

UNIVERSITÀ DI NAPOLI L'ORIENTALE
Dipartimento Asia, Africa e Mediterraneo

Studi Africanistici

Serie Egittologica

4

Animals in Religion,
Economy and Daily Life
of Ancient Egypt and Beyond

edited by
Rosanna Pirelli, Maria Diletta Pubblico
& Salima Ikram



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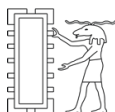
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Preface

Since time immemorial, animals have played a key role in all aspects of Egyptian civilization. They were believed to be the manifestations of divine power on earth through which believers might easily address their concerns to the gods, they provided food, raw materials, were a mainstay of the economy, a measure of wealth, and inspired art, language, and literature. Among the hieroglyphic signs of Alan Gardiner's Sign-list, more than one hundred and fifty belong to the animal world. The omnipresence of fauna has long been regarded as a curious and/or odd expression of Egyptian culture. Yet this situation has changed over the last years, with the number of research devoted to this topic growing considerably.

The International Symposium on Animals in Ancient Egypt, the Middle Nile and their hinterlands (ISAAE) was founded with the aim to trigger a meaningful dialogue between peers coming from different research fields, who share an interest in animals in ancient Egyptian and Nubian societies, thus fostering a useful exchange of data, techniques, and methods, which will widely contribute to advance the state-of-the-art on the topic. The first two previous editions of the ISAAE, hosted by the Musée de Confluences in Lyon and the American University in Cairo, were a great success and offered meaningful progress and inspiration in this field. The third Symposium was hosted at the University of Naples "L'Orientale" (UniOr) from 15th to 17th June 2022. The ISAAE3 was organized by the Department of Asian, African and Mediterranean Studies (DAAM) of the UniOr in partnership with the American University in Cairo.

The main objective of the ISAAE3 was to provide an insight into the role of animals in Ancient Egypt and beyond, from the 5th millennium BC to the 7th century AD, to report on the most recent advancements in this field, to pave the way for future research, and to identify potential challenges. The Symposium was a broad success, reflecting the high commitment and exceptional profile of the international community working in this field. Very high-profile scholars from both Europe and abroad (USA, Egypt, Japan, Australia) were brought together, who presented research focused on a plethora of topics relating to animals, including: mummification, diseases, craft, language,

religion, archaeozoology, burial customs, pets, writing, butchery, conservation-restoration, economy, resources exploitation, diet, and art. These studies have been carried out applying ground-breaking technologies and advanced methodologies, such as 3D imaging, CT-scans, radiography, radiocarbon dating, as well as a variety of chemical analyses.

This volume collects the results of these investigations, thereby broadening our knowledge on the role of animals in religion, economy and daily life of ancient Egypt, and beyond.

Rosanna Pirelli, Maria Diletta Pubblico, Salima Ikram

Acknowledgements

The 3rd International Symposium on Animals in Ancient Egypt, the Middle Nile and their hinterlands (ISAAE3) has been organized thanks to the effort of various institutions and people, to whom the editors are very grateful for their commitment to the success of this event.

We are indebted to the University of Naples “L’Orientale” (UniOr), and especially to the Dean, Roberto Tottoli, and the Director of the Department of Asian, African and Mediterranean Studies (DAAM), Andrea Manzo, for accepting to host the Symposium and the logistical support. We would like to thank the other members of the Scientific Committee: Andrea Manzo (DAAM, UniOr), Cinzia Oliva (Freelance Restorer), Stéphanie Porcier (Labex Archimède, Montpellier).

We want to express our gratitude to the members of the Organizing Committee: Elena D’Itria (Museo Orientale “Umberto Scerrato”), Ilaria Incordino (White-Levy Programme for Archaeological Publications, Cambridge, MA), Stefania Mainieri (Museo Egizio, Turin), and Anna Salsano (Independent Researcher), without whose efficiency and commitment the Symposium would not have taken place.

Moreover, we thank our sponsors the University of Naples “L’Orientale”, the American University in Cairo, the Grafica Montese S.N.C., the Royal Trophy S.R.L., the Study Center about Africa (CESA), the Interdepartmental Services Center for Archaeology (CISA), the National Archaeological Museum of Naples (MANN) and the Archaeological Parks of Pompeii and Herculaneum.

We want to extend warm thanks to the reviewers, who took time away from their busy schedule to help us in the double-blind peer review process of the articles published in this volume. A special thanks also goes to the UniOr Press for the editorial work.

Finally, we would like to acknowledge all the participants to the Symposium, for having broadly contributed to the advancement of the discipline by sharing their research.

Rosanna Pirelli, Maria Diletta Pubblico, Salima Ikram

Abstracts

Ceramic, Wood, Stone & Bronze

Considerations about the Materiality and Value of Containers
for Animal Mummies kept in the Museo Egizio, Turin

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The Museo Egizio, Turin, preserves a significant collection of animal mummies and containers for faunal remains. The currently running *Turin Animal Mummy Project* has committed itself to the comprehensive documentation and publication of these objects. The present article provides a preliminary overview of the different materials used to make the animal mummy containers in the collection: ceramic, wood, stone, and bronze. Questions about the value of the materials and the “functional materialism” of the animal mummy containers made in these different materials are also addressed. The present paper is intended to stimulate discussion on the economic significance and materiality of the animal coffins that were a significant part of the ritual offerings of certain animal mummies involved in the enormous animal mummy industry of the 1st millennium BC and beyond.

Keywords: *Pharaonic Egypt, 1st millennium BC, animal mummy containers, materiality, economic value*

Gift to Sobek

Preliminary Results of the Analysis of a Young Crocodile Mummy in the Allard Pierson

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The Allard Pierson – Collections of the University of Amsterdam is investigating its thirteen animal mummies, including a young crocodile that was recently acquired and never previously investigated. The crocodile mummy was CT-scanned and x-rayed. After preliminary analyses and discussion, it was featured in a small exhibition in the Allard Pierson. The scanning process yielded data that tells us more about the individual animal, the mummification process and the post-depositional life of this specimen. Research is still ongoing to answer questions on species, traumas, more traces of the mummification process, and its provenance history.

Keywords: *crocodile mummy, provenance, CT-scanning, morphological analysis, species determination*

The Faunal Remains from the “Economic Annexes” at the Temple of Millions of Years of Amenhotep II (Luxor, West Bank)

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In the southern area of the Temple of Millions of Years of Amenhotep II a labyrinthine structure consisting of very small to medium rooms have been unearthed. The presence of several walls with episodes of rebuilding testifies

to the active reconfigurations of the area from the 18th Dynasty to the Ptolemaic period. In addition, the presence of rooms with ovens, remains of ostraca and large numbers of pottery sherds clearly testify to the diverse activities carried out in this sector of the Temple.

The excavation of the fills overlying the floors allowed us to collect a small but significant faunal assemblage that dates, probably, to early episodes in the development of the Temple.

The faunal complex is composed of fragments of bones of mammals, birds, and fish along with the shells of freshwater bivalves. These appear to represent the remains of meals consumed by the persons (probably scribes) that worked in the temple.

Keywords: *Temple of Millions of Years, Amenohotep II, “economic annexes”, faunal complex*



Wandering Falcons

On the Referent and Meanings of Nemty Hieroglyphs ( / , G7A / G7B)

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The hieroglyph  /  (G7A / G7B etc.) has been described as a falcon on a boat, on a crescent, or on a throw-stick. To date, studies have focused on its phonetic reading – which is *Nmtj* and not **ɛntj* – and have paid only cursory attention to its visual referent. A new approach to the reality of signs should consider elements that have been overlooked: their earliest attestations (from the fourth and third millennia BC) and their palaeographic features; the texts relating to the god *Nmtj*; and, above all, the ethology, life cycle and habitat of the Falconidae of the Nile Valley. This last set of factors is essential for understanding the nature of ancient Egyptian falcon hieroglyphs and the extent of ancient Egyptians' knowledge of the animal world.

Keywords: *Ancient Egypt, hieroglyphic writing, falcons, Nemty, nest*

Food for Thought

Considering the Presence of Zoomorphic Figurines in Predynastic Egyptian Burials

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This paper explores whether the animals represented as clay zoomorphic figurines in Predynastic burial contexts dating to Naqada IA–IID (ca. 3,800–3,325 BC) may be evidence of a novel Predynastic folk taxonomy relating to food or consumable products. This follows a long-standing belief that zoomorphic figurines in Predynastic graves are replicas of the real animals in the burial context. The specific purpose of their replication and its benefits for the deceased still require further study, particularly when we encounter animal subjects that are not typically envisioned as ‘food’. Their potential purpose in the burial is compared with zooarchaeological evidence for the partial and complete remains of animals in contemporaneous graves to explore whether zoomorphic figurines and faunal remains may, in some circumstances at least, be considered complementary in their funerary significance.

