELE 2006: 54). Worth mentioning here is also the schematic painted cart towed by possible bovids from the Congosto de Olvena rock shelter in Aragon (Spain) where early and late Neolithic occupations have been identified (BALDELLOU *et al.*, 1996).

Animal traction is part of a radical and deep change in the European Neolithic in the middle of the 4th millennium BC characterised by the interruption of the production and diffusion of polished stone axes in alpine jade which structured Neolithic societies from the end of the 6th millennium (KLASSEN *et al.*, 2012: 1304; PÉTREQUIN *et al.*, 2006; FEDELE, 2012: 56). This change also includes the increase of transalpine mobility (BARFIELD *et al.*, 2003: 676), the use of altitude areas for pastoral activities, the decrease of flint blade production and long-distance flint exchange except for some specific products like daggers, arrowheads and sickles (BARFIELD, 2001: 507). From the second half of the 4th millennium, cultural influences come from the east with the arrival of copper metallurgy. The Bego imagery is produced in such a context and cannot be understood without this archaeological background.

3.3. Opening the ground: from bovids to seeds?

As mentioned earlier, most of the horned figures are isolated and are not part of ploughing images. Therefore, are these just bovids represented per se or are they a metonymic image evoking the whole ploughing action? It is of course difficult to answer in an assertive way. What is interesting is that, in both cases, bovids appear at the heart of a complex of social and ideational representations. Moreover, in the second hypothesis, bovid, an animal species, may have been used as a metonymy, instead of a human figure, to evoke a technological system. This second hypothesis can be reinforced by including the bovids on engravings of copper daggers and halberds, products of another technological innovation, copper metallurgy. This shows the social role of such animals and their status as social agents in human societies.

When complete, the ploughing image combines the human figure, a plough, a yoke and at least a couple of bovids in the same unit of meaning. Animals are joined with a shoulder- or withers-yoke (PELLEGRINI, 1994). The plough can be a body ard or a sole ard, suitable for small/cramped, sloping and stony-ground fields (HAUDRICOURT, 1955). Considering more precisely the type and functioning of the engraved plough leads to better understanding the nature and social background of the imagery. These ploughs are symmetrical and cannot be used to turn over the ground. They were probably used more often to open the soil to bury seeds (SIGAUT, 1988; 1989). Therefore, the engravings display a technical action, aiming at opening the ground with the aid of the bovids, whose presence in a wide number on the rocks of the Bego area demonstrates their social and ideational value. Such an image may have been connected to an important meaning attributed to the ground itself as well as to cereal culture and germination (PELLEGRINI, 1994; FEDELE, 2006). Just as can be observed in the central Alps of the 3rd millennium BC, the ideational meaning of the ground may be supported by the fact that travois (six) and carts (two) are much less represented than ploughs (257) (total numbers from HUET, 2017). Therefore, it seems that the driving force was not as socially/ideationally valued as the connection of the plough to the ground and probably more generally to the territory. The different entities that constitute the image do not have their own meaning but receive it because they are necessary and essential to that technical activity. The plough, cart or travois are not engraved as objects and bovids as animals (FEDELE, 2006: 58; FEDELE, 2012: 58). It is the technical action and the opening of the ground that were probably at the heart of the meaning.

The ideational role of ploughing is widespread in archaeological, ethnographical and historical contexts (BRÉTAUDEAU, 1993). This was still the case in Europe during the 19th century. Beliefs generally focused on the magic properties of wood, on the supernatural origin of the structure of the plough and on the incisive action of the tool (HAUDRICOURT, 1955: 371-384). In the same way, ritual practices connected to ploughing aimed generally at favouring the growing of seeds.

In archaeological contexts dating back to the 3rd millennium BC, ritual ploughings have been evoked in the study of the Saint-Martin-de-Corléans funerary site in the Aosta valley and of the Cemmo ceremonial site in Valcamonica. However, those arguments are not convincing enough (PÉTREQUIN *et al.*, 2006: 16). Up until now, ritual ploughing has not been demonstrated in Neolithic contexts. However, as suggested by Francesco Fedele, the striped appearance of the limestone crest of the Anvòia (Ossimo, Lombardia, Italy) ceremonial site is reminiscent of plough furrows and may have led prehistoric people to choose this place to build a ceremonial site around stelae (FEDELE, 2006: 59).

The Bego imagery focuses on technical innovations of the 4th-3rd millennia BC, copper metallurgy and animal traction. Bovids are part of such technical innovations leading to important anthropological and social changes as essential partners. They are part of a group of representations probably around the subjects of fertility, territory and power. They are at the heart

of Neolithic societies of the 4th and 3rd millennia BC as social agents.

4. Neolithic schematic paintings from southern France and the western Alps

A third Neolithic graphic representation set attests of a third ideational universe/world. It is Neolithic schematic art, partly contemporaneous with the two previously described imageries. These graphic representations, studied by the author from 2014 in the context of a post-doctoral research project[1], are known from the Iberian Peninsula to the Italian Piedmont in a great diversity of environmental and cultural contexts. In Spain, where schematic paintings coexisted with what is called "*Levantine art*", the adjective "*schematic*" has been used from the time of the first discoveries to distinguish summarily executed figures, mainly reduced to their structure, from precise and finely depicted Levantine compositions. Such schematic representations are both engraved and painted. In southern France and the western Alps, 127 rock shelters and caves with schematic paintings are known so far. As regards the engravings, three main sites are known: Creysseilles-Pranles (Ardèche), the Signal de la Lichère (Branoux-les-Taillades, Gard) and the Caroux Massif but other scattered schematic engravings have been identified (COMBIER, 1972; HAMEAU AND VAILLANT, 1999; 2016). This schematic art is composed of about 40 recurrent shapes composing a coherent set, most of them non-figurative, shared across a wide geographical area. However, among this diversity, some themes recur. The anthropomorphic figures are those most systematically painted and appear consequently as the focus of the schematic "*discourse*" probably suggesting social preoccupations. The hegemony of these strictly anthropomorphic figures may be much more important than it seems if other themes which may also refer to a human shape are included, such as some ramiforms, which are the second most important class of themes, T-shape figures, which are interpreted as sketches of a brow line and a nose when compared with contemporaneous stelae, and rare phi-shapes and eye-shaped figures. However, it is important to also consider that these anthropomorphic figures may refer to different entities and not only to human beings. The zoomorphic figures, the subject of this paper, form the third class of themes. Schematism differs also from figurative imageries in that meaning is also conveyed by the direction in which a theme is represented, straight or reversed.

Despite these schematic figures, a great number of simple marks, sometimes clearly related to some distinctive features of the rock surface (holes, concretions), testify to the social importance of the graphic act itself during social practices performed in the rock shelters.

Chronology remains one of the main challenges in the study of these schematic rock paintings. Because to date no absolute dating can be carried out on the paintings themselves, the beginning and the duration of this phenomenon are not known. Consequently, chronological markers must be identified. In southern France, the chronological milestones which can be set from the environmental and archaeological context or from the imagery itself are mainly situated between the 5th to the 3rd millennia BC (HAMEAU, 2002; DEFRASNE *et al.*, *in press* a and b).

4.1. Neolithic schematic art: Philippe Hameau's studies

From the 1980s onwards, Neolithic schematic art has been studied by Philippe Hameau who has identified characteristics of the rock shelters, performed archaeological excavations when possible and proposed anthropological interpretations from the structure of the imagery. These schematic

1 The research, focused on southern France and the western Alps, was funded by the Fyssen Foundation from 2014 to 2016 and by Aix-Marseille Université/LabexMed from 2016 to 2018. Structural and spatial analyses are still in progress.

Figure 3: A group of red deer at the Rocher du Château site (Bessans, Savoie) and caprinae in the cavity n°12 of the Baume Brune limestone cliff (Gordes/Joucas, Vaucluse) (CAD: C. Defrasne).

rock paintings share common location criteria, mainly rock shelters with a southern exposure, distinctive topographies or impressive views of the surroundings, the presence of intermittent water flows and a colored rock surface (HAMEAU, 2002). In some cases, when several painted rock shelters belong to the same canyon, Philippe Hameau suggests that they are complementary and organised according to a cognitive itinerary. Rock shelters with a very large and diversified imagery should be considered as located at the end of the itineraries, whereas rock shelters with very few figures are located on the way to the first one (HAMEAU, 2009). Philippe Hameau recognises five main themes: living beings (the male human figure, quadrupeds and a human figure supposedly feminine, as compared to one found on stelae and called the idol) and "*value-added*" signs (the broken line (water) and the sun-like figure (sun)). These "*value-added*" signs would mark a change of status of the living beings with which they are associated. Living beings are often doubled as follows: a simple figure associated with the same figure accompanied with a dot representing an imperfect doubling. The direction of the figure could also change. Such variations are interpreted by the author as various states of the same entity and echo indications of flint knapping or mining, or clay mining which are evident on some of the painted sites. Therefore, the transformation of matter and living beings, including quadrupeds and particularly deer (HAMEAU, 2006), is seen as being central to the schematic discourse.

4.2. Understanding schematism: the cognitive perspective

Before going further in the study of zoomorphic figures as part of Neolithic schematic art, it is necessary to question the cognitive nature of schematism to better understand the structure of the graphic representation of which zoomorphic figures are part and to try to shed light on social practices surrounding the graphic act.

As demonstrated by cognitive semiotics (DARRAS, 1998), human societies produce two categories of graphic representations, called sketches and simili, whose cognitive origin and purposes are completely different. Simili aim at reproducing the optic experience whereas sketches result from a simplification. Indeed, a sketch only figures the generic and main distinctive features of the represented entity (human, animal species…). Simili are generally individual and slow productions. Since they reproduce the real view, their meaning and interpretation does not require other communicative actions. They are descriptions and imitations and are consequently autonomous and universally understandable images. Sketches, which are simple shapes from a fast, brief and consensual execution, are part of a pluri-media communication gathering gestures and speeches. They are intended for communication and repetition. Their meanings and interpretation depend on interactions surrounding their production. They are consequently part of a dynamic production that

Figure 4. Paintings from the Bergerie des Maigres site (Signes, Var) (CAD: C. Defrasne).

gathers people. Relationships of both categories of graphic productions with the rock surface are also different from one another. Spatial distribution of the sketch is based on proximity, inclusion and juxtaposition relationships between figures. They are often distributed in linear or reticular arrangements. Space separating a figure from another can be compared to the space between words. It is sign of separation. As for the simili, they are generally combined in scenes in which space represents distance and perspective (DARRAS, 1996; 1998; 2003).

These differences in nature should be kept in mind during the study of prehistoric imageries and particularly the study of Neolithic schematic art in question here. These semiotic studies help consider social practices and the social context that may have surrounded the creation of rock paintings. They also invite us to formulate new working hypotheses and to search for material clues of semiotic conclusions. Finally, this semiotic approach urges us to question the stylistic argument and the chrono-cultural interpretations used to distinguish the schematic expression from the Levantine imagery. Style is not the only cause of variability among graphic prehistoric representations.

As a conclusion, the following working hypothesis can be presented: Neolithic schematic art may have been produced during social practices bringing together people in chosen rock shelters to accompany speeches, perhaps narrations of myths.

4.3. Schematic paintings, special places and the socialised environment

Studying zoomorphic figures requires questioning in a more general way the relationships of human groups with their environment. Rock paintings testify to social practices performed in chosen, and consequently distinctive, places. The distinctive and striking topographical and geological features of many painted sites (rock arches or ridges, polygonal designs of the bedrock) can support this argument. This probably means that the environment was culturally meaningful. Paintings reveal social practices and cosmographies connected to the environment and the integration of some places into the social memory of human groups. This graphic art does not appear as a means of appropriation of the environment but reveals the existence of a socialised and lived-in environment (INGOLD, 2000), imbued with social and ideational references and appearing consequently as territory. Therefore, zoomorphic figures and relationships with non-human animals should be thought in this context of tight connections between human societies and their surroundings. Zoomorphic figures consequently attest to the integration of some animal species to narratives connected to such socialised places and practices.

4.4. Zoomorphic figures in the schematic graphic expression

The schematic nature of the studied graphic representations makes the identification of the represented animal species quite difficult. Only two of them, red deer and ibex, could be easily identified thanks to their antlers and horns.

Animal species are only painted, never engraved (HAMEAU, 2006). They appear in 17 of the 127 identified painted sites (13%), as well in large isolated rock shelters in low altitude areas as in rock shelters in high mountain environments or in sites that are part of a group of painted rock shelters. In this research, the Gias des peintures site (Tende, Alpes-Maritimes), in which a hunting scene has been previously described (MANO, 1995), is not considered since the recording and more generally the study of the figures needs to be revised. In most cases (25 figures in nine sites), animals are red deer. However, there is roughly the same proportion of unidentified quadrupeds (25 figures in seven sites). Among the latter, some may be identified as canids. Finally, caprinae, maybe ibex, are painted in four sites (ten figures). Therefore, red deer and ibex are not the most numerous but are the most frequent.

Figure 5. Hunted deer from the Faravel rockshelter (Freissinières, Hautes-Alpes) (CAD: C. Defrasne).

Three sites should be distinguished for their high proportion of animal figures. First, with 12 figures, the Bergerie des Maigres (Signes, Var) is the most important one. However, all these animal figures remain undetermined. The analysis of this particular imagery, in which humans and animal figures seem to interact contrary to what is generally observed in the Neolithic schematic art from southern France, will be discussed further. A second site should also be highlighted. A group of at least ten red deer in a right profile is painted at the Rocher du Château site (Bessans, Savoie) (DEFRASNE *et al.*, *in press*). Finally, five caprinae, a possible deer and four undetermined animal figures, probably badly preserved caprinae, are grouped in the cavity n°12 of the Baume Brune limestone cliff (Gordes/Joucas, Vaucluse) (Figure 3). Despite the presence of ten other painted cavities in the same limestone escarpment, Baume Brune 12 is the only one with preserved animal figures. On the other sites of this French schematic art set, animal figures appear from one to five in number.

Some generalities can be raised from this. Red deer and caprinae are sometimes figured in groups, maybe in relation with the ethology of both species (HAMEAU, 2006). On the contrary, at the Bergerie des Maigres (HAMEAU, 2010), the numerous undetermined zoomorphic figures are not grouped together but mainly associated with different human figures (Figure 4). The representation of antlers differs from one site to another, either exaggerated or simply radial. Red deer antlers are often oversized compared to the body of the animals probably indicating a focus on this characteristic of the species (HAMEAU, 2006). However, despite this magnification, the representation of antlers is often accurate. At the Rocher du Château site, antlers are constituted of 12 to 16 points. Such antlers are rare but realistic. As mentioned previously, scenes are not represented in the schematic art from southern France. However, in two sites (Faravel, Fressinières, Hautes-Alpes and Pierre Escrite, Castellane, Alpes-de-Haute-Provence), red deer are figured with what looks like an arrow in their back (Figure

Figure 6: Hunted deer from the Pierre Escrite site (Castellane, Alpes-de-Haute-Provence) (CAD: C. Defrasne).

5 and 6). However, no human figure is associated with them and no interaction between human and red deer or ibex is described contrary to what can be observed for undetermined species. This is quite different from Spanish schematic art where red deer are sometimes part of hunting scenes or appear held by human figures. Indeed, three scenes of deer capture are known from Mallata (Aragon) (HAMEAU, 2006; PAINAUD, 2006).

Besides this strict selection of big mammals, there are some meander-like figures which could arguably represent snakes. Such figures are painted in the Gayette (Murs, Vaucluse) and Dalger 3 (Ollioules, Var) sites (DEFRASNE and HAMEAU, 2017) (Figure 7). At the Dalger site, the meander-like figure is associated with a probable human figure. The imagery from the Gayette site is special in the context of the schematic art from southern France in that the figures, in spite of being meander-like figures whose most relevant parallel are engravings from Atlantic megaliths, are composed of triple lines of small dots (DEFRASNE and HAMEAU, 2017; ROBIN, 2010). The main argument in favour of these images representing snakes is the presence of a higher undulation at one end of each figure evocative of a reptilian way of carrying the head. These meander-like figures are also characterised by small appendices located in the middle or at the end of the figures. Such appendices are reminiscent of engraved figures both in megalithic monuments around the Irish sea and on Portuguese stelae on which the representation of snakes is much more evident (BUENO RAMIREZ ET BALBIN BEHRMANN, 1995; 2006). What is also striking is the presence of another poorly preserved figure which may have been a human figure at the Gayette site, just as in the Dalger 3 rock shelter. Moreover, this echoes what is observed in the schematic art of the Huesca province in Spain where snakes are associated with human figures in Mallata C and the Remosillo rock shelter (PAINAUD, 2006). Is this indicative of a significant association?

As regards now the direction of the animal figures (left or right), zoomorphic figures are represented in a right profile in 29 cases, whereas 22 are represented in a left profile. The direction of five figures cannot be determined.

4.4.1. An ideational and cultural filter

It clearly appears that all the animal species of the biocenosis are not part of the stories or myths that schematic art represents. Prehistoric people seem to have only selected big mammals, and more particularly two species: red deer and ibex, rarely associated, and whose antlers, horns and ethology of male individuals are particularly striking. In this respect, Philippe Hameau relates the cycle of the red deer antlers to the concept of transformation mentioned earlier (HAMEAU, 2006). However, in two cases, the Dalger 3 (Ollioules, Var) and the Gayette rock shelters (Murs, Vaucluse), the presence of snake figures can be questioned. These zoomorphic

Figure 7. Meander-like figures and possible human figures from the Gayette (recording and schema of the painted composition) and the Dalger 3 rockshelters (CAD: C. Defrasne).

figures are clues for an ideational and cultural filter connected to stories and social practices performed in rock shelters. This strict selection of non-human animals and the relationships with the human groups that they testify to are a very different ideational universe from the Armorican and Bego ones. However, this situation is identical to Iberian schematic paintings and reminiscent of central alpine imagery of the 3rd millennium BC (DEFRASNE, 2018).

As mentioned earlier, scenes are absent from schematic graphic representations. Therefore, there are no hunting scenes strictly speaking. However, in two cases, deer are figured hunted. Consequently, it is possible that some painted sites and social practices performed on these sites are partly connected to hunting. However, this should not be presented as the only explanation for the presence of zoomorphic figures. Reality may have been more complex. One of the main groups of deer has been painted at the Rocher du Château site (Bessans, Savoie). The excavation of the site revealed two periods of Neolithic occupation, a first one during the Middle Neolithic from 4500 to 4000 BC and a second one in the Final Neolithic from 3500 to 2300 BC (THIRAULT, 2004; 2008). Coloured and colouring materials have been discovered in the archaeological layers of the first period attributed to the Square Mouth Pottery culture (SMP). Physico-chemical characterisation of these materials were performed in 2015 to compare their composition to the one of the preserved paintings and try to provide new chronological arguments for this schematic representations. The first conclusions do not go against a similar composition (DEFRASNE *et al.*, *in press*). What is interesting here is that, if SMP people are the authors of the paintings, they represented deer while they came on site to hunt ibex (ROUX, 2010).

4.4.2. Riding scenes: chronological and anthropological issues

As mentioned earlier, schematic figures are mainly part of topological relationships instead of scenes except in two sites, the Bergerie des Maigres (Signes, Var) and the Pin de Simon 2 (Gémenos, Var), located on both sides of the Sainte-Baume Massif, 20 km apart. Indeed, the use of DStretch enhancement to correct and complete the previous recordings led to the discovery of a new theme, the riding scenes, unknown in southern France up until now. Besides sharing such scenes, these sites also share stylistic patterns and associations.

The imagery from the Bergerie des Maigres site appears special in the context of schematic art from southern France. This imagery is exclusively composed of human and animal figures, focusing on interactions between both categories without which the represented practices could not be identified. In this context, a riding scene is obvious and two other animals poorly preserved may also have been part of

Figure 8: Riding scenes from the Bergerie des Maigres (Signes, Var) and Pin de Simon 2 (Gemenos, Bouches-du-Rhône) rockshelters (CAD: C. Defrasne).

similar scenes. At the Pin de Simon 2 site, the riding scene is much more uncertain, but one of the three characters seems to ride an unidentified animal. A halter connects two characters to the third one riding the animal (Figure 8).

Such riding scenes are known in the schematic representations of the Iberian Peninsula and characterised by synoptic (Gallinero IIA (Bárcabo, Huesca), Les Coves de Baldellou (Baldellou, Huesca), Los Estrechos (Albalate del Arzobispo, Teruel) or topological relationships (Los Estrechos I, La Fenellosa (Beceite, Teruel), abrigo de Tera, en Sierra de Minerva (Garlitos, Extremadura) (COLLADO, 2008; BEA *et al.*, 2009; LANAU and BEA, 2016). In the synoptic case, the human figure sits astride the animal, whereas in the topological case, the human figure is represented in full-length above the animal. In these examples, the species of the animal figures cannot be determined except for two horns in Los Estrechos I which seems to imply a bovid.

The presence of the riding scenes questions both the nature and chronology of the schematic art. Consequently, two working hypotheses can be considered depending on whether the ridden animal is interpreted as a horse or not (DEFRASNE, 2019).

Hypothesis n° 1: ridden animals are horses

The riding scenes are generally interpreted as equestrian, even when the animal species cannot be identified. In this case, they are attributed to later chronological periods, from the Bronze Age to the Iron Age. Indeed, the first material evidence for horse domestication in western Europe date back to the 2nd millenium BC. Earlier clues remain uncertain (BENDREY, 2012). Places and modalities of the first horse domestication are still in debate. Wild horse populations decreased at the beginning of the Holocene period but probably maintained themselves in certain European areas (BOYLE, 2006). Up until now, the first evidence for horse domestication and riding date back to the middle of the 4th millenium BC in Eneolithic contexts from Ukraine and Kazakhstan (OUTRAM *et al.*, 2009). An independent Holocene domestication area has been documented in the Iberian Peninsula (WARMUTH *et al.*, 2011). In western Europe, the horse disappears from faunal remains in the middle Neolithic and reappears at the end of the Neolithic and at the beginning of the Bronze Age. From there, the remains continually increase. The expansion of the domestic horse has consequently often be associated with the Bell Beaker phenomenon in Europe during the second quarter of the 3rd millenium BC (VAN WIJNGAARDEN-BAKKER, 1974; 1986; CLUTTON-BROCK and BURLEIGH 1991; SHERRATT, 1997; UERPMANN, 1995; ALBARELLA, 1999; BLAISE, 2010; BENDREY *et al.*, 2013). However, this should be considered with caution. Detailed regional studies have not confirmed the association between horse bones and Bell Beaker material culture (BENDREY, 2007; BLAISE, 2010). Moreover, some faunal remains used to support such an interpretation have been revised and their dating appears more recent that the Bell Beaker context with which they were previously associated. This is the case for example of the horse teeth from Newgrange recently attributed to the Iron Age. Consequently, the earliest material evidence for horse domestication in Ireland date back to the Bronze Age. The situation in southern France is similar to that described for the rest of Europe. Horse domestication is clearly attested from the Bronze Age. Wild horses appear in the faunal remains of the archaeological contexts of the Middle Neolithic (grotte de l'Eglise, Baudinard, Var) but then disappear until the Bell Beaker period. Wild horses have been identified in the faunal remains from three sites dating back to the 3rd millenium BC (Les Calades, Orgon, Bouches-du-Rhône (2500 – 2270 BC); La Balance, Avignon, Vaucluse (2930 – 2405 BC); Le Bois Sacré, Saint-Côme-et-Maréjuols, Gard (2855–1985 BC). The causes of such a presence are not clearly understood (hunting, domestication of an endemic species or introduction of domesticated horses) (BARGE, 2009). In the present state of knowledge, its presence in the final Neolithic and Bell Beaker societies cannot be excluded as the social importance of the domestic horse considerably increased in cultures after the Early Bronze Age leading to important changes in the

economy of these human groups. It is possible initial domestication did not leave material traces clear enough to be detected in the faunal remains. The scarcity of the horse in the chronological periods predating the Bronze Age probably limited its use and impact but may also have conferred it a special and prestigious status (BENDREY, 2010: 12).

What about the riding scenes from the Bergerie des Maigres and Pin de Simon 2 sites? The main occupation of Bergerie des Maigres is attributed to the second half of the 3rd millenium BC, a period during which there may have been the first domestic horses. The morphology of the Pin de Simon 2 cavity did preserve well the archaeological layers. However, flint fragments have been discovered near the entrance and provide evidence for a prehistoric occupation (HAMEAU, 2002). The riding scenes may consequently be attributed to this period, thus confirming the chronology proposed by Ph. Hameau. A later chronology can also be consider leading to the production of these paintings during the Bronze Age. Indeed, schematic art may have lasted into the Early Bronze Age as documented by archaeological remains from the abris Perret (Blauvac, Vaucluse), the Levant du Leaunier (Malaucène, Vaucluse) and Monier (Ollioules, Var) caves.

Hypothesis n° 2: ridden animals are not horses

However, it is also possible that the ridden animals of the Bergerie des Maigres and Pin de Simon 2 sites are not horses. The species remains unidentified. Consequently, other hypotheses are possible: representing myths or the riding of wild animals as seen in ethnographic contexts. Indeed, the graphic productions of prehistoric societies need not be interpreted in a literal manner since they may figure either daily or ritual social practices or myths. This is probably the case of the feminine statuette from Çatal Höyük (8th – 6th millenia BC, Turkey) leaning on two leopards. In the same way, animal riding appears in the myths of societies in which people do not ride animals on a daily basis (SAUMADE, 2004: 70). The occasional riding of bovids or wild animals is also attested both in ethnographic contexts and in other prehistoric imagery (LE QUELLEC, 2007). A zoomorphic pottery discovered in Hauza (Kapitan Andreevo, Bulgary) attributed to the Karanovo IV period (end of the 6th millenium BC) represents a human figure on a bovid. The previously mentioned riding scene from Los Estrechos in Spain may also represent a ridden bovid. Such hypothesis should also be questioned in the case of the schematic paintings of the Bergerie des Maigres and the Pin de Simon 2 sites.

Figure 9. Recording of the southern painted composition of the Baume Peinte site (Saint-Saturnin-les-Apt, Vaucluse) (CAD: C. Defrasne).

Whatever the interpretation of such riding scenes, they are part of the representation of human/non-humans interactions which remain rare in the schematic paintings from southern France. At Bergerie des Maigres, human and zoomorphic figures are implicated in other types of scenes without which the nature of the interaction would remain unknown. The only other possible example of a scene attesting to such interactions is the Chuchy cave (Tourves, Var) because of the nature itself of the schematism and the topological relationship between the figures.

4.4.3. Animal species as social agents?

The conclusion that needs to be drawn from such observations is that these interactions between humans and non-humans appeared important enough to prehistoric groups to be expressed during social practices performed in rock shelters and made permanent through a graphic act. Consequently, a possible hypothesis is that these representations reveal the social role of at least some animal species and their presence in social practices, speeches and representations of the world.

In this respect, the painted composition from the Baume Peinte site (Saint-Saturnin-les-Apt, Vaucluse) should be evoked (HAMEAU, 1997) (Figure 9). The composition is divided into two superposed levels thanks to a horizontal line of dots perpendicular to figures located in the deep part of the cavity and vertically aligned. Figures painted above the horizontal line are represented in their "*normal*" position whereas figures represented under this line are in a reversed position. This is the case of an undetermined zoomorphic figure which could be a red deer. It seems that this composition materialises a representation of the world or a part of it as perceived by prehistoric human groups. This world is composed of two spaces (the "*real*" world and the underworld?) whose permeability is suggested by the discontinuity of the horizontal line. The passage from a space to another requires a change of status, affecting both human, non-human animal and objects, indicated by the position of the figures. Such a representation of the world, with superposed universes, one being characterised by reversed figures, evokes some engraved compositions of the Armorican imagery. Non-human animals are part of this Neolithic cosmogony and are affected by the same transformations (HAMEAU, 2006).

Going further in such an analysis requires finalising the structural analysis of this set of graphic art which is currently in progress. However, some conclusions can already be drawn indicating that non-human animals should be considered as being social agents belonging to Neolithic hybrid communities.

5. Zoomorphic figures in the Iron Age engraved imagery of the Maurienne valley

In France, post-Palaeolithic rock art also comprises Iron Age engravings. Most of them are in the Maurienne valley in Savoie, in the western Alps. In this region, around 1000 engraved rocks have been identified distributed in 130 sites from 1000 to 2800 m.a.s.l. and gathering 50 000 engravings (BALLET, 2003; BALLET and RAFFAELLI, 1990; 1993; 2003). These engraved rocks are located in areas favourable to long-term or temporary settlements for pastoral activities or for working raw materials and close to circulation routes. Figures are engraved on calcschist and phyllitic sandy limestone outcrops and date back to a period from the Neolithic to the Middle Ages. However, most of the engravings are attributed to the Iron Age thanks to style and comparisons with material culture and could be compared to a wider alpine set of engravings located in Valcamonica in the Central Alps. This imagery is composed of cupmarks and abstract figures (labyrinths, spirals, meander-like figures, crosses, circular and quadrangular figures…), foot-shape figures often engraved in couples and figurative images limited to some sites. However, there are few zoomorphic figures mainly located in Aussois, Sollières and Lanslevillard and part of Iron Age compositions (4th - 3rd centuries BC) involving hourglass-shape human figures with

weapons, and mainly dogs and ibex. It is possible sometimes to also recognise wild canids, red deer and horses. Most of these figures seem to interact in what evokes hunting scenes; human figures on foot (or, on rare occasions, riding horses) with spears positioned towards ibex or wild canids and dogs hunting (are they hunting the dogs or are the dogs hunting with the people?). However, in some cases, there is no hunting scene strictly speaking but only the co-presence of human and zoomorphic figures. Finally, human figures are sometimes lacking. The presence of a snake on a rock in Lanslevillard should also be mentioned. As for the meander-like figures, they are very frequent, but it would be risky to systematically interpret them as representations of reptiles. Finally, this engraved zoomorphic imagery is also characterised by horses. Seven are ridden in Aussois and Sollières and three, at least, are represented driving carts.

It should be highlighted that recordings coupling 3D scan and photogrammetry aiming at correcting and complementing the previous tracings are currently underway (PI F. Ballet) and still unpublished. The observations are therefore made from former studies. In order to further our understanding of this set, a new systematic study is required, based on the important work of F. Ballet and Ph. Raffaelli using GIS and statistical analysis, rendering more precise the chronology and content of these imageries.

To conclude, in the imagery of the Maurienne valley, *Capra ibex* appears above all as a prey whose hunting probably engaged social representations.

6. Conclusion

The presence of zoomorphic figures in rock art from the Neolithic period to the Iron Age demonstrates both the relationships between non-human animals and human groups and the active social role of non-human animals in past societies. Selected animal species and/or types of interactions are characteristic of each culture or chronological period. In graphic art, in the material traces of myths and in the systems of social representations, non-human animals are associated with human figures, artefacts, technological innovations and appear as an essential element of the ideational conception of the world. They take part in the structure and functioning of prehistoric societies. These zoomorphic figures underline the importance of studying and interpreting these past societies giving due consideration to non-human animals and more generally to the non-human. These are not human societies but hybrid communities (LATOUR, 1991), gathering objects, animals, etc. Prehistoric graphic systems are material traces of the social and ideational roles of each of these components and a reminder that they belong to the same meaningful universe.

Acknowledgments

I wish to thank F. Ballet, N. Bianchi, Serge Cassen, Ph. Hameau, T. Huet, J. Masson-Mourey, Ph. Raffaelli and G. Robin for their proofreading, advice and the illustrations they provide me.

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Revista ArkeoGazte Aldizkaria
Nº11, pp. 173-190, year 2021
Received: 07-05-2019; Reviewed: 22-10-2020; Accepted: 23-09-2021
ISSN: 2174-856X

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Labar-artea Erdialdeko Norvegian - kronologia eta labar-artearen narratibekiko erronkak

El arte rupestre en Noruega central - retos cronológicos y narrativas del arte rupestre

Heidrun Stebergløkken (*)

Abstract

This paper is about two rock art sites in Central Norway which is analysed in order to shed light on how complex and dynamic the creation of rock art can be within the same site. The sites are analysed and compared on how the figures are made, how they are positioned on the panel, and how types/styles are represented at two different sites from this area. The results show that the panels are greatly varied, and the animals presented are very heterogeneous. This can imply several different usages of the different panels throughout time, but also several different usages of the same panel. This may also have affected the narratives told throughout the single panels where adding a new image could have changed the whole story. In conclusion, there is reason to state that we have to be very careful when we interpret rock art panels. We do not know if the images documented are a part of one or several narratives. In such cases, we cannot treat one panel as one entity with one story, and we cannot expect the images to represent the same age. We need to acknowledge that one panel might be a complex medium of many narratives throughout time.

Key words

Petroglyphs; Scandinavia; perception; Northern tradition; Southern tradition.