Keywords: *Predynastic Egypt, zoomorphic figurines, folk taxonomies, resources, burials*

Animals Remains from the Egyptian Collection of the Civic Archaeological Museum of Milan

Conservation and Study Project

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The Egyptian Collection of the Civic Archaeological Museum of Milan holds twenty-three animal mummies, almost all from private collections, except for seven baby crocodiles which come from Achille Vogliano's 1930s excavations at Tebtynis (Fayyum). As part of the ongoing refurbishment works of the permanent exhibition in the Egyptian galleries (presently closed and expected to reopen within some years), the museum launched a comprehensive diagnostic study and conservation project of the mummified remains from Egypt, both human and animal. The group of animal mummies, which have never been the subject of a scientific examination, thus underwent a series of diagnostic and conservation studies. In the present paper the preliminary outcomes of the project will be presented. The examinations allowed in some cases to re-evaluate old and erroneous interpretation of the remains. During the conservation project, special attention was paid to providing the animal remains with supports, in order to provide safe and correct handling during storage and/or display, to avoid invasive treatments of the most fragile items, and thus to allow future studies.

Keywords: *animal mummies, Egypt, conservation, CT-scanning, textile, votive offerings*

Zooarchaeology in Old Kingdom Egypt

A Comparison Between Animal Iconography and Faunal Remains of the Bagrus Fish

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Old Kingdom Egypt's iconography provides a wealth of animal species and rural activities. Due to their standardised nature, iconographic contexts can be categorised according to their environment, and animal species can be identified through the figures' study.

Although *decorum* has been widely recognised in Egyptian art for decades, it has mainly focused on general figures and representation patterns. Thus, the question arises whether *decorum* also applies to animals and whether the

depicted species were indeed present in the daily life of Egyptians. Comparing animal iconography with zooarchaeology remains an essential and inevitable step in gaining a better understanding of these issues.

The primary goal of this research is to identify any inconsistencies between the Old Kingdom iconography and zooarchaeology, as well as explain these inconsistencies using texts, zoological and ecological data. As a result, this study reveals important discrepancies regarding *Bagrus* sp., which is absent from the iconography but predominant in faunal remains. Accordingly, it challenges the way artistic images are captured and the cultural knowledge they represent.

Keywords: *zooarchaeology, Bagrus sp., animal iconography, Old Kingdom iconography, decorum*

The Valuable Role of Animals in the Kerma Culture

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Animals played a relevant role in the beliefs and ideology of the communities of the Middle and Upper Nile Valley, and the importance of fauna in the contexts of Kerma culture is undisputed. A considerable number of animal bones, especially cattle, sheep, and goats, have been recovered during the excavations of the ancient town and necropolis demonstrating that the subsistence and the ritual sphere of these populations has been strongly linked to animals. This paper will allow us to better understand the social and religious value of fauna, both domestic and wild, who not had only an economic role among Kerma people but also played an important part in the symbolic and religious domain. Combining the results of the archaeozoological studies with the iconographies representing animals found in Kerma sites, aims to provide new insights into the nature of the religious beliefs and customs of the Kerma populations.

Keywords: *Ancient Nubia, Kerma culture, fauna, funerary practices, symbolic role*

Meroitic Lexemes Concerning Animals

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The main information about Nubian fauna during the Meroitic period is derived from archaeological sites and iconography. Although some Meroitic inscriptions allude to animals, it is still difficult to learn about animals because of our very limited knowledge about the Meroitic vocabulary. At present, of the published list of thirty-nine lexemes with a confirmed meaning, fewer than ten words refer to animals. Three of those included in the basic vocabulary present a convincing comparison between the North Eastern Sudanic (NES) languages, mainly based on the ongoing studies of proto-NES. The other lexemes, outside the basic vocabulary, provide acceptable correspondences. The iconography associated with the main number of words has been important to support their identifications and meaning.

Keywords: *Meroitic language, Animals, Meroitic Inscriptions, parallel Texts Method, contextual analysis*

The Deformation of Cattle Horns in the New Kingdom Period

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Cattle were important agriculturally, economically and religiously to the ancient Egyptians, and as a result they are depicted frequently in art. In some of these representations, cattle are shown with or undergoing a physical modification of their bodies. This paper will examine one of these practices, horn deformation. The artificial deformation of cattle horns is represented in two-dimensional art scenes from elite tombs throughout the Pharaonic period, and this paper will focus on examples from the New Kingdom (c.1550-1069 BC).

Drawing on ethnographic comparisons, the process, purpose, and welfare implications of Egyptian modification will be discussed. Evaluation of the practice has revealed that, on balance, the Egyptians were not concerned with animal welfare when modifying the appearance of their cattle.

Keywords: *cattle, horn deformation, animal modification, Egyptian art, animal welfare*

Wrapping it Up

Animal Mummy Studies in 2022

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This article will present a brief history of the study of animal mummies before discussing the current state of the field and possible future directions for its development. It is an update of a paper (Ikram 2019) presented at the first Symposium of Animals in Ancient Egypt, held in Lyon in 2016.

Keywords: *Animal mummies, radiography, isotope analysis, ancient DNA, zoonotic disease*

Mythical Animals of Kush

Remarks on the Imaginary Creatures and Religion in Kerma

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The contribution will deal with some imaginary creatures occurring in the Kerma art. Indeed, mythical animals like criosphinx, winged giraffe and

hippo with anthropomorphic body and others were represented in the capital city of the kingdom of Kush in Kerma Classique times (ca. 1750-1550 BC). The features of these mythical animals will be described, and their occurrence will be outlined, with specific focus on the contexts where they were represented. Some hypotheses on their meaning and on their relevance in the Kerma ideology and religion will be proposed.

Keywords: *Kerma, Kush, religion, imaginary creatures*

Animal of Ancient Kheny

The Rupestrian Collection

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This paper presents an overview of animals depicted within the Swedish concession area of Gebel el-Silsila and Shatt el-Rigal, spanning the Prehistoric to the early Islamic period. It includes commentaries on stylistic, technical and chronological phases of the rock art, and present an overview of distribution patterns as well as a relative taxonomic morphology for the more frequent motifs. Main emphasis will be on the early material as it represents the largest group. The paper presents a relative stylistic timeline, divided into nine phases, based on the morphology and production technique used for the petroglyphs. Commentaries on empirical indices and temporal significance should be read as preliminary reflections and in a wider analytical perspective of general trends.

Keywords: *animals, Gebel el-Silsila, rock art, Shatt el-Rigal, Swedish mission*

Collars on Cats and Dogs in Life and in the Afterlife

Function and Fashion in Early Roman Egypt

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A rich repertoire of collars is depicted on dog and cat representations from the Roman age, including terracotta figurines, wall paintings and mosaics from the 1st to the 3rd centuries AD. These depictions give insight into both the practical function of collars on companion animals and possible 'fashion' trends in this respect. Substantiating the review of iconographic sources is archaeological evidence of cat collars – the iron or copper-alloy rings with a locking device as well as bead collars – uncovered by the Polish-American expedition working at Berenike (Red Sea, Egypt), where a cemetery of companion animals ("pets") from the 1st and 2nd centuries AD has been excavated since 2017. The authors present the source material, both iconographic and archaeological, looking at the functional design as well as aesthetics of the animal collar in early Roman Egypt.

Keywords: *Early Roman Egypt, Berenike, small animal/pet necropolis, cat and dog burials, collars*

The Imperial Iseum in Benevento and its Zoomorphic Gods

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The texts of Domitian's two obelisks in Benevento inform us that in 88/89 AD, Rutilius Lupus had a temple built in the Samnite city and dedicated it to the goddess Isis to celebrate the emperor's victorious conclusion of the Dacian Wars.

Although none of the ancient buildings found so far in the city can be attributed to an Iseum, the existence of such a temple is confirmed by a large number of anthropomorphic and zoomorphic statues, a few epigraphs and some architectural elements, most of which were found in a section of the foundations of the ancient city walls; most of the fragments of the two obelisks and another group of objects were found scattered in different areas of the city.

Of the approximately fifty artefacts, numerous statues represent 'pharaohs', in both human and sphinx form; two are anthropomorphic deities, three depict priests, and several statues represent sacred animals: four falcons, two baboons and three Apis bulls; another bull is carved in high relief on an architectural frieze.