Laburpena

Kapitulu honetan, Norvegia Erdialdeko labar-artedun bi gune aztertzen dira, multzo bereko labar-artearen ekoizpen-prozesuan egon daitezkeen konplexutasun eta dinamikak argitzeko. Bi gune horiek aztertu eta konparatu dira, irudiak nola egin diren, panelaren barruan nola kokatzen diren eta eremu honetako bi multzotan motak/estiloak nola irudikatzen diren behatuz. Emaitzen arabera, panelek aniztasun handia dute eta irudikatutako animaliak heterogeneoak dira. Honek adieraz dezake panel desberdinek denboran zehar izan ditzaketen hainbat erabilera eta, baita, panel bera nola erabili daitekeen modu desberdinetara ere. Era berean, eragina izan dezake banakako paneletan kontatutako narrazioetan, irudi berri bat sartzeak aldatu egin bailezake irudikatutako historiaren esanahi osoa. Laburbilduz, bada arrazoi bat labar-artearen interpretazioan arreta handia jartzeko, ez baitakigu dokumentatutako irudiak istorio baten edo gehiagoren parte diren. Kasu horretan, ezinezkoa da panel bat aztertzea historia bakarreko entitate bakar bat balitz bezala, eta

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ezin dugu espero irudiek kronologia bera izatea. Kontuan izan behar dugu panel berbera narrazio asko denboran zehar transmititzeko bitarteko konplexua izan daitekeela Kapitulu honetan, Norvegia Erdialdeko labar-artedun bi gune aztertzen dira, multzo bereko labar-artearen ekoizpen-prozesuan egon daitezkeen konplexutasun eta dinamikak argitzeko. Bi gune horiek aztertu eta konparatu dira, irudiak nola egin diren, panelaren barruan nola kokatzen diren eta eremu honetako bi multzotan motak/estiloak nola irudikatzen diren behatuz. Emaitzen arabera, panelek aniztasun handia dute eta irudikatutako animaliak heterogeneoak dira. Honek adieraz dezake panel desberdinek denboran zehar izan ditzaketen hainbat erabilera eta, baita, panel bera nola erabili daitekeen modu desberdinetara ere. Era berean, eragina izan dezake banakako paneletan kontatutako narrazioetan, irudi berri bat sartzeak aldatu egin bailezake irudikatutako historiaren esanahi osoa. Laburbilduz, bada arrazoi bat labar-artearen interpretazioan arreta handia jartzeko, ez baitakigu dokumentatutako irudiak istorio baten edo gehiagoren parte diren. Kasu horretan, ezinezkoa da panel bat aztertzea historia bakarreko entitate bakar bat balitz bezala, eta ezin dugu espero irudiek kronologia bera izatea. Kontuan izan behar dugu panel berbera narrazio asko denboran zehar transmititzeko bitarteko konplexua izan daitekeela.

Hitz-gakoak

Petroglifoak; Eskandinavia; Pertzepzioa; Europa Iparraldeko tradizioa; Hegoaldeko tradizioa.

Resumen

En este artículo se analizan dos sitios de arte rupestre en Noruega central para arrojar luz acerca de la complejidad y las dinámicas del proceso de produción de arte rupestre dentro del mismo conjunto. He analizado y puesto en comparación cómo las figuras están realizadas y cómo se presentan dentro del panel, y cómo los tipos/estilos son representados en dos conjuntos de esta área. Los resultados demuestran que los paneles tienen variedad y que los animales representados son heterogéneos. Esto puede implicar muchas utilizaciones de los diferentes paneles en el tiempo, así como diferentes maneras de utilización del mismo. Esto puede haber afectado a las narrativas de los paneles en sí mismos, ya que, al añadir una imagen nueva, podría cambiar la toda la significación de la historia representada. En conclusión, existe una razón por la cual tenemos que prestar mucha atención cuando avanzamos hacia una interpretación del arte rupestre. No sabemos si las imágenes documentadas son parte de una o más historias. En ese caso, no es posible abordar el estudio de un panel como si fuera una única entidad con una única historia, y no podemos esperar que las figuras tengan la misma cronología. Necesitamos tener en cuenta que un mismo panel puede ser un medio complejo de transmisión de muchas narrativas a lo largo del tiempo.

Palabras Clave

Petroglifos; Escandinavia; Percepción; Tradición nórdica; Tradición meridional.

Revista ArkeoGazte Aldizkaria
Nº11, pp. 173-190, year 2021
ISSN: 2174-856X

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Heidrun Stebergløkken (*)

1. Introduction

The Scandinavian rock art tradition has been a source for research since the late 19th century. The first modern discoveries were made during the 18th century, but the age of the rock art was unknown. The rock art's story was hidden. During the late 19th century and early 20th century the awareness of the rock art grew, new discoveries were made, and a pattern started to form. During the rock art research's early days, a lot of work was put into systematizing, classifying and making efforts to try and see similarities in the material and to understand the age and chronology of the rock art (BRØGGER, 1906; ENGELSTAD, 1934; GJESSING, 1936; HALLSTRÖM, 1907; K. RYGH, 1882; O. RYGH, 1873; SHTETELIG, 1922).

During the early systematizations in Norway Andreas M. Hansen (1904) discovered that the rock art material in Scandinavia could be divided into two groups; one South-Scandinavian tradition, and another which originated from the northern part of Fennoscandia. He related the differences in iconography and motif to different cultural groups, but the age or chronology was not an important part of his work. Brøgger (1906, 1931) however, discovered that this division in the rock art material was a result of an age difference; he related the rock art from the Stone Age to a hunter-gatherer contexts, and the rock art form the Bronze Age to an agrarian contexts. Gutorm Gjessing (1936) introduced the concepts hunter's rock art ("veideristninger") and agrarian rock art ("jordbruksristninger").

The rock art belonging to the hunter's rock art consists of images like large game and cervides, which are the dominant motifs. You also find birds, whales, fish and a particular kind of boat type with a rectangular form as well as zigzag patterns and frame figures. However, the agrarian rock art is dominated by boat/ship images, domesticated animals like horses, cattle, a few examples of dogs, footprints, hand prints, cupmarks and a lot of geometric figures spirals and concentric ring figures (SOGNNES, 2012; STEBERGLØKKEN, 2017).

Later research has problematized these conceptual differences. This has to do with new interpretation of the rock art, emphasizing the geographical localization and context of the rock art sites. The argumentation concerns how the rock art is placed in predetermined agrarian or hunter contexts using those old conceptual differences. The agrarian rock art in particular

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Figure 1. Examples of Northern and Southern rock art tradition in Central Norway. The reindeers at the site Hell to the left (Northern tradition) and boat figures at Leirfall to the right (Southern tradition). Photo: H. Stebergløkken.

has been criticized for being misguiding, since we have several examples of finding this Southern tradition rock art in non-agrarian contexts. For example, the domination of boat motifs contradicts an agrarian context. Also, further south in Scandinavia (as for example Bohuslän in Sweden) the rock art was shore bound. Thus, many so-called agrarian rock art sites should rather be seen in relation to transport, launching of ships and rituals connected to the shoreline (LING, 2005, 2008, 2013). Hence, the Northern and Southern rock art traditions are now more commonly used as the prevailing conceptual differences by rock art researchers in Scandinavia. The Northern tradition (like the site Hell, Figure 1) belongs to the oldest tradition from the Stone Age period (Mesolithic and Neolithic), and "disappears" with the transition to the Bronze Age. While the Southern tradition (like the site Leirfall, Figure 1) belongs to the Bronze Age period, but continued possibly throughout to the Pre-Roman Iron Age. This is the general picture but it is important to point to the fact that there are sites that show an overlap between two traditions. In Central Norway there is also an example of a site (Evenhus in Frosta) with rock art belonging mainly to the Northern tradition, which has been shoreline dated to the Early Bronze Age (STEBERGLØKKEN, 2016).

In Central Norway, the Northern and Southern traditions coexist side by side on the same site/panel. The Northern tradition comprises about 20 % of the rock art material, while the Southern tradition makes up for about 80 % of the material. There are ten known sites in this region which consist of rock art from both traditions, six of these sites also have panels where both traditions occur side by side on the same panel or are superimposed (SOGNNES, 2008; STEBERGLØKKEN, 2017). In this situation, it is difficult to interpret the chronology based on shorelines alone, but what could be said is that the images were definitely not made during one single event. The PhD from 2016 (STEBERGLØKKEN, 2016) analyses the rock art from Central Norway and tries to understand what style can express. This research defined three different levels (gestalt, type and style) on how to see and interpret the rock art in Central Norway. The reason was to try to understand some of the complexity that each rock art panel shows. Since the beginning of rock art research in Scandinavia there has been a need to try and understand the age of the rock art, and to systematize the material. Consequently, this research states that there has been less of a focus on the micro level of the rock art in the early days of the research. This micro approach refers to how the figures

are constructed and how it is possible to see the individual artist's hand in the rock art images. This paper addresses this topic and how the micro aspect may affect the interpretation of the narratives and chronological aspects of the rock art. The focus will be two examples from Central Norway, where new documentation can indicate reuse of rock art panels.

The objectives that will be discussed in this paper are: i) How can we understand the rock art by moving around the rock; looking at how the light shifts and how different motifs come to light at different hours of the day? and ii): How does the expression and construction of the motifs show if the images are made by several people at several separate events? This research also wishes to find out if there is some indication of adding figures to an already existing scene or changing an image, because this has consequences for the interpretation of the panel as a whole.

2. Methodological and theoretical approach

The rock art in Scandinavia is generally dated according to shoreline displacement curves or style/typology (GJERDE, 2010; HELSKOG, 1999; HESJEDAL, 1993; LING, 2005, 2008, 2013; RAMSTAD, 2000; SOGNNES, 2003). In some cases excavations have been carried out close to or in relation to rock art sites (LINDGAARD, 2015; LØDØEN, 2013; SOGNNES, 2015), which have contributed to more accurate datings of the rock art. That being said, there is still much uncertainty attached to the dating of rock art in Scandinavia as in other parts of the world.

The shorelines in Scandinavia give us a maximum date of how old the rock art can be. Because of the land uplift we can date when the shoreline became dryland, but the rock art could have been made any time after this. However, in many regions like for example Alta in Northern Norway, and Bohuslän in South Sweden and Østfold in South-eastern part of Norway, there is a shore connection to the rock art. Researchers have analysed how the rock art is distributed, and connected in different stylistic phases to different heights in the landscape. Figures that show similarities can be found at the same heights in the landscape. In other words, it is possible to develop a stylistic sequence – a typology of the rock art material in these regions (GJERDE, 2010; HELSKOG, 1999; LING, 2005, 2008, 2013). These different typologies could have relevance in other regions where such connections do not exist. However, applying a typology made on a material from one region does not necessarily transfer seamlessly to another region and must be done so carefully. In a best-case scenario this may show some common tendencies in the material, but such common tendencies can never be trusted as a dating method without support from other sources.

In some regions like Central Norway, the material does not fit as easily into chronological phases. Gutorm Gjessing (1936) established three different chronologies based on styles during his work with the systematization of the Northern tradition rock art in Central Norway in the early 20th century. According to Gjessing the most naturalistic rock art style was considered the oldest, and the style gradually turned more schematic through style II and III at the transition to the Bronze Age. However, the available material has increased since and new discoveries have been made. Researchers working with this material (LINDGAARD, 2013; SOGNNES, 2003, 2012, 2017) have pointed out some challenges, for instance that the shoreline datings do not necessarily support the style phases. There are examples of younger styles (II and III) at higher sea-level curves than where you would find the oldest style I artwork. The PhD research (STEBERGLØKKEN, 2016) also revealed challenges with this method of dating in the Central Norway region, and what really stands out is when you find style I and II at sea-level curves which give a Bronze Age.

Another problem is how researchers define style. One of the main challenge is when some researchers connect the style to geographical areas, while others put style in connection with group traditions and, furthermore, other

researchers see style as an individual expression. If the types of style are so diverse, how can style be used to make a chronology? There has to be a clear understanding in the definition of the concept style when this is used to explain or describe aspects of the rock art, because 'style' can mean many different things to different researchers. As mentioned above the author have identified three different levels, that are important to differentiate between - so there is no, or at least less sources of, misunderstanding. Each individual rock art figure contains three different qualities; the gestalt, type and style. Gestalts establish the intuitive basic forms (outer lines) and are so characteristic that we immediately see they stand out. They are the foundation blocks of the typology. Types on the other hand is something that is invented by the researcher and serves as a tool enabling to generalize the material in advance of a classification/typology. The types are based on how the figures are constructed -the absence and presence of different attributes (for example inner lines). This typology is not chronological. Style however, is as an element of design that reflects the individual artist. The style represents an individual level, linking it to the artist, the creator of the specific figure. It is something that already exists and is part of the figure, and similarity in style may indicate the same artist in the same way as one can recognize someone's specific handwriting. Naming the different qualities/ characteristics is not the crucial element, but the important factor is to acknowledge and to distinguish between the different characteristics of information within the same figure (STEBERGLØKKEN, 2016, 2017).

The point with this, is to be able to recognise if the rock art panels should be understood as the result of one event, created by one single artist. Or whether one panel can be the result of several visits by different artists at different events? If this is the case, we have to be careful when we interpret the narrative. The obvious mistake is to interpret images according to one narrative or scene if the figures are not made at the same time by the same artists. We will never wholly understand the narratives of course, but some aspects like the motifs, perception, composition, the visual expression, how the images are placed on the panel and the relationship it has with the landscape still communicate to us in an abstract way.

During the last decades, several rock art researchers have focused on these aspects in trying to close in on understanding of how to "read" the rock art. Several methodical approaches are relevant to this paper. Jan Magne Gjerde (2006, 2010, 2013, and 2015) has analysed how the rock art is related not only to the topographical environment of the landscape that the rock art is part of – on a macro level. Gjerde has also focused on the panel itself, by looking at how the figures and motifs relate to each other and natural features like cracks, curves and oars within the rock panel (micro landscape) at different rock art sites in Fennoscandia. He has identified what seems to be a "Stone Age rock art map at Nämforsen" (GJERDE, 2015: 84-86) in Sweden, and he sees the motifs and their distribution on the panel in relation to the surrounding macro landscape. These interesting observations puts the rock art in a direct relationship with the landscape, based on comparing the micro and macro. Knut Helskog (2014: 101) has also studied these topographical elements in the rock surface, whilst studying the rock art material from Alta. In low sunlight, the light and shadow interact with the rock surface and the natural cracks and curves, resembling rivers, mountains and the animals placed meaningfully within this micro landscape.

From Central Norway, Kalle Sognnes (2011) has studied how certain motifs can guide the viewer in different directions, using the five panels at the site of Leirfall (Figure 1) in Stjørdal as a case. The footprints are the dominant motif from this site with 458 confirmed images, and 74 possible images (SOGNNES, 2001: 181). He conducted his analysis by following the footsteps from panel to panel and analysed how the footprints travel across the panels in different directions, as a result he has observed possible narrative routes. In other words, the footprints

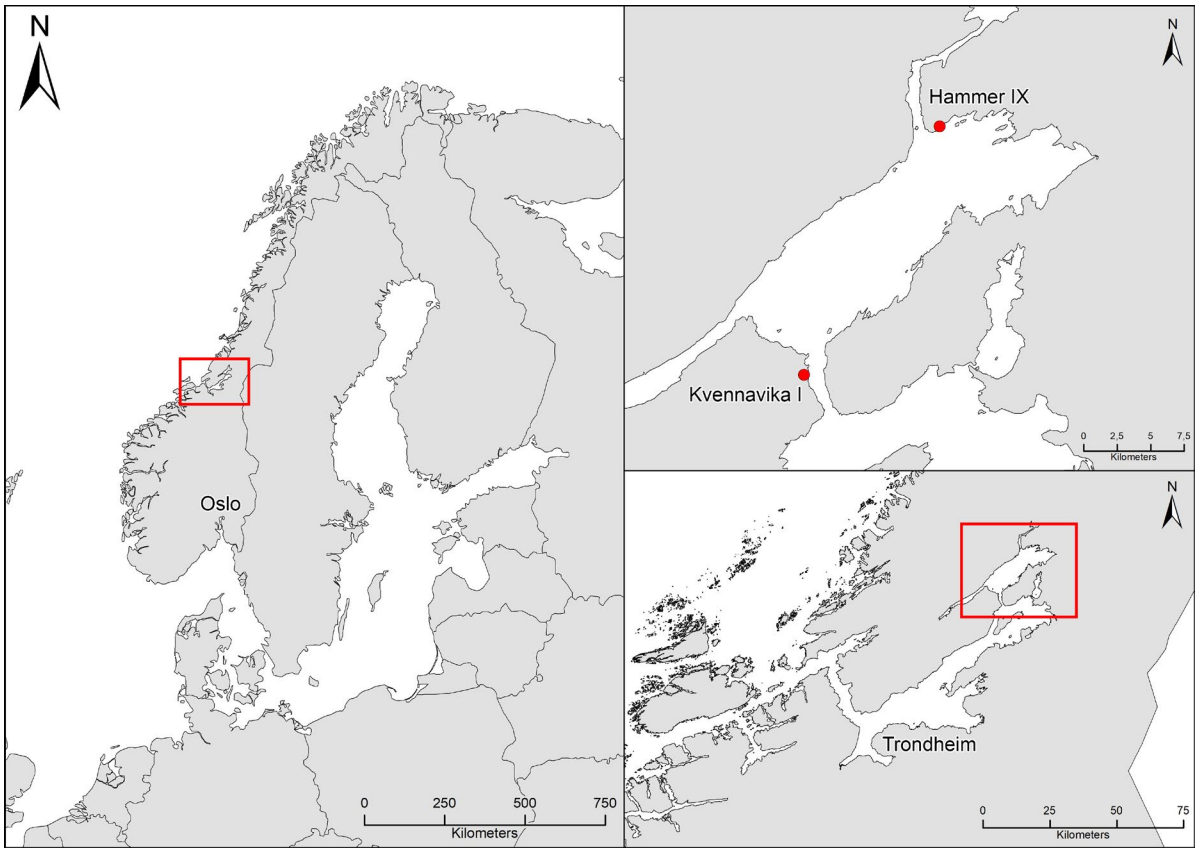

Figure 2. The location of Hammer IX and Kvennavika I. Map by M. M. Gran, NTNU University museum.

can indicate the order of the narrative, and maybe lead the viewer to different scenes/groups of motifs.

Another way to work methodically with the visual aspect of the rock art, is looking at station points the way in which Liliana Janik (2014) does with the material from Zalavruga in Northern Russia. She uses the approach of Margaret A. Hagen (1986) by defining station points as the direction in which the artist was looking at the object or landscape, and how this is reflected on the canvas, or in this case, the rock (JANIK, 2014: 109). Janik has done an interesting analysis of how these station points appear on some selected panels from Zalavruga. Taking this approach on the material gives an understanding on just how complex the rock panels can be. The panels are not created from one point of view. There are several station points at the same panel, with images depicted in profile, while others are seen from above. This suggests movement and an active narrative in the scenes depicted.

These methodical approaches are relevant for the two sites I present in this paper. I wish to look at the micro level of the rock art, by looking at the motifs and their relation to each other and the rock surface.

3. The material from Central Norway; two newly documented sites from the inner part of Trondheimsfjord

In this paper I will approach my objectives based on two different panels from Central Norway; Hammer IX in Steinkjer municipality and Kvennavika I from Inderøy municipality (Figure 2).

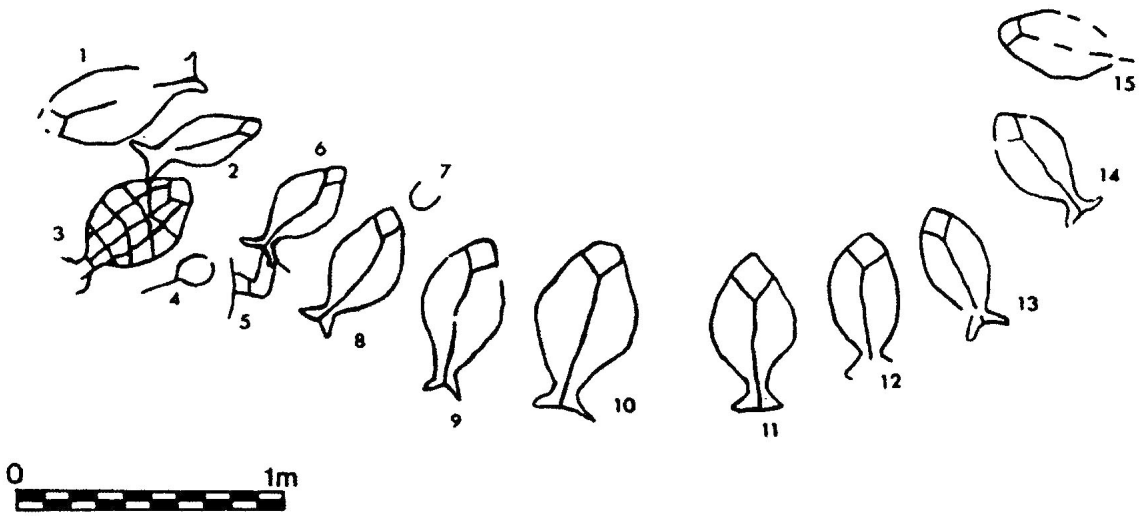

Figure 3. Tracing of Kvennavika I (GJESSING 1936: chart LXX).

The panels have been known since the 1930s and 1970s, but neither have been documented until now. The Directorate for Cultural Heritage funded NTNU University Museum, Department of Archaeology and Cultural History, to do new documentation of these sites in 2017 and 2018. During the fieldwork we focused on a multi methodical approach, using both traditional (tracing and frottage) and digital methods (photogrammetry and laser scanning), in order to secure and supplement the details of the rock art (KIRKHUS & STEBERGLØKKEN, 2019; STEBERGLØKKEN, 2018a).

3.1 Kvennavika I – the panel of flatfish

The rock art panel at Kvennavika in Inderøy municipality was discovered in 1930 and documented in 1934 (GJESSING, 1936). The panel consists of twelve flatfish interpreted as possibly Atlantic halibut, forming a semi-circle, placed horizontally at the top of a natural dome shaped rock.

The panel is located 35 m asl which gives an approx. maximum date of 5000 BP. This is one of the few panels from Central Norway where the motifs seem to create some sort of a scene and where there seems to be a clear intentional placement of the figures. The rock itself has the shape of a dome and stands out in the landscape. All of the halibuts' heads (except one) point inwards in the semi-circle facing the top spot of the rock. There is a kind of heterogeneity about the motifs looking at the tracing by Gjessing (Figure 3), and the motifs are also not pointing in the same direction but are also very similar in the way they are depicted. But there are exceptions. These exceptions include the one halibut looking in the opposite direction and another breaking the semi-circle and having an internal pattern as well. There are other differences as well which are not so obvious at first glance, which I will return to below.

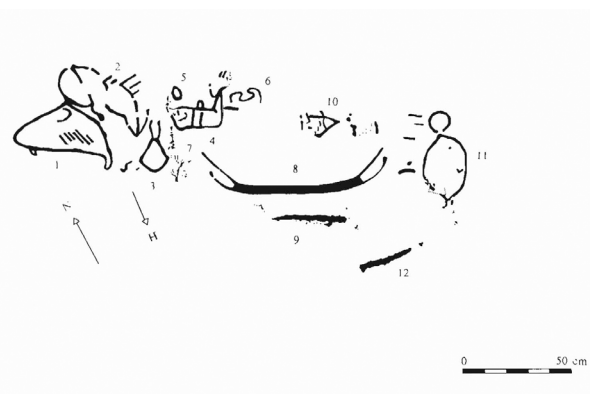

Figure 4. Tracing of Hammer IX (BAKKA 1988: vii).

3.2 Hammer IX – the panel of «chaos»?

Panel number IX at Hammer in Steinkjer municipality, was traced by Egil Bakka in 1977 (BAKKA, 1988). This panel is one of 17 registered panels and is located at 31 m asl, which gives an approx. maximum date of 4400 BP. At this panel, there is rock art from both Northern and Southern rock art tradition. Looking at how the motifs are distributed, there does not seem to be a particular pattern or a clear relation between the figures. Several of the figures are also hard to interpret, however a whale figure (Figure 4,1) can be seen furthest to the left, and also what can be interpreted as two boat figures (4, 6) belonging to the Northern tradition. At the centre, there is a boat of the Hjortspring type (8), which are often related to the Late Bronze Age/Pre Roman Iron Age and a possible anthropomorphic figure (11) furthest to the right.

4. New documentation and new discoveries – new interpretations

How we interpret and document the rock art is complex and many different processes affect our interpretations. At the most fundamental level, we interpret the rock and peckmarks – detecting what is natural and what is human-made. However, the weather conditions (wet or dry) and light conditions (light/shadow, sunlight/flashlight during night observations) affects how we see the images. The number of different details we are able to identify depends on all these things. Then of course, there is the weathering of the rock itself, and the general level of experience of the one who is documenting the findings. How we percept the images is highly linked to the experience of the researcher, but what one expects to find is also a factor which Sognnes (1999) illustrates with the case at Sandhalsan (GJERDE & STEBERGLØKKEN, 2018). It took over 60 years from when the first painted images were discovered in 1931, until the pecked figures were discovered in 1993. This has to do with what the researchers were looking for during their documentation most namely their expectations, and it just goes to show how easy it is to overlook certain aspects.

Then of course, there are the different methods of documentation that can also affect what is identified and documented. Using only one methodical approach can be a bit risky, and it is difficult to interpret challenging areas of the panel only relying on one method of documentation. That is why the best way of documenting rock art is using a multi-methodical approach. If some areas are unclear, there is a possibility that the frottage can reveal something you cannot make out during the night observation and tracing, or maybe the photogrammetry can reveal something else. Using the examples of Kvennavika I and Hammer IX, I will show how certain details have been exposed through new documentation methods and consequently how this has shed new light on the interpretation of the rock panel.

4.1 Kvennavika I – one scene, one event?

Looking at the original tracing (Figure 3), it looks very heterogeneous. The images show great similarity and they seem to create some sort of scene forming a semi-circle. Sognnes (2006: 556-559) has analysed their position and tried to find if there is one particular point they are all oriented towards. During his study, he identified three central points, which are actually located close to each other at the top of the rock. It seems that the fish point to a special place at the centre of the rock. He argues that this could possibly have been the spot where someone stood when they spoke to a crowd, or performed rituals.

If we want to consider a probability that this is the result of one specific event, I believe we need to look at the micro level. We need to look at the three different levels; the gestalt, type and style. All the fish images belong to the same gestalt; the same form and the basic construction. There are however, a couple of different types present. Most of the figures have markings of

the head/gills, and one horizontal back line. Fish number 3 and 14 (Figure 5) are different though, number 3 with an internal pattern and number 14 with two horizontal lines inclined from the back line. If one compares Figure 3 and 5 we have also found new figures including one more halibut; number 16. This figure breaks the semi-circle like fish number 3, but in an even more noticeable way. Perhaps this is why nobody has seen it before now, because it breaks the pattern? The rock is extremely weathered as the tracings suggest, so it was the combination of night observations, tracing, frottage and photogrammetry that resulted in this discovery.

But what about the style level? Are they so similar that they could have been made by the same hand during one single event? In order to study this question, it is necessary to look closely on how the lines of the figures are made.

Looking closely at the details from the tracing and photogrammetry, the figures are actually varied and not that homogeneous in their expression as at first glance. Some are quite slender (Figure 5, fish number 2), while others have a chubbier appearance (Figure 5, fish number 12). Some of the figures are depicted as "static" (Figure 5, fish number 10) while others bend as if they are still swimming through the curves/waves of the rock itself (Figure 5, fish number 8). However, what really stands out, is the depiction of the tail. Some have a clearly split tailfin, while others end with an almost straight line (Figure 8, number 6 and 10 respectively). This can be a result of different individual styles.

The fact that the fish figures follow the rocks natural formation surrounding the naturally raised platform, may indicate an intended scene. The figures to the right (north) are much shallower than the ones to the left. This can indicate more weathering coming from the north, but it could also mean that these figures are pecked in a different way with a different force or are older and thus are more weathered due to age than the rest. These observations together; the placement of the figures and the different styles of the figures, might indicate that this scene was made by several different artists. This will again most likely affect the chronological aspect. There is a possibility that the figures were made during

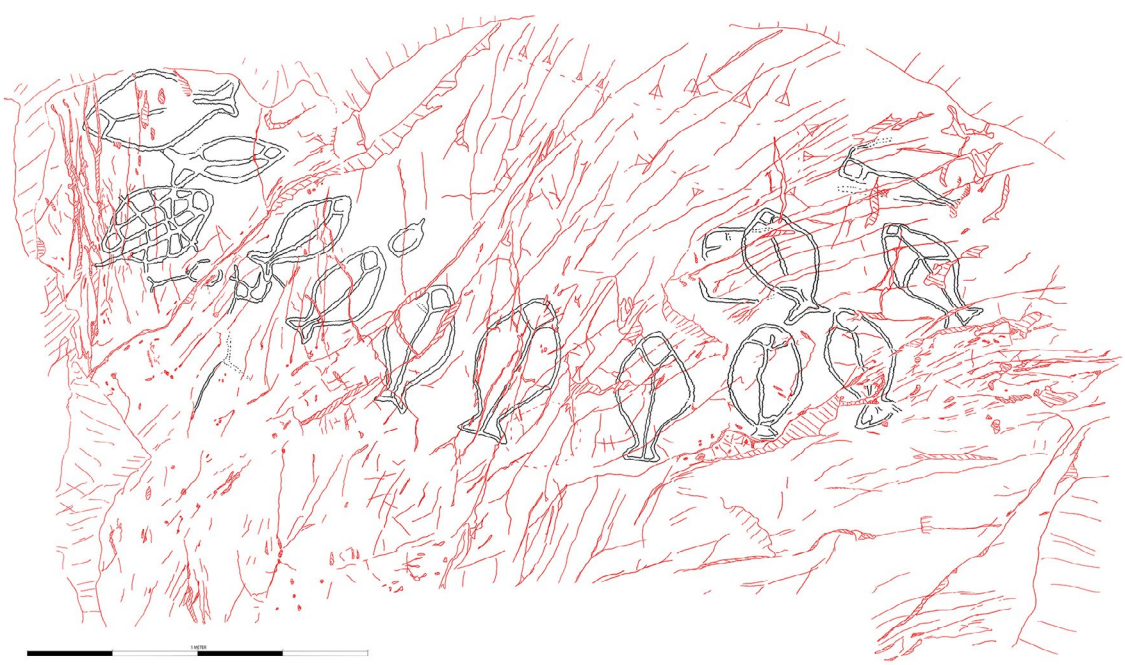

Figure 5. Tracing of Kvennavika I, NTNU University Museum (STEBERGLØKKEN 2018a: 19).

Figure 6. The 3D-model of Kvennavika I, the figures are marked with white chalk (oil free) and can be seen following the natural raised platform, NTNU University Museum (STEBERGLØKKEN, 2018a: 22).

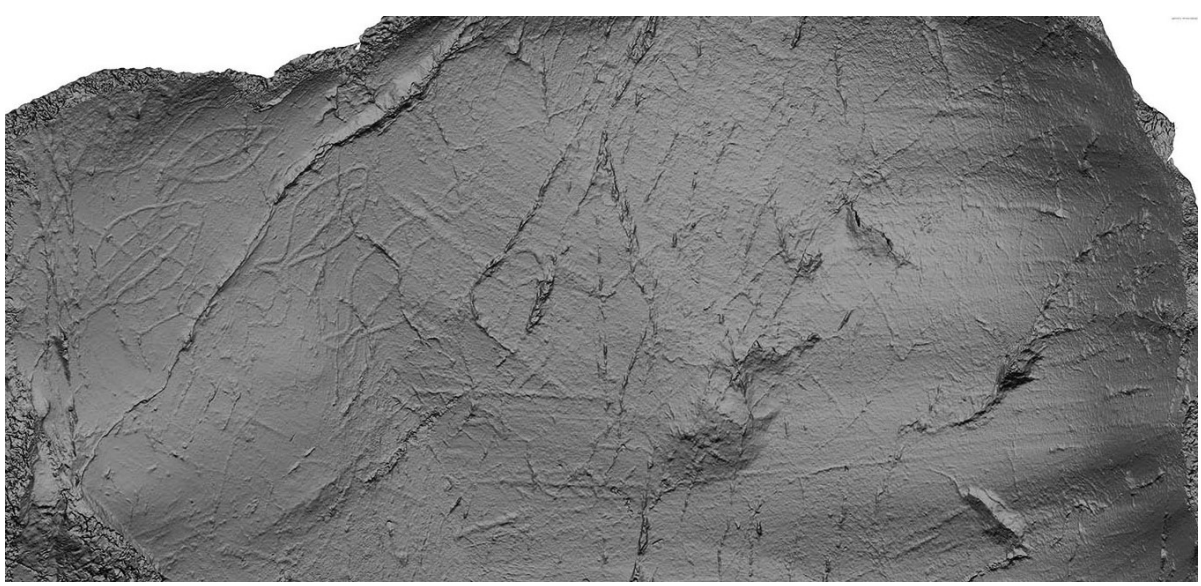

Figure 7. Details from the photogrammetry of Kvennavika I, NTNU University Museum (STEBERGLØKKEN, 2018a: 22).

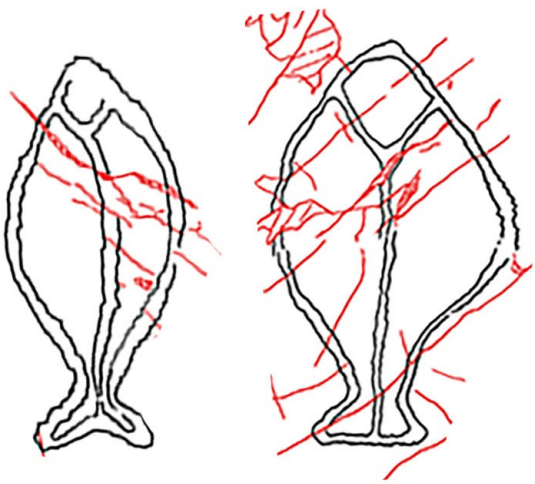

Figure 8. Details (fish number 6 and 10) form the tracing of Kvennavika I (Figure 5), NTNU University Museum (STEBERGLØKKEN, 2018a).

one event by several artists, but there is also a possibility that the figures have been made over the course of decades, and possibly over a longer period of time. This also means that the narrative of the rock art could have changed over these years, and this last scene as it appears today, is only the last narrative of several that have built up over a long period of time (STEBERGLØKKEN, 2018b).

4.2 Hammer IX – a "chaos" of narratives?

Looking at the original tracing (Figure 4), there are only twelve documented figures. Even though they represent both the Northern and Southern tradition, they are all oriented in the same direction, being added over what must have been hundreds or even thousands of years. However, the marine aspect seems to be

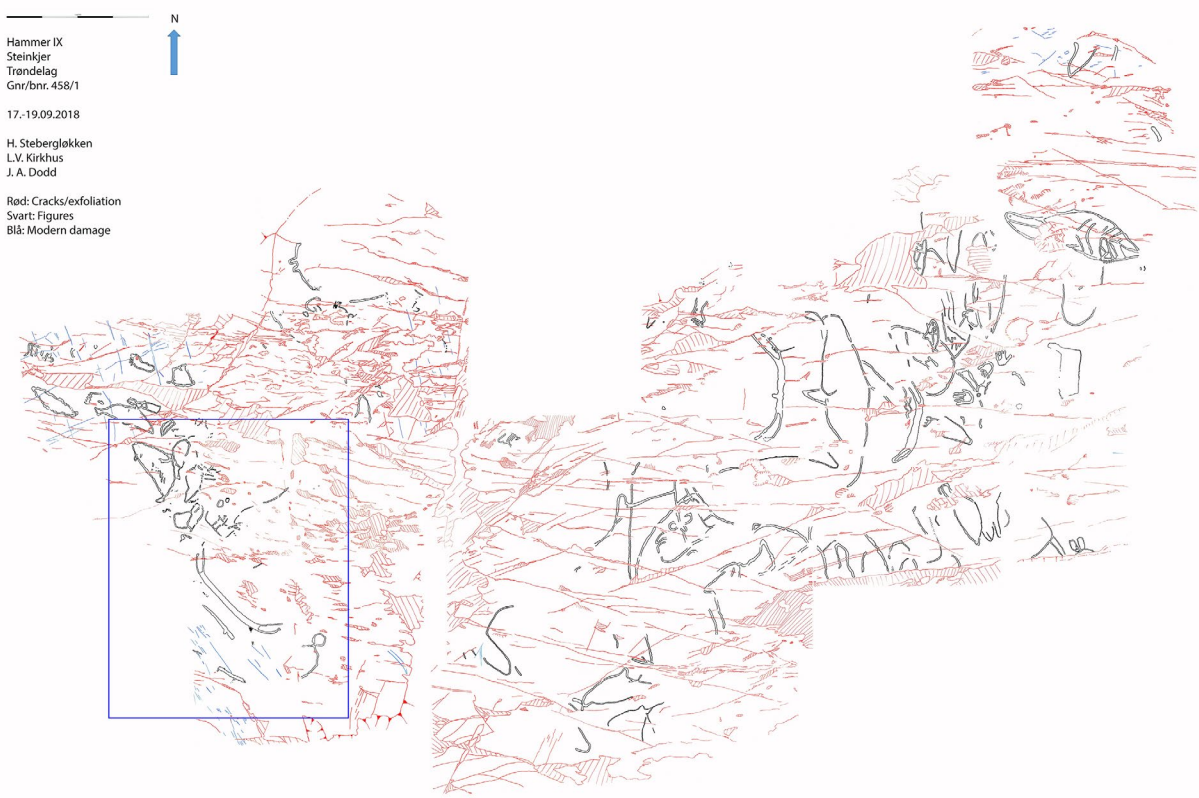

Figure 9. Tracing of Hammer IX, NTNU University Museum (KIRKHUS & STEBERGLØKKEN, 2019). Blue square marks area of the original tracing (Fig. 4).

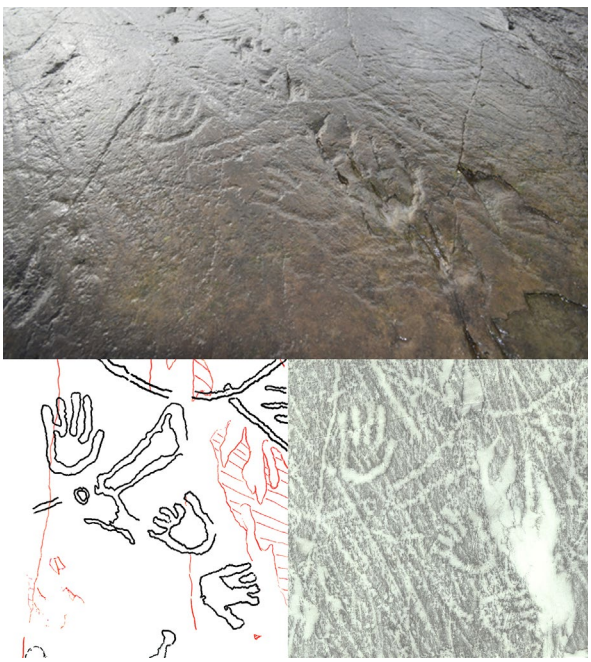

Figure 10. The handprints from Hammer IX, Photo by Kirkhus, NTNU University Museum (KIRKHUS & STEBERGLØKKEN, 2019; Illustration by Stebergløkken).

an important factor throughout these years with both the whale and boat elements representing early and late motifs.

When documenting the panel in 2018, we used night observations, tracing, frottage, photogrammetry and laser scanning (a HandyScan 700). There had been some observations in 2012 of previously undocumented figures, which implied that the panel extended much further. Which we confirmed during our documentation (Figure 9).

A major challenge with this site is the extreme weathering of the rock, evident due to the many cracks and exfoliation damages. This is why many of the figures are not completely documented. Other areas we have only documented traces of lines that we were not able to interpret due to poor preservation conditions. The shape of the lines, however, could imply that we have several whale figures in a variety of sizes. We can also see bird images, elk images and the boat type (rectangular) representing the Northern tradition. These figures are distributed all over the panel. In addition, we have three boats of Hjortspring type, which could belong to the Pre-Roman Iron Age (LING, 2005:26), as well as handprints (Figure 10) and footprints, which we normally associate with the Southern tradition.

The rock itself is curved, and the rock art follows this natural curving from west to east. What we realized early on during the documentation is that this natural curving, together with the movement of the sunlight (and if the rock surface was wet or not), "gave life" to the different parts of the panel at different times of the day. Figures that were almost invisible for most of the day, came to life at a certain time of the day when the light's direction hit the right spot. Because of bad weather condition, we had to work in a tent for most of the time. This made it difficult interpreting some of the figures when doing the tracing since there was no available sunlight. We made a new discovery when studying the scan in Meshlab afterwards. The Meshlab program software made it possible to move the light source when studying a 3D model/ scan of a rock art panel. When positioning the light from the left we could see an elk figure we had not seen during our fieldwork. While positioning the light source

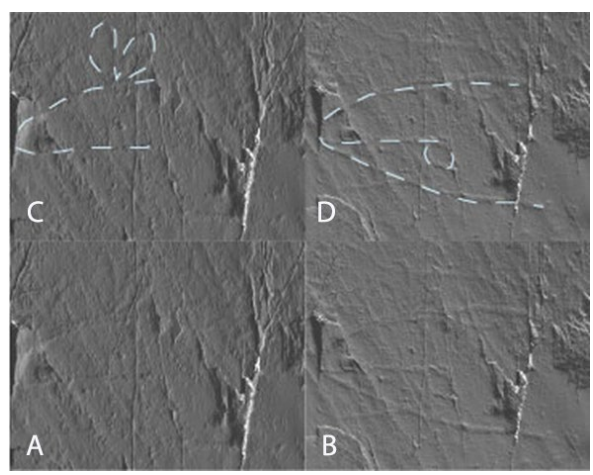

Figure 11. Details from the laser scan of Hammer IX, Illustration by Kirkhus, NTNU University Museum (KIRKHUS & STEBERGLØKKEN, 2019: 26). The images above (C and D) are identical to those below (A and B) only with markings to show our interpretation.

from underneath the figure, the figure changed (Figure 11A and B). The ears disappeared, and the belly line of a whale figure appeared and turned the elk head into the head of a whale.

I believe that where the images transform in the light is an intended effect. This is not the only image at this site where we can observe such a transformation. Just below the "elk-whale" (Figure 11) there is another image that could be interpreted as a "bird-whale" or a "bird-elk" (Figure 12). The bird's body has inner lines, and a long neck. Because there is a third parallel line following the bird's neck - the bird's head could also be interpreted as a whale's head, or an elk. Because of the exfoliation damage, the possible ears of the elk are gone so it is impossible to conclude if it is a whale or an elk. Another interesting aspect is the superimposed footprint on the bird's back.

These two examples (Figure 11 and 12) are two of many whale images at this panel and at the Hammer site. What is so special about the combination of these different motifs, and why does the whale seem to be the main character in this narrative? Only a hundred meters northwest, is where panel V is located. Here you find another transformation scene that was documented by Egil Bakka in 1977 (BAKKA, 1988) (Figure 13). This image is also superimposed, and you find several characters joining the scene; the whale, the bird and the bear. There is also a human figure close by and footprints.

What is common with these three examples of transformation images is that these have to be deliberate additions to already existing images. We cannot say how much later in time these additions were made, but those who made them must have seen the already existing images. We can also conclude that the marine element has a strong presence, and the whale seems to be the main character.

The images from Hammer V do not form scenes in the same way as Kvennavika I, and the panel appears more "chaotic" to us because

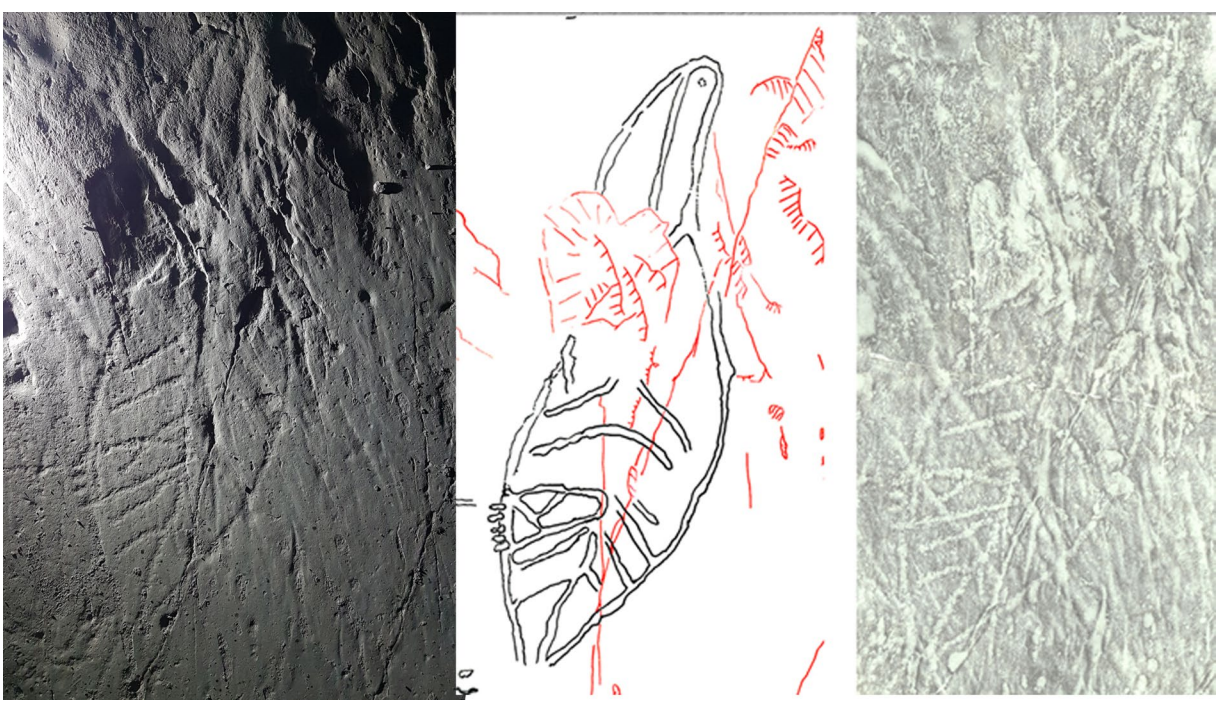

Figure 12. The "bird-whale"/"bird-elk" from Hammer IX, Photo by Kirkhus, NTNU University Museum (KIRKHUS & STEBERGLØKKEN, 2019). Illustration by Stebergløkken.

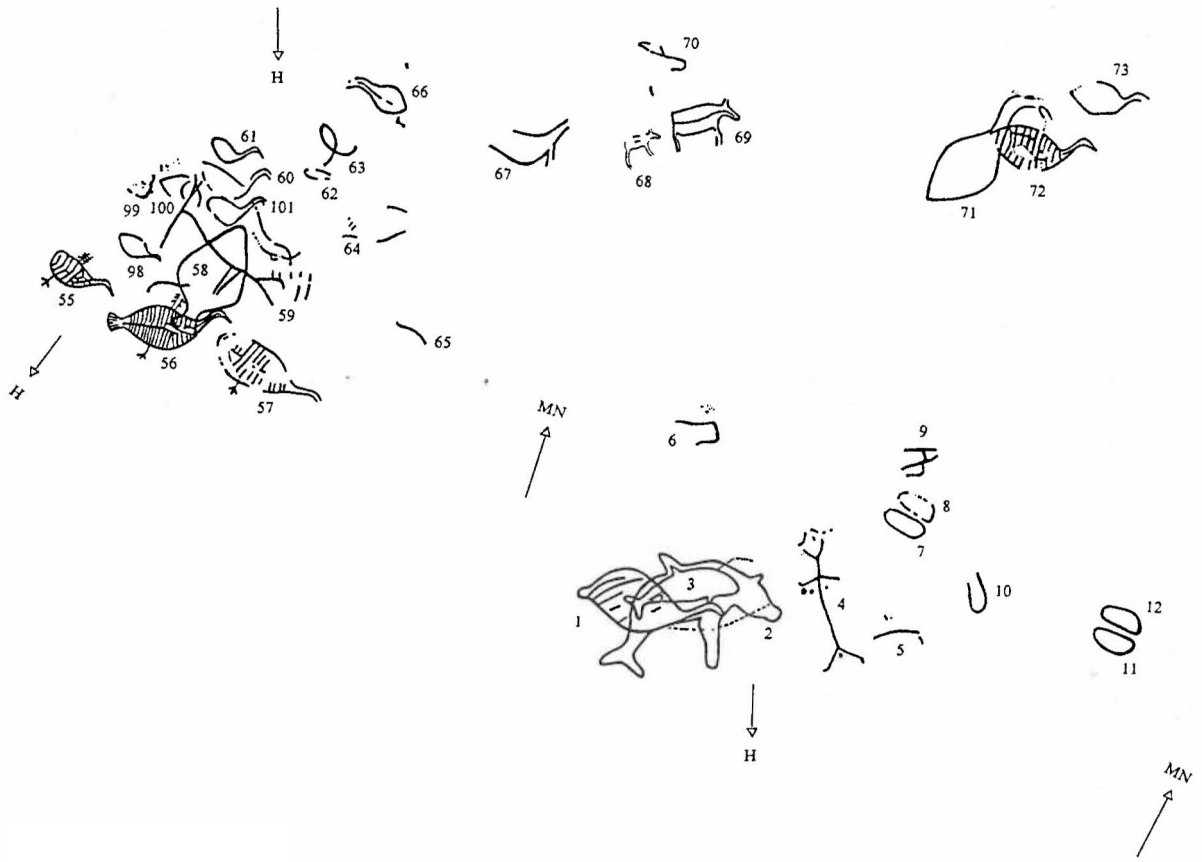

Figure 13. The "whale-bear" (number 2) from Hammer V, detail from tracing (BAKKA 1988).

of this. Because there are many additions throughout many thousands of years, the relation between the figures are difficult to see. As Janik (2014) has identified in her work with the material from Zalavruga there are many different station points at the panel. Our discovery of the "whale-elk" also implies that the station point can be important for the interpretation. This figure alters its meaning as the viewer or the sunlight changes position. This creates a whole other level of depth to the material, which shows that the rock art panels hold complex narratives. It is also possible that it was intended that the viewer had to move around the rock to understand the narrative. The sun conditions affecting the visibility of the rock art also implies that there could be certain times in a day or maybe even a year, where the panels full meaning could be understood. The constant shifting of the light "gives life" to different parts of the panel at different times of the day, and the low autumn sunlight is ideal for spotting the rock art.

5. Concluding remarks

This paper shows how complex the rock art from Central Norway can appear by using two different examples to illustrate this. What is mutual to these examples, which also represents a general trend in the region, is that panels seem to demonstrate that there have been several returned visits to these sites. The rock art represents different artists returning to specific sites and adding or changing the panel, and perhaps the narratives. Working with different

rock art sites, also gives new understanding of the sites when returning at different times of the day. As the sun and light conditions change, different images "comes to life". Images that are almost invisible at certain times, almost "pops out" when the light condition is right. This observation could imply that the panels' narratives changes throughout the day or year.

The complexity of the panels are shown with these examples. The curving of the rock and the positioning of the motifs on the panel affect the way we see and interpret the figures, like the semi-circle of the flatfish of Kvennavika I and the "whale-elk" of Hammer IX. The marine element is a common factor from these sites, and the halibut and particularly the whale is an important animal within the Northern tradition in this region. The "transformation scenes" from Hammer combining a sea and a land animal, also imply that the animals were important ritual beings. An animal that could possibly change and move between different words (GJERDE, 2010; HELSKOG, 2014). The sites themselves were places people returned to, which also implies the importance of the geographic location of these sites. Maybe it was the surrounding landscape that was important, or maybe the rock itself, we only know that they continued to create rock art at specific sites repeatedly for a long time.

In conclusion, and one of my important objectives with this, is that we have to be very careful how we interpret the rock art panels. Maybe not all figures of a panel fit one narrative because maybe the panel consists of many different narratives. The narrative can also change when the viewer moves across and around the panel. Thus, we cannot treat one panel as one entity with one story, and we cannot expect the images to represent the same age. Chronology is equally challenging when working with sites like these. That is also why shoreline dating is difficult, and it only gives a maximum age. By acknowledging the complexity of the material, this gives us several different ways to approach the rock art that could be fruitful to both the interpretation but also the methodology.

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Revista ArkeoGazte Aldizkaria
Nº 11, pp. 191-215, year 2021
Received: 01-06-2019; Reviewed: 13-11-2020; Accepted: 29-07-2021
ISSN: 2174-856X

ANIMALS IN EGYPTIAN ROCK ART

Animaliak Egiptoko labar-artean

Los animales en el arte rupestre egipcio

Pawel Lech Polkowski (*)

Abstract

No doubt, Egypt is best known for its monumental architecture and art from the Pharaonic period. However, the archaeological remains in that land are far more diversified and include a wealth of both post- and predynastic material. It should not be surprising then that prehistory constitutes a large field of research, encompassing remains from Lower Palaeolithic until the onset of historical times. Egypt's Nile valley and, particularly, its deserts are very rich in prehistoric sites, among which rock art is found in abundance.

In this paper a brief overview and characterisation of the main periods of rock art production is provided. Firstly, the oldest Saharan petroglyphic tradition, dated to Late Palaeolithic, is presented. All the subsequent rock art traditions are dated to the Holocene period and are associated, respectively, with the Epipalaeolithic groups of hunter-fisher-gatherers, mid-Holocene "pastro-foragers" of the Western Desert, late Holocene cattle pastoralists, and Nile valley's first agricultural societies of the Naqada period. This paper focuses solely on the theme of animals and describes all the mentioned rock art traditions in this respect. In order to contextualize the studied material, a short overview of climatic fluctuations in the Eastern Sahara is first provided.

Key words

Zoomorphic figures; Egyptian rock art; Late Palaeolithic petroglyphs; Geometric rock art; Savannah animals; Predynastic iconography

Laburpena

Zalantzarik gabe, Egipto ezagunagoa da garai faraonikoko arkitektura eta arte monumentalagatik. Hala ere, herrialde honetako aztarna arkeologikoak askoz ere ugariagoak dira, horien artean, aurredinastiako eta dinastia ondorengo material oso aberatsak izanik. Ez luke harritu behar historiaurreak Egiptoko arkeologiarentzat osatzen duen ikerketa-eremu zabalak, kronologikoki Behe Paleolitotik hasi eta garai historikoetara arte iristen diren aztarnak baititu. Egiptoko Nilo bailara eta, batez ere, basamortua, oso aberatsak dira historiaurreko aztarnategiei dagokienez eta, horien artean, askok, labar-artea dute.

Artikulu honetan, panoramika sinple bat eta labar-artearen ekoizpenaren aldi nagusien karakterizazioa eskaintzen dira. Lehenik eta behin, Saharako petroglifoen bidez tradiziorik zaharrenak

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aurkeztuko dira, Paleolito amaierakoak. Ondorengo labar-artearen tradizio guztiak Holozenokoak dira eta, hurrenez hurren, honako loturak dituzte kronologia eta gizarte motaren arabera: ehiztari-arrantzale-biltzaileen talde epipaleolitikoak, Erdi Holozenoko mendebaldeko basamortuko artzain-laborariak, Holozeno berantiarreko abeltzainak eta, azkenik, Nagada aldiko Nilo bailarako lehen nekazaritza-gizarteak.

Artikulu honek animalien gaia lantzen du esklusiboki eta aipatutako labar-artearen tradizio guztiak deskribatzen ditu. Era berean, aztertutako materiala testuinguruan jartzeko, Ekialdeko Saharako klima-gorabeheren deskribapena ere egin da.

Hitz-gakoak

Irudi zoomorfoak; Egiptoko labar-artea; Paleolito berantiarreko petroglifoak; Labar-arte geometrikoa; Sabanako animaliak; Ikonografia aurredinastikoa.

Resumen

Sin duda Egipto es más conocido por la arquitectura y el arte monumental del periodo faraónico. Sin embargo, los restos arqueológicos en este país son mucho más diversos e incluyen ricos materiales de fase post- y predinástica. No tendría que sorprender el amplio campo de investigación que constituye la prehistoria para la arqueología egipcia, incluyendo restos que cronológicamente van del Paleolítico inferior hasta el surgir de los periodos históricos. El valle del Nilo en Egipto y, sobre todo, su desierto, son muy ricos en yacimientos prehistóricos, entre los cuales hay muchos con arte rupestre.

En este artículo se ofrece una panorámica sencilla y una caracterización de los periodos principales de la producción de arte rupestre. Primeramente se introduce la tradición más antigua de petroglifos del Sahara, datados en el Paleolítico final. Todas las tradiciones de arte rupestre sucesivas son del Holoceno y están asociadas respectivamente a los grupos epipaleolíticos de cazadores-pescadores-recolectores, al Holoceno medio de los pasto-cultivadores del desierto occidental, al Holoceno tardío, con ganaderos y a las primeras sociedades agrícolas del valle del Nilo, del periodo Naqada.

Este artículo se enfoca exclusivamente sobre el tema de los animales y describe todas las tradiciones de arte rupestre mencionadas. Para ofrecer una contextualización del material estudiado, se traza también una descripción de las fluctuaciones climáticas en el Sahara oriental.

Palabras Clave

Figuras zoomorfas; Arte rupestre egipcio; Petroglifos del tardo-Paleolítico; Arte rupestre geométrico; Animales de la sabana; Iconografía predinástica.

Revista ArkeoGazte Aldizkaria
Nº 11, pp. 191-215, year 2021
ISSN: 2174-856X

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Pawel Lech Polkowski (*)

1. Introduction

1.1 Sahara and Egypt in prehistory: a climatic perspective

Africa, no doubt, is a continent of rock art. Large rock art complexes, both with petroglyphs and paintings, can be found at nearly every latitude, from the mountains and deserts of South Africa and Namibia, to the Sahara in the north. The latter, although exceptionally rich in rock art, is today barely inhabited. In late prehistory, however, being subjected to many climatic changes of a varying impact, the Sahara was widely inhabited and exploited by people. Especially in the times of the early and middle Holocene, large swathes of the present-day desert must have looked "*greener*" due to greater availability of water and the presence of a much more developed vegetation cover (e.g. GASSE *et al.*, 1990; GASSE, 2000; ZERBONI and NICOLL, 2019).

The so-called "*African Humid Period*" (AHP) was a direct result of a northward shift of the Intertropical Convergence Zone and the monsoon rainfall belt reaching as far north as the latitude 24°N. Such conditions, gradually evolving from the late 12th/early 11th millennium BP, certainly favoured human and animal re-occupation of much of North Africa after a long and severe late Pleistocene hyper-arid period (BARICH 2013; CANCELLIERI and DI LERNIA, 2014). The AHP, however, was not stable and uniform, as the Sahara at that time had been undergoing numerous climatic oscillations, namely transitions from wet to dry stages. The dry spell corresponding to the 8.2 ky BP worldwide cooling event should be mentioned here in particular, as it had a large impact on both the environment and the people inhabiting the Sahara (ZERBONI and NICOLL, 2019: 31-2). Following this dry spell, at the onset of the middle Holocene, the monsoon rainfall returned, only to gradually decrease towards the end of that period (GATTO and ZERBONI, 2015: 311). A decline in precipitation accelerated the processes of aridification, which transformed the vast areas of the Sahara into an arid desert (except for some ecological niches, such as oases fed by underground water reservoirs). Although these processes had already started in the middle Holocene, the desertification developed fully with the onset of the late Holocene, sometime around

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5,500 BP, and the Sahara eventually reached the current conditions shortly thereafter.

Egypt fits into this scenario extremely well. There, too, after a long hyper-arid periodthe first serious signals of a changing climate occurred at some point around the 11th millennium BP (BUBENZER and RIEMER, 2007; KUPER and KRÖPELIN, 2006). From ca. 10,500 BP to the end of the 8th millennium BP, climatic conditions, particularly in the area of the Western Desert, became much more favourable than ever afterwards; the main factor being the northward extension of the monsoon rain-belt, and, most probably, the southward expansion of the Mediterranean winter rains, influencing mostly northern Egypt, e.g. the Fayum area (PHILLIPPS *et al.*, 2012).

However, for many millennia before the AHP rainfalls affected the Eastern Sahara, the Western (or Libyan) and the Eastern (or Nubian) deserts of Egypt had been largely uninhabited. The late Pleistocene witnessed a hyper-arid climate regime, and only the strip of the Nile Valley was providing relatively favourable conditions for habitation. Thus, unlike the large desiccated areas flanking the Nile Valley, the Valley itself constituted a long but narrow "oasis" with a river and, perhaps, lakes – usually short-lived – that originated due to the damming of the Nile by wandering sand dunes (VERMEERSCH and VAN NEER 2015). The onset of the AHP was directly preceded by the so-called "Wild Nile" stage, dated to ca. 13,000-12,000 BP – the time when the river level became drastically higher (PAULISSEN and VERMEERSCH, 1989; HUYGE, 2009a). As a consequence, the environs of the Nile Valley, being extremely humid, marshy and often flooded, had been mostly abandoned and the reoccupation of the Sahara commenced shortly afterwards (KUPER and KRÖPELIN, 2006: 805; KUPER and RIEMER, 2013: 37).

1.2 Egypt in prehistory: a cultural perspective

A substantial number of recent overviews and syntheses of Egyptian prehistory, encompassing the Palaeolithic times until the dawn of the Pharaonic civilization, is currently available (MIDANT-REYNES, 2000; WENGROW, 2006; TASSIE, 2014). The amount of prehistoric archaeological material is, no doubt, voluminous, even though not all the regions have been investigated equally. In the last few decades, it has been the Western Desert, geographically the largest part of Egypt, that has become the focus of archaeological attention and produced a large amount of data. As it seemed to be the main arena of socio-cultural development of the Holocene, particularly the early and middle era communities, the prehistory of that region may thus serve as a reliable template for the narratives below. The Nile Valley enters the world stage for good in the 5th millennium BC, to become a significant cultural axis for the subsequent millennia until the modern times.

According to the model proposed by Rudolph Kuper and Stephan Kröpelin (2006), four phases of human occupation can be distinguished after the monsoonal rainfalls affected Egypt following the terminal Pleistocene. The early Holocene reoccupation phase (ca. 8,500-7,000 BC) witnessed a spread of highly mobile hunter-gatherer groups with an epipalaeolithic toolkit. These quickly reached distant areas as far as the Great Sand Sea, as well as playas and oases of Nabta, Dakhleh or Farafra, situated somewhat closer to the Nile Valley. Some scholars consider the latter being generally unoccupied during this phase, with the only recorded exception of the Elkabian culture settlement traces (VERMEERSCH, 1978). This may be, however, a biased picture due insufficient research, as well as various taphonomic processes (such as sites covered by the modern cultivation and settlements) (GATTO, 2011: 21).

The mid-Holocene formation phase has been dated to ca. 7,000-5,300 BC. It is considered a period of substantial cultural change, the main one being the domestication of cattle, sheep and goats. Hunting and gathering, however, had still played a crucial role, that is why the communities of this time are best described as multi-resource pastoralists or "pastro-foragers". The date of

5,300 BC is a conventional date marking strong depopulation of the desert, coinciding with the retreat of the monsoon rainfall and thus the beginning of the aridification processes. One may note, however, that the Mediterranean winter rains regime was a significant factor contributingto much more humid conditions in various niches, such as the oases.

This is the reason why during the mid-Holocene regionalisation phase (5,300-3,500 BC) communities of the now specialised herders most probably limited their transhumance activities to various ecological niches: mostly oases with permanent water sources. Other groups migrated to the south and the east. The date of ca. 5,000 BC marks the first agrarian communities settled along the Nile Valley – in Merimde and Fayum. The Western Desert, except for the niches, becomes strongly depopulated, while the Predynastic communities begin to flourish.

The final phase, the late Holocene marginalisation (ca. 3,500-1,500), designates the time of arid to hyper-arid conditions and a lack of habitation in most of the desert. It is, however, a period of Pharaonic conquest of these lands, and encounters with indigenous communities inhabiting the last relatively favourable ecological niches occurred during this time. The Egyptian colonisation of the Kharga and Dakhleh oases may symbolically mark the end of prehistory in the land of Egypt.

Although a lot of evidence for this Holocene cultural sequence comes from desert sites, the fullest archives originate from, in particular, the above-mentioned oases and palaeo-oases. The record from Kharga (DACHY *et al.*, 2018), Dakhleh (McDonald 2016), Farafra (BARICH et al., 2015), or Nabta (WENDORF and SCHILD 2001), provides an almost complete habitation history from the onset of the humid conditions to the times of total abandonment or the colonisation by Egyptians.

1.3 Prehistoric rock art in Egypt: a short introductory note

Rock art has been produced in Egypt since at least the Late Palaeolithic (HUYGE, 2009a), through the Epipalaeolithic (HUYGE, 1998a), Neolithic (RIEMER, 2009), Predynastic (HARDTKE, 2017), Pharaonic, Graeco-Roman and Byzantine periods (HUYGE, 1998b), until the Islamic (COLIN and LABRIQUE, 2001), and colonial to modern times (WINKLER, 1939). Its diversity is thus tremendous and the research potential – huge (for an overview, see: HUYGE, 2009b; VARADZINOVÁ, 2017; POLKOWSKI, 2018a). We find rock art in four main geographical units: the Eastern Desert, the Nile Valley (with dry tributaries on both its sides), the Western Desert, and the Gilf Kebir-Gebel Uweinat mountainous region[1]. In all these areas rock art displays many peculiarities, but, except for the last region, many similarities can also be demonstrated (cf. POLKOWSKI, 2018a).

The prehistoric paintings and petroglyphs constitute an enormous archive, both in terms of quantity and content, which is an extremely valuable source augmenting the knowledge based on "traditional" archaeology. However, it is by no means a coherent assemblage, as, depending on the time period, the subject-matter, stylistic features and social significance, can strongly differ and be separated into various classes and types. Nonetheless, certain "meta-subjects" were employed by people across the entire timespan of rock art production. These are mainly the anthropomorphic and the zoomorphic images. They often co-occur alongside each other within the same compositions, but one can also attempt to study them as separate themes. The conference proceedings entitled "What ever happened to the people? Humans and anthropomorphs in the rock art of northern Africa" (HUYGE and VAN NOTEN, 2018) may serve as an example of such a motif-oriented approach to rock art. Much space in the

1 In this article, the rock art known from Nubia, which culturally has always been strongly related to Egypt, has not been accounted for. It is thus the Aswan area that marks here the southern limit of rock art occurrence under study; whereas the southwestern boundary is delineated by the Gebel Uweinat complex.

book has been dedicated to Egyptian petroglyphs and paintings, and the topic of anthropomorphs is thoroughly explored. It is, however, the animals which constitute, most likely, the largest group of images in the prehistoric Egyptian rock art, and this, arguably, may reflect their paramount significance for past societies. Let me then turn my attention to this subject and describe the current state of research on animals in prehistoric rock art from particular periods.