This extraordinary set of artefacts – belonging to different historical periods, from the Pharaonic to the Ptolemaic and finally the Roman era – represents one of the largest concentrations of Egyptian and Egyptianising materials belonging to a single cultic context of the imperial period outside Egypt.

Beginning with the publication that Hans W. Müller devoted to the analysis of the Benevento 'Iseum' in 1969, a lively debate (not yet concluded) has arisen on the nature of the temple, its possible location and the relationship of this monument to the other temples dedicated to Isis scattered throughout the Empire.

In order to provide an interpretative key to answer, even partially, some of these questions, my paper will briefly present all the Isiac sculptures in the Samnite Iseum, with a particular focus on the symbolism expressed by the

zoomorphic deities, especially in relation to their role in the representation of Domitian's imperial image.

Keywords: *Iseum, Benevento, Domitian, zoomorphic deities, Egyptian royal ideology.*

A Study of Egyptian Animal Mummy Styles (SEAMS) Project An Introduction

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The mummification of sacred animals is a religious phenomenon which was widely spread throughout Egypt. Egyptians believed that some animals were living manifestations of gods on earth and they took care of them during their lifespan, while some others were intermediaries between humans and deities. These latter animals possibly were reared in sacred enclosures and killed to be sold to worshippers, who donated them to the corresponding god as votive offerings, in return for favors and protection. Unfortunately, the large-scale illegal pillaging of animal necropoleis during the 19th and 20th centuries, as well as the relative disinterest of mainstream Egyptology, caused a great loss of information of these objects, especially relating to their date and origin.

In contrast to other forms of Egyptian material culture, animal mummies have only a limited epigraphic apparatus that normally helps in reconstructing their story. However, the increased demand of votive animal mummies between the Third Intermediate Period and the Roman Period promoted a certain degree of craft specialisation and potentially changes at both a chronological and geographical level, especially in terms of wrapping techniques and styles. A Study of Egyptian Animal Mummy Styles (SEAMS) project aims to investigate the mummies' bandage weaves, which represent the sole iconographic apparatus of these artefacts, through the development of an innovative interdisciplinary

methodology that integrates traditional research approaches with new technologies in order to demonstrate that they are markers of specific periods and workshops. In doing so, SEAMS is set to fill the gap in current knowledge on the contextual data of votive animal mummies and shed light on their manufacture. This paper presents the methodology and the expected results of this project, which will form a major contribution to our knowledge by providing essential information to explore a so far uninvestigated topic.

Keywords: *Animal mummies, craft, stylistic variations, regionalisms, chronology*

Some Remarks on Roman Period Mummy Masks from Kellis with the Jackal Motif

An Update on Regionalism and Craftmanship in the Western Egyptian Desert

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Excavations carried out by the Dakhleh Oasis Project on the outskirts of the settlement of ancient Kellis, in Egypt's Dakhleh Oasis, brought to light an extensive cemetery with hundreds of rock-cut tombs. Exploration of this area, now known as the Kellis 1 Cemetery, revealed the presence of several burials where the bodies were equipped with decorated cartonnage coverings. This paper focuses on a particular type of mummy masks discovered in the cemetery to reprise the discussion on specific iconographical features and an exploration of the identification of their place of manufacturing.

Keywords: *Kellis, cartonnage, craftsmanship, mummy mask, jackals*

List of Abbreviations

ÄA	Ägyptologische Abhandlungen. Wiesbaden.
ÄAT	Ägypten und Alten Testament. Münster.
Azania	<i>Azania. Archaeological Research in Africa.</i> London.
Acme	<i>Annali della Facoltà di lettere e filosofia dell'Università degli Studi di Milano.</i> Milano.
ACER	The Australian Centre for Egyptology: Reports. Sydney.
ACES	The Australian Centre for Egyptology: Studies. Sydney.
ADAIK	Abhandlungen des Deutschen Archäologischen Instituts, Abteilung Kairo, Ägyptologische Reihe. Glückstadt-Mainz-Berlin.
AegGreg	Aegyptiaca Gregoriana. Città del Vaticano.
ÄgLev/ Ä&L	<i>Ägypten und Levante: Zeitschrift für ägyptische Archäologie und deren Nachbargebiete.</i> Wien.
AJA	<i>American Journal of Archaeology.</i> New York.
ANES	<i>Ancient Near Eastern Studies.</i> Leuven-Paris-Walpole.
Antiquity	<i>Antiquity. Quarterly Review of Archaeology.</i> Newbury, Cambridge.
ARC	<i>Archaeological Review from Cambridge.</i> Cambridge.
Archéo-Nil	<i>Revue de la société pour l'étude des cultures prépharaoniques de la Vallée e du Nil.</i> Paris.
ArOr	<i>Archiv orientální.</i> Prague.
ASAE	<i>Annales du Service des Antiquités de l'Égypte.</i> Le Caire.
ASE	Archaeological Survey of Egypt. London.
AV/AVDAIK	Archäologische Veröffentlichungen, Deutschen Archäologisches Institut, Abteilung Kairo. Berlin- Mainz am Rhein.
AW	<i>Antike Welt.</i> Zurich-Mayence.
BABESCH	<i>Annual Papers on Mediterranean Archaeology.</i> Leuven.
BAR IS	British Archaeological Reports International Series. Oxford.
BdÉ	Bibliothèque d'Étude. IFAO. Le Caire.
BEHE	Bibliothèque de l'Ecole Pratique des Hautes Études. Paris.
BiAe	Bibliotheca Aegyptiaca. Bruxelles.
BIFAO	<i>Bulletin de l'Institut Français d'Archéologie Orientale.</i> Le Caire.
BMPES	British Museum publications on Egypt and Sudan.
BMSAES	<i>British Museum Studies on Ancient Egypt and Sudan.</i> London.
BSAE & ERA	British School of Archaeology in Egypt & Egyptian Research Account. London.

BSAK	Studien zur Altägyptischen Kultur – Beihefte. Hamburg.
BSEG	<i>Bulletin de la Société d'Égyptologie de Genève</i> . Genève.
CASAE	Cahiers suppléments aux Annales du Service des Antiquités de l'Égypte. Le Caire.
CdÉ	<i>Chronique d'Égypte</i> . Bruxelles.
CENiM	Cahiers d'Égypte nilotique et méditerranéenne. Institute d'égyptologie François Daumas, Univ. Paul Valéry. Montpellier.
CEPOA	Centre d'Etude du Proche-Orient Ancien. Genève.
CG	Catalogue général des antiquités égyptiennes du Musée du Caire. Cairo.
CIL	Corpus Inscriptionum Latinarum. Berlin.
CRIPeL	<i>Les Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille</i> . Lille.
CT	A. De Buck, 1935-61. The Egyptian Coffin Texts. 7 vols. Chicago.
EEF	Egypt Exploration Fund. London.
EES	Egypt Exploration Society. London.
EES-ExMem	Egypt Exploration Society-Excavation Memoir. London.
EPRO	Études préliminaires aux religions orientales dans l'Empire romain. Leiden.
Enchoria	<i>Enchoria – Zeitschrift für Demotistik und Koptologie</i> . Wiesbaden.
EQA	Einführungen und Quellentexte zur Ägyptologie. Münster.
ERA	Egyptian Research Account. London.
Estrat crític	<i>Revista d'Arqueologia</i> . Barcelona.
EU	Egyptologische Uitgaven. Leiden.
FIFAO	Fouilles de l'Institut Français d'Archéologie Orientale. Le Caire.
GM	<i>Göttinger Miszellen</i> . Göttingen.
GÖF	Göttinger Orientforschungen. Göttingen.
IBAES	Internet Beiträge zur Ägyptologie und Sudanarchäologie. London.
JAA	<i>Journal of African Archaeology</i> . Frankfurt am Main-Leiden.
JAEl	Journal of Ancient Egyptian Interconnections. Tucson.
JANER	<i>Journal of Ancient Near Eastern Religions</i> . Leiden.
JARCE	<i>Journal of the American Research Center in Egypt</i> . Boston-New York.
JAS	<i>Journal of Archaeological Science</i> . London-New York.
JAS-Rep	<i>Journal of Archaeological Science: Reports</i> . London-New York.
JDAI	<i>Jahrbuch des Deutschen Archäologischen Instituts</i> . Berlin.