2. Animals in Egyptian rock art

2.1 Late Palaeolithic: the world of aurochs

The idea of the Palaeolithic origin of some of the rock art in the Sahara, although controversial, is not new (cf. MORI, 1974). Although the settlement history of the Egyptian Late Palaeolithic had been well recognised across the years, for a long time no rock art tradition could be, however, associated with any of its stages. When first found, such petroglyphs were not identified as pictures originated in the Pleistocene[2]. It was owing to the Belgian Archaeological Mission (BAM), conducting rock art research since the 1980's, that a revolution in our understanding of petroglyphic traditions on the Nile finally took place. First, in 2004, a site with some completely varnished zoomorphic figures was discovered in Abu Tanqura Bahari 11 (ATB11), south of the village of el-Hosh and north of the Kom Ombo Plain. Moreover, the large depictions of naturalistically carved bovids highly resembled the petroglyphs discovered more than forty years earlier by the Canadians; the location of the latter was, however, already forgotten. The BAM, led by Dirk Huyge, soon managed to rediscover the lost panels and find new ones in the vicinity of the Qurta village (Figure 1). The unique imagery found on those four sites (ATB11, QI, QII, and QIII) constituted a homogenous

2 They were discovered in the northern part of the Kom Ombo Plain in Upper Egypt by the Canadian Prehis- toric Expedition in 1962/1963. The possibility of Pleistocene origin of these petroglyphs was considered, but finally it was the (early) Holocene that was suggested as the time for their production (Smith 1985)

Figure 1. Qurta, Upper Egypt. The late Palaeolithic zoomorphic rock art. © The Royal Museums of Art and History, Brussels.

assemblage, not paralleled by any other known rock art tradition in Egypt. Soon, several new sites with potentially related petroglyphs were discovered by other expeditions some 45 km south of Qurta, in the Wadi Abu Subeira (WAS), close to Aswan (STOREMYR *et al.*, 2008; KELANY, 2012; 2014). This has proved that this rock art "style" is not limited to just one small area near Kom Ombo.

Using the words of D. Huyge and S. Ikram (2009), the Qurta petroglyphs, and in factthe entire Late Palaeolithic rock art in Egypt, is a true "art animalier". It is so, as the vast majority of images comprise zoomorphic figures (at Qurta ~93%). This category of depictions is, in turn, dominated by one particular species, that is *Bos primigenius* or aurochs, constituting approximately three quarters of all known zoomorphic figures. The bovids are complemented by several other species, all in fairly small numbers or as individual attestations. These include: gazelles, hippopotami, birds, fish, a Nubian ibex, as well as hartebeests and an African wild dog, both definitely more difficult to identify (Figure 2).

Even before it could be confirmed by means of direct dating methods, the Belgian mission had advanced a hypothesis of the Late Palaeolithic chronology of the ATB11 and the Qurta images. It was based on stylistic grounds, but also corroborated by the observation of complete varnishing of petroglyphs and their landscape setting. The latter arguments, albeit reasonable, were by no means conclusive; the former, however, even if subjective, were surely very persuasive. The bovids, often large in size (some exceedingly well over a meter), are unlike any other "cattle" depictions known from the Nile Valley. Unlike younger Neolithic/Predynastic figures, these are drawn in a naturalistic way; with elegant body curvatures and considerable attention to detail (hooves, ears, horns, etc.). Moreover, they often seem to be shown in motion; sometimes in awkward positions. This concerns mostly unnaturally bent legs. Some bovids seem to be unfinished, as parts of their limbs are missing. All these features can be found in Franco-Cantabrian zoomorphic depictions of South-western Europe and, indeed, the aurochs from Qurta, ABT11 and WAS, seem to bear a too

Figure 2. Qurta, Upper Egypt. Apart from bovids, this rock art depicts also gazelles and birds, albeit in much smaller numbers. © The Royal Museums of Art and History, Brussels.

Figure 3. El-Hosh, Upper Egypt. A panel containing Epipalaeolithic "fish-traps" accompanied by numerous later additions. © The Royal Museums of Art and History, Brussels.

strong resemblance to be just purely accidental (cf. HUYGE and VANDENBERGHE, 2011: 24).

The Late Palaeolithic hypothesis could finally be verified when one of the panels at the QII site was found partially covered by a wind-blown sediment and, consequently, OSL- and AMS-dated. The OSL provided dates ranging from 10±1 to 16±2 ky, meaning that the terminus ante quem for the creation of petroglyphs is at least 17,000 BP (HUYGE *et al.*, 2011). Before the dates were obtained, it had been proposed that the presence of rock art at Qurta may have been related to communities of the so-called Ballanan-Silsilan culture (ca. 16,000-15,000 BP), whose settlement remains are scattered across the region – some even neighbouring the rock art sites (HUYGE, 2009a). Direct dating seems to corroborate this hypothesis and opens up a possibility of an even earlier onset of this rock art tradition.

Most of the sites are located high above the current flood level. This supports the concept of their early origin, as the Nile level in the Late Palaeolithic was much higher than it is today (ca. 15 m); the lower-situated rocks were probably difficult to engrave in those times, but this does not necessarily apply to all cases. Both in the Qurta region and in WAS, the majority of panels are located high upon cliffs or steep slopes, often overlooking vast areas of wadi and desert. It seems that both the size of particular figures and their exponent nature indicates that this was a "public" rock art, intended to be seen.

It is, however, very difficult to propose insights into possible significance and semantics of this rock art tradition. D. Huyge pointed out a close correlation between the fauna depicted on rocks and the archaeozoological remains obtained during various excavations (HUYGE, 2009a; HUYGE and IKRAM, 2009: 169-70). The Late Palaeolithic

Figure 4. South of Dakhleh Oasis, Western Desert. A row of pecked giraffes tentatively dated to mid-Holocene. (Photo by P. Polkowski).

fauna of the Kom Ombo Plain, reconstructed from excavated remains, indicates the presence of the aurochs (*Bos primigenius*), the hartebeest (*Alcelaphus buselaphus*), the hippopotamus (*Hippopotamus amphibius*), the dorcas gazelle (*Gazella Dorcas*), the Nubian wild ass (*E. a. africanus*) and the Barbary sheep (*Ammotragus lervia*). These would be accompanied by various species of waterfowl and fish (PETERS, 1990). Although the ratio between species depicted in rock art as compared to bone remains is slightly different, both assemblages display great similarities. The dominance of remains of wild cattle, hartebeest and hippopotamus is largely reflected in the number of images depicting those species (with some reservations concerning the hartebeest).

The dorcas gazelle features in small but noticeable numbers in both inventories, whereas the Nubian wild ass and the Barbary sheep have not so far been attested in rock art. Instead, another rock-dwelling creature, the Nubian ibex, has been found skillfully carved in WAS (KELANY, 2012).

This faunal match between rock art and bone remains led D. Huyge to advance an idea of some kind of "hunting magic" being practised by the hunter-gatherer-fishers of the Kom Ombo Plain. He supported his argument by showing that a number of specimens have been partially covered, apparently on purpose, with scratches and peck marks (e.g. on their heads). That could mean a symbolic/ritualistic control over fauna

with the help of rock art (HUYGE, 2009a: 113; HUYGE and IKRAM 2009: 171-2).

Finally, an important issue remains to be solved in the future: the potential cultural relationship between the Nile Valley communities and the groups inhabiting Europe during the Late Palaeolithic. D. Huyge was working on this subject intensively and one of his latest articles is devoted to possible links between the two areas basing on the anthropomorphic imagery of the Gönnersdorf type (HUYGE, 2018). Sadly, with his unexpected death, the subject has to await other scholars willing to pick it up and continue.

2.2 Epipalaeolithic: towards the "abstract"

Epipalaeolithic (see below for dating) rock art is one of the least recognised and comprehended pictorial traditions in Egypt. In general, this corpus is mainly defined by the presence of "abstract" imagery (called also "geometric" or "curvilinear"), which owes this label to our present-day difficulties with identification of the subject-matter. This type of rock art comprises motifs such as: spirals, concentric and radiating circles, arches, net-patterns, ladders, oval and rectangular shapes, and many more of a similar nature (STOREMYR, 2008; 2009; HUYGE and STOREMYR, 2012). It is possible that some of the meandering lines also belong to this time horizon, as doubtlessly do the

Figure 5. Dakhleh Oasis, Western Desert. Oryx antelope. Mid-Holocene (Photo by P. Polkowski).

"fish-trap" designs, known mainly from the el-Hosh area (HUYGE, 2009a). The latter are actually the only ones that have been 14C-dated, situating this type of rock art prior to or in the early 6th millennium BC (HUYGE *et al.*, 2001). Although it is only a supposition, the abstract petroglyphs were perhaps produced by communities inhabiting the Nile Valley and the nearby Eastern Desert between 7,000-6,700 BC, associated with the Epipalaeolithic Elkabian culture (VERMEERSCH, 1978).

It is interesting to note that the localities with this kind of rock art are generally found in the same areas as the Late Palaeolithic concentrations of petroglyphs. Two main groups of sites are thus distributed in the el-Hosh environs (Huyge 1998a) and in the Gharb Aswan area, that is on the west bank of the Nile (Storemyr 2008; 2009). The characteristic fish-trap motif, except for one petroglyph, can be found, however, only in the former region. One also has to be aware that the dating of the rest of the supposedly Epipalaeolithic abstract images relies on spatial and/or stylistic associations with the carbon-dated "fish-traps", in addition to comparisons of the state of preservation. That causes a lot of uncertainty, especially when trying to estimate chronology of other figures juxtaposed with them upon the same surfaces; for instance, animals.

Figure 6. Karkur Talh, Gebel Uweinat. The "classic" Uweinat cattle pastoralist depictions of cattle (Photo by A. Zboray).

The above-mentioned meandering lines constitute one of such undetermined motifs. Not only their identification as snakes is an arguable interpretation (cf. POLKOWSKI, 2015), but also assigning them to the Epipalaeolithic is somewhat troublesome. Moreover, the "Epipalaeolithic" is differently defined in the Nile Valley and in the Western Desert, being dated to the early 7th and 10/9th-8/7th millennia BC respectively (e.g. DACHY *et al.*, 2018: 539, table 2). This surely does not facilitate rock art dating.

The interpretation of other animal figures encountered on panels with curvilinear designs seems equally problematic. If their varnishing is lighter, then we most probably deal with younger rock art, as it was demonstrated by D. Huyge (1998: 100, figure 3). P. Storemyr (2008: 66), on the other hand, reports some quadruped animals associated with abstract petroglyphs, such as a figure of warthog (Phacochoerus aethiopicus). This identification seems to be, however, far from certain, whereas its dating cannot be currently more precise than "predynastic" (i.e. predating ca. 3100 BC).

The only relatively certain group of zoomorphs that can be linked with the curvilinear rock art are the crocodiles. Depicted from above, with straight limbs stretched perpendicularly to the body, they constitute a very conspicuous category of figures. Often completely varnished, they accompany geometric petroglyphs fairly often in both main clusters of sites (el-Hosh: HUYGE, 1998: 100, figure 3; Aswan: STOREMYR, 2009: 124, 128, 130, 134, figs. 5d, 13, 16, tab. 1).

Simultaneously with the Elkabian culture of the Nile Valley, the vast areas of the Western Desert were roamed and inhabited by groups of hunter-gatherers, who would eventually adopt domesticated animals towards the end of the 7th millennium BC. Some motifs specific to the Epipalaeolithic of the Nile Valley (e.g. meandering lines) can be found in the west . Their chronology, however, remains unclear. This vast region is, in fact, a home to a number of rock art complexes whose main "ingredient" is zoomorphic imagery. The current evidence, still far from sufficient, links much of these pictures with communities of the 7th and 6th millennia – hunter-gatherers who eventually became "pastro-foragers", marking the inception of the "Neolithisation" processes.

2.3 Mid-Holocene "Neolithic": the savannah animals

When speaking about the Neolithic in this region, one has to bear in mind that it is defined differently than in the Near East or Europe (and the very term "Neolithic" is not used by all scholars); for its main defining feature is the introduction of domesticated animals, markedly preceding plant domestication (cf. KUPER and RIEMER, 2013: 46-7). Before the onset of the very first Egyptian farming cultures in Fayum and Lower Egypt in the late 6th millennium BC, the arena for cultural developments had mostly been the Western Desert. The archaeological material allows us to observe a gradual shift from hunting-gathering, through "pastro-foraging", to developed pastoralism. When analysing rock art, however, it is by no means obvious how to attribute particular classes of imagery to specific prehistoric communities or archaeological units.

Pre-pharaonic rock art in the Western Desert is clearly dominated by zoomorphs, and wild fauna in particular. As remarked above, some rock art, such as meandering lines and associated imagery, could have been produced by Epipalaeolithic communities. This concerns also animal depictions that at times occur as clearly linked with meanders, but as long as the dating of wavy lines cannot be unequivocally confirmed this remains a difficult question to resolve. The wettest conditions in the region occurred during the last stages of the 8th millennium BC, gradually decreasing towards the end of the 6th millennium BC, and the period in-between seems to be the time when a substantial volume of, if not most of rock art in the desert was apparently created. This pertains especially to those sites that we find today in the core areas of the desert or on its margin (cf. RIEMER, 2009). Sites such as Mudpans, Regenfeld, Abu Tartur (RIEMER, 2009), Meri (RIEMER, 2011), Djara (CLASSEN *et al.*, 2009),

or Chufu (KUPER, 2014/2015), all provide strong evidence for a temporal correlation between the mid-Holocene communities and rock art. To this we should add extensive material from the Dakhleh, Kharga, and Farafra oases, which is, nevertheless, slightly more problematic due to a longer habitation history of those places and thus a much larger aggregation (and diversity) of rock art motifs, including the historical ones. For the sake of convenience, and considering both terminological debates and uncertainties in rock art dating, the following group of depictions might be termed the "Neolithic" zoomorphs.

The main feature characterising and linking together rock art assemblages spread extensively over the desert is the predominance of savannah-type animals. The first detail which stands out, is a rather limited choice of depicted species as it is mainly narrowed down togiraffes (*Giraffa camelopardalis*), various taxa of gazelles, Oryx antelopes (*Oryx dammah*), ostriches (*Struthio camelus*), and elephants (*Loxodonta africana*). The remaining species are found in very insignificant numbers (e.g. hartebeest, Addax [*Addax nasomaculatus*]). It is, however, important to note that these animals are not chronological markers by themselves, as they have been depicted also in the subsequent millennia (cf. ZBORAY, 2018).

Two species that prevail within the petroglyphic corpora all over the desert are: the giraffe and the oryx antelope (RIEMER, 2009). The former is particularly dominant in rock art due to its bigger size, and, consequently, better visibility. Giraffes are often depicted as isolated specimens, but larger "herds" are not uncommon. Unlike the Central Sahara, the vast majority of those zoomorphs are shown in a style which is far from naturalistic. It seems that the primary intention of artists was to present the animals in such a way

Figure 7. Karkur Talh, Gebel Uweinat. A "family scene" (Photo by A. Zboray).

that they would be instantly recognisable; hence the selected body features are usually highly emphasised or even exaggerated. This does not mean, however, that the Western Desert giraffe petroglyphs are executed in a homogenous "style"; for the differences can be significant (cf. POLKOWSKI, 2018b: 16-19). The main feature treated in this way is the neck. In extreme cases, it can be several times longer than the rest of the body. Such simplified renderings of giraffes with exaggerated necks, and not infrequently the legs and the tail, are known from various sites, such as Mudpans to the south, or Farafra up north (e.g. RIEMER, 2009: 37, figure 5; LE QUELLEC *et al.*, 2005: 35, figure 27). Finds from Mudpans, Meri (RIEMER, 2011: 248-51), Khufu or Chufu (KUPER, 2014/2015: 296, Abb. 23), or Dakhleh (MCDONALD, 1990), where giraffes (and other rock art) are spatially strongly related to other better-dated archaeological artefacts and structures, which points to either the 7th or 6th/ early 5th millennium BC as the most probable timespan for their creation.

The same can be said about a large group of depictions of oryx antelope. In this case, as well, the stylistic variation is high, although a general simplicity of the form and exaggeration of only the selected body parts (the horns) usually facilitate the identification of this species (RIEMER, 2009: 37). Sometimes it is the only element distinguishing these animals from the other antelopes. Besides oryxes, albeit in significantly smaller numbers, these are usually addax antelopes and gazelles (mostly dorcas), both with characteristic horns. All three species are represented in rock art known for instance from the Djara cave, some 300 km north of Dakhleh, being tentatively dated to the 7th/6th millennium BC or slightly later (CLASSEN *et al.*, 2009). We find depictions of antelopes and gazelles at most desert rock art sites, although addax and various gazelle types are clearly less common than the oryx or the giraffe (but see RIEMER, 2009: 36, figure 3; or POLKOWSKI, 2018b: 22).

In Djara, as well as at most of the other mentioned sites, the quadrupeds are supplemented by depictions of ostrich. These may accompany giraffes and/or antelopes, similarly to the findings at Abu Tartur (Riemer, 2009: 38, figure 8) or Dakhleh (POLKOWSKI, 2018b: 25-6), or, like other animals, be featured alone (ČERVÍČEK, 1986: n.pag., figure 401). Most of the ostriches are similar in form having their bodies abrased, but limbs and the neck engraved. Finally, one has to mention the depictions of elephants that are found, but in a limited number in the Western Desert. Their numbers seem to be drastically lower than those of giraffes, oryxes or ostriches (POLKOWSKI, 2018b: 23-5).

Although for the most part the identification of species does not pose significant difficulties when this kind of rock art is analysed, to propose reliable insights into its significance and meaning is, however, an extremely arduous task. It is possible that a large share of zoomorphic petroglyphs were created by communities that in their subsistence strategies combined hunting and pastoralism, as well as being in addition highly mobile3. The choice of species to be depicted is fairly constant across a wide region, with only some minor exceptions (e.g. the lack of giraffe images in Djara, see CLASSEN *et al.*, 2009). This selection of pictured taxa must have had a precise set of meanings underpinning such a choice, and surely did not mirror purely economic significance of animals. As H. Riemer (2009: 38) points out, there are at least two major discrepancies between the content of rock art corpora and the archaeozoological remains known from the mid-Holocene sites (for an overview of the latter, see Pöllath 2009). The first one concerns the small animals (like the fennec or the hare) that are known in large numbers from the habitation sites but have not been identified in rock art fauna. The other issue relates to contrasting numbers between the bone remains of some animals in the material record and their counterparts in petroglyphs. The abundance of gazelle remains is not reflected at all in rock art assemblages, whereas the giraffe, almost entirely absent in bone record (not recorded north of Mudpans), flourishes and dominates the pictorial corpora in nearly all known areas (cf. POLKOWSKI, 2018b: 35-7). Various antelope species are usually not as frequent as gazelles in the bone record. In rock

art, however, antelopes outnumber gazelles quite dramatically – the oryx, in particular.

Following the assumption that "pastro-foragers" may be responsible for a large part of rock art in the desert and the oases, we encounter yet another puzzling issue: an apparent lack of depicted domesticates. Except for the Gebel Uweinat/Gilf Kebir region, where the (much later) pastoral rock art plays the main role, the rest of the Western Desert sites do not seem todeliver a lot of pictorial evidence for breeding cattle or sheep/goats. The latter are perhaps depicted in Farafra mid-Holocene cave art (BARICH, 2014: 400-1), while the images of cattle are known from many other areas, however, the majority of them seem to originate from the later periods, including the historical times. Quite possibly, we may not be able to recognise the mid-Holocene depictions of domesticates among large numbers of "unidentified quadrupeds" (cf. POLKOWSKI, 2018b). Alternatively, we can assume that despite introduction of cattle and ovicaprines, rock art had remained wild fauna-oriented (cf. POLKOWSKI, 2018b: 38). It seems, however, that the mid-Holocene incipient pastoralism was largely overshadowed by hunting and gathering practices, which is often manifested in larger numbers of remains of wild than domesticated specimens recovered at various sites. In this context, R. Kuper and H. Riemer (2013: 45) speak about "hunter-gatherer conservatism" that is detectable not only in the economic system, but possibly also in the social and the ideological realms of the mid-Holocene desert communities. Hence, I think that the gradual growth of the cultural role of domesticates does not have to be reflected in the rock art of that time, which can be considered yet another expression of such conservatism.

The case of Gebel Uweinat, and its Egyptian part in particular, shows us that it is the Late Neolithic that is dominated by pastoral rock art, both painted and engraved (ZBORAY, 2018). It even provides evidence that during and after the "pastoral period" wild animals were also depicted, including giraffes and oryxes, proving that the mere presence of certain species in any rock art corpus cannot be regarded as sole dating evidence.

2.4 Middle/late Holocene "Neolithic": the cattle horizon of the south-western Egypt

The 5th and 4th millennium BC in south-western Egypt is the time when groups of pastoralists with flocks of cattle and ovicaprines roam across the region in search of grazing land. These communities are, however, strongly tied to various ecological niches, such as the Dakhleh Oasis, Gilf Kebir, or Gebel Uweinat, as advanced aridification increasingly affects large swathes of the Western Desert (KUPER and RIEMER, 2013). Although the oases and their environs are host to herders (e.g. Dakhleh and the Sheikh Muftah cultural unit), it is difficult to define pastoralist contribution to rock art corpus. It is possible that some outlined zoomorphic imagery executed in a schematic manner, and depicting bovids, should be linked with this time horizon (cf. KUPER, 2014/2015: 296, Abb. 23). This, however, bears no comparison to the grandeur and magnitude of the rock art tradition(s) from the very corner of Egyptian territory: Gilf Kebir and Gebel Uweinat.

The "Uweinat cattle pastoralist style" comes as the last clearly defined rock art tradition in a chain of pictogram and petroglyphic "styles" distinguished in both areas (ZBORAY, 2012). In the region's pre-pastoral paintings and engravings animal depictions, although present, are heavily outnumbered by anthropomorphs. Nevertheless, we encounter petroglyphs and paintings showing giraffes, gazelles, ostriches, and even such unique species as the African soft- shelled turtle (Trionyx triunguis) (ZBORAY, 2018: 674, figure 14). In the cattle pastoralist style we observe a reverse situation where the animals clearly dominate in numbers. It seems that the new rock art tradition, different from the previous in most respects, coincides with broader changes in material culture of the region (e.g. introduction of thin-walled pottery with herringbone pattern decoration). Being associated with the Gilf C

phase in the regional chronology, the pastoral paintings and petroglyphs are dated to ca. 4400-3500 BC (RIEMER *et al.*, 2017).

The paintings of cattle herders can be found in both large areas of Gilf Kebir (ZBORAY, 2013: 19, figure 4) and Gebel Uweinat (e.g. ZBORAY, 2009; 2013; 2018). In terms of quantity, however, it is the latter region that stands out with 337 (out of 414 in total) painting sites comprising images in the pastoralist style. To this one should add a large number of petroglyphs, although these pose more problems in terms of cultural affiliation and dating (ZBORAY, 2018). This enormous number of sites, most often shallow rock niches or shelters, are well protected from the elements, often contain large panels crowded with imagery. The main theme of the style is the cattle, the cows and bulls can be counted in hundreds in the most developed compositions. We thus observe quasi- narrative scenes of herding cattle, as well as goats, that are depicted too, albeit in smaller numbers.

The animals are usually portrayed in a distinctive manner. They can be mono- or poly-chromatic, where the dominating colour is red, applied in many possible hues. Their bodies are slightly rectangular; particularly the rump area that is additionally built substantially in size (ZBORAY, 2012: 223-7). Also, the tails are frequently exaggerated, but only in length. The legs are usually depicted schematically, being long and thin, either straight or bent, at times somewhat unnaturally. The body marking is often represented by various tints and patterns. Some cattle specimens have a stippled colouring, while others are plain with just a few irregularly shaped

Figure 8. Khor Abu Subeira, Upper Egypt. A typical depiction of ibex. © the author (with permission of M.C. Gatto and the Aswan-Kom Ombo Archaeological Project).

spots of a different colour. It is the head that is subjected to a large variability; in terms of its shape, and more notably, the horns, which can be of a varying length (or absent). The majority of cattle have their sex indicated. It is either an udder, or a penis, usually depicted between the hind legs.

A. Zboray (2018: 670-2, figure 12) mentions also a slightly different rendering of cattle which he attributes to the last phase of the Uweinat cattle pastoralist style, observable in both petroglyphs and paintings. These bovids have a particularly distinctive feature, namely a dewlap protruding from the neck.

Whereas the cattle are depicted in a fairly unified manner, the anthropomorphs display a much higher variability in form. Various categories of human figures can be distinguished, but it is possible that they do not necessarily mirror any diachronic cultural differences, being more of a reflection of intracultural diversity (cf. ZBORAY, 2012: 225-7). Of course, some chronological variations can also be detected, as the "style" had been utilised for nearly a millennium.

The sex of anthropomorphs can be often identified, and scenes that can be termed as "familial" occur on some of the rocks. The rock shelters, which were frequently used as habitation places, were portrayed as well, providing us with an extraordinary opportunity to glance into a prehistoric household and family. There is no doubt, however, that cattle, and to some extent – goats, constitute the main cultural pillar of that period, being the economic, social, and, possibly, religious foundation for the Gilf/Uweinat communities of the 5th and 4th millennia BC.

What emerges from these rock art compositions, is the clear and deep relationship between people and their tended herds. Some scenes show that this relationship could have been extremely intimate and, in a way, could cross the animal/human boundaries: one of the paintings from Karkur Talh, showing a couple of adults and, arguably, their children suckling on a cow's udders. This cattle-oriented rock art fits well into the pan-Saharan "Bovidian Period" (e.g. LE QUELLEC, 2013) and a gradual cattle "obsession" of much of the Nile Valley in the 4th millennium BC onwards. The ideas behind the Gilf/Uweinat rock art seem to be particularly connected to Nubian rock art, where especially in the 4th and 3rd millennia BC cattle pastoralism and the related symbolism flourished among the herders of the C-Group and the Kingdom of Kerma (see, for instance, rock paintings found near Korosko in Lower Nubia; Suková 2011). Finally, the cattle, both in the form of cow and bull, will be playing an important role in the subsequent Egyptian Predynastic and Dynastic ideology and religion. Most probably, such an essential position of cattle must have had its roots in the eastern Sahara, where during the millennia of animal herding, many of the future ideas could have been coined first.

2.5 Predynastic: animals in the network of concepts, symbols and ideas

The Predynastic Period (ca. 4400-2867 BC) in Egypt begins in the Late Neolithic, and ends a millennium and a half later with the onset of the Thinite 1st Dynasty. It has a very complex history of developments, not only within the realm of economy, technology, or material production, but equally in terms of ideology, symbolism, and social relations. This "evolution" begins with the still largely pastoral communities of the Badari culture (ca. 4400-3800 BC), and reaches its climax when a fully sedentary society of the late Naqada period transforms itself into an incipient dynastic Pharaonic state. The process of state-formation was highly complex and multi-directional, as well as geographically diversified (for an overview, see STEVENSON, 2016). Rock art, as part of the Predynastic visual culture, is similarly manifold and was subjected to changes that were continuously occurring within the social realm. It cannot be characterised as a monolith, but rather approached contextually and in reference to other cultural phenomena in the Predynastic times. For contrary to older classes of rock art, the Predynastic images can be much more effectively

contextualised and discussed in the light of social, religious, or ideological considerations. Nevertheless, due to limited space, only the selected rock art themes related to animals can be briefly outlined here.

To say that animals played an important role in the Predynastic culture is definitely insufficient. Regardless of whichever aspect of that culture we consider, we see that animals feature among its most significant elements. This is extremely helpful in rock art studies, which can draw upon research of various contexts and phenomena. In that way, one can refer to studies of extremely rich pottery iconography (e.g. GRAFF, 2009), as well as to figurines, cosmetic palettes, knife handles, or wall paintings, which are all heavily associated with animals (cf. HENDRICKX and EYCKERMAN, 2012). In addition to zoomorphic iconography, figurines, and sculpture, archaeozoology provides a crucial background for research on Predynastic petroglyphs. A substantial number of researched sites (cf. LINSEELE *et al.*, 2009) serves as a reliable basis for comparisons, whereas a diversity of contexts in which faunal remains are discovered (e.g. the elite cemetery HK6 in Hierakonpolis where various animals, including elephants and baboons, were buried; see VAN NEER *et al.*, 2004), enhances the interpretational pool of ideas. This linkage between rock art and other material sources that are capable of elucidating the chronology and meaning of petroglyphs as such is unique, and has been effectively used by various scholars (JUDD, 2009: 79-80; MORROW *et al.*, 2010: 18-22; HENDRICKX, 2013; HARDTKE, 2017).

Although more ancient origin of some zoomorphic images from the Nile valley and adjacent areas in the Western and Eastern deserts, is certainly possible, the majority of prehistoric animal depictions (except for obvious Palaeolithic and Epipalaeolithic ones, see above) have been dated to the Predynastic Period, particularly the 4th millennium BC (HUYGE, 2002: 195, figure 2; JUDD, 2009; LANKESTER, 2013: 28-49). If we assume that the Predynastic rock art was produced from the Badari Culture period until the end of the Naqada times, it gives us around 1,500 years during which various animals, such as, barbary sheep (HENDRICKX *et al.*, 2009: 222, figure 27), hartebeests, addaxes (DARNELL 2017: 51, figure 3a), oryxes (REDFORD and REDFORD, 1989: 10, figure 3), gazelles (ČERVÍČEK, 1974:Abb. 135), ostriches, ibexes, wild asses (JUDD, 2009: figure 15), cattle (GATTO *et al.*, 2009:165, figure 20), elephants (HARDTKE, 2017: 24, figure 2c), hippopotami (WINKLER, 1938: pl. XIV), or dogs (HENDRICKX *et al.*, 2009: 223, figs. 28-29), were alternately gaining and losing significance. Such was also the fate of giraffes (HUYGE, 1998c). According to a chronological framework for the rock art from the Elkab region, proposed by D. Huyge (2002: 199-200), and often adapted in studies of other sites in Upper Egypt (e.g. GATTO *et al.*, 2009), the giraffe was the main zoomorph depicted in the first centuries of the 4th millennium, that is the Naqada I period. Even if described by him as executed in a "stylised visual realistic" manner, this realism is somewhat contradicted by often unnatural body proportions, perpendicularity, and exaggeration in length and thickness of selected body features. The dominating role of giraffes in the Elkab assemblage – and by extension the entire Naqada I phase – has been explained by connecting them with the iconography from the Naqada III and Early Dynastic periods, and the concept of the giraffe as a "sun-bearer". D. Huyge argued that this animal, being the tallest one, and thus "intermediate between the earthly and heavenly spheres", must have been perceived as a creature aiding the sun-god in his voyage across the firmament. He supported his argument with several observations. The first one referred to a tendency in orientation of giraffes at Elkab, of which more than 60% are directed westwards, against over 70% of all the other figures oriented eastwards. Most of the giraffes, then, seem to follow the direction of the sun. The other observation concerned the petroglyphs of wild asses, depicted slightly later – in the Naqada II phase. Being mostly oriented in the opposite direction, considered, moreover, adversaries of the sun, the asses represent the malevolent forces which pose a threat to the journey of the sun-god (HUYGE, 2002: 203). One

particularly persuasive example of the Vulture Rock site shows lateralisation and orientation of these motifs (and also the boats which were meant to replace giraffes in the Naqada II phase) that perhaps mirror the solar cycle (HUYGE, 2002: 200, figure 5). Rock art plays in this concept the role of a tool – it helps to influence the world in order to obviate the chaotic forces which try to prevent the sun from setting and rising. This interpretation has sometimes been accepted and applied in other case studies (DARNELL, 2009: 87-90 [Theban Desert]; GATTO *et al.*, 2009: 153-4 [Gharb Aswan]), although apparently the occurrence of the prevailing westward orientation finds little confirmation elsewhere (JUDD, 2009: 89 [Eastern Desert]; IKRAM, 2009: 269). The Predynastic giraffe depictions have been found in significant numbers at various sites of the Eastern Desert (FUCHS, 1989; REDFORD and REDFORD, 1989; JUDD, 2009: 12-3; LANKESTER, 2013: 33-6), Western Desert (IKRAM, 2009: 268-70; Darnell 2009), the Aswan area (GATTO *et al.*, 2009), Elkab (HUYGE 2002), Hierakonpolis (HARDTKE, 2013: 109-10) and many other sites (e.g. ČERVÍČEK, 1974: 176-7).