JEA	<i>Journal of Egyptian Archaeology</i> , EES. London.
JNES	<i>Journal of Near Eastern Studies</i> . Chicago.
J. Nat. Hist	<i>Journal of Natural History</i> . Milton Park.
KAW	Kulturgeschichte der Antiken Welt. Mainz am Rhein.
KUSH	<i>Journal of the Sudan Antiquities Service</i> . Khartoum.
LD Erg.	R. Lepsius, 1913. <i>Denkmäler aus Aegypten und Aethiopien</i> , <i>Ergänzungsband</i> . Leipzig.
MAARAV	<i>A Journal for the Study of the Northwest Semitic Languages and Literatures</i> . Chicago.
MÄS	Münchner Ägyptologische Studien. Berlin-Munich-Mainz am Rhein.
MASCA	Museum Applied Science Center for Archaeology. Philadelphia.
MDAIK	<i>Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo</i> . Mainz-Cairo-Berlin-Wiesbaden.
Menes	Menes. Studien zur Kultur und Sprache der ägyptischen Frühzeit und des Alten Reiches. Wiesbaden.
MIFAO	Mémoires publiés par les membres de l'Institut français d'archéologie orientale. Le Caire.
MMAF	Mémoires Publiés per les Membres de la Mission Archéologique Française. Le Caire.
MonAeg	Monumenta Aegyptiaca. Bruxelles.
MRE	Monographies Reine Élisabeth. Bruxelles.
Myrtia	<i>Revista de Filología Clásica</i> . Murcia.
Mythos	<i>Rivista di Storia delle Religioni</i> . Caltanissetta.
NAWG	Nachrichten von der Akademie der Wissenschaften zu Göttingen, Philologisch-Historische Klasse. Göttingen.
OBO	Orbis Biblicus et Orientalis. Leuven-Paris-Bristol.
OIMP	Oriental Institute Museum Publications. Chicago.
OIP	Oriental Institute Publications. Chicago.
OLA	Orientalia Lovaniensia Analecta. Louvain.
OLP	<i>Orientalia Lovaniensia Periodica</i> . Louvain.
OrAnt	<i>Oriens Antiquus</i> . Pisa-Roma.
PALMA	<i>Papers on Archaeology of the Leiden Museum of Antiquities</i> . Leiden.
PAM	<i>Polish Archaeology in the Mediterranean</i> . Warsaw.
PdÄ	Probleme der Ägyptologie. Leiden.
PES	<i>Prague Egyptological Studies</i> . Prague.
Philippika	Philippika. Marburger altertumskundliche Abhandlungen. Wiesbaden.
P.L.Bat	Papyrologica Lugduno-Batava. Leiden.

PMMAE	Publications of the Metropolitan Museum of Art - Egyptian Expedition. New York.
PN	H. Ranke, 1935. <i>Die Ägyptischen Personennamen</i> . Glückstadt.
QuadMusEg.	Quaderni del Museo Egizio. Torino.
RdÉ	<i>Revue d'Égyptologie</i> . Paris-Louvain.
REM	J. Leclant, A. Heyler, C. Berger-El-Naggar, C. Carrier, C. Rilly, 2000. <i>Repertoire d'epigraphie meroitique</i> . Corpus des inscriptions publiées, I, II, III. Paris.
RGRW	Religions in the Graeco-Roman World. Leiden.
RiME	<i>Rivista del Museo Egizio</i> . Torino.
RISE	<i>Ricerche Italiane e scavi in Egitto</i> . Il Cairo.
SAA	Studies in African Archaeology. Uppsala.
SAAC	<i>Studies in Ancient Art and Civilization</i> . Cracovie.
SAGA	Studien zur Archäologie und Geschichte Altägyptens. Berlin.
SAK	<i>Studien zur Altägyptischen Kultur</i> . Hamburg.
SDAIK	Sonderschriften des Deutschen Archäologischen Instituts, Abteilung Kairo. Wiesbaden.
SMET	Studi del Museo Egizio di Torino. Torino.
SNR	<i>Sudan Notes and Records</i> . Khartoum.
TLA	<i>Thesaurus Linguae Aegyptiae</i> . Berlin.
UEE	UCLA Encyclopedia of Egyptology. Los Angeles.
UGAÄ	K. Sethe, 1896-1900. <i>Untersuchungen zur Geschichte und Altertumskunde Ägyptens</i> . Leipzig-Berlin-Hildesheim.
UCPEA	University of California Publications in Egyptian Archaeology. Berkeley.
Urk. I	K. Sethe, 1903-33. <i>Urkunden des Alten Reichs</i> . Leipzig.
UZK	Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts. Wien.
VDI	<i>Vestnik Drevnej Istorii</i> . Moscou-Saint-Pétersbourg.
Wb.	A. Erman, H. Grapow, 1926-61. <i>Wörterbuch der Aegyptischen Sprache</i> 1-7. Leipzig.
ZÄS	<i>Zeitschrift für ägyptische Sprache und Altertumskunde</i> . Leipzig-Berlin.

Ceramic, Wood, Stone & Bronze

Considerations about the Materiality and Value of Containers for Animal Mummies kept in the Museo Egizio, Turin

Johannes Auenmüller & Federica Facchetti

Introduction

The Museo Egizio in Turin preserves a significant collection of more than 200 animal mummies and 95 containers for faunal remains. In 2016, Museo Egizio started the *Turin Animal Mummy Project* in collaboration with Egyptologists, conservators, and natural scientists, directed by Salima Ikram. The goal of the project is a comprehensive documentation, study, restoration, and publication of all animal mummies and faunal remains as well as all other artefacts being part of the animal mummy phenomenon and kept in the Turin collection.¹ The present paper particularly focuses on the animal mummy containers in Turin. These are made in different designs and of different materials.² Each container is the result of particular production processes that depend on the material and all of its economic implications. The concept of “functional materialism”, coined by Kathlyn M. Cooney³ for describing the role and social understanding of funerary goods in the Ramesside period, can – with certain adjustments – also be utilised for addressing the animal mummy containers. Materiality, material choices, uses, functions, and values of funerary goods made for humans were most likely in the same way the results of cultural negotiations driven by socio-economic differences and circumstances as they were in regard to animal mummy coffins. The present paper aims at providing an overview of the relevant animal mummy containers in the Turin collection. In doing so, it will address the economic implications of the various materials used for making such coffins,⁴ as this topic is – particularly due to the lack of relevant sources⁵ – only rarely addressed in studies

¹ Ikram et al. (eds.) forthcoming.

² For an overview of animal mummy containers, see, e.g., Fitzenreiter 2013, 131-135.

³ Cooney 2007a; *cad.* 2007b.

⁴ See Bussi 2019 for an economical perspective on the different animal species.

⁵ See below.

of the phenomenon of animal mummies, in which the interpretation of the cult of the sacred animals is mainly at the centre.⁶

Brief History of the Collection of Animal Mummies in Turin

The oldest part of Museo Egizio's animal mummy collection, around 20 pieces, was already in Turin in the 18th century. They were gathered by Vitaliano Donati, professor of botany at the University of Turin, who was tasked by Carlo Emanuele III, Duke of Savoy and King of Sardinia, to go to Egypt in order to increase the number of Egyptian artefacts for the Turin collections.⁷ The purchase of the collection of Bernardino Drovetti by Carlo Felice, Duke of Savoy, Piedmont and Aosta and King of Sardinia, in 1824 adds about 80 more items to the register of animal mummies and coffins.⁸ For all these acquired objects, no records of their provenance exist, which is usual for the time. The same applies to the animal mummies which were acquired by the then *Regio Museo di Antichità ed Egizio* before 1888 and being part of the so-called "Vecchio Fondo". During the excavations of the Italian Archaeological Mission under Ernesto Schiaparelli between 1903–1920 and Giulio Farina between 1930–1937, animal mummies and coffins were found at sites such as – from north to south – Heliopolis, Tebtunis, Asyut, the Valley of the Queens and Gebelein.⁹ The last animal mummies and coffins reached the Museo Egizio in the 21st century in the form of private donations.

Value of Materials and Material/Object Overview

Since the materials used for making animal mummy containers and their economic significance are the second main focus of the present paper, some short remarks about materiality and values are appropriate, before the Turin collection is used as a brief case study. In 2015, Salima Ikram touched upon the various materials used in embalming, wrapping, and boxing of votive mummies and their economic value.¹⁰ Expenditures not only occurred, e.g., for rearing and procuring animals, sourcing natron for desiccation, making oils and unguents for embalming, producing textiles (many of which were

⁶ Cf., e.g., Kessler 2005; Fitzenreiter 2013; Colonna 2021; Dosoo 2022.