The previously mentioned Nubian wild asses constitute another fairly numerous group of zoomorphs known mostly from the Valley and the Eastern Desert (REDFORD and REDFORD, 1989: 29, figs. 44, 45; FUCHS, 1989: 137-8, figs. 14, 15; HUYGE, 2002). Similarly to giraffes, they are usually fully pecked. Whereas their bodies are rather generic, certain head features seem fairly characteristic – long muzzles and ears in particular. To this we can add a conspicuous element which is a linear appendage sticking out of the neck. Even though it is not observable in all known specimens, the stroke occurs so frequently that it had to have a specific meaning. It was again D. Huyge (2009c) who took on the task of finding a possible interpretation. By examining the meanings associated with asses in the pharaonic period (particularly associations with the god Seth), as well as the available archaeological and archaeozoological material, he proposed the following explanation: asses associated with Seth, were malicious creatures, embodying forces of "evil and chaos". The appendage protruding from the neck would have been a knife or an arrow, whose role was to magically suppress the nefarious powers of these animals. For ancient Egyptians, a represented object was capable of acting, and if it was known to have a malevolent nature, they were supposed to neutralise it. Depicting a weapon stacked in the ass's neck was probably sufficient to achieve that, while the act itself did not seem to have much to do with hunting – the latter being doubtlessly one of the major topics in the Predynastic (rock) art.

Hunting scenes belong to the most ubiquitous themes in those times. They are often found in the deserts far from the Nile. However, since hunting in the Naqada Period was no longer economically relevant, its frequent depiction could have had a more symbolic significance (HENDRICKX, 2013). According to S. Hendrickx, preying on wild animals was the exclusive privilege of the elite, used for various purposes, including legitimisation of power and establishing high status. Animals were rarely killed on the spot, and instead they were captured alive and brought back to the Valley, where, after some time, they were ritually sacrificed. Rock art was, perhaps, executed in these very locales where a hunt could take place (GATTO *et al.*, 2009), sometimes deep in the desert. In the process, hunting journeys to more distant areas could have served as a means to assert control over territories, and more symbolically – could indicate a capability of elites to control the desert. Hunting could thus satisfy religious, social and political needs, whereas it had no significance in terms of food procurement.

Rock art hunt scenes rarely show anthropomorphs. Instead, dogs replace hunters, making the presence of the latter implicit. Only selected species are shown as being hunted, and can be divided into two groups: desert and Nilotic (DARNELL, 2009). Dogs are usually chasing gazelles and antelopes. Of the latter, the Addax appears as a particularly significant species, as it could have embodied the whole of the Western Desert (cf. a discussion of Addax depictions in predynastic D-Ware pottery decoration in HENDRICKX 2013). The Eastern Desert counterpart would be the ibex (example in LANKESTER, 2013: 59, figure 4.18),

whereas the animal depicted as being hunted in both deserts is the barbary sheep (HENDRICKX *et al.*, 2009; BRÉMONT, 2018). The Nilotic hunt scenes focus on just two species, both highly dangerous: the crocodile and the hippopotamus. They show a different way of hunting, appropriate to these creatures as it is a spear/ harpoon and a net that are utilised by the hunters (WINKLER, 1938: pl. XIV; LANKESTER, 2013: 30, figure 3.3). In some cases, the hunt is conducted from a boat (LANKESTER, 2013: 62, figure 4.27). Moreover, these animals are apparently meant to be killed, not captured. Sporadically, other animals are shown being hunted, such as giraffes (JUDD, 2009: 123, figure 16), ostriches (LANKESTER, 2013: 46, figure 3.40), or asses (JUDD, 2009: 128, figure 26).

The Predynastic rock art displays also other themes, which cannot be discussed here at length. This concerns, for instance, a very characteristic the motif of the lassoing of cattle or a seemingly highly related scene of holding its tail (JUDD, 2009: 134-6, figs. 33-35). Another topic raises the question of "territoriality" of "styles", or how certain zoomorphs were executed (e.g. elephants), or of significance of specific species in particular areas (hippopotamus in Abydos as opposed to barbary sheep in Naqada) (BRÉMONT, 2018). This leads us, in turn, to considerations on the meaning and significance of the depicted fauna in relation to the landscape. An influential concept advanced by J.C. Darnell helps us to understand the presence of Nilotic fauna depictions in desert environs, explaining this in terms of the "Niloticization of the desert". Rock art would have thus been a tool aiding in a physical and symbolic transformation of landscape (DARNELL, 2009). A symbolic nature of many zoomorphic depictions is revealed, perhaps, by yet another motif – animals in boats. They can be shown as either placed on deck, or attached to the mast. Some of the species depicted in this way comprise: cattle (ČERVÍČEK, 1974: Abb. 343), hartebeests (DARNELL, 2009: 91, figure 13), ostriches (LANKESTER, 2013: 47, figure 3.42), giraffes (ČERVÍČEK, 1974: Abb. 71), ibexes (MORROW *et al.*, 2010: 93, figure B), among others.

Finally, we can mention the species which were depicted only sporadically, such as felines (ČERVÍČEK, 1974: Taf. 6.12; DARNELL, 2017: 51, figure 3a; Ikram 2009, but possibly of Dynastic date), snakes and birds (stork, ibis, falcon), although the latter two categories could have functioned as the proto-hieroglyphs (DARNELL, 2017: 53, figs. 6-7) and thus linking rock art with the emergence of writing (cf. also the image of a falcon on boat that is more a symbol than a representation; GATTO *et al.*, 2009: 162-3, figure 16).

3. Recapitulation

The above inevitably non-exhaustive overview of depicted animals shows clearly that these were a vital, if not the main, component of the entire Egyptian prehistoric rock art. Only the "geometric" rock art, dating from the early to mid-Holocene, seems to be less focused on zoomorphs, but even then it refers to animals indirectly (e.g. the fish-trap motif). The earlier Late Palaeolithic rock art is heavily zoomorphic, and it is the apparent lack of human depictions, that is striking (except for one panel with female figures). Only in the middle and late Holocene, do we find rock art showing both humans and animals in frequent associations and in large numbers (on anthropomorphs, see especially HUYGE and VAN NOTEN 2018). Nevertheless, anthropomorphs are usually outnumbered by zoomorphs, whether it is desert/oases mid-Holocene rock art, or pastoralist paintings of the south-west Egypt in the later periods. Even in the Predynastic times, when animals are ever more increasingly treated as symbols, and when the concept of "order over chaos" (HENDRICKX, 2013) becomes expressed mainly by human domination over fauna, the zoomorphs are still far more numerous than humans among the petroglyphs. Hence, people during various prehistoric periods must have appreciated animals as extraordinary beings, which allowed – for instance when depicted on rocks – to convey meanings, and even the most complex of thoughts. It is, thus, not surprising that in the epoch that followed the prehistory – in the dynastic Egypt – animals retained their

remarkable significance and featured widely in various aspects of iconography.

Our understanding of rock art is still in its infancy. Often, it is not only the meaning, which is elusive, but also the form of a petroglyph or a painting. Unfortunately, many images, including zoomorphic ones, still resist a precise identification or even a simple description. We often label them as "unidentified quadrupeds/ zoomorphs" (POLKOWSKI, 2018b), as we are able to recognise the animal form, but cannot specify the taxa. In other words, regularly not just the signified, but also the signifier remains obscured and unreachable. Nevertheless, as the rock art research is a developing discipline, more and more discoveries will surely be made. It is also a question of the very specific nature of rock art – and of any art for that matter. Some petroglyphs and paintings are rendered in such a way that our attempts at identification will probably always be more of a "game of associations", where all our definitions and labels cannot be conclusively supported with evidence. This concerns particularly simple-form petroglyphs, such as the alleged "spiders" from Kharga (IKRAM, 2013) or "snakes" in Dakhleh and elsewhere (POLKOWSKI, 2015).

Acknowledgments

I would like to thank Maria C. Gatto for reading a draft of this paper and all her invaluable comments on it. My gratitude goes also to Barbara Matthews for correcting my English. I would like to acknowledge the following persons and institutions for granting me their permission to use and reproduce figures in this paper: Wouter Claes (The Royal Museums of Art and History, Brussels), András Zboray, and Maria C. Gatto (the Aswan-Kom Ombo Archaeological Project). This text was written as part of the author's post-doctoral fellowship realised from March 2019 to June 2020 in Cairo (Egypt) in the joint programme of the Polish Centre of Mediterranean Archaeology, Warsaw University, and Institut Français d'Archéologie Orientale.

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Revista ArkeoGazte Aldizkaria
Nº 11, pp. 217-242, year 2021
Received: 12-02-2019; Reviewed: 20-10-2020; Accepted: 29-07-2021
ISSN: 2174-856X

MILK, MEAT AND HEAVY LOADS: DIACHRONIC CHANGES IN CAMEL PETROGLYPH DEPICTIONS FROM THE NEGEV DESERT

Esnea, haragia eta zama astunak: aldaketa diakronikoak Negev basamortuko petroglifoetako gamelu-irudietan

Leche, carne y cargas pesadas: cambios diacrónicos en los petroglifos con representaciones de camellos en el desierto del Néguev

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Liora Kolska Horwitz (****)
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Abstract

This research is based on 296 camel petroglyphs from four surveyed areas within the Negev Highlands, Israel. We divided the camel petroglyphs into four styles, each represents the camel in a specific form with reoccurring attributes that are embedded with cultural information and meaning. Each of the styles was attributed to a chronological period based on the colour of their patina and related inscriptions. We demonstrate stylistic changes over time that may be related to transformations in the economic exploitation of camels and possibly to the introduction of a different camel breed associated with population movement into the region. The symbolic role that the camel may have played in past Negbite societies is also discussed.

Key words

Camelus dromedarius; Southern Levant; Camel breeds; Rock art.

Laburpena

Ikerketa hau 296 gamelu-petroglifoen azterketan oinarritzen da, Negeveko (Israel) lur garaietan prospektatutako lau eremutan identifikaturikoak. Gamelu-petroglifoak lau estilotan banatu ditugu, bakoitzak animalia hauek modu jakin batean irudikatzen dituelarik, informazio eta esanahi kulturala duten ezaugarri errepikariekin. Patinaren kolorean eta inskripzioetan oinarrituta, estilo bakoitzari aldi kronologiko bat esleitu zitzaion. Denboran zehar eman diren aldaketa estilistikoak egiaztatu ditugu, gameluen ustiapen ekonomikoaren aldaketekin lotuta egon daitezkeenak eta baita, seguruenik, gamelu-arraza desberdin bat sartzearekin zerikusia dutenak, eskualdeko populazio-mugimenduarekin erlazionaturik. Gameluak iraganeko gizarte negbititetan izan zuen paper

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sinbolikoa ere aztertu da.

Hitz-gakoak

Camelus dromedarius; Hegoaldeko Levante; Gamelu-arrazak; Labar-artea.

Resumen

Esta investigación se basa en el estudio de 296 petroglifos de camellos procedentes de cuatro áreas prospectadas dentro de las tierras altas del Néguev, Israel. Hemos dividido los petroglifos de camellos en cuatro estilos, representando a este animal de una forma específica en cada uno, con atributos recurrentes que albergan información y significado cultural. Cada uno de los estilos se atribuyó a un período cronológico basado en el color de su pátina y las inscripciones relacionadas. Hemos demostrado cambios estilísticos a lo largo del tiempo que pueden estar relacionados con transformaciones en la explotación económica de los camellos y, posiblemente, con la introducción de una raza de camellos diferente, asociada con el movimiento de población en la región. También se ha analizado el papel simbólico que pudo haber desempeñado el camello en las sociedades negbititas del pasado.

Palabras Clave

Camelus dromedarius; Levante meridional; Razas de camello; Arte rupestre.

Revista ArkeoGazte Aldizkaria
Nº 11, pp. 217-242, year 2021
ISSN: 2174-856X

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Leche, carne y cargas pesadas: cambios diacrónicos en los petroglifos con representaciones de camellos en el desierto del Néguev

Davida Eisenberg-Degen (*,**), Lior Schwimer (**,***), Liora Kolska Horwitz (****), Ifat Shapira (*)

1. Introduction

Most of the rock art in Israel is found within the Negev Highlands, a mountainous part of the Negev Desert with rocky terrain of limestone, dolomite and chalk, covering ca. 2500 km2 (Figure 1). Average temperatures range from 8° C (winter) to 26° C (summer). It is a semi- arid region with 60–120 millimeters annual rainfall; vegetation is sparse, consisting mostly of annual plants and low shrubs (ORNI and EFRAT, 1973:173).

The Negev rock art consists of petroglyphs, most of which are pecked or engraved on limestone boulders of Eocene age which have developed a dark, outer patina known as 'desert varnish' (DORN, 2007). With the making of the petroglyph, the dark patina of the rock is broken and the inner, light-colored limestone is exposed. With time the patina re-forms, covering the exposed engraving and slowly darkens (Figure 2). The time-lapse between the exposure of the limestone and the development of the dark-colored patina is unknown. Among other factors, moisture, sun-exposure and subsequently, the panels' inclination and azimuth, affect the rate of patina development and darkening. Relative

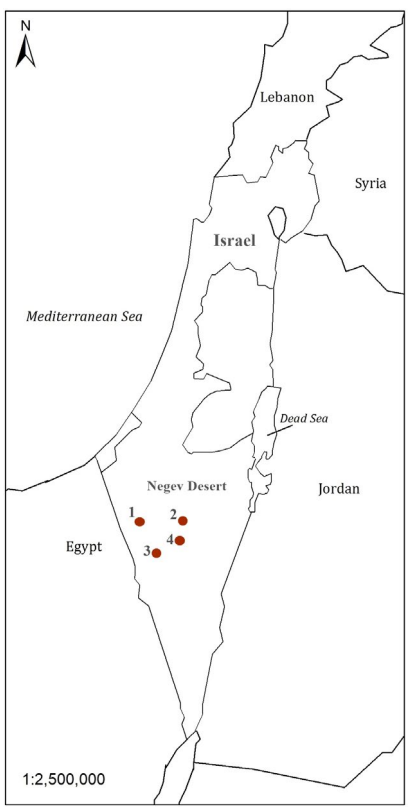

Figure 1**.** Map of research area and the rock art sites documented. 1. Giva't HaKetovot, 2. Har Michia, 3. Nizzana Basin, 4. Ramat Matred.

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Figure 2. Petroglyphs on limestone with a dark patina. D.E.D at Har Michia north rock art site.

dating of petroglyphs is possible based on the extent of patination, with lighter-coloured petroglyphs of younger age, and darker ones older. In the Negev, some petroglyphs were pecked or engraved on limestone boulders that lack desert varnish. In this case even the slightly weathered petroglyphs are difficult to see and decipher as they lack the dark-light colour contrast (Figure 3).

The implements used for making the Negev petroglyphs varied from flint to metal tools. Flint is found in abundance throughout the region and many rock art sites are associated with earlier Middle Paleolithic activity areas (mostly knapping sites). These dense scatters of flint tools and their refuse, offer ample engraving, hammering and pecking tools. Few engravings present precise, well-formed thin lines made by a metal tool.

Precise dating of petroglyphs is notoriously difficult (e.g. BEDNARIK, 2002). In the Negev, relative dating may be applied to some petroglyphs based on the motif or subject depicted whose age is known from the archaeological record. For example, the presence of an extinct or introduced animal, particular weapon types, saddle forms etc., or linguistic inscriptions. As yet, radiometric methods have not been implemented on Negev rock art. Within the known constraints of dating rock art, we present the Negev petroglyph chronology as

Figure 3. Petroglyphs on limestone, Bedouin phase, Ramat Barnea.

given by EISENBERG- DEGEN and ROSEN (2013). The earliest visible rock art of the Negev dates to the Early Bronze Age (late 4th - 3rd millennium BC). Few panels may include older motifs possibly dating to the Chalcolithic (ca. mid 5th- early 4th millennium BC) or Late Neolithic periods (early 5th millennium BC). Upper and Epi-Paleolithic rock art might exist but if so, it has yet to be identified (or dated) with certainty.

Over the millennia, the Negev experienced several fluctuations in population number and size and character of human settlement, reflecting the variety of populations and cultures who occupied the region (AVNER *et al.*, 1994:265-295; ROSEN, 2008:115-132). These changes appear to be reflected in the quantity of rock art (roughly) associated with each period, the setting of the rock art and subject matter depicted, which mirror facets of these time periods. There were a number of periods when rock art was more intensively made, but the bulk of images may be associated with the Roman-Byzantine and Early Islamic periods (ca. 1st - 2nd centuries BC – 10th century AD) and Bedouin phase (ca. last 200 years). However, as most motifs were continuously used over several rock art periods, often with a similar style employed (EISENBERG-DEGEN and ROSEN, 2013), the association of a specific petroglyphic element with one of these periods, rather than another, is often difficult to determine.

The Negev rock art may be roughly divided into five engraving phases (EISENBERG-DEGEN *et al.*, 2016). The earliest engraving phase consists almost entirely of ibex. At times these images are accompanied by anthropomorphic figures and/

or dogs. In the second engraving phase we see images of equids, a relatively restricted variety of abstract marks with foot prints added. The camel image is seen frequently within the third and fourth engraving phases. The fifth, most recent rock art phase, is chiefly aniconic in nature, though it does include occasional engravings of camels, ibex, donkeys and sometimes cars and airplanes.

Here we discuss four Negev Highland rock art assemblages, with horned ungulates that account for some 47% of the depicted zoomorphs. Most of these can be recognized as adult, male Nubian ibex (*Capra ibex nubiana*) due to their long, back-sweeping horns. The one-humped dromedary camels (*Camelus dromedarius*), the focus of this paper, are the second-most common zoomorph identified (12%) and the most commonly depicted domestic animal. In addition, some 18% of images represent unrecognizable zoomorphs. In most cases these are simplified stick images, made in a minimalistic linear fashion - such as a horizontal body and legs with no distinct attributes by which to identify the species.

2. The Zooarchaeological Record of Camels

In the deserts of the Levant, remains of wild camels (cf. *Camelus thomasi*), have been documented in prehistoric sites spanning the Pleistocene (e.g. GRIGSON, 1983; MARTINI *et al.*, 2015). Towards the end of the Pleistocene they appear to have become extinct, or at least underwent extirpation in this region, as their osteological remains are not found thereafter in either fossil or archaeological deposits (HORWITZ and ROSEN, 2005). However, wild camels continued to inhabit the adjacent Arabian Peninsula as attested to by finds from the United Arab Emirates dating to the second half of the 5th millenium BC (BEECH *et al.*, 2009).

Based on current genetic and archaeozoological research, the earliest finds of domestic dromedary camels occur during the Iron Age II, at the transition between the 2nd and the 1st millennium BC (sometimes between 1500 and 1000 BC) on the southeast coast of the Arabian Peninsula, although the transition to domestication may have begun earlier (e.g. UERPMANN and UERPMANN, 2012; CURCI *et al.*, 2014; ALMATHEN *et al.*, 2016). From this region the domestic animals dispersed rapidly into neighbouring areas. A gazeteer of domestic camel remains from archaeological sites in Jordan, Israel and the Palestinian Authority is given in HORWITZ and ROSEN (2005: Table 2). Some of the pre-Iron Age finds noted in this table have been directly dated (e.g. Jericho, Shiqmim - GRIGSON, 2014) demonstrating that they are either intrusions from overlying layers or represent modern intrusions. Thus, it is apparent that claims for pre-Iron Age camel remains from this region need to be treated with extreme caution. The first robustly dated domestic camel remains appear in the Negev Desert as an introduced animal in the last third of the 10th century BC i.e. Iron Age II (SAPIR-HEN and BEN-YOSEF, 2013).This provides a clear chronological terminus post quem for images of camels in the rock art of the Negev.

Once they enter the region, camel remains are most frequent in sites directly associated with trade routes (e.g. Iron Age II-Persian periods at Tell Jemmeh– WAPNISH, 1981; Islamic period Pella KÖHLER-ROLLEFSON,1989), but uncommon in others.

The camel is a multi-purpose animal and is exploited today for its milk, skin, wool and meat as well as used for transportation, labour and even racing. Since its domestication, this species does not appear to have been subjected to intensive selective pressures even though different camel breeds (ecotypes) are recognized in different parts of the world. They are generally classified according to their uses - for meat, dairy, dual purpose or racing (WARDEH, 2004) and the current basis for breed recognition includes a mixture of different criteria: socio-ethnographic, ecological/ geographic, morphological and utilitarian. Only recently have genetic studies been applied to clarify affinities between breeds (e.g. ALMATHEN *et al.*, 2012; ELTANANY *et al.*, 2015).

Identification of camel breeds in the archaeozoological record has, to date, been largely unsuccessful. This is due to the problem of applying the different criteria (listed above) to distinguish between them based on osteological remains. Moreover, the generally small size of archaeological camel bone assemblages, and hence the paucity of measurable bones and teeth, has limited out ability to distinguish between wild and domestic camels (STUDER and SCHNEIDER, 2004). Despite the limitations inherent in the archaeozoological samples, attempts have been made to identify different camel types. Thus, the exceptionally large camels found in the Umayyad period deposits at Pella were interpreted as possibly representing dromedary x bactrian hybrids that were bred especially to carry heavy burdens (KÖHLER-ROLLEFSON, 1989). Furthermore, metric analysis of camel remains from the site of Petra ez-Zantur has hinted at the presence of a few heavily-built dromedaries, either a large breed or alternately castrates, that were used as beasts of burden in the Roman period (STUDER and SCHNEIDER, 2004). Given that morphologically these remains resemble dromedaries and not bactrians, the possibility that they represent hybrids was rejected by the researchers. In sum, there are only a few archaeozoological indications for the exploitation of different camel breeds in the Southern Levant.

3. The Negev Highlands Rock Art Record analysis and conclusions

The data presented in this paper are based on four different rock art assemblages documented in the Negev Highlands: Har Michia (No. of elements recorded 4346, including 73 camels), Giva't HaKetovot (No. of elements recorded 1486, including 20 camels) Ramat Matred (No. of elements recorded 1891, including 26 camels and a further 66 camels documented separately) and a section of the Nizzana Basin Survey (No. of elements recorded 3400, not counting stray marks, including 111 camels, also see SCHWIMER, 2015). When summed, these data comprise a sample of 296 camels, and demonstrate that zoomorphs (including ibex, camels, equids, and canines - especially dogs represent ca. 12% of the Negev Highlands rock art assemblages. Birds (especially ostrich), felines, reptiles and cattle account for only a small percentage of motifs in the surveyed assemblages (EISENBERG- DEGEN, 2012; SCHWIMER, 2015).

In these petroglyphs, dromedary camels are the second most commonly depicted zoomorph. Usually ranging in size between 10-20 cm, they are shown sideways on, presented in a linear, outline or fully engraved form. Most camels are linear with the body consisting of a single horizontal line, the legs are formed by four parallel vertical lines. In most cases their stance shows them as static, but some images evoke movement. Camels occur in panels either as individual animals, multiple animals in a camel train or in a group, with or without riders. In many instances accoutrements are shown such as saddles or reins, and in some petroglyphs the camel is tethered, shown by a line connecting two legs.

Scenes showing other uses of the camel or its products are not depicted. For example, ethnographic data indicates that camel droppings were collected and dried for fuel (DICKSON, 1951:415); female camel urine was used by women to wash their hair and for medicinal uses (DICKSON, 1951:415; JABBUR, 1995:221); the hide was used for making containers, troughs, tent covers and sandals; foot pads were fashioned into shoes or soles for sandals; the fur served for weaving bags, tent-cloth panels, or saddle covers (JABBUR, 1995:218-219); the tail could be made into rope (BULLIET, 1975:60) while camel bones were used for making bone-tools (STUDER and SCHNEIDER, 2008), or as writing tablets (NEGEV, 1977). None of these uses are depicted in the Negev rock art.

In this paper, the camel engravings have been classified chronologically using the colour of their patina, associated inscriptions with the same patina which were written in several ancient languages such as Thamudic dialects (1st and 2nd c. AD), Safaic (1st c. BC through 4th c. AD), Nabataean (2nd c. BC through 4th c. AD) and

Figure 4. Camel petroglyph, Ramat Matred.

Early Islamic (7th-8th c. AD) (MACDONALD, 2000; WOODARD 2008), as well as the presence of engravings of Bedouin tribal markings (wusum) spanning the last 200 or so years (EISENBERG-DEGEN, 2006). We also tracked changes in the style of the camel engravings and have classified them into four types (Table 1). The animals differ in the manner in which they were executed and in the specific morphological (ears, feet, hump shape) or associated features (saddles, reins, cameleers), that are shown.

3.1 The Hump

Camels, as all zoomorphs, are presented in the Negev rock art in profile, emphasizing the shape and size of the hump, its most salient attribute (Figure 4). The hump of some ridden camels is unclear, while in a few depictions of long-necked quadrupeds that were tentatively identified as camels (excluded from the present research), the animals have no humps at all. Presentation of clearly humped camels is the main trend. Humps are shown as triangular in shape, rounded as a half circle, presented as a low narrow arc placed on the body line or a horse-shoe shape. The hump may vary in size, being so large as to cover the entire length of the body, or small, set on the front or back section of the body.

The camel's hump is an accumulation of fat which helps insulate the camel's body from the desert heat. The fat also serves as a reserve and when the camel is thirsty or overworked, the fat of the hump is metabolized, and the hump becomes more flaccid, at times even reduced to a type of skin flap. Thus, it reflects the health status of the camel, with the hump of a well-fed animal assuming plumpness of form and hardness of the

texture. Camels under the best care and health status will have a large, pyramidal shaped hump which covers most of the back. Thus, a large hump depicted in the rock art indicates not only the health status of the camel but also reflects on its owner (DICKSON, 1951:414). Such a camel has clearly been treated well, given ample food and water. It may therefore serve as an indication that the camel's owner is wealthy, or that he is honest as he respects and looks after his herd.

3.2 Hoofs

As noted above, the Negev camel petroglyphs are generally schematic and include few details. Hoofs may be an exception. The camel's hoof is a large pad and constitutes a salient anatomical feature at the end of the foot. It is adapted to stop the animal from sinking into the soft desert sands while the widening toes on a camel's hoof provide additional grip on different sediments. The pads are thick so as to protect the foot in scorching surface temperatures which may reach 20° C more than the air temperature.

Although not presented in detail in the early engravings, in the later petroglyphs (Early Islamic period), pads are denoted on occasions as a rounded mark, or thickening, at the base of the camel's legs. The depiction of hoofs appears to reflect an artistic expression of social and cultural change. One panel from the Har Michia North rock art site may present camel foot prints which descend the panel's vertical surface (Figure 5).

Figure 5. Possible camel hoof prints descending the panel (emphasized with Photoshop), Har Michia north.

3.3 Neck and Head

In all camel depictions, the presence of an elongated and extended neck is another salient feature. Even in images where the body is schematically drawn, identification of a zoomorph as a camel is often possible given the presence of a long neck. The camel's neck may be presented erect with the head at an up-turnedangle suggesting braying. Other petroglyphs present camels with relaxed slightly curved necks (Figure 6). Few camels are presented with their neck extended downwards as if grazing.

In the petroglyphs, eyes of zoomorphs (and anthropomorphs) are at times indicated. This is achieved by leaving a small bit of patina in the engraving, resulting in a small 'patina island' eye. In other cases, the eye may be a drilled depression. Very few of the Negev camel petroglyphs have eyes.

Camel petroglyphs from Transjordan usually have ears (LITTMANN, 1904) and these are occasionally depicted in the Negev, usually on camels associated with the more recent engraving phases. The depiction of ears is at times technically challenging. For example, looking at a three-

Figure 6. Camel petroglyph, Ramat Matred.

Figure 7. Three camel caravan, Ramat Matred.

camel caravan (Figure 7), the second and third camels are portrayed with two ears each. The first camel has only one ear. Two ears were originally engraved but due the closeness between the two engraved lines, the patina between the two did not sustain the engraving of the second ear, that chipped off and formed a single engraved line.

Other physical features of the face which characterize the camel that are not exhibited in the petroglyphs, are the bushy eyebrows, two rows of long eyelashes, the hair-lining of the ears, narrow nostrils, and stiff haired lips (HEIDE, 2010: 337). However, body hair is sometimes drawn.

3.4 Teats

Female camels have udders with four teats located close to the two hind legs. Few camel petroglyphs in the Negev depict udders or teats. The isolated examples that do (which occur mainly in the earliest engravings), are un-naturalistic and present four large teats below the hump and body line (Figure 8). The camel, unlike bovines, do not 'store' milk in the udder but rather 'let down' the milk after stimulation (by the calf or hand massage, WERNERY, 2006:15- 17). Thus, even milk camels do not have such large, full udders as those depicted in the petroglyphs.

Figure 8. Camel with teats, Ramat Matred.

Figure 9. Camel with a calf, Ramat Barnea.

Few petroglyphs present a camel with a calf below, between its legs, in which cases the teats are usually not depicted (Figure 9). A unique example of a female camel, calf, and person milking her, may be seen in Figure 10.

Camel milk is available practically year-round. It substitutes at times for water in the desert and forms a regular and important part of the desert-dwellers diet (JABBUR, 1995:199, 215, for camel milk properties and herd demography see HORWITZ and ROSEN, 2005). Yet this aspect of camel herding is not depicted distinctly or commonly in the Negev rock art.

3.5 The up-turned tail

Camel tails reach 0.50 m in length, extending down to the knees of the hind legs. In the Negev rock art the tail may be depicted as slack, extending downwards, straight as a horizontal line extending from the camel, or up-turned. The majority (55%) of camels in the earliest petroglyphs are depicted with tails up-turned in a curved fashion. In later styles the percentage of up-turned tails drops to 33% on average. These findings are statistically significant considering that other tail positions include straight, or down turned. At times the tail is not depicted or obscure and its position remains unclear.

Transjordanian camel petroglyphs are often accompanied by an inscription in ancient North Arabian consisting of the artist's name and a word (bkr, bkrt, gml) denoting the camel.

In ancient North Arabian there is a linguistic distinction between male and female camels. The female camel is "bkrt" (Arabic bakra) while the male camel is called "gml" (Arabic jamal) or "bkr" (male camel calf). Thus, the inscriptions help the observer identify the sex and age of the camel in the petroglyph (CORBETT, 2010:117-126). A consistency in the camels' sex and the way it is depicted was noted (MACDONALD SEARIGHT, 1982). Female camels were presented with up- turned tails (WINNETT, 1957 nos. 60 and 803; WINNETT and HARDING, 1978 for example nos. 2018, 2112, 2763, 2731 and 3615b) while male camels, were presented with slack tails, and at times a penis (CORBETT, 2010:121). The up-turned tail of the camel appears to have been a gender-specific artistic convention accepted and known to the rock art makers of the Harra and Hismā deserts in Jordan, and the Negev Desert in Israel (CORBETT, 2010:120; EISENBERG-DEGEN and ROSEN, 2013).

The connection between female camels and up-turned tails may be rooted in the fact that when a pregnant camel is approached by a person, it will turn up it's tail. To this day, camel herders use the up-turned tail as an indication of a gestating camel (WOSENE, 1991). We may therefore conclude that the predominance of up-turned tails in the early Negev camel depictions indicates that most are females. However, a camel with a slack, long tail may, or may not, represent a male camel. Male camels, identified as such by the inclusion of a penis, were not found to date within the Negev rock art assemblage.

In the Negev, camels with up-turned tails appear in the earliest camel engraving phases and continued to appear through to the latest phase. MUSIL (1928:349) noted that female camels with slender bodies are the preferred riding camel for covering long distances as they are harder than the male camel. Whereas survival and continuity is assured by the female camel, labour and trade are carried out using the male camel (TEKA, 1991).

3.6 Saddle types

In the Negev, riding camels are presented in a few forms; with a saddle and reins but no rider, with a rider but no saddle or reins, or combinations of all elements. Saddles are infrequently depicted and never in full detail. Recognition of the saddle type is important as it can offer much information. Baum (2015) documented three saddle types used for the dromedary - Somali saddle used for pack camels which sits in-front of the hump; South Arabian riding saddle, introduced ca. 1200

Figure 10. Human milking a she camel with young suckling to 'letdown' the milk. Nahal Shazar.

BC, which sits behind the hump; North Arabian saddle, introduced ca. 500 BC, which sits on the hump and is used for riding and packing. Thus, from the placement and shape of the saddle depicted in the rock art, it is possible derive its function (riding, pack or for warfare), date and geographic influence.

However, mixed readings and identification of saddle types have been offered for much more detailed and refined camel images than those depicted in the Negev petroglyphs. For example, in the Lachish Reliefs, which depict the Assyrian victory over the Kingdom of Judah in 701 BC, there are several depictions of saddled camels. BULLIET (1975:75) identifies some saddles in these reliefs as representing South Arabian saddles and others as cushion saddles placed over a saddle cloth. BARNETT (2016) has pointed out several variations and details while FRENCH (1988:64) believes that these depictions in fact represent North Arabian saddles. In contrast, BULLIET (1975:91) has suggested that the earliest representation of the North Arabian saddle is on a Roman coin dated to 58-54 BC on which the Nabatean king Aretas is depicting as surrendering, while PARR (1990:81) considers the coin image to represent a cushion saddle.

The South Arabian saddle with a U-shaped cushion set behind the hump, seems to have been the earliest of the three saddle types identified thus far in the Negev petroglyphs (Figure 11a). This saddle was fashioned for bearing the loads of a single household (BAUM, 2015) and is ill-suited for transport of heavy weights over extended distances (BULLIET, 1977:40-55).

South Arabian saddles have been in use since the 9th century BC as this saddle type is depicted on the bronze gates of the ancient Assyrian site of Balawat dating to 859-824 BC. Later depictions include 1st century BC Yemenite funerary reliefs (BULLIET, 1975: 96). Riders placed behind the hump may be using the South Arabian saddle type, may represent women, or possibly even a raiding scene (MACDONALD, 1990). The Somalia camel saddle, with a wooden saddle bow placed in-front of the hump, is not depicted in the Negev petroglyphs.

Women may also ride in a hooded saddle (Utfa), or in an elevated more elaborate ceremonial saddle known as Tola. These are placed over the saddle rather than suspended between two camels as the movement make this type of litter very uncomfortable (ROBINSON, 1931). It has been proposed that in Saharan rock

art, camel palanquin depictions with no clear functional association, may serve as symbols of women (Soleilhavoup 2002). No examples of this type of saddle are known from the Negev petroglyphs.

The most common saddle shape in the Negev rock art is a V-shape placed on top of the camel's hump (with or without a rider Figure 11b), indicating a North Arabian saddle or Shadad- type saddle. Two or three lines extend from the camel's hump indicate the saddle, or more precisely, the holding knobs of the saddle. When both saddle and rider are depicted, then the rider is set in the center of the V-shape (Figure 11c). The saddle handles are presented in front of the hump, at the base of the camel's neck, usually as a knob. Rarely they are shown, as a ψ form indicating a Tuareg-type saddle (Figure 11d), a riding version of a pack saddle, which is considered a descendent of the North Arabian saddle and was commonly used in the Sahara (BAUM, 2015). In Figure 11d, we see that the Tuareg saddle is intentionally superimposed on an earlier footprint. The footprint was integrated into the later camel engraving with part of the footprint lines serving as reins as well as offering the camel engraving a terminus post quem of the Roman period (EISENBERG-DEGEN and NASH, 2016).

The North Arabian saddle, which places the rider on the hump (BAUM, 2015; DOSTAL, 1959), was extensively used in warfare as it offers the rider better control over the camel and the elevated position is a more efficient attacking position (BAUM, 2015). This saddle includes a saddle bow (a development dated to the mid-1st millennium BC), saddle cloth, breast strap and tail strap. Breast and tail straps are at times shown in the Negev depictions. Some camels have a line extending downward from their body. Of these, a number are presented as being ridden such that the line may represent a saddle strap.

In Figure 11b we see two camel petroglyphs engraved on the same panel, both camels have a saddle but no rider i.e. an empty seat. Traditionally, this 'empty seat' denotes the absence of someone, or something, of great symbolic significance. It usually refers to the lavish palanquin in the Haj caravan which was transported either empty, to symbolize the absent Sultan, or containing a Quran or other object of high symbolic value. The tradition of an unridden camel or palanquin is known from pre-Islamic times in the Middle East and appeared in religious processions and even in major battles (BLAKE, 2013:95-97; PETERS, 1996:165). In the Ramat Matred example, a palanquin is not depicted but perhaps the empty saddle held similar connotations and meanings.

4. Chronology of Camel Styles

Grouping the camel petroglyphs according to form, it becomes evident that there are at least four styles within the Negev rock art. Each style is composed of a number of different aspects: The form of the camel (linear, out lined or fully pecked), hump size, shape and form (linear, out lined or fully pecked), technique (pecking, scratching, engraving). Each style is also characterized by a distinct hump shape (or shapes) and size. The styles appear to have evolved chronologically, based on the colour of their patina and the presence of associated inscriptions or wusum. The combination of these elements make up the styles (Table 1).

4.1 Style I (N=109 elements, 40.98% of all camel depictions)

The earliest Negev camels are characterized by large outlined humps (Figure 12). In Style Ia, the hump extends over the entire back of the camel, covering the length of the four legs (Fig 12. a-b). Slightly later (Style Ib, Figure 12c-d), we see linear camels with elongated outlines and round humps. The humps are set in the center of the body and are slightly narrower than those of Style Ia, covering at times only the distance between the camel's second and third leg. The majority (over 55%) of the latter camel petroglyphs represent female camels They are presented either with an up-turned tail, teats, or young. The four camel petroglyphs with a young calf, are all of Style I. Style I camels are rarely

			Munsell chart 7.5 YR									
Style	N	%/ all camels	2.5/1-4/4		4/6-5/4		5/5-6/8		7/1-7/8		8/2-8/6	
Style I	109	40.98%	72	66.05%	19	17.43%	11	10.09%	2	1.83%	2	1.83%
Style II	4	0.02%	2	16.66%	0	0.00%	1	16.66%	0	0.00%	1	33.33%
Style III	127	48.10%	35	27.55%	21	16.53%	58	45.67%	9	7.08%	8	6.30%
Style IV	24	9.02%	4	16.60%	1	4.16%	5	20.83%	8	33.33%	3	12.50%
Total	264	98.12%	112	42.10%	41	15.41%	75	28.19%	19	7.14%	15	5.63%

		Tail					Domestication							
Style		Up		Straight		Down		Reigns		Riden		Saddle		Led by Man		With Young	
Style I	63	57.79%	22	20.18%	16	14.67%	8	7.34%	14	12.84%	4	3.65%	3	2.75%	4	3.67%
Style II	2	33.33%	0	0.00%	2	33.33%	0	0.00%	1	16.66%	1	16.66%	0	0.00%	0	0.00%
Style III	41	32.28%	13	10.23%	47	37.00%	15	11.80%	17	13.38%	14	11.02%	11	8.66%	0	0.00%
Style IV	8	33.33%	4	16.66%	3	12.50%	2	8.33%	6	25.00%	5	20.83%	0	0.00%	0	0.00%
Total	114	42.85%	39	14.66%	68	25.56%	25	9.39%	38	14.28%	24	9.02%	14	5.26%	4	1.50%

Table 1. Summary of camel petroglyph corpus studied.

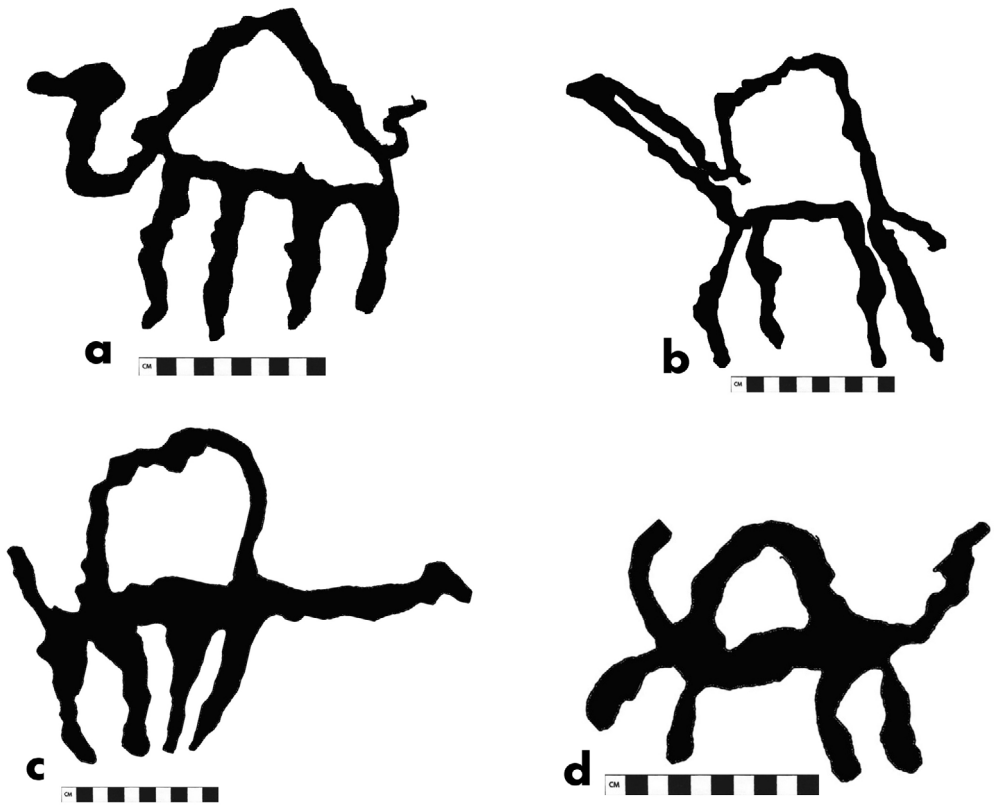

Figure 11. Style I, a-b Style Ia, c-d Style Ib.

presented with a cameleer or rider. The camels of Style I lack ears, hoofs or other physical details. Over 65% of Style I camel petroglyphs have reformed patina of the darkest shades (Munsell chart 7.5 YR 2.5/1-4/4, Table 1). It is difficult to date this Style though most petroglyphs of this style clearly predate the Roman period. It is possible that some of Style I camels date to the Iron Age and the first introduction of the camel into the Negev region.

4.2 Style II (N=4 elements, 0.15% of all camel depictions).

Less than 1% of the Negev camel corpus are represented by Style II (Figs. 13). The few examples are consistent in the manner the camel is formed, the hump size, shape and form as well as the technique used. The camels of this Style are characterized by the competence of the engraver, the type of rock surface chosen for engraving as well as the shade of the reformed patina. One of the Style II camels is pecked into a light colored lime stone (Fig 13. a) that has not developed a dark patina crust, while the other three are pecked into boulders with a dark patina (Figure 13 b-d).

Style II present elegant large humped camels made with flowing lines. The details, made in outline, are on the one hand more implied, especially as the lines of Style II do not always meet, but also pay more attention to detail and the physiological characteristics of the camel's body, neck and hump. The hump is large forming a continuous part of the body. At times the camel's hair is indicated with short lines extending from its body and tail. The fluid style of these camel petroglyphs stands in contrast to the

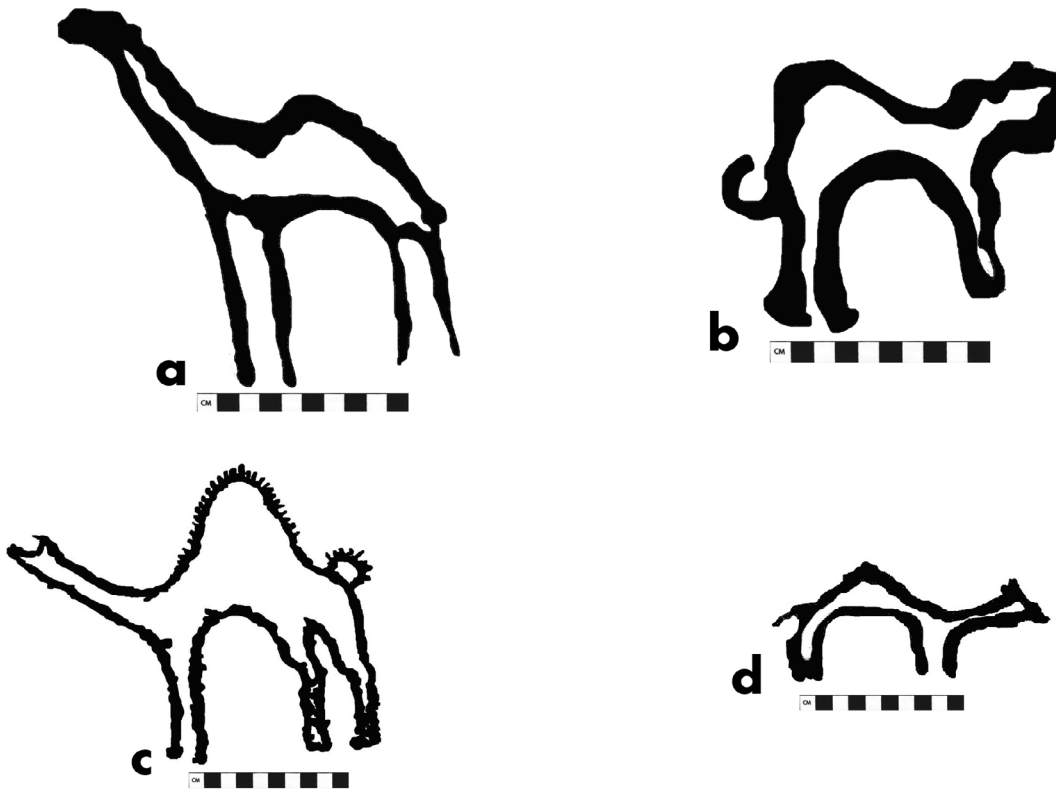

Figure 12. Style II.

minimalistic linear Styles I and III, which are the prevalent forms of the Negebite rock art style. A number of Style II camels were accompanied by a Safaic inscription. Style II camels closely resemble the camels in northern Jordanian rock art (see for example WINNETT, 1957:729, no. 3615 b) which are often accompanied by such inscriptions which date to the 1st century BC through 4th century AD. Thus, the northern Jordanian inscriptions and camel petroglyphs as well as the Negev Style II camels, probably date to the Roman Period.

4.3 Style III (N=127 elements, 48.10% of all camel depictions)

Alongside the continuity in style, certain and subtle changes are seen in the form of the camel petroglyphs. These changes are evident in the camel hoofs which are often presented, many times thickened and emphasized, while ears that are likewise often featured. In Style III, the hump size, shape and form are the most diverse (Figure 14). Depicted are large humped camels with emphasized hoofs, and at times with a fully pecked hump – probably dating to the Roman and Byzantine periods or later (Figure 14a-b). There are also camels with a small hump in the center of the back, not covering the distance between the legs (Fig 14c- d). This hump may be rounded, horseshoe- shaped or square. Relatively small horseshoe-shaped humps may also be placed on camels shown with a fully pecked or outlined body. The techniques used to make Style III petroglyphs is more diverse including pecking and engraving. The majority (45.67%) of these camel petroglyphs have reformed patina that ranges between 5/5-6/8, Munsell chart 7.5 YR (Table 1).

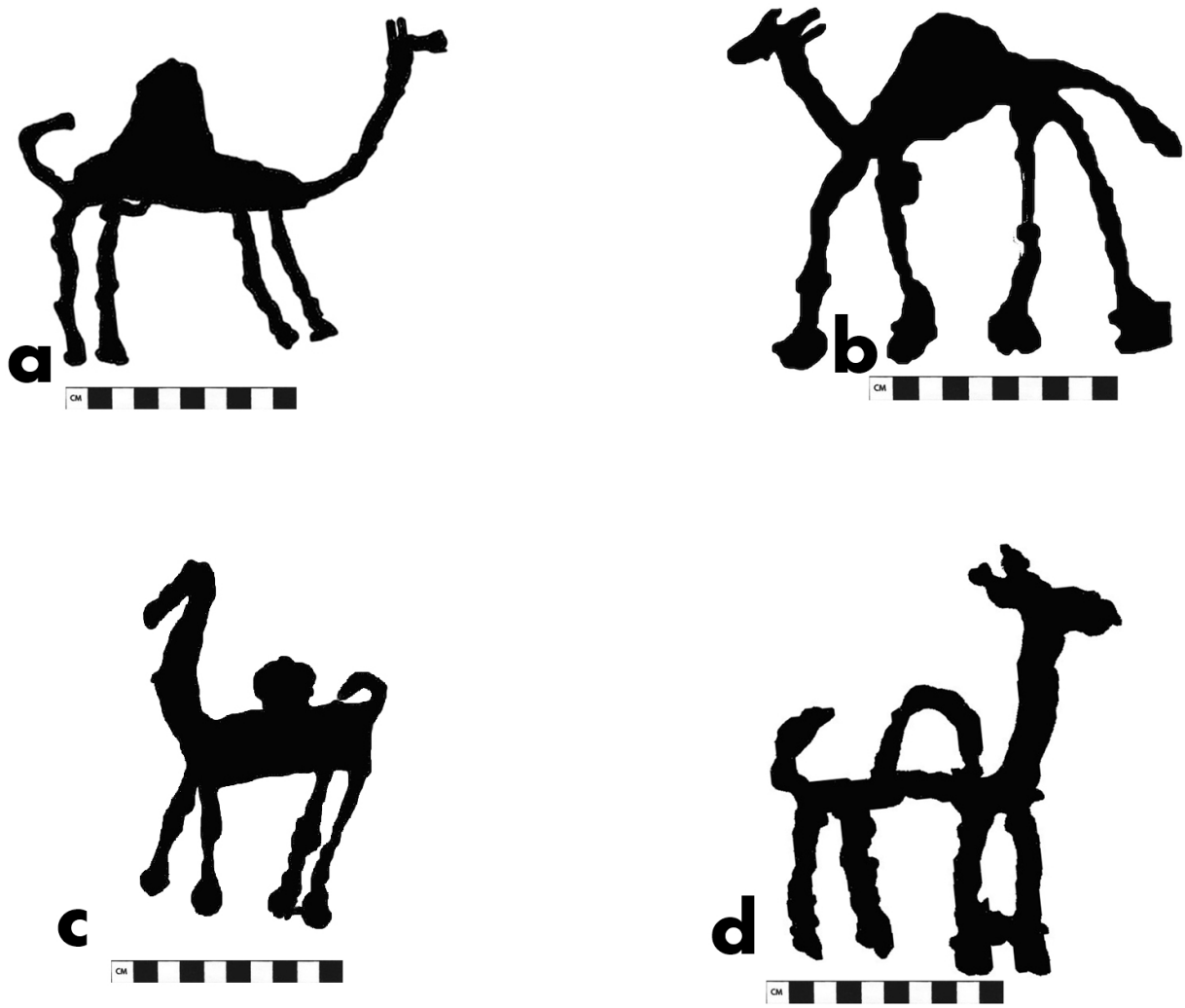

Figure 13. Style III.

Several camel petroglyphs present attention to anatomical details such as the form of the legs, body and ears which are engraved more often at this time. Compared to the Style I camel petroglyphs, Style III presents a higher percentage of animals with long, downturned and slack tails (37% in Style III versus 14.67% in Style I). Over 10% of the Style III camels have clear signs of domestication as they are depicted with a cameleer, reins, saddle and/or a rider. Indeed, the majority of camel petroglyphs with riders/saddles fall in Style III, though some are presented entirely unrelated to people.

Style III camel petroglyphs have a slightly lighter color of the reformed patina than the Style II engravings (Table 1). They are at times associated with Arabic inscriptions which date some of the petroglyphs, especially the small humped camels, to the Early Islamic period (7th – 10th centuries AD).

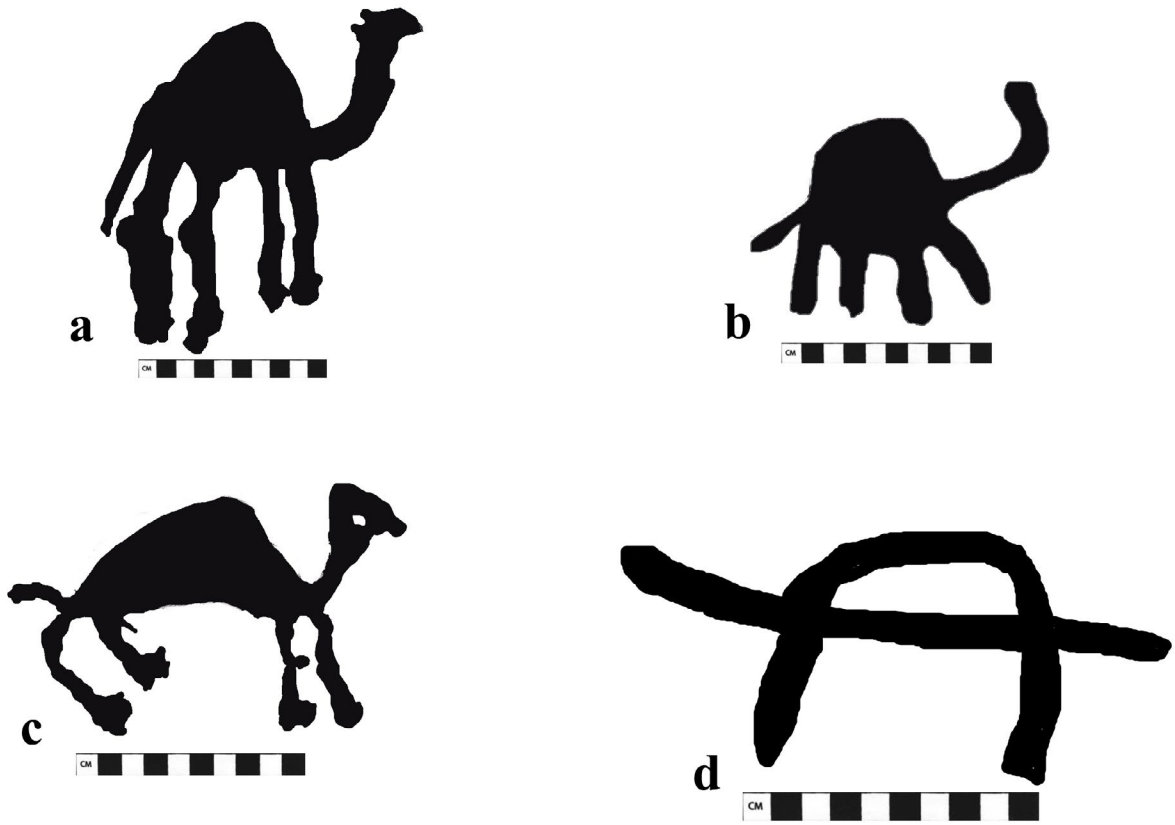

Figure 14. Style IV.

4.4 Style IV (N=24 elements, 9.02% of all camel depictions)

Style IV is not as consistent as Styles I-III. Attribution of petroglyphs to Style IV is first and foremost based on the very light color of the reformed patina, indicating their recent date.

5. Discussion

Camel petroglyphs may be read on several levels. We should keep in mind that each and every individual experiences a unique encounter with this rock art. One that is affected by our cultural upbringing but also by the person's mood at that given moment, the time of day and the visibility of the petroglyph. Even if two individuals view rock art together, the image may resound for each one differently. Likewise the same image offers different meanings to the same person when viewed on different occasions. How therefore can we hope to understand the camel petroglyphs as their makers did, or as their contemporary audience did? For the 21st century audience, the most meaningful interpretation of the camel petroglyphs is one that retells the history of the land and its peoples. Consequently, we may look at the depiction of the camels' form, place it within a style and then infer its chronological and cultural affinity on which interpretation may be based.

To begin with, camel petroglyphs may be interpreted as representations of daily life, with the image acting as an extension of the animal's economic utility within ancient nomadic societies. Thus, the changing styles reflect shifts

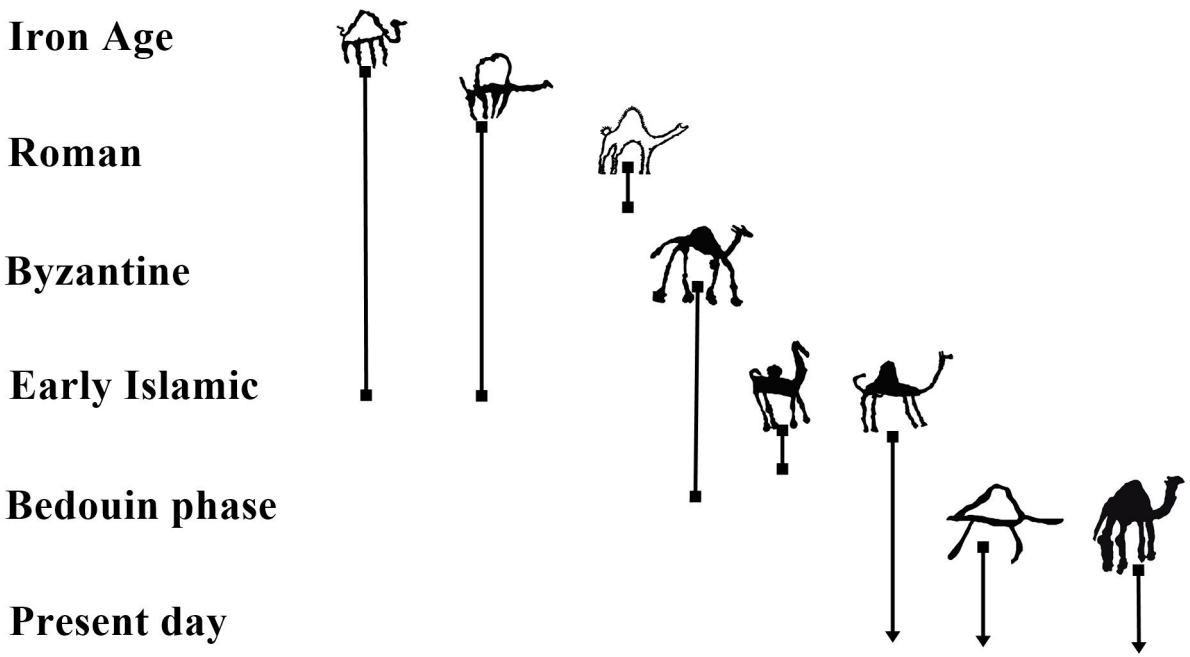

Figure 15. Chronological development of camel petroglyphs.

in the economy, the introduction of a new camel breed and the movement of people into, and/or, passing through the Negev.

Although this purely economic explanation is tempting given the realistic representation of camel trains, riders with spears etc., it is most likely that the camel petrogylphs are also aniconic and represent the symbolic world of past desert societies. Thus, the changing styles reflect shifts in the economy, the introduction of a new camel breed and the movement of people into, and/or, passing through the Negev.

Although this purely economic explanation is tempting given the realistic representation of camel trains, riders with spears etc., it is most likely that the camel petrogylphs are also aniconic and represent the symbolic world of past desert societies. Thus, the camel may have acted like a totem and its depiction may have served as a symbol of a culture, embodying aspects of the societies ideological and value systems (e.g. KÖHLER-ROLLEFSON, 1993).

Indeed, the camel petroglyphs are imprinted with a culturally-formed consensus. CORBETT (2010: 124: 150), suggests that they held specific cultural and religious meanings and associations. Interpretations may then attempt to relay an emic meaning achieved through the study of Southern Levantine and Arabian mythology and iconography. Examples of these different interpretations of the Negev camel petroglyphs are presented below, and are considered as complementary rather than exclusive.

5.1 Gods, Devotees and Offerings

The Hellenistic Syrian god Arsu, god of the caravans was regularly portrayed as a heroic armed figure mounted on a female camel. Thus, an engraving of an anthropomorph riding a camel

may portray Arsu. Some researchers suggest that even the image of the camel itself came to represent the power and presence of the god (ROSTOVTZEFF, 1932: 112), while as noted above, camels depicted with a saddle but no rider may reflect the absence of the god, symbolize an absent ruler or the absence of something else of symbolic value. Numerous terracotta, and occasionally bronze, camel (and horse) figurines, with or without riders, have been unearthed in Nabatean cities, houses, temples and tombs (TUTTLE, 2009). It is unclear whether the camel riders represent deities, heroes or gods. Some figurines bear inscriptions of offerings to Nabataean deities, setting the figurines within a votive context (EL- KHOURI, 2002:109). Through the offerings the devotee could ask the gods for protection and guidance in business and daily life (ROSENTHAL- HEGINBOTTOM, 2003). The figurines from the domestic realm "were probably placed in special places in the house, with the belief that the figurines would serve to protect and save the people" (EL-KHOURI, 2002:110). Terracotta camel figurines associated with tombs may have been believed to help transport the dead through to the afterlife (GLUECK, 1966: 242).

In pre-Islamic Northern and Central Arabia, the camel was regularly offered as a sacrifice to Arabian deities, local gods and in memory of the ancestors (HAYAJNEH, 2006). Female camels were also ritually sacrificed and buried at the graves of their masters, a ritual that continued into the Nabataean period (FARAJAT and NAWAFLEH, 2005: 392). Some suggest (EL-KHOURI, 2002) that the miniature clay camel figurines found in large numbers at Petra may represent substitute sacrificial offerings to Nabataean gods. In the same vein, the camel petroglyphs accompanying Thamudic dialects, Safaic and Nabataean texts may have acted as symbolic offerings (CORBETT, 2010:141-142).

5.2 Evolution of Style

The strength of the present research is the large sample size and limited geographic extent of the depictions studied. The camel petroglyphs discussed here come from rock art sites constrained within a 25 km (east-west) by 10 km (north- south) section of the Negev Highlands, and the patterns noted between sites accord completely. Notably, in this research we have managed to empirically tie the stylistic changes to a narrow range of different colors of the reformed patina, as well as associated inscriptions, and so define time-frames for each Style (Figure 16).

It is possible that the different Styles in the rock art depictions showing the different-sized and shaped humps, reflect camel breeds even if the other visual differences between modern camel breeds are not expressed in the rock art imagery. Today, aside from geographic and cultural affinities, camel breeds are discerned one from another based on their overall body size, color, length of hair, legs, ears and teats, as well as shape and placement of the hump (ABDALLAH and FAYE, 2012: 273-279). Three camel breeds have been identified in Saudi Arabia, two of which are of special interest to us here. The first group consists of sizeable camels with large, rounded or pointed humps set in the middle of the back, i.e. similar to those of Styles I and II. These camels are especially adapted to desert areas and are considered good, or even 'the best', milk producers. Thus, it is suggested here that the large humped camels of Styles I-II represent primarily a breed of milk camels. The Style I, large humped camels with a hump covering the majority of the animal's body, appear to have been a popular icon and were engraved roughly over the same time period throughout this geographic area, and perhaps beyond.

The second camel ecotype comprises relatively slight camels from the hill and beach region of Saudi Arabia. These camels have small-sized humps set on the hind part of the back and are 'multipurpose' animals (ABDALLAH and FAYE, 2012: 273-279). They resemble those depicted in Style III. The appearance of a small horseshoe-shaped humped camel, may then be tied to the Islamic conquest of the 7th century AD (GILL 1997). At this time, there was increased movement of Arab tribes into the region, although there is

some evidence for earlier movements of tribes into the Negev (KATSAP and SILVERMAN, 2016). In this period, people appear to have brought with them camels that were ridden, used as pack animals, as well as milked i.e. multipurpose camels. These camels may be considered as a different breed than the milk camels exploited in earlier periods in the Negev. Looking at the petroglyph data, roughly the same percentage of camels of Styles I-III are depicted as being ridden (see Table 1.), i.e. even though the large humped camels were initially a milk breed, they too were probably ridden sometimes. The subsequent Negev camel petroglyph styles, especially Styles III and IV, have unique attributes that clearly tie them to cameleers and so perhaps to camel trains and trade.

The Negev camel petroglyphs follow the same evolution as those from Elkab in the Eastern Desert of Egypt (HUYGE, 2002:195). Style III camels - that are with outlined humps, develop into smaller but fully pecked humps. The dates offered for these changes at Elkab are likewise in agreement with the Negev, placing this stylistic change in the Early Islamic period. However, the large humped camels of Style I seem to be missing from the Eastern Desert repertoire.

5.3 The Movement of People

The differences noted between Style I and II in the Negev camels are, as noted above, chronological. Style II highlights the extensive involvement in long distance movement of people and trade goods through the region. It is dated to the Roman period based on the association with ancient North Arabian inscriptions.

Style III is found throughout the entire survey area and attests to the full integration of the camel into the economy and subsistence of local desert communities. It can be related to the 7th century Islamic conquest and arrival of a new population in the region. The Style III camels are characterized by the appearance of a reduced, horseshoe-shaped camel hump, which may represent a new camel breed.

The third example of identifying the movement of people (or ideas, knowledge) through the Negev comes with the depiction of the Tuareg style saddle (discussed above).

In Style IV camel depictions are often associated with wusum which point to their recent date (ca. past 200 years). These petroglyphs may be tied to the latest migration of Bedouin into the Negev in the late 18th and 19th centuries (from arid regions of Arabia, Transjordan, Sinai and Egypt) in the wake of Napoleon's invasion of Egypt and Palestine in 1798-99 and subsequently during the rule of Muhammad Ali in Egypt (YAHEL *et al.*, 2012).

5.4 A Changing Economy

The main differences noted between Styles I – II and Style III are reflected in the form of the hump. We suggest that the large versus small humps represent two distinct camel breeds. Style I – II with large humps and up-turned tails represent female milk camels and so reflect a focus on camel herding for milk production. The large humped camels may also represent idealized representations of healthy camels and so are symbols of a strong and healthy human society.

The camels of Style III probably represent a new breed that was introduced into the Negev in the Early Islamic period. This was a multipurpose camel, which could be milked but was also used a beast of burden and for riding. The introduction of Style I and III camels both reflect important and pivotal moments, ones that had deep and meaningful impacts on the Negev's economy and subsequently, culture.

Firstly, the initial introduction of camels in the Iron Age II resulted in the expansion of the diet of the inhabitants of the Negev and other desert regions. Adding camels to herds of goats and sheep which were raised in the region, expanded the subsistence base of the people. In modern-day societies when camels are raised with caprines, aside from labour they

serve as the main milk producers but also as a meat provider (primarily culling of male camel calves and sacrifices). Camels are hardy (able to withstand changes in body temperature, water consumption and a range of food types) and so are able to endure harsh desert conditions, a fact that is especially essential for survival through drought years. Beyond meat and milk camels also provide skin and wool used for weaving (CHAND *et al.*, 2009).