⁷ Moiso 2022; on the early exploration of animal necropoleis, see Baber 2019.

⁸ On the Drovetti collection, e.g., Donatelli 2019.

⁹ Del Vesco and Moiso (eds.) 2017; Oliva and Borla 2019.

¹⁰ Ikram 2015.

simply re-used) for wrapping, remunerating the embalmers, excavating the catacombs, maintaining temples and cult places, etc. But also the different materials sourced and employed as well as the time and effort spent for making animal mummy containers are part of the economic impact that the ritual use of sacred animals and the mummification and deposition of millions of animals had on both state and local levels of economy.¹¹

Although it would be pivotal at this point to offer a comprehensive discussion of costs and prices regarding the animal mummy containers and their different materials, the lacking data for assessing a) the costs of sourcing the various materials, b) the price of the materials, c) the fabrication costs, and d) the end price of the finished animal mummy container in the Late and Graeco-Roman Periods hampers such an undertaking. The discussion about costs and prices of animal mummy containers will thus inevitably remain superficial. In the following, however, several benchmarks from earlier periods are mentioned to elucidate some general trends in terms of the mean economic value of the materials ceramic, wood, stone, and metal. Regarding prices, they were generally indicated by value equivalencies in weights of copper or silver, measured in *deben* or *kite*.¹²

In the Ramesside period at Deir el-Medina, ceramic vessels seem to have cost far less than 1 *deben*.¹³ Smaller wooden boxes, potentially similar in size to the little wooden animal mummy containers, would cost 1 to 3 *deben*, while larger chests were priced at around 10 *deben*.¹⁴ Wooden statues, which might loosely be compared to more elaborate wooden theriomorphic animal coffins, could be bought for between 5 to 15 *deben*.¹⁵ Human coffins of the Ramesside period, which greatly exceed the complexity and size of their animal counterparts dating to the 1st millennium BC, could cost between 10 to much more than 100 *deben* in copper.¹⁶ Prices for stone objects are rare, whereas the symbolic, functional, and aesthetic value of stone construction materials can be addressed.¹⁷ At Deir el-Medina, stone vessels appear cheaper than their metal

¹¹ In recent treatments of the pharaonic economy such as Muhs 2016 and Müller-Wollermann 2021, sacred animal cults and the animal mummy industry as well as their economic impact are not addressed.

¹² Muhs 2016.

¹³ Janssen 1975, 407-408.

¹⁴ Janssen 1975, 197-208.

¹⁵ Janssen 1975, 246-248.

¹⁶ Cooney 2007a; *ead.* 2007b, 278-279; *ead.* 2021, 46.

¹⁷ Loth 2007.

counterparts.¹⁸ Metal vessels were valued by their weight (which also indicated their price), which, depending on their size, was between 2 to 70 *deben*.¹⁹

Whereas the barter of goods was a common form of economic transaction in pharaonic Egypt,²⁰ money barter, which is the exchange of goods based on a fixed accounting unit, also played a key role.²¹ Texts dating to the Third Intermediate Period provide information about commercial transactions in relation to funerary goods, namely the sale of a set of 401 shabtis made in faience.²² The payment to the producers is set in silver, but no specific price is detailed. Nevertheless, these texts attest to the fact that shabtis were commodities and could be bought for a price by private customers. The Archive of Hor²³ and the Prinz-Joachim-Ostraka,²⁴ being the two main textual sources about the animal cult and animal mummy deposition, offer insights into the organisation of rearing, embalming, and burying the sacred animals, but not about prices or values of the mummies, or their different containers. While many details, particularly of the ibis cult, the breeding and feeding the birds and their mummification as well as deposition are known,²⁵ there is no documentary data relative to the sale or monetary value of animal mummy coffins: “specifics concerning the potential purchase of votive items (e.g., mummies or bronzes) are unknown”.²⁶ Due to the lack of pertinent evidence, the discussion cannot be advanced at this point. The value gradation of the materials used to make animal mummy coffins proposed by Ikram,²⁷ additionally informed by the relative value of the different materials as seen in the documentation, particularly of the New Kingdom,²⁸ will therefore be followed in the subsequent paragraphs.

Ceramic vessels, probably made by local pottery workshops by the millions specifically for bird mummies, can be identified as the cheapest option.²⁹

¹⁸ Janssen 1975, 415.

¹⁹ Janssen 1975, 408-435; cf. also the monetary evaluation of the grave goods of Kha and Merit [TT 8] by Tosi 1999 using the metal vessels as a starting point.

²⁰ Müller-Wollermann 1985.

²¹ Nur el-Din 1994.

²² Poole 2005; Warburton 2007; Miniaci 2014.

²³ Ray 1976.

²⁴ Preisigke and Spiegelberg 1914.

²⁵ See Smelik 1979 and Scalf 2015 for detailed overviews.

²⁶ Scalf 2015, 369.

²⁷ Ikram 2015.

²⁸ Janssen 1975.

²⁹ For an overview on ceramic production, see Bourriau et al. 2000.

Next are containers in wood, of which fewer were made or might have survived.³⁰ Given the overall scarcity of this renewable resource, the many distinct types, and the various degrees of quality and decoration, wooden containers represent a higher level of artisanship and therefore seem to be more cost-intensive for those who commissioned them. Containers made in stone for animal mummies rank 3rd in terms of costs.³¹ Usually, local limestone was worked, most likely by the same masons who were involved in excavating the underground catacombs. While both material and labour were relatively cheap, the varying levels of execution of details and any decoration of the limestone performed by more skilled artisans added to the economic value of the containers. The most expensive material choice was bronze.³² Bronze was used to cast various types of boxes surmounted by animals and, most prominently, hollow figures of animals to be used as containers for faunal remains.³³

The collection of animal mummy containers in the Museo Egizio will now be used for a brief numbers game, which also aims at underlining which materials were typically used for which animal mummies (Tab. 1). It should be kept in mind, however, that the numbers shown in Tab. 1 are an archaeological *artefact*, which originates in the highly selective approach of collecting faunal remains in the past and thus does not represent securely provenanced artefacts or ensembles thereof. As is known from the catacombs of Saqqara or Tuna el-Gebel, raptor and ibis mummies were most frequently buried in ceramic vessels.³⁴ Indeed, in the Turin collection, such ceramic vessels are only known for potting bird, most probably ibis mummies. In contrast, the variety of wooden containers used for a more diverse number of creatures is striking. Wood was used for coffins of varied sizes, designs, and quality levels for almost all the species listed here, except for hybrid creature coffins,³⁵ which are only known in bronze. In the Turin collection, stone is only attested for a namorphous ichneumon box and two figures of Osiris standing attached to the

³⁰ On wood and wood working, see, e.g., Gale et al. 2000; Leospo 2001.

³¹ On stone and stone working see, e.g., Aston et al. 2000; Stocks 2022.

³² On bronze, casting methods, and metal resources, see, e.g., Schorsch 2007; Auenmüller et al. 2019; Masson-Berghoff and Pernicka 2019.

³³ For such artefacts, see also Charron 2012; Thum 2012; Weiß 2012; Masson-Berghoff and O'Flynn 2019.

³⁴ Davies and Smith 2005; Nicholson 2022; von den Driesch et al. 2005.

³⁵ Whose figures consist of a winding eel body, a cobra hood, and a human head that is often surmounted by a double or *atef* crown: Myśliwiec 1981; Grenier 2002, 181–183; Masson-Berghoff and O'Flynn 2019.

Creature	Ceramic	Wood	Stone	Bronze
IBIS	5 vessels (with faunal remains)	2 hollow figures (both empty)	–	–
CAT	–	7 hollow figures (2 of which empty)	–	8 hollow figures (1 of which with faunal remains)
	–	1 rectangular coffin (empty)	–	–
	–	3 <i>gersu</i> -coffins (1 of which empty)	–	–
	–	1 box with small figure on top	–	1 box with five animals on top (empty)
FALCON	–	3 coffins in raptor-form (1 of which empty)	–	–
	–	–	–	2 animal figures (empty)
	–	3 coffins (with faunal remains)	–	–
	–	1 animal on box (with faunal remains)	–	5 animals on boxes (2 of which with faunal remains)
SHREW	–	1 animal on box (with faunal remains)	–	3 animals on boxes (1 of which with faunal remains)
ICHNEUMON	–	–	1 animal on box (empty)	1 animal on box (empty)
LIZARD	–	–	–	3 animals on boxes (1 of which with faunal remains)
SNAKE	–	4 boxes with animal figure on top (1 of which empty)	–	–
HYBRID	–	–	–	2 hybrid creatures on boxes (1 of which reported to contain remains)
	–	4 hollow figures (with faunal remains)	–	–
	–	2 bases with figure on top (with faunal remains)	–	–
	–	5 boxes with figure on top (with faunal remains)	–	–
DEITY	–	10 Osiris+obelisk figures (with faunal remains)	2 Osiris+obelisk figures (empty)	1 Osiris+obelisk figure (empty)
OBELISK	–	2 obelisks with bases (with faunal remains)	–	–

Tab. 1: Overview of the individual creatures and their respective containers broken down by the four main material categories: ceramic, wood, stone, and bronze. Unique crea-ture–form–material combinations are highlighted in grey. The complete object data of the relevant pieces, including provenance, date, faunal remains, species identification, and methods of analysis can be found in Ikram et al. (eds.) forthcoming

front of a hollow obelisk, in which faunal remains were once stored. Interestingly, the combination Osiris and obelisk is the only design made in three materials: wood, stone, and bronze. Bronze was finally used to cast hollow cat or falcon figures as well as several other box-type coffins surmounted by falcons, shrews, lizards, and hybrid creatures.

Several animal mummies or parts thereof in the Turin collection such as baboons (Cat. 2345/1 & 2) or cattle (Cat. 2343/1–2 & 2344) are preserved without containers, either because they were not deposited in such a device,³⁶ or the content has been removed from the original containers.³⁷ The Turin collection offers thus only a – however still very detailed – glimpse into the different practices of potting, packing, or boxing animal mummies. In the following, chronological, archaeological, and sociological considerations – which would allow to identify different boxing practices in particular periods, at certain places or on behalf of various customers – are left aside, since the focus is on the different materials, methods of production, and their economic implications.

Ceramic Containers for Animal Mummies

The animal mummy container type which is attested in the millions in the falcon and ibis catacombs of North Saqqara³⁸ is only represented by five unprovenanced exemplars in the Turin collection (Cat. 3506/1–3 [2 x ibis and 1 chick], Cat. 3507 [ibis] & Cat. 3508 [ibis]; Fig. 1): the bird mummy vessel.³⁹ Three of the five conical jars are still sealed with a lid. These containers, which were most likely purpose-made by local potteries that also produced all other necessary ceramics for the priests and temples associated with the catacombs, have been identified as the most cost-effective option, especially for boxing bird mummies.⁴⁰ Their ceramic fabric is a coarse Nile C with many inclusions of sand, limestone, and a high amount of straw temper. At Tuna el-Gebel,

³⁶ This applies for most of the cat and dog mummies; for unpotted ibis mummies see Nicholson 2019.

³⁷ For wooden baboon coffins, see, e.g., Bongrani Fanfoni 1978; Zaghloul 1994; Ebeid 2018; for a wooden theriomorphic coffin for a baboon, see D'Auria et al. 1988, 231.

³⁸ Nicholson 2005; Davies and Smith 2005; Hölzl 2018; Nicholson 2022.

³⁹ For some parallels, see, e.g., Ikram and Iskander 2002; Raven and Taconis 2005, 288–291.

⁴⁰ Ikram 2015.



Fig. 1: The bird mummy vessels Turin Cat. 3506/1–3 (Late to Ptolemaic Periods). Photo Museo Egizio, Turin.

such lidded vessels – which were meant for one bird mummy only – are known as “type MB 1b2” and mainly occur in the 30th Dynasty,⁴¹ providing a close typological indication for dating the Turin pieces. Their provenance remains to be determined.

The immense number of such vessels and their typological uniformity in tandem attest to a veritable mass production requiring vast resources, not only of clay and temper but also fuel, as well as large

workshops with an extensive labour force, which had to be remunerated by the state-run animal necropolis institutions.⁴² The production of this type of animal mummy container in such vast numbers, however, corroborates in turn that these are the most inexpensive solutions for boxing animal mummies. In addition to the said bird mummy vessels, also clay coffins imitating the shape of an ibis as well as larger ceramic handmade boxes in the style of stone coffins, into which wooden animal mummy containers were placed, are, e.g., known from Tuna el-Gebel.⁴³

Wooden Containers for Animal Mummies

Wooden containers for faunal remains can be ranked second in economic value. Their material quality, production, and finishing, however, are quite diversified. While the primary material of wood alone constitutes a very

⁴¹ von den Driesch et al. 2005; Steinmann 2005.

⁴² For a recent discussion of pottery production and economy, see Doherty 2020; for a pottery workshop at Tuna el-Gebel, see Lembke 2008; and for pottery production in temple contexts, see Ballet 2002.

⁴³ von den Driesch et al., 2005; Steinmann 2005; Schlüter 2020.

volatile economic factor (depending on the different tree species, wood sourced from far away or freshly cut, its processing as one-piece or in the form of smaller composite elements, the usage of different joining techniques or the re-use of old wood), a coating with paste and the presence – and execution quality – of decoration and inscriptions also add to the economic value of the artefact. Since a wood species identification has not been undertaken on the animal mummy coffins in Turin, questions about the provenance and quality of the wood and the economic implications of these two factors cannot currently be addressed. Regarding their final placement, (decorated) wooden containers were often placed in larger stone or ceramic boxes, as is, e.g., known from Tuna el-Gebel.⁴⁴ In these cases, the two materials contribute to the expenditures for, and the value of, the respective mummy and its deposition. The wooden coffins for faunal remains in the Turin collection appear in several main design types (key examples in Figs. 2 & 3) and thus, at least partly, represent the known spectrum of such objects. Without any claim to completeness, the various forms can be divided into the following design groups:

- A) rectangular coffin (Fig. 2-A: cat coffin Cat. 2450, 44.5 x 18.8 x 10.3 cm)
- B) *qeresu*-coffin (Fig. 2-B: *qeresu*-coffin of a cat Cat. 2371, 49.8 x 24.7 x 23.5 cm)
- C) mummiform coffin with animal head (Fig. 2-C: falcon coffin Cat. 2374/1, 49 x 15 x 14 cm)
- D) theriomorphic container without base (Fig. 3-A: fish coffin Cat. 2390, 11 x 8.4 x 2 cm)
- E) theriomorphic container on base (Fig. 3-B: cat coffin Cat. 2358, 43.4 x 37.5 x 18 cm)
- F) (rectangular) box surmounted by animal (Fig. 3-C: fish coffin Cat. 2393/1, 32.5 x 9.5 x 9.1 cm; D: shrew coffin Cat. 2399, 13.8 x 5.9 x 4.5 cm; E: snake coffin Cat. 2402/1, 15 x 8 x 8 cm)
- G) singular obelisk on base (Fig. 3-F: Cat. 2407, 37 x 26 x 10.50 cm)
- H) Osiris seated or standing in front of an obelisk (Fig. 3-G: Cat. 2418, 14.7 x 7.5 x 5 cm)

⁴⁴ von den Driesch et al. 2005; Steinmann 2005; Schlüter 2020.



Fig. 2: Selection of wooden animal mummy coffins in the Turin collection (Late to Ptolemaic Periods). Photos Museo Egizio, Turin.

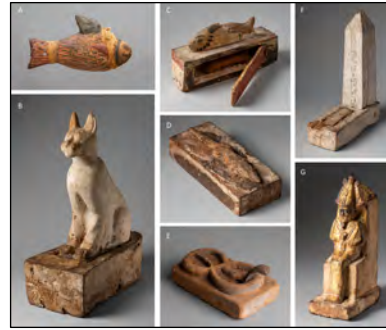


Fig. 3: Selection of wooden animal mummy coffins in the Turin collection (Late to Ptolemaic Periods). Photos Museo Egizio, Turin.

All these wooden animal mummy containers are not only typologically different from each other but were also manufactured using varied wood-working methods. Dimension and complexity – both in terms of the artefact as well as the size and number of wooden elements used – represent the base layer of their cost and value. Considering the wood and its workmanship as a first criterion, several technological approaches are represented in the Turin assemblage. Small boxes with a relief representation of the creature positioned on top are often made from one piece of wood. These seemingly inexpensive artefacts might, however, be more costly, since the animal had to be carved from the wooden block with quite an amount of waste and offcuts. The lids for sealing the hollowed-out interior cavities with the mummy packages and any extensive parts of the creatures, which had to be individually carved, were, if required, added to the core piece.