Most importantly, the camels adaptation to transport heavy loads in hot and very arid environments, their use in agricultural labour and for riding and carrying goods - for both civilian and military purposes - revolutionized the manner in which people could exploit deserts. Camels enabled people to migrate for further distances and carry more baggage, such as a tent (ROSEN and SAIDEL, 2010). They also served as effective mounts and baggage carriers in military campaigns. Perhaps their most significant contribution to the region was that they facilitated the development of distant trade, so expanding the economy since a healthy pack camel can carry loads of one third to one half of their body weight over long distances (SCHWARTZ, 1986). Camel trains proved to be a cost-effective mode for transporting goods in the Near East and, as argued by BULLIET (1975), were probably responsible for the abandonment of wheeled carriages used for transport in the Roman Middle East. Thus, from the Iron Age onwards, the domestic camel enabled the development and expansion of the network known as the "incense route" (e.g. POTTS, 1988; MILLAR, 1998; JASMIN, 2005; HABAS, 2009).

According to pre-Arabic poetry, the nomad had a special relationship with the she-camel who took on the role of meditator in poems. As CORBETT (2010: 128) explains, "It was a natural being so important to daily human existence that it was ultimately culturally appropriated to help describe and mediate people's relationships with each other and the natural and supernatural worlds around them." The male camel with a broad, muscular frame, appears in the poetry almost exclusively as a beast of burden in relation to the clanswomen and their belongings as they abandoned a campsite and rode into the desert. The female camel is presented in the poems as loyal and trusty, bearing her master through the desert wastes. The female camel carried a symbolic burden reflecting the hardships, aspirations, and underlying purpose of the poet hero's journey. The female camel was a symbolic vehicle for mediating certain liminal episodes of the shared human experience, especially death and the sacred (CORBETT, 2010: 131). In the Negev we see a preference to depict female camels. The economic aspects are hinted at with the prevailing large humped, upturned tail in female camels and large teets as seen in Style I petroglyphs. But this gender specification seems related to the camel as a provider rather than a meditator. However, other features noted by CORBETT (2010) may be identified in the Style II camels, and these may be tied to a specific people and culture (also through their poetry highlighting the camel's role and underlying meaning and significance).

Notably, the introduction of the camel would have affected the social structure and organization of everyday life; a member of the household would accompany the camels to pasture, another would perhaps milk them, and a third would spin camel wool into thread for weaving. The ancient owners, as today, would probably have known each camel and when engraving its petroglyph, might have depicted a specific individual rather than a generic 'camel'. In conclusion, the camels depicted in Negev rock art serve as a key to the social, economic and symbolic world of past communities that inhabited this region.

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Revista ArkeoGazte Aldizkaria
Nº11, pp. 243-270, year 2021
Received: 03-03-2019; Reviewed: 09-08-2019; Accepted: 06-08-2021
ISSN: 2174-856X

POST-PALEOLITHIC ZOOMORPHIC IMAGES IN GOBUSTAN ROCK ART

Irudi zoomorfoak Gobustango Paleolito osteko labar-artean

Las representaciones zoomorfas post-paleolíticas en el arte rupestre de Gobustán

Sevinc Shirinli (*, **)
Rəhman Abdullayev (**,***)

Abstract

This article considers the zoomorphic images in the rock art of Gobustan, located in the east of the Caucasus, on the west coast of the Caspian Sea in Azerbaijan. The zoomorphic images form an important component of Gobustan's rock art. The results of previous related research are reviewed, including generalised, chronological, interpretative and stylistic approaches. Palaeontological data and faunal assemblages found during excavations in Gobustan have been used to assist in the identification of zoomorphic images. Stylistic characteristics overlap, and the results of archaeological excavations, stratigraphic relationships and analogical comparisons with rock carvings of the same period are considered in classifying the images. Zoomorphic rock art images played an important role in the cultures of ancient populations, reflecting habitats, hunting and pastoral agricultural practices and daily lives. From the Upper Paleolithic to the Neolithic, aurochs played an essential role in the belief systems of the inhabitants of Gobustan. From the Bronze Age onwards, goats were the principal animal depicted. Traces of ancient beliefs persist, and are found in the living culture and intangible heritage practices of local people today.

Key words

Gobustan; Petroglyph; Zoomorphic; Ritual; Religion; Mountain; Cult.

Laburpena

Artikulu honek Gobustango labar-artean dauden irudi zoomorfoen inguruko hausnarketa eskaintzen du, zehazki ekialdeko Kaukason kokatua dagoena, Kaspiar itsasoko mendebaldeko kostan, Azerbaijanen. Irudi zoomorfoak, hain zuzen ere, Gobustango labar-artearen osagai garrantzitsua dira. Lan honetan, aurreko ikerketen emaitzak berrikusten dira, hurbilketa orokorrak, kronologikoak, interpretaziozkoak eta estilistikoak barne. Gobustango indusketetan bildutako datu paleontologikoak eta fauna-aztarnak animalien irudiak identifikatzeko erabili dira. Ezaugarri estilistikoak eta indusketa arkeologikoen emaitzak kontuan hartu dira irudiak sailkatzeko, baita antzeko garaietako grabatuekiko erlazio estratigrafikoak eta analogiak ere. Labar-arteko irudi zoomorfoek zeregin garrantzitsua izan dute iraganeko gizarteen kulturetan, habitatak, ehiza- edo

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nekazaritza-jarduerak eta eguneroko bizitza islatuz. Goi Paleolitotik Neolitoraino, uroek posizio nabarmena izan dute Gobustango biztanleen kultura-sistemetan. Brontze Arotik, ahuntzak izan dira gehien irudikatutako animaliak. Antzinako sinesmenen aztarnek bere horretan diraute eta, hala, gaur egungo herri lokaletako ohituretan eta ondare immaterialean aurki daitezke.

Hitz-gakoak

Gobustan; Petroglifoak; Zoomorfo; Erritual; Erlijio; Mendia; Gurtza.

Resumen

Este artículo reflexiona sobre las figuras zoomorfas en el arte rupestre de Gobustán, en el Cáucaso oriental, en la costa occidental del mar Caspio, en Azerbaiyán. Las figuras zoomorfas constituyen un componente importante del arte rupestre de Gobustán. Los resultados de las investigaciones anteriores son revisados, incluyendo acercamientos generales, cronológicos, interpretativos y estilísticos. Los datos paleontológicos y los restos faunísticos descubiertos en las excavaciones en Gobustán han sido utilizados en la identificación de las figuras animales. Las características estilísticas y los resultados de las excavaciones arqueológicas, así como las relaciones estratigráficas y las analogías con grabados de periodos similares, se han tenido en cuenta para la clasificación de las figuras. Las imágenes zoomorfas en el arte rupestre han tenido un rol importante en las culturas de las poblaciones pasadas, reflejando hábitats, prácticas de caza o agrícolas y la vida cotidiana. Desde el Paleolítico superior hasta el Neolítico, los uros han mantenido una posición importante en los sistemas culturales de los habitantes de Gobustán. Desde la Edad del Bronce, las cabras han sido los animales mayormente representados. Las trazas de antiguos credos persisten y pueden encontrarse en las culturas y en el patrimonio inmaterial que constituyen los hábitos de las poblaciones locales actuales.

Palabras Clave

Gobustán; Petroglifos; Zoomorfo; Ritual; Religión; Montaña; Culto

Revista ArkeoGazte Aldizkaria
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1. Introduction and early studies

The Gobustan rock carvings are located in a dramatic mountainous landscape 60 km south of Baku, the capital of Azerbaijan. On September 9th, 1966, the area of the ancient Gobustan rock carvings and sites, Boyukdash, Kichikdash, and Jingirdagh-Yazilitepe, was proclaimed a State Historical-Artistic Reserve. The Reserve currently includes the Boyukdash, Kichikdash, Jingirdagh, Shongardagh and Shikhgaya Mountains (total area of 4535 hectares) with their collections of rock carvings (Figure 1). A further assemblage of petroglyphs was found in 1989 on Shikhov Beach in the southern part of Baku beyond the boundaries of the Gobustan Reserve. The rock shelter and petroglyphs of Dashlidag, found in 2002 and located to the north of these monuments, also form part of the Gobustan rock art complex (MUSEIBLI and HESENOV, 2004: 85).

In 2007, the Gobustan Rock Art Cultural Landscape was inscribed on UNESCO's World Heritage List at the 31st session of the World Heritage Committee.

The first academic researcher of the Gobustan rock carvings was the eminent archaeologist Ishag Jafarzade. Although the archaeological expedition took place in 1939, substantial research began after the Second World War. From 1947 to 1965, more than 3,500 carvings on 750 stone panels and individual fallen rock fragments were recorded, along with assemblages of cultural material such as struck stone tools and animal bone, under the guidance of Jafarzade (RUSTAMOV and MURADOVA, 2008: 5).

From 1965 onwards, archaeologists Jafargulu Rustamov and Firuza Muradova investigated Gobustan in detail. Their expedition identified, excavated and recorded 16 rock shelters, two Mesolithic graves, four Bronze Age settlements and over 40 kurgan burials. Under the leadership of Rustamov, approximately 400 further stones and rocks bearing rock art were identified in Gobustan. To date, over 6000 individual rock carvings have been identified on more than 1000 rocks (RUSTAMOV and MURADOVA, 2008: 4).

2. Techniques

Techniques such as carving, chiseling, scraping, scratching as well as painting were utilized (stones No. 24a and No. 181 on the

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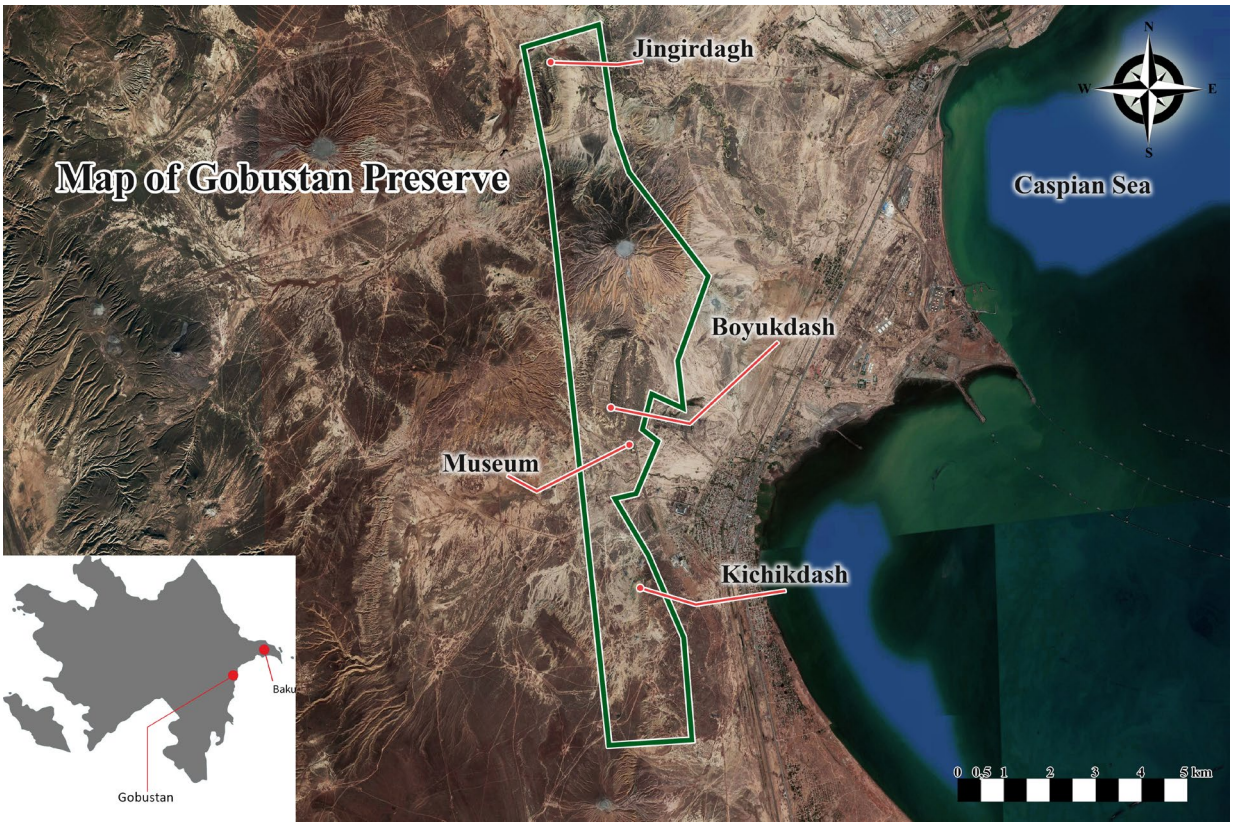

Figure 1. Map of Gobustan Preserve (photo extract from google satellite).

upper terrace of Boyukdash Mountain, stone No. 11 in the Gayaalti assemblage from Kichikdash Mountain).

However, as ocher residues have been found during excavations and pigment traces remain on some of the images, archeologists consider that some of the images may have been painted. The small number of surviving colored images is explained by the effects of natural weathering processes (precipitation, wind), as well as the soft composition of the limestone substrate (RUSTAMOV, 2006: 30-31).

Zoomorphic figures were mainly portrayed adopting strategic contour line, used as a form of enhancement. In some cases, it is possible to notice how the rock features were used to represent parts of the animal body, to frame or to give a three-dimensional effect to the figures (SIGARI, SHIRINLI, ABDULLAYEV, 2019:3-4).

3. Chronology

The current chronological framework of the Gobustan rock carvings proposes that they begin at the end of the Upper Palaeolithic period and continue until the Middle Ages. The oldest carvings belong to c. 20,000 to 16,000 Before Present (BP) (RUSTAMOV and MURADOVA, 2008a: 182).

The first researcher of the monument, Jafarzade, divided the rock carvings into six chronological phases. According to this classification:

- Stage I: The silhouette images of men and women in profile and in full-face in the first phase attributed to the 8th millennium BC (JAFARZADE, 1999:11).

- Stage II: Images of human silhouettes were followed by accurate and highly artistic life-size images of aurochs. Jafarzade attributed images of boats with the sun sign in its front and relatively smaller human silhouettes images with arrows to this period. He dated them to the late Neolithic, the 7th to 4th millennia BC (JAFARZADE, 1999: 11).

- Stage III: Jafarzade attributed large images of deer to the later Eneolithic/Chalcolthic Period, the 4th to 3rd millennia BC. The main images attributed to this stage include images of bezoar goats and two large lions following each other (JAFARZADE, 1999: 12).

- Stage IV: This phase covers the Bronze Age (3rd to 2nd millennia BC), including the images of gazelle, horses, pigs, dogs and other predatory animals, and hunting scenes. Linear images began to replace human silhouettes. Although realistic elements were maintained, their sizes kept becoming smaller (JAFARZADE, 1999: 13).

- Stage V: During the Iron Age (2nd to 1st millennium BC), magical elements began to disappear. The majority of the images, especially the small images of goat, deer, and people, have similarities with images recorded from the Absheron Peninsula, on the Caspian coast east of Baku. There is a Roman inscription at the foot of Boyukdash Mountain.

- Stage VI: The final stage comprises early medieval rock art, dating to the 8th to 9th centuries AD onwards. This includes images of caravans and horse riders armed with spears, and Arabic and Farsi inscriptions (JAFARZADE, 1999: 5-6). 587 of the 985 images in the catalog are animal images.

While classifying the images, Jafarzade also paid attention to their size and considered that the largest images, life-size depictions close to the natural scale of their subjects, were the oldest images.

The results of the archaeological excavations conducted in Gobustan from 1965 onwards have clarified the dating and sequences of some images, enabling them to be attributed to the earlier phases. 103 rock slabs with petroglyphs and hundreds of stones bearing images have been recovered from cultural horizons. The archaeological excavations of rock shelters and occupation sites at Ana Zagha, Kenize, Ovchular Zaghasi, Okuzler-1, Okuzler-2, Firuz, Firuz-2, Maral, Jeyranlar, Gayaarasi-1, Gayaarasi-2 sites have a crucial role to play in determining the chronology of the rock carvings (RUSTAMOV, 2006:44-45).

Taking into consideration the style and stylistic features of the images, along with the archaeological materials, Rustamov notes that "The oldest animal images are very proportional and symmetric" (RUSTAMOV, 2003:27).

In terms of chronology, Alexander Alexandrovich Formozov divided Gobustan's rock carvings into several layers. He considered that the images of layer I were created before the formation of the cultural layers in Ana Zagha cave. Formozov took the size of the images into consideration in determining their date and deemed that the larger rock carvings are the oldest. Formozov noted the similarities between large aurochs images on stone No.29 and the images of phase I, but did not attribute them to this phase. Generally, he proposed that phase I focused on humans and did not involve zoomorphic images. Formozov attributed 0.8-1m aurochs images to the phase II (FORMOZOV, 1969).

The next researcher of Gobustan rock carvings, Malahat Farajova, proposed the following chronological phases for the rock art images in her book, "Azərbaycan qayaüstü incəsənəti (Azerbaijan rock art)":

Phase I. The oldest early phase is the late Pleistocene and early Holocene period (Aurochs period). This period consists of four stylistic (style) groups:

I style. Images of aurochs heads on various stones at the camp-site of Gayaarasi in Kichikdash Mountain, Okuzler-2, Kenize, on the No.33 stones and also a probable female sign on the upper terrace of Shongar and Boyukdash Mountain.

II style. Aurochs images at full-scale and bas-relief human images (Boyukdash Mountain, upper terrace, panel No. 65, 29 stones).

III style. Aurochs images with short legs and big bodies (Boyukdash Mountain, upper terrace, claviform signs on panel No. 65, 29 stones).

IV style.

1) Bas-relief images of hunters with bows and arrows;

2) Images on various stones found during the excavation of cultural horizons at the Okuzler-2 shelter on the upper terrace of Boyukdash Mountain, Kenize, Gayaarasi in Kichikdash and Shongar Mountain (FARAJOVA, 2009:63-64).

- Phase II. Period of wild horse and aurochs. Hunting scene of aurochs and kulans (Boyukdash Mountain, upper terrace, stone No. 45). In this period, realistic images of domesticated aurochs appear (Boyukdash Mountain, upper terrace, stone No. 45) (FARAJOVA, 2009:64).

- Phase III. Period of deer. Images of deer and mountain goats at life-size scale along with images of wild boars and domesticated animals

Figure 2. Bovid with schematic zoomorphic images on rock No.7 in Boyukdash mountain (Photo by R. Abdullayev).

(Jingirdagh-Yazilitepe, stones No. 4, 9, 92, 33 and 54; Boyukdash Mountain, upper terrace stone No.46, lower terrace stone No.10) (FARAJOVA, 2009:64).

• Phase IV. Period of goats. Deer images in Kichikdash Mountain and goat images in Jingirdagh Mountain (Jingirdagh stones No. 13, 33, 36, 63 and 54; Boyukdash Mountain, upper terrace stone No.42, southern aspect) (FARAJOVA, 2009:64).

• Phase V. Period of camels. Schematic images of dromedaries and lions, scenes of hunting and riders. (Boyukdash Mountain, upper terrace stones No. 90 and 103, lower terrace stone No. 155; Kichikdash Mountain stone No. 37; Yazilitepe Nos. 24, 42, 38 and 40) (FARAJOVA, 2009:64)

Emmanuel Anati (Anati, 2001) classified the zoomorphic images of the early period in 3 groups:

• Phase IIA includes large animal images depicted in the oldest naturalist style. Some of them have similarities with Upper Paleolithic images in the Foz Côa (Portugal) and Siege Verde (Spain).

• Phase IIB includes large- and medium-sized stylized animal images. These images have similarities with those of the latest the Upper Paleolithic period or Epi-Paleolithic period. It is possible to draw analogies with in images in Siberia, Central Asia and the Arabian Peninsula.

• Phase IIC includes smaller and thinner animal images. Unlike the other two phases, the lines of these images are not very deeply incised and seem fresher.

Based on their condition, Anati considers that these date to different periods (ANATI, 2001:60).

• Phase IIIA iincludes large, approximately life-size images, while Phase IIIB has smaller animal images (ANATI, 2001:68).

• Phase IVA comprises images of domesticated goats. Anati considers that the images of Phase IVB have similarities with the human and animal images on ceramics in the north of the Black Sea. The last IVC phase contains hunting scenes which Anati perceives to have similarities with Scythian art (ANATI, 2001:74-79).

• Phase V is represented by a horizon of small-sized images; sometimes small-size animal images cut off other, earlier images

• The final phase, Phase VI includes horse-mounted warriors and stylized animal images (Anati, 2001:79).

4. Animals in Rock art

Zoomorphic images are an important part of the assemblage of Gobustan rock art. These carvings provide important information about the animal species that once lived in the area, the ecosystem of the region, and the outlook of their creators.

Zoomorphic images can be found in the rock art of all societies. Animals were food, but also posed a great threat to hunters and gatherers. They were a potentially deadly danger. Animals played an important role in the day-to-day life of pastoral societies. At the same time, animals have an prominent place in the mythology of all cultures. It is therefore not surprising that zoomorphic images dominate in rock art.

The fauna of Gobustan is divided into two groups, which reflect ecology and paleoclimate. Group I includes animals (deer, boar) which lived in the tugai floodplain forest, foraging its trees, bushes and salt-resistant plants. Group II animals lived in open grasslands or desert areas and in the foothills, such as aurochs, camels, kulans, mouflon or arkalı and gazelles (FARAJOVA, 2009:16).

Each period has characteristic animal images. Although some animal images are depicted throughout several phases, others are restricted to just one period. The images include

Figure 3. Aurochs hunting scene on rock No.45 in Boyukdash mountain (Photo by R. Abdullayev).

Figure 4. Bovid and equid petroglyphs on Rock No.31 in Boyukdash mountain (Photo by K. Abbasov).

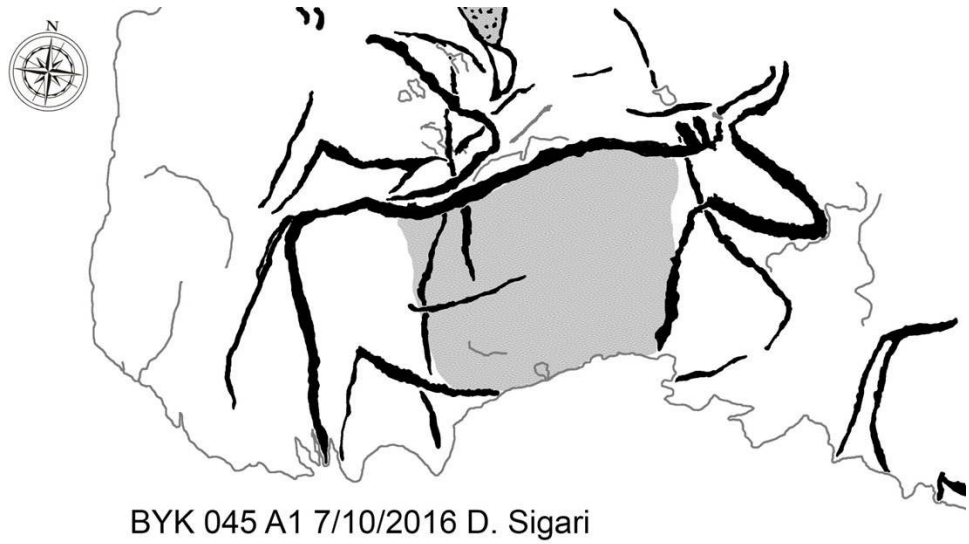

Figure 5. Tracing of northern surface of rock No.45 in Boyukdash mountain (tracing by D. Sigari. Kindly licensed by D. Sigari).

both herds of animals and single creatures. Some include of other animal species and anthropomorphic images.

Generally, Gobustan's zoomorphic images can be classified as follows: bovidae, capridae, cervidae, equidae, suidae, feline, camelidae, canidae, fish, unidentified.

Bovide-aurochs

(*Bos primigenius Boj*) are still considered one of the oldest zoomorphic images. These images have been recorded on individual rock fragments and on the walls of ancient rock shelters in the hillsides of Boyukdash, Kicikdash and Shongardagh Mountains (Figure 2).

Aurochs images are of various sizes in profile, with contour lines. The oldest images are large, close to the original life-size of the aurochs. However, few aurochs' bones have been recorded in the faunal assemblages recovered from excavations of the rock shelters. A scene showing the hunting of an aurochs with a bow and arrow was recorded on only one panel (Boyukdash Mountain, upper terrace, north face of stone No. 45; Figure 3) (RUSTAMOV, 2006:48). Aurochs are depicted standing still and alone; grazing (or drinking water); standing face-to-face in fighting positions; in a herd sequence, one following another; trapped; and in a yoke (RUSTAMOV, 2006: 28).

Mostly, aurochs images feature in the same compositions as horses, such as stones No. 31, 36, 42, 45 and 49 on the upper terrace of Boyukdash Mountain (Figure 4) (ANATI, 2001: 56). Aurochs were shown face-to-face in two scenes. Their forward-oriented horns are similar those of aurochs recovered from the Binagadi bituminous deposits, north of Baku (VERESHAGIN, 1981: 54).

The majority of bull images are images of aurochs. On the northern surface of the stone No. 45 only one auroch image was recorded as a domesticated bull by Jafarzadeh as it was carved with rope around its neck (JAFARZADE, 1999:164). However, recent research indicates that the element interpreted as a rope around the aurochs' neck forms part of another image and is a superimposition (Figure 5).

Figure 6. A big bovid with female and anthropomorphic on rock No.1 in Shongardagh mountain (Photo by R. Abdullayev).

Images of solitary aurochs heads shown in profile were recorded both on rocks and on the stratified rock fragments recorded during excavations. At the Gayaarasi rock shelter, a cultural layer contained both flint knives characteristic of the Upper Paleolithic period and separate stone fragments bearing images of aurochs heads. Aurochs head images are also found on the walls of the ancient sites of Okuzler, Okuzler-2, Kenize and Shongar (RUSTAMOV, 1990: 102).

A similar situation was recorded in the Shongar camp. According to archaeologists, the three-time repetition of the head of the bull on the stones standing side by side and leaning against each other wasn't purposeful. Although the images on these stones, which form the walls of the camp, date back to the Neolithic period, to which the camp belongs, the existence of Upper Paleolithic and Early Mesolithic carvings makes the temporarily utilization of the camp at an earlier stage possible. (RUSTAMOV and MURADOVA, 2003: 15) (Figure 6).

There are images of aurochs on stones No. 9 and 12 near the "Chardag zagha" Bronze Age shelter on the upper terrace of Boyukdash Mountain. These are different in size and style from the Upper Paleolithic and early Mesolithic aurochs images in Gobustan. Similar images of aurochs were found on a small stone at the No. 3 kurgan at the foot of Boyukdash Mountain (Figure 7).

Equidae

(*Equus caballus*). The discovery of horse bones from settlements and burials in the Caucasus shows that this animals were of utmost importance in farming, nutrition, transport

Figure 7. Bronze Age bovid petroglyph on rock No.12 in Boyukdash mountain (Photo by R. Abdullayev).

and ritual activities. Osteological remains from excavations allow us to say that horse breeding had evolved since ancient times in Azerbaijan Pleistocene period horse bones comprise 5.2% of the assemblage from the Binagadi tar pits (VERESHAGIN, 1959: 328).

The bones of wild horse have been found in excavations of settlements at Gobustan. The savannah-type habitat of Gobustan during the Stone Age would have provided extensive foraging (MURADOVA, 2011: 92).

The lack of comparative paleontological material and securely-dated osteoarcheological remains makes it difficult to determine the species of horse shown in the images and toestablish their exact chronology. If we look at the comparative table (DEVLET and ČŽAN SO, 2014: 21) of recorded horse images in the Paleolithic monuments of Eurasia, we can see the similarities between them and the widespread horse images on the rocks of Gobustan.

The juxtaposition of horses with the images of aurochs can assist in clarifying the chronological sequence of the Gobustan rock carvings.

Despite being one of the principal species of animals that was hunted, the images of kulans

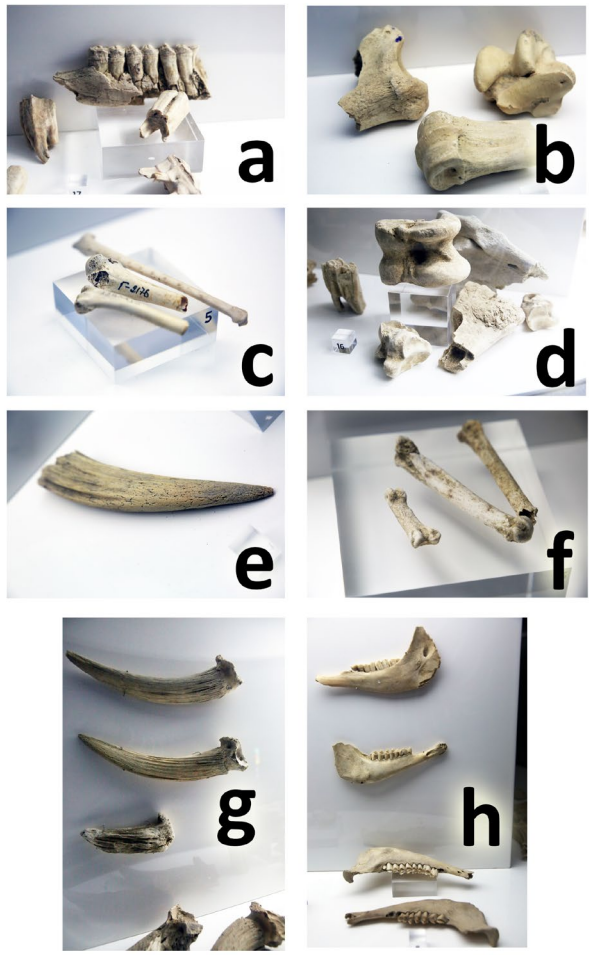

Figure 8. Animal bones find out during archaeological excavations in Gobustan. (A) *Equus hemionus*, (B) *Equus caballus*, (C) *Tetrax Tetrax*, (D) *Bos primigenius*, (E) *Capra aegagrus*, (F) *Vulpes Vulpes*, (G, H) *Gazella subgutturosa*.

(*Equus hemionus Pall.*) are very rare. Kulans comprise about 40% of the osteological material found in the Ana Zagha shelter (RUSTAMOV, 1994: 73) (Figure 8). The similarity between images of kulans and wild horses gives rise to a key source of controversy in the study of Gobustan's rock art. According to researchers, the main features that differentiate kulans from horses are the relative shortness of the necks and their stout bodies (RUSTAMOV, 2006: 34). Kulans (or horses) were found in three cases in the same composition with

a net-like geometric image (Boyukdash Mountain, upper terrace stones No. 33 and 45; lower terrace No. 9) (Figure 9). Jafarzade concluded that the geometric images show the nets used to hunt animals (JAFARZADE, 1999: 72).

From the Bronze Age onwards, the rock art depicts solitary riders and scenes with groups of mounted hunters. The bones of domesticated horse dating to the end of the Early Bronze Age (end of 3rd millennium BC) were recorded in the excavation of Boyukdash settlement. Excavations at Alikomektepe in Jelilabad region, about 150 km south of Gobustan found that 75% of the two types of domesticated horse bones dated to the Eneolithic period (RUSTAMOV and MURADOVA, 2008b: 178).

The Bronze Age images of horses are in a different style from earlier depictions, and share their characteristic body structure and dynamics with the deer images of the same period. This similarity creates the impression that they are images of deer without antlers. Sometimes riders are depicted atop these horses, but the manner in which they are shown is different from the horse images and it is supposed that they may have been added later (Figure 10).

Gazelle

(*Gazella subgutturosa*). There are no deer images near Stone Age sites and settlements in Gobustan, and no deer images were found during the excavations of Stone Age shelters.

Deer images are commonly found on rocks and stones bearing evidence of daily life dating to the Late Bronze Age, Antique period, and Early Middle Ages. Jafarzade attributed the oldest deer images to the 3rd millennium BC. Deer images in the composition of the hunting scene in the Jingirdagh-Yazilitepe area are belongs to

Figure 9. Petroglyphs of equids around net on rock No.45 in Boyukdash mountain (Photo by R. Abdullayev).

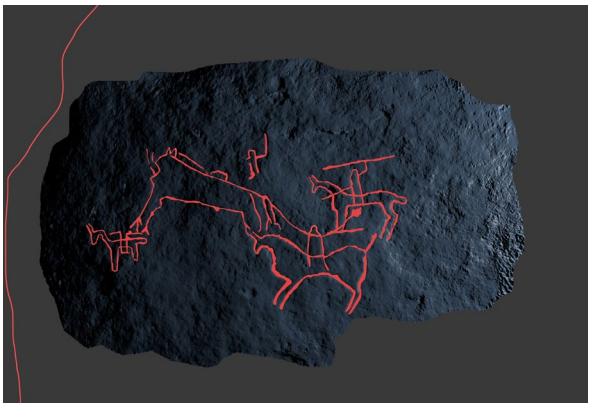

Figure 10. Fragment of hunting scene. Jingirdag-Yazi-litepe Rock No.41
(Tracing by R. Abdullayev and S. Shirinli.

Figure 11. Gazelle petroglyph on rock No.49 in Kichik-dash Mountain. Photo by R. Abdullayev).

2nd to 1st millennium BC (RUSTAMOV, 1994: 73-74). Besides deer images in rock art, deer were frequently depicted on ceramics and metal objects in the Bronze Age. Deer antlers are shown as being very large, forming a primary focus; their tines are very thin, and some have backward tails.

Deer images were widespread in the medieval period. A comb, a seal, and a wooden bucket dating to the Early Middle Ages decorated with deer images were discovered in the excavation of Mingechevir in central Azerbaijan (RZAEV, 1976: 136). These allow us to attribute some of Gobustan's rock carvings this period on stylistic grounds.