Theriomorphic or mummiform coffins were often created with two halves for the body, either roughly carved or shaped with lots of attention to detail according to the animal in question. The mummy package was usually placed inside the two halves, which could be fixed to a base of various forms and dimensions. Further details or necessary constructional elements were joined as separate wooden parts which, in the case of animal extremities or body parts, also needed to be skilfully carved from pieces of wood. Larger rectangular coffins were made of several wooden pieces, depending on the availability of panels large enough and the constructional complexity of the container type, which is the case particularly for the *qeresu*-coffins, whose upper part is rather elaborate due to its four corner pillars and canopy construction.

The different methods of joining – e.g., butt, bridle, and mitre joint, or with small dowels or via the mortise and tenon-technique – also contribute to the expenses for and the value of the artefact.

Besides the size, number and joinery of wooden elements, the application of a coating of white paste (either plaster, gesso, or stucco) literally adds another layer of work, material, and value to the containers. As the coatings have not yet been analysed to allow for an identification as plaster, gesso or stucco, the term paste is used here.⁴⁵ The paste layer is usually only applied to the outer surfaces; in the case of smaller animal mummy containers, the interior cavities are also often plastered. In the case of several pieces, the paste is the only decorative treatment they received. In most cases, however, the paste acts as primer for painted ornamental decoration, ritual scenes, and/or inscriptions.⁴⁶ Another element adding an economic value is the presence of painted decoration. In many cases it is absent or reduced to a few details. In others, however, the use of colour demonstrates a more complex process with the use of multiple colours on a grouted surface, the rendering of even very small details or, vice versa, the lack of care in applying the colour with evident traces of dripping. The naturalistic enhancement of individual details of the animal's appearance is particularly widespread in fish coffins, where the eyes, fins and scales are painted. In other cases, any naturalistic renderings are practically absent, except for iconographical details that were part of the conventional representation of the respective animal or its divine counterpart.

Finally, the presence of gilding on wooden animal mummy coffins can be considered as an additional economic factor.⁴⁷ Gilding, for instance, occurs on a theriomorphic coffin for a cat (Cat. 2361) where the animal's head is enhanced by gold paint.⁴⁸ Another example is a small mummiform falcon coffin (Cat. 2375) where the head and the double crown of the raptor are gilt, most likely in order to emphasise its identification as a divine entity, either Horus or Sokar. The largest object group with gilding are the Osiris figures seated or standing in front of an obelisk, which acted as a container for faunal remains.⁴⁹ The symbolic value of gold as *flesh of the gods*⁵⁰ was likely the key impetus for

⁴⁵ On stucco and plaster, see, e.g., Godin 2000.

⁴⁶ On various painting techniques on wood and stone, see, e.g., James 1988.

⁴⁷ On gilding e.g., Hatchfield 1991; Gale et al., 2000, 367; Medina Sánchez 2013; Vigorelli et al. 2021.

⁴⁸ Pubblico 2017, 308-309, pl. CLXIV; see also Siegmann 1999 for another example.

⁴⁹ E.g., Cat. 2408, Cat. 2409, Cat. 2412, Cat. 2418 & Cat. 2419; on their particular meaning see, e.g., Satzinger 1998; Musso and Petacchi 2017; Guidotti 2021.

⁵⁰ See, e.g., Bulsink 2015; Ziegler 2018.

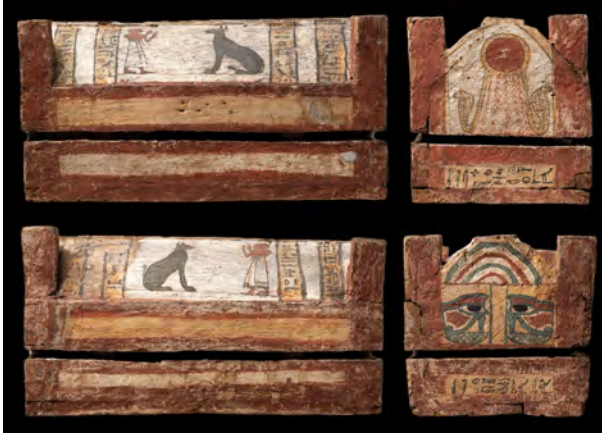


Fig. 4: The *qeresu*-coffin Cat. 2371 for a cat mummy, commissioned by Herisenefer (Late to Ptolemaic Period). Photo Museo Egizio, Turin.

gilding these objects. The sporadic presence of gold and gilding, however, suggests that this feature, which emphasised the divine nature of the represented entities, was reserved only for certain objects. They were thus likely commissioned by particular clients with the necessary financial means or made by specific workshops with access to this resource.

The higher economic value of all these individual materials, practices, and parts of the so-called *chaîne opératoire* for making wooden animal mummy containers is difficult to determine. Does the type of wood, carpentry, or the presence of elaborately painted decoration further enhance the value of the artefact? Often, the elements with an apparently high economic value come together in particular artefacts. The *qeresu*-coffin for a cat (Cat. 2371; Fig. 4), which was not only visually inspected, but also analysed via CT scans, will be used as a case study.⁵¹ The trough is made of five parts: one bottom board into which the four side panels are set. The short sides are clamped in between the panels of the long sides. Four mortises are cut on the long sides to accommodate the narrow, round-topped dowels of the lid. The lid itself is composed of 13 parts: the two lower panels of the long sides are wedged-in by the two lower short side boards. The lower short side boards are each topped by a curved piece of wood. The vault is made of three panels: the two inclined side parts rest on the central rectangular bar. The four corner pillars are angled at the base to fit onto the curved and inclined outer panels of the lid.

All surfaces of the coffin are plastered, while only the outer ones are decorated with paint. Colours were determined by autopsy only. On the long

⁵¹ Pubblico 2017, 324–328, 478–481, pls. CLXXIII–CLXXV; cf. the details of human coffin construction in Dawson 2018.

sides of the box, the white colour of the central rectangle was applied first, followed by the red colour for the remaining surface. On the short sides, the colour and decoration are the same as on the long ones with the addition of a black-painted inscription inside a rectangle. On the lid, the yellow rectangle on the long sides was painted first, followed by the red that covers the rest of the surface. The central rectangle was then outlined in a lighter shade of red. On the vault, the yellow of the four text columns was painted first, followed by the black of the texts and the colours making up the two central pictorial representations.

The texts contain a dedication to the divine cat by a certain Herisenefer, son of the priest and god's father of Amun of Karnak, Nesmin, who appears in the centre with his head shaved and his arms raised in adoration. He wears sandals and a long skirt, girded by a fringed knotted band at his waist. In front of him, at a certain distance, sits a black cat. Both figures were outlined in red, followed by the contour lines and details applied in black. On the short sides, more texts are present in the central bands enclosed by yellow rectangles. A sun disk emitting sunrays downwards, from which two uraei hang, appears on one side. Here, the colours were added to the plaster base in this order: yellow, black, red; most of the pictorial elements are outlined in black. On the opposite side, a horizontal line delimits an upper lunette where red, white, and green curved bands run parallel to the lid vault, representing the roof of a naos. In the lower part, two facing *wedjat* eyes above a *neb*-sign appear on either side of two vertical lines. Here, the yellow colour was applied first, followed by red. The *wedjat*- and *neb*-signs were outlined in black. The pupils were then added, followed by the thickly applied green sections. In contrast to the other sides, the contour lines were not done as the last step, as they underlie paint layers that were subsequently added.

Several people with the name Herisenefer are known from Late Period to Ptolemaic Period Theban epigraphical sources,⁵² however, none of them can be securely identified as the person who commissioned the cat coffin Turin

⁵² See, e.g., Clarysse 1987; Coulon 2001; Gill 2019.



Fig. 5: The opened fish coffin Cat. 2389 (1880–1640 calBC) with its barbel or perch mummy (830–540 calBC) inside. Photos Museo Egizio, Turin.

Cat. 2371. Ann-Katrin Gill⁵³ has suggested that the Herisenef of the Turin animal coffin could be identical to Herisenef I, who is known from papyrus Turin Cat. 2117, the statue Cairo TR 18/12/24/2 from the Karnak cachette, several administrative texts from Thebes, and the demotic documents of the so-called Archive of Teos and Tabis. If this were the case, the Herisenef from the Turin cat coffin could be properly dated to year 6 of Alexander the Great (327/6 BC), as Herisenef I appears in a house-sale record (pBrussels 8252) with that very date.⁵⁴ If

this were not the case, it still remains likely that the Herisenef of the Turin cat coffin belongs to that Theban family, in which certain male names were transmitted throughout the generations. Regardless of the exact identification of the coffin's ordering customer, the very name Herisenef⁵⁵ is related to the period around the time of Alexander's conquest of Egypt.