Deer images in Gobustan are divided two groups according to the techniques used: linear images and images with contours. Deer were recorded as single, isolated images, in groups or herds, and in hunting scenes.

Hunting scenes

- Hunting with bow and arrow - Stones No. 101 and 118 on the upper terrace of Boyukdash Mountain show people hunting deer on foot, using bows and arrows. These schematically static images date to the Middle Ages.

- Mounted hunters with spears - The deer hunting scenes of a horseman with a leaf-shaped spear are drawn on Jingirdagh stones No. 9, 38, 40, 100 and 134 and Boyukdash, upper terrace stone No. 103. Leaf-shaped spears were also found in Late Bronze Age kurgans No. 9 and 13 in the vicinity of Boyukdash Mountain (MURADOVA, 2011:79) (Figure 12).

- Mounted rider with a three-pronged (trident) spear - The deer hunting scene of a horseman with a three-pronged spear was shown on Jingirdagh stones No. 9 and 40. The deer's neck in the image on stone No. 41 was long, and its antlers were not depicted. A similar deer image was registered on Jingirdagh stone No. 40. There are deer images in a similar style on the Late Bronze Age ceramics from the Tovuzchay necropolis in Tovuz region, western Azerbaijan (MUSEIBLI and AXUNDOVA, 2014:11-27) (Figure 13).

- Deer hunting by wild animals - One of the two colored pictographs recorded on stone No. 24a on the upper terrace of Boyukdash Mountain is a hunting scene with a deer being hunted by a leopard. The theme and style of the image is reminiscent of the widespread "Scythian animal style" prevalent in the North Caucasus in the mid-first millennium BC.

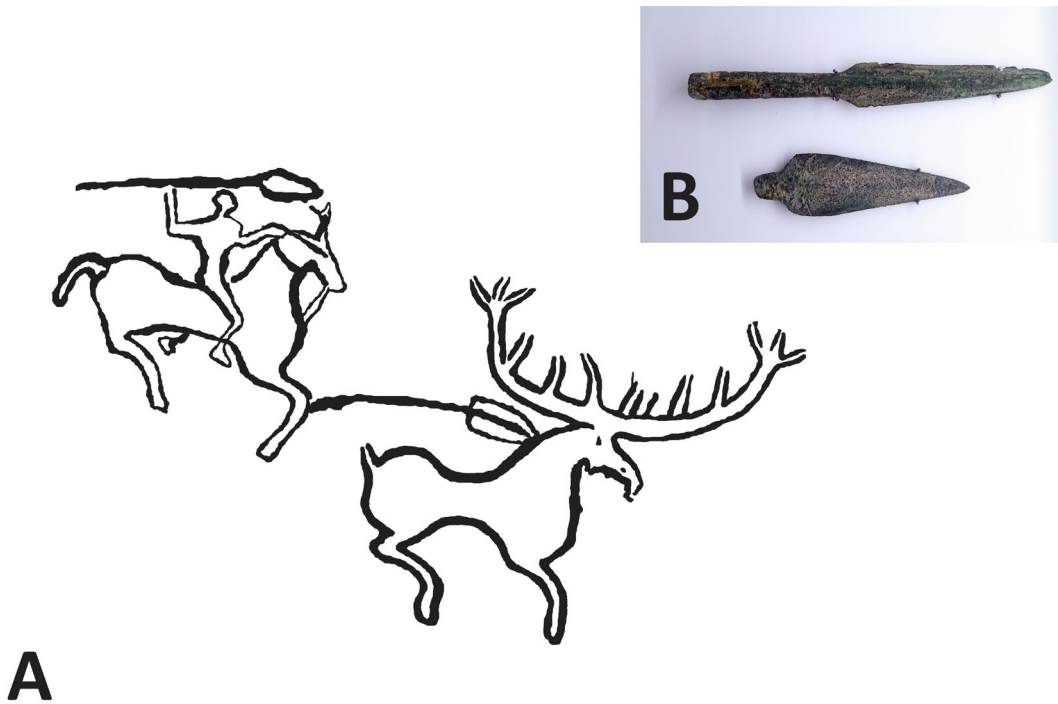

Figure 12. (A) Deer (or moose) hunting by cavalry with spear on rock No.9 in Jingirdagh, (B) Spearhead found from Kurgan number 3 in Gobustan (photo by R. Abdullayev).

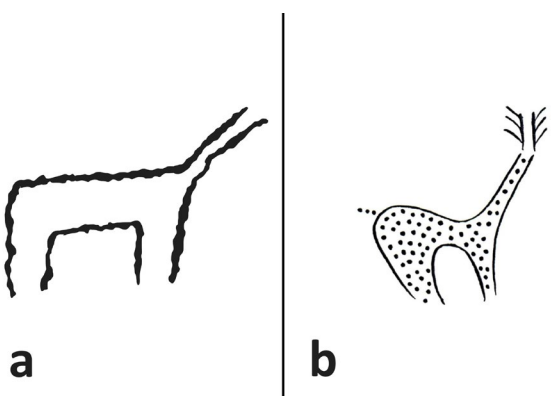

Figure 13. (A) Zoomorphic image on rock No.41 in Jingirdagh, (B) Deer image on ceramic vessel found in Tovuzchay necropolis (after Museibli 2008).

The scenes of predators hunting deer were also found on Jingirdagh stones No. 24 and 91. These hunting scenes both show two lions attacking a deer from the front and the rear, depicted in a realistic style (Figure 14). These scenes, which are repetitions of each other, can be attributed to the 2nd millennium BC based on the location of stone No. 24.

The deer image recorded on Jingirdagh stone No. 24 differs from others in its technique and more realistic style. There are only five similar silhouette deer images depicted by inside carving; two are recorded on stone No. 14, the other three are on stone No. 24 (Figure 15).

It is known that several deer images are cut off at the waistline. Among Gobustan rock carvings, a vertical line along the waist of the animal is more characteristic of goat images. Although Jafarzade relates this to hunting magic(JAFARZADE 1999: 13-14), Rustamov notes that these lines are not associated with rituals, as goats are domestic animals and unlike deer, are not hunted (RUSTAMOV 1994: 72).

One of the important features that their creators pay attention to in deer images

Figure 14. Two lions attacked to the deer on Rock No. 91 in Jingirdagh-Yazilitepe (photo by K. Abbasov).

Figure 15. Deer image on rock No. 24 in Jingirdagh (photo by R. Abdullayev).

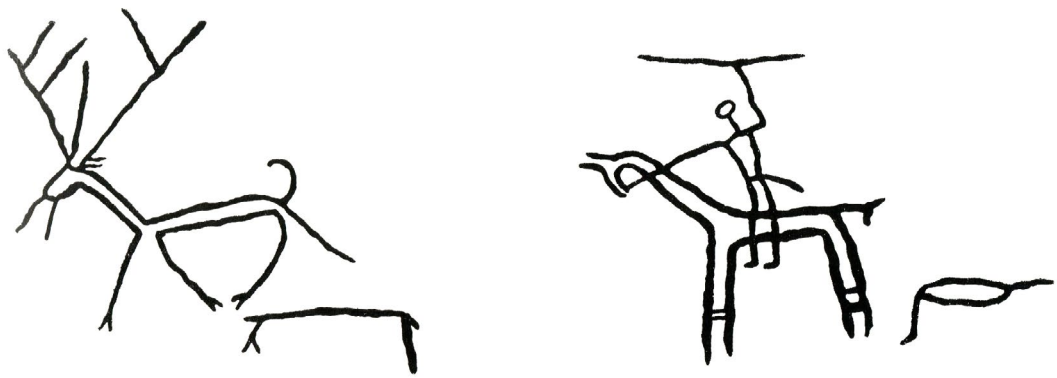

Figure 16. Tracing of deer hunting scene on rock No.103 (after I. Jafarzade, 1999).

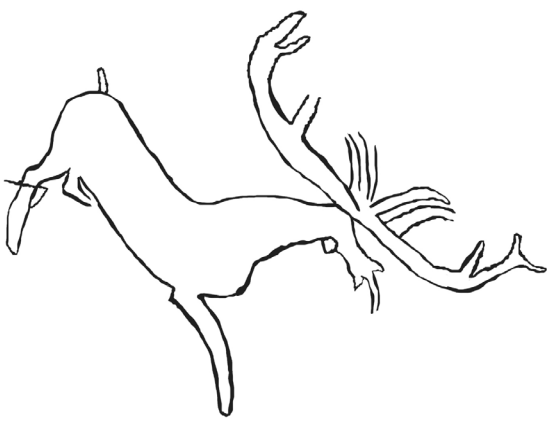

Figure 17. Huge moose image on Rock No. 4 in Jingirdagh (tracing by R. Abdullayev).

is the depiction of the antlers. There are some differences in the drawing of deer antlers through the different periods represented at Gobustan. These differences enable us to divide them into several stylistic variants.

The second feature in the drawing of deer images is the manner of drawing their bodies, which were created using either linear or contour techniques. Although some deer petroglyphs were accurately engraved with realistic body contours, some of them are highly simplified "П" shapes.

In the schematic deer images, the legs are only shown by a small, straight line. In many deer images, especially those of deer on the move, the twists on the back leg were accurately depicted, giving a flexibility and lightness to the images at first glance.

Their tails in the images are shown in a variety of ways: as a small protrusion; in the horizontal form as the continuation of the waist and back leg line; and bending towards the body or downwards.

There are certain differences in the portrayal of the neck and head parts of the deer petroglyphs. In the schematic deer images, the head is indicated as two small lines extending forward like protrusion. In some, the neckline extends as the continuation of waist and stomach line, followed by a small head. The horizontal line of the mouth was drawn in the head part in the majority of the images. In some images, the mouth is almost half opened, or two or three small lines lead out from the mouth. Jafarzade interpreted this as foam at the animal's mouth. It may also be the symbolic expression of the animal's calls – whinnying, grunting and clicking sounds (JAFARZADE, 1999: 88). The depiction of sound is known from rock art around the world including Central Asia and America. A long natural crack located in front of the mouth of a deer image on rock No. 103, on the upper terrace

of Boyukdash Mountain, may be the deliberate exploitation of the rock's natural formation to indicate the sound of the deer's call (Figure 16).

Some images previously registered as deer images in Gobustan are reminiscent of the Caucasian moose (Alces alces caucasicus). This is the largest member of the Cervidae family, with a particularly large body shape, head and antlers. Images on Jingirdagh stones no.4 and no.9 are the largest of the 'deer' images in the assemblage; these differ from other images of deer, with their hanging bell (or dewlap), dropping snout and large, boat-shaped antlers (Figure 17). Based on these characteristics and the paleontological evidence for the existence of moose in the Caucasus in the Bronze Age (VERESHAGIN,1959:347), these images could be interpreted as showing moose rather than deer.

The results of archaeological excavations show that during the Upper Palaeolithic period, the main species hunted at Gobustan was gazelle. During the Mesolithic period, it was gazelle and kulan. Although the bones of these animals dominate the osteological assemblage, there are few petroglyphs of these species. The bones of deer, which occupy a special place in the hunting compositions, have not been recorded in excavations. The earliest deer petroglyphs date back to Late Bronze Age and Antique period. Rustamov and Muradova argue that semi- desert environment which formed during last four millennia at Gobustan is not suitable for deer. Instead, deer petroglyphs may have been symbolic; deer may have been the totem animals of those who created the images (RUSTAMOV, 2006:48-50).

However, deer move to plains and meadows in spring and summer, leaving the forests to protect themselves against bloodsucking insects; the absence of bones may reflect this migration pattern (VERESHAGIN,1959: 339).

Rustamov and Muradova also note that the goat images in Gobustan are mostly domestic goats (RUSTAMOV, 1994: 72). The fact that the wild goat bones have not yet been identified in the excavated assemblages reinforces this idea. But the question is why the images of deer, which are not being butchered and eaten at Gobustan, are included in the hunting scenes. The deer being pursued by mounted riders are consistently shown running away from the hunters. These images may be an echo in stone of myths and legends that are now lost to us, perhaps reflecting the themes and symbols of stories, ritual practices related to hunting, or a ritual hunt. Symbolic deer hunting imagery was also found in Southern Siberian Scythian art of first part of the first millennium B.C (JACOBSON, 1983: 68) and Late Bronze Age Crete (HARRIS, 2014: 48). These images were depicted through time, across different periods. Perhaps these motifs remained relevant and were transmitted to the next generation, who in turn added their stories to the overall composition.

Camelids

A group of the interesting compositions dating to the medieval period contain images of single camels or camel caravans. Archaeological investigations demonstrate that the use of camels in Azerbaijan began in the Late Bronze Age to Early Iron Age.

Finding camel bones among excavated osteological assemblages is common; the natural and geographical conditions of Azerbaijan werefavorable for breeding and using camels. As in all geographical regions which breed camels, there were two types of camels in Azerbaijan: Camelus dromedarius and Camelus bactrianus (BUNYADOV and KHALILOV, 2007:290-293).

The rock carvings mostly show Camelus dromedarius. These are depicted with a single line in a schematic style. Camel images have been recorded on both terraces of Boyukdash Mountain, in the areas of Kichikdash Mountain and Shongardagh in Gobustan. In Gobustan's rock art, camels are depicted as individuals or in caravans. Although in some images, camel drivers are shown holding camels' ropes, in others a

Figure 18. Tracing of dromedary camel and tamgas on rock No.157 in Boyukdash (tracing by K.Abbasov, S.Shirinli).

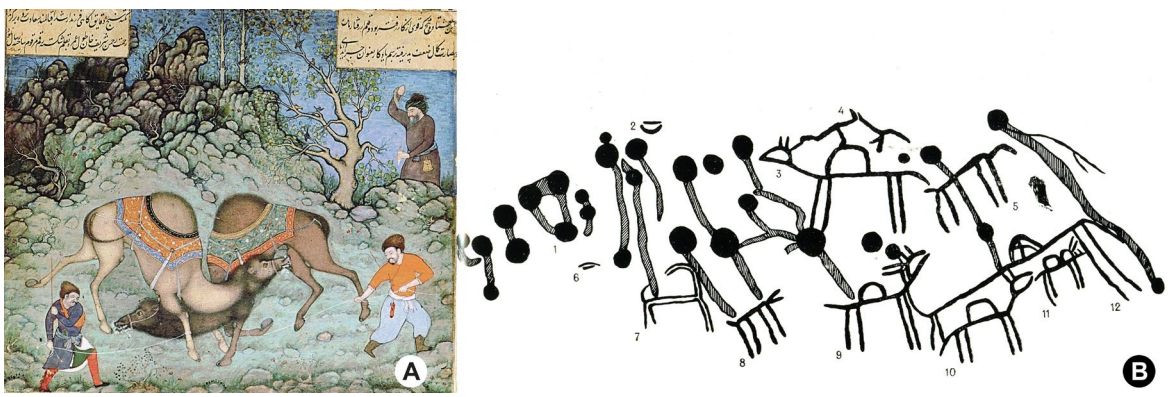

Figure 19. (A) Camel fighting. Fragment of miniature, 1590-1600. Artist Abd as-Samad Shirazi (Tabrizin sehirli nağılları, 2014), (B) Camels, goat and anthropic hollows with channel. (after I. Jafarzade, 1999).

single camel or caravans are depicted without a cameleer. Camel images were drawn with the technique of engraving and scratching, using metal and stone tools. Camel images are often included in the same composition together with humans, goats, tribal tamgas, and other symbols (Figure 18).

No equipment is shown in the camel images. Only one panel shows a human being sitting on a camel. The cameleers were schematically depicted in front of their caravans, sometimes holding a lasso or something else in their hands. Unlike other rock art centers where camel images are widespread, camel hunting and battle scenes with camels are not characteristic of Gobustan's rock art. They are overwhelmingly shown as beasts of burden.

Gobustan was located on the Silk Road in the Middle Ages. The image of the camel caravans on stone No.155, recorded near the

Figure 20. Dancing antropomorph and goat petroglyphs on rock No.54 in Boyukdash mountain (tracing by R. Abdullayev).

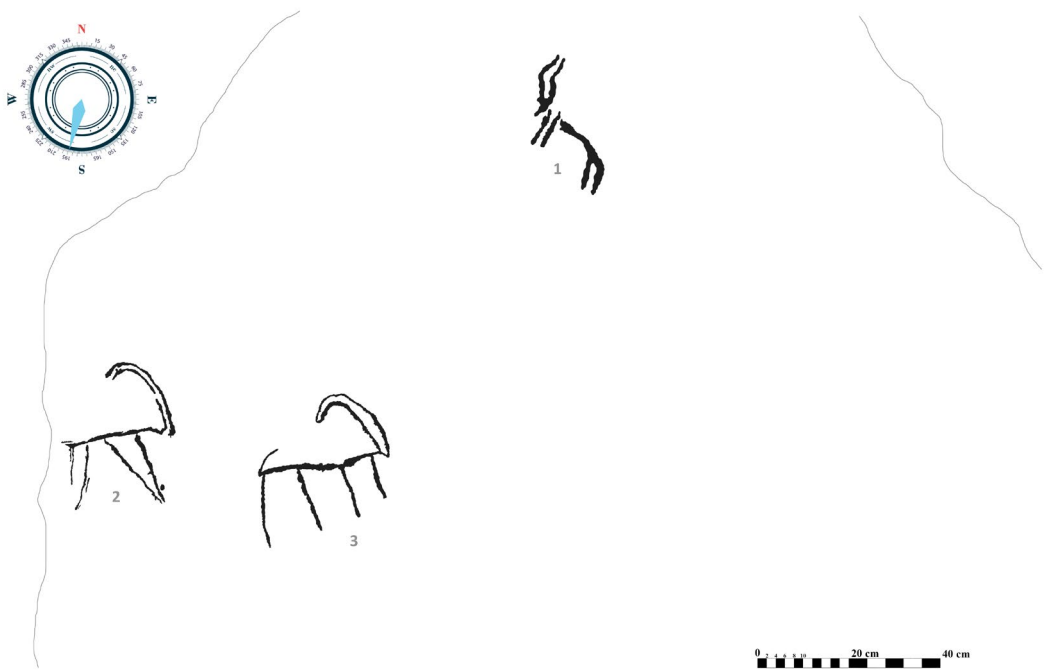

Figure 21. Tracing of goats on rock No.181 in Jingirdagh (tracing by K. Abbasov, S.Shirinli).

eastern slope of the Boyukdash Mountain by Jafarzade, attributed to the 13th to 15th century AD (JAFARZADE, 1999: 104-105). There are also camel images among the images recorded on large rock No. 307, on the southern slopes of the eastern foothills of Boyukdash Mountain.

Stone No. 307 bears an image of camels fighting using their necks. There is extensive information in written historical sources concerning camel wrestling. These competitions were not only for entertainment but also had symbolic meaning. Undertaken as part of New Year festivities, bull, horse, and camel wrestling aimed to predict the future. This image of two camels competing or wrestling, symbolizes the struggle of two opponents. An iconographic interpretation of the image understands this as meaning one's power over another and one's obedience to another (CHORUHLU, 2010: 146). These competitions are still organized in several areas of Turkey, where fights are held between two male camels called "Tulu", resulting from mating a male Bactrian camel with a female dromedary. Camel wrestling is also illustrated in medieval miniatures (SHIRINLI, 2015:265), for example the miniature "camel fights" of the painter Abd-al Samad Shirazi of the 16th century Tabriz school (HASANZADE, 2014:159) (Figure 19). From this point of view, having the same scene among the medieval camel images in Gobustan is interesting. There is a similar fight scene of camels among the images of Karatau in Kazakhstan (SAMAŠEV, 2006:185).

Caprids

(*Capra aegagrus*). These form the most numerous group of Gobustan's zoomorphic images. Starting from the Bronze Age, the goat and sheep population increased with the development of seasonal pastoralism. This, in turn, contributed their occupying a special place in the agricultural economy, on the farm and in people's worldview. This process gradually affects religious ideas and goats may even have become an object of worship. Goats are also the most frequently depicted animal species at other Azerbaijani petroglyph sites.

Goat images were recorded in all five mountain areas investigated at Gobustan. From a chronological perspective, they are present in almost all periods from the Early Bronze Age to the historical period. Goat images are rarely found on Stone Age monuments in Gobustan, but some are present.

Most of the goat petroglyphs shown in profile are depicted with two legs, but in some cases, the animal is depicted with all four legs. The style of these images varies from naturalism to schematism.

According to Muradova, goats were one of the earliest animals to be domesticated by humans. The Late Mesolithic layer in the Firuz-1 shelter covers some petroglyphs on the rock, which include goat images (MURADOVA, 2003: 48). This indicates that goat images have more ancient origins. Taking into account the wide representation of goats in European Stone Age images, it is possible that this tradition is also present in Gobustan.

The main motif of all of Gobustan's Bronze Age rock art panels is the goat. The style of the goat petroglyphs changes across different periods. These standards may have developed under the influence of the factors underlying the reason for the creation of rock art which became canonical over time. This process resulted in formation and continuation without incurring any significant changes between the different styles of rock art.

Goat images of Early Bronze Age differ according to the naturalist style. In goat images of this period, attention is primarily focused on emphasizing the large, arched horns. This key motif in the goat images may be related to the symbolic meaning of their horns in the Early Bronze Age. Several goat images are accompanied by anthropomorphic images. Although the numbers of goats shown in these scenes vary,

Figure 22. Goat figures on Rock No. 135 in Jingirdagh (photo by R. Abdullayev).

Figure 23. Goat figure with anthropic hollow on Rock No.113 in lower terrace of Boyukdash mountain (photo by R. Abdullayev).

anthropomorphic images mostly occur singly, with no more than one on any panel. These scenes of goats and anthropomorphic images relate to the spring equinox, and are related to the local variant of the Sumerian New Year's festival. Goats are key figures in the folk dance "Teke oyunu", which is still performed during the Nowruz (spring equinox) holiday. Some researchers suggest that complex scenes with goat and anthropomorphs are a visual representation of ancient rituals that survived from the Bronze Age to modern times in a form of folk dance (ABDULLAYEV, 2015:27) (Figure 20).

Starting from the Middle Bronze Age, body features of goat images were not emphasized in detail. Probably entire goat images had symbolic meaning. This is due to the gradual schematization of the Early Bronze Age naturalistic style, eventually leading to the depiction of goat images in linear style starting in the Late Bronze Age. The schematic linear style of the Late Bronze Age went on to dominate Gobustan's rock art in the Antique period and during the Middle Ages (Figure 21).

Starting in the medieval period, the short bodies of goats were depicted as a thin line. There are also many goats depicted with a large body. Their tails take the form of a small protrusion, directed upwards and are bent forwards. The miniature head was completed with an arch-shaped horn bent backwards. Sometimes the arched horns were the only means to distinguish these simply depicted goats from other species.

According to Rustamov, the Gobustan goats are mostly domestic goats and are mainly concentrated around sacred sites (RUSTAMOV, 1994: 72). Although a large number of clay figures of goats and other animals have been found in Bronze Age monuments across the Caucasus, animal figures have not yet been recovered from excavations at Gobustan. These figurines may have been supplanted by the images of the animals depicted on the stones and rocks. The images of the goats, which were brought to be sacrificed rather than to be worshipped, were drawn by experienced artists instead of this sacrifice. It is postulated that the majority of goat images in Gobustan are associated with ritual offerings (MURADOVA, 2011: 105).

There are also goat images on Stone No. 117, recorded as an Islamic arch by Jafarzade, on the lower terrace of Boyukdash Mountain. There is a hole to tether an animal to the base of the stone, a widespread practice in Gobustan. This may be a symbolic expression of the goats brought to be sacrificed on the stones. As mentioned above, the ritual significance of caprids is well known from other archaeological monuments. Animal heads were mounted on the walls of structures at the late Bronze Age-early Iron Age Saritepe settlement in Gazakh region. The clay heads of a horned ram and a sheep were discovered within the excavated sanctuary structure. The detailed study of the monument enabled the interpretation that those who visited this sanctuary brought sheep as an offering (NARIMANOV and KHALILOV, 1962: 35).

In Gobustan, Yazilitepe is one of the sites where goat images are found most frequently. Based on the religious inscription found in Yazilitepe and the remnants of the 13th to 15th century sacred place, Jafarzade showed that this place retained its importance as a place of worship and ritual activity into the Middle Ages (JAFARZADE, 1999: 14). More than 30 different sized goat images were depicted on a single rock here (Rock No. 135; Figure 22). This profusion of goat images is noted elsewhere in the rock art of Central Asia and Altai. Alexey Pavlovich Okladnikov wrote of the illustrated stones in the Altai area: "The stone where the goat images dominate is called "kechili dash" or "teke-tash". There are dozens of goat images in these stones." (OKLADNIKOV and OKLADNIKOVA, 1985: 4).

Goat images are often included in compositions. In some cases, they were surrounded by various medieval tribal tamgas. Goat images are often found near the anthropic hollows carved into recumbent, horizontal stones. These conical hollows were used as a container to store water and the blood of sacrificed animals (JAFARZADE, 2012: 534). There are similar

Figure 24. Two static lions on Rock No.42 in Jingirdagh (photo by R. Abdullayev).

hollows near an image of a goat on rock No. 113, on the lower terrace of Boyukdash Mountain. These conical containers seem to have been used during sacrificial rituals involving the shedding of blood; this festival was symbolically depicted on rock carvings (Figure 23).

Decorative goat images on medieval ceramics play an important role in determining the chronology of the rock art images. There are also goat images among the animal images on the 7th to 8th century group III jars from Orenkala, Beylagan District. Here, they were depicted standing behind one and other, face to face, on either side of the cross and tree image and replacing fish or bird images (AHMADOV, 1959: 78). Pottery masters continued traditions developed over centuries when creating these scenes. The significance of the goat images on ceramic materials are explained by their great importance among the population due to their milk, meat, and wool. It is said that for these reasons, goats are a symbol of abundance (LEVIATOV, 1945: 54-55). The high number of goat images can be explained by the fact that cattle breeding has long been the main source of income in Gobustan. In various religious rituals and mythological beliefs, it is mostly goats that are sacrificed. It is not unusual that the sacrifice of goats during festivals was related to the idea of productivity and abundance. We should note that even now, goats are highly appreciated by people in the Gobustan area; they are mainly sacrificed during the festival of Eid. It is no coincidence that one of the winter camps in the territory is called Kizil Kechi (Golden Goat)

Lions

(*Panthera leo*). More than twenty images of predators have been recorded among the Gobustan rock paintings. Lion images occupy a special place among them. According

Figure 25. Fragment of composition. Lion attacking a goat. rock No.59 in Jingirdagh (photo by R. Abdullayev).

to Jafarzade, these images belong to the 4th-3rd millennium BC (JAFARZADE, 1999:39). The Yazilitepe assemblage is particularly distinguished. Lions are shown while attacking in hunting scenes, or standing motionless (Nos. 7, 21, 24, 41, 42, 59, 63 and 91; Figure 24).

Scenes of two lions attacking deer were recorded on Jingirdagh stones No. 24 and 91. Scenes of lions hunting goats were recorded on stone No. 59. The lions attacking deer are shown as unmoving stalkers, but those hunting goats are more aggressive, open-mouthed and tense.

A goat is depicted in the mouth of one of the lions. The other lion is shown stretching its back legs and ready to leap forward. The tip of its long tail ends with a small circle indicating the tuft. Its ears, eyes, mouth, and gender are depicted. All of its claws are shown, with three or four large digits on each paw. There is another hunted goat in front of the lion (Figure 25).

The lion was depicted as an object of human hunting in the hunting scene on stone No. 41 (Figure 10). Three mounted horsemen armed with spears and hunters on foot attack the lion. The wide open mouth of the lion is depicted schematically. The lines leading out of the mouth can be interpreted as a graphic description of the sound of the lion's roar.

Lion petroglyphs which differ from other lions in their size were recorded on rocks No. 42 and 63. The left paws of the lions, directed accordingly to the right and to the left, were raised upwards and depicted in motion.

Figure 26. Tracing of predator image on Rock No. 60 in Jingirdagh.

Other predatory animals are also shown in the petroglyphs, such as tiger, leopard, wolf, fox, dog and cat; their bones have been found in excavations in Gobustan. With the exception of lions, predator images are usually depicted at a smaller scale (Figure 26).

Wild boar

(*Sus scrofa*). Wild boar bones have been recorded from many sites during excavations in Gobustan, and are recorded on rock carvings in the Boyukdash and Kichikdash assemblages. Wild boar are depicted in Ovchular cave 46 in the Boyukdash Mountain and Firuz 2 camp in the Kichikdash area. A hunting scene of wild boar is shown on stone No. 46. In this scene, attributed to the 3rd millennium BC, a wild boar and its piglet are followed by an attacking human and dog (JAFARZADE, 1999:81). In contrast to the speed of the dog, the boar is stationary (Figure 27).

Three wild boar images covered by a cultural horizon have been recorded at Firuz 2 camp, on the western side of stone No. 19. These images, along with silhouettes of men and women, are located on the lower surface of a rock covered by a cultural layer dated back to the earliest period of the camp - the Late Mesolithic to Early Neolithic period (RUSTAMOV and MURADOVA 2008a:76-78) (Figure 28).

Figure 27. Hunting scene of wild boar with dog on rock No.46 in Upper terrace of Boyukdash mountain (Photo by R. Abdullayev).

Birds

Bird images are relatively rarer than other species, with only four recoded instances. These species, with only four recoded instances. These images were recorded on the upper and lower terraces of Boyukdash Mountain. An older bird image attributed to the 1st millennium BC is located on the upper terrace, on rock No. 63 (JAFARZADE, 1999: 83). One of the other three images may be a hunting bird, as it is shown on the arm of a mounted horse-rider. One of birds was portrayed perched on the horn of a goat and the other was depicted in flight.

Fish

There are six fish images in the Gobustan rock carving assemblage. Four of them are on rocks No. 104 and 105 (two images on each), located near each other on the upper terrace of Boyukdash Mountain (Figure 29). One of the other two fish images was recorded on stone No. 5 at Gayaalti, and other on stone No. 49 at Jeyranlar on Kichikdash Mountain. In the scientific literature, a large-scale (4.3 m) fish image on stone No. 5 in Gayaalti was interpreted as a whale (ANATI, 2001: 51) or a dolphin (FARAJOVA, 2009: 28). However, both paleontological analogies (VERESHAGIN, 1981: 53), and the appearance of

Figure 28. Wild boar petroglyphs on rock No.19 in Kichikdash mountain (Photo by R. Abdullayev).

Figure 29. Fish and goat petroglyphs on rock No.104 in Boyukdash mountain (Photo by R. Abdullayev).

the image suggest that this is a beluga sturgeon (*Huso huso*); beluga still live in the Caspian Sea.

Based on the stratigraphic relationship between the fish image which cuts a bull image of the Paleolithic period, Anati includes this image to the IIA horizon, according to his chronological division (ANATI, 2001: 60). Rustamov and Muradova, who excavated Gayaaltı shelter, concluded the opposite - the fish image was drawn over the bull and female images drawn in profile, which Anati did not register. (RUSTAMOV and MURADOVA 2008a: 26-27).

The excavated evidence indicates that the inhabitants of Gobustan were also engaged in fishing. Sinkers, tools for weaving nets, three kinds of a harpoon-like instrument, the dorsal fin of a white fish and seal bone were recovered from the collective grave of 11 people discovered at Firuz 1, with fishing equipment recorded from other ancient shelters in the area.

5. Conclusion

The prevailing environmental setting, the social and economic conditions and belief systems of ancient societies all played a role in the selection of motifs and the depiction of animal images. Animals were often shown together with anthropomorphs in composite images, rather than as separate symbols. It can be said that animals played a key role not only as practical, productive resources, for food, but were also important to the symbolic, ritual and religious life of society.

The statistical dominance of animal images in rock art also demonstrates their importance in the worldview of past populations. This can clearly be seen in Gobustan's rock art. The animals most commonly shown in rock art (goat, aurochs, deer) are not among the species (gazelles, kulans) most frequently represented in the excavated faunal assemblages from Gobustan. Although deer form part of dynamic hunting scenes, there is no excavated evidence for the butchery, consumption or craft uses of deer bone, and no archaeological evidence that they were hunted. For this reason, it is suggested that deer hunting scenes are likely to be ceremonial depictions reflecting myths and ritual practices.

Naturalistic, near-life-size images of Stone Age aurochs are found either singly or in compositions with images of horses and women. During the Bronze Age, the aurochs are depicted at a smaller scale along with other smaller images. The large aurochs images of the Stone Age shelters are replaced by a profusion of goat images in the Bronze Age.

In the Bronze Age, the prevalence of transhumant pastoral agriculture, small herds and farming is reflected in the spiritual culture of this era. Artistic depictions of goats are found not only in rock art, but also decorate ceramics and metalwork.

The zoomorphic images of Gobustan's rock art are a source of information about the surrounding environment, the hunting, gathering and farming practices, and the rituals and belief systems of their creators. In this regard, researching zoomorphic images can contribute to the study of different aspects of ancient societies.

Acknowledgements

Thanks are due to Leonora O'Brien, Associate Director, Cultural Heritage, AECOM who patiently edited our English; and to Kamran Abbasov for elaboration of figures.

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Revista editada por ASOCIACIÓN ARKEOGAZTE ELKARTEA

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