This date and the above prosopographical considerations have wider implications. While the prosopographical data suggests dating the cat coffin to the late 4th or early 3rd century BC, the radiocarbon date 770–430 calBC obtained from the coffin during the *Turin Animal Mummy Project* does not exactly help to pinpoint its chronology, since its lower date range falls out of the larger period established by prosopographical means. This issue could be explained in two ways: 1) the prosopographical reasoning is incorrect and the Herisenef of the Turin cat coffin dates earlier to within the period of 770–430 calBC; 2) the prosopographical reasoning is correct and the coffin was made from reused pieces of wood that were cut during the earlier period. A third

⁵³ Gill 2019, 3 [including the potential family tree].

⁵⁴ Depauw 2000, 81.

⁵⁵ Lüddekens et al. 1991, 751–752.

option might accommodate both scenarios: assuming an actual date of the wood closer to the lower range of the radiocarbon age would allow to identify the Turin Herisenef as an (as-of-yet unidentified) early member of the Theban Herisenef-Nesmin family.

As already mentioned above, an essential element for understanding the economic value of a wooden coffin is whether the wood was freshly purpose-cut for it, or whether old available parts or timber were re-used for assembling the piece.⁵⁶ An example for the use of an old piece of wood is the fish coffin Cat. 2389 (Fig. 5). The wood has been radiocarbon-dated to 1880–1640 calBC, while the mummy inside was dated to 830–540 calBC. The clear chronological difference thus suggests that those who were tasked with cutting this rather simple container used old available timber. Further studies of this regard would be necessary to discern whether this was a singular case, or if a pattern emerges, necessitated by the high demand of wooden containers for animal mummies.

Stone Containers for Animal Mummies

In terms of the containers made in stone, Museo Egizio's collection has three exemplars of two very particular types. While simple limestone sarcophagi, customised for the individual animal species in terms of size and inner cavities, were, for example used at Saqqara for falcon burials,⁵⁷ at Tuna el-Gebel for ibis and occasionally other mummies as well⁵⁸ or, made from hard- and sandstone, on Elephantine for the burials of the sacred rams,⁵⁹ no such piece is part of the collection in Turin. Small sarcophagi of diverse levels of workmanship made for ibis or falcon mummies are, however, known in other museums.⁶⁰ Elaborately painted rectangular or naomorphous limestone sarcophagi are attested, e.g., for cats (Brooklyn 37.1841Ea) or falcons (Louvre N 2662), whereas ibis mummies were sometimes interred in limestone coffins in the stylised form of an ibis (e.g., Louvre E 3067). Simpler rectangular and lidded boxes with an image of the creature they were intended to contain positioned on top are known, e.g., for scarabs (Louvre N 3357, from the Saqqara

⁵⁶ On reworking and reusing old wood for human coffins, see, e.g., Dawson and Turmezei 2021.

⁵⁷ Davies and Smith 2005.

⁵⁸ Thissen 1991; von den Driesch et al. 2005; Kessler 2010; Ebeid 2020.

⁵⁹ Delange and Jaritz 2013.

⁶⁰ E.g., Durham EG727, Louvre N 354 & AF 448 [Saqqara Serapeum].

Serapeum), shrews (CG 29888, probably from Saqqara, and CG 29815, probably from the Asasif), and lizards (CG 29817, probably from Abydos).⁶¹

In Turin, two Osiris figures standing in front of a hollow obelisk (Cat. 2413 & 2414 [both are empty]), and a small painted hollow naomorphous box with a shrew on top of it (Cat. 2422 [empty too])⁶² represent the material stone within the group of animal mummy containers (Fig. 6). The two hollow stone obelisks fronted by a figure of Osiris reflect, both in terms of iconography and function, the many wooden representatives of the same type.⁶³ The small shrew coffin is the stone link between the wooden and bronze coffins made for the same purpose. As the three Turin stone coffins for animal mummies are rather small and made of (most likely locally procured) limestone, their production was not particularly time- and resource-intensive, but still required the skilled hand of artisans who not only carved the relief but also – in the case of the shrew coffin Cat. 2422 – painted the artefact following the relevant artistic conventions.



Fig. 6: The Osiris figures in front of an obelisk Turin Cat. 2413 & Cat. 2414 and the painted naomorphous box with a lateral opening and a small shrew figure on top Cat. 2422 (Late to Ptolemaic Periods). Photos Museo Egizio, Turin.

⁶¹ Ikram and Iskander 2002.

⁶² Cf. Ikram 2005 for a loose parallel.

⁶³ See above.

Metal Containers for Animal Mummies

So-called bronze votive coffins represent a particular materiality within the object group of animal mummy containers.⁶⁴ As the term and its use imply, these artefacts are hollow-cast bronze devices used

as receptacles for faunal remains. Although the archaeo-

logical provenance of the Turin bronze votive coffins is largely unknown, circumstantial evidence allows to generally identify their findspots as the animal necropoleis at Saqqara, Sais, and Bubastis,⁶⁵ which were intensely targeted early on by antiquities robbers and dealers. The Turin collection comprises most of the design types which are also known from these sites and other museum collections.⁶⁶ While there is a general typological uniformity, each object is a unique artefact, being the result of individual choices – both artistic and technological – on the part of those who were tasked to produce it. The uniqueness of each bronze coffin lies in fact that the direct lost-wax method was used, which does not require the use of piece-moulds.⁶⁷

The Turin collection of bronze votive coffins is comprised of 26 pieces (Tab. 2 & Fig. 7). Shrew or ichneumon figures standing on plinths (Cat. 927–931) are difficult to attribute to the bronze coffin category, as it is not clear whether they are stand-alone animal figures, fragments of bronze coffins or were sliding-in metal parts of wooden boxes. The small hollow cat heads (Cat. 894–895; Suppl. 29117) were either stand-alone votives, too, or parts of composite

Type	Inventory Numbers	Number
Hollow cat figure (size 34.5 – 10.8 cm)	Cat. 873; Cat. 874; Cat. 875; Cat. 876; Cat. 877; Cat. 886; Cat. 887; Suppl. 18201 (= Cat. 893 [head fragment])	8(+1)
Group of five cats/kittens on box	Cat. 892	1
Hollow falcon figure (without base)	Cat. 980; Prov. 5220	2
Falcon on box (rectangular / naomorphous)	Cat. 2380; Cat. 2381; Cat. 2385; Cat. 2405	4 (3 / 2)
Group of three falcons on rectangular box	Cat. 2382	1
Shrew on box (rectangular / naomorphous)	Cat. 926; S. 18098; Suppl. 18099	3 (1 / 2)
Ichneumon on rectangular box	Suppl. 19134 A	1
Lizard on rectangular box	Cat. 2397; Cat. 2398; Suppl. 18071	3
Hybrid (eel/cobra/divine) creature on rectangular box	Cat. 2400/1; Cat. 2401/1	2
Osiris standing in front of obelisk	Cat. 2421	1

Tab. 2: List of the bronze votive coffins in the Turin collection according to their type

⁶⁴ Charron 2012; Thum 2012; Weiß 2012; Masson-Berghoff and O'Flynn 2019.

⁶⁵ For those sites and the bronze votive coffins found there, see esp. Weiß 2012.

⁶⁶ E.g., Grenier 2002; Thum 2012.

⁶⁷ On the differences between the direct and indirect lost-wax casting methods, see, e.g., Craddock 2015.

figures consisting of a wooden base and body and a bronze head.⁶⁸ As such, they would represent an intermediary material group, in which wood and metal are combined. Taking a more detailed – but still rather superficial – look at these pieces in terms of their economic implications, several object-related criteria can be considered. Size, weight, and overall volume are the initial indices of paramount importance for assessing their value. Only the parameter of size shall be briefly addressed here: the height of the cat figures ranges from around 35 to 11 cm, the length of the falcon coffins is from 17 to 6 cm and the length of the shrew boxes, from 14 to 5 cm. By putting these dimensions into the context of manufacture and expenditure of material in the lost-wax method for casting hollow objects,⁶⁹ one realises immediately that the larger the artefact, the more material, resources, time, skill, and hands had to be employed. Among the key materials needed for creating such objects are e.g., beeswax for the wax model, purpose-made ceramic material(s) for both the casting core and the mould layers, small iron wire for the core supports and the required bronze charge, next to all the working tools, furnace installations and fuel resources necessary for producing the artefacts.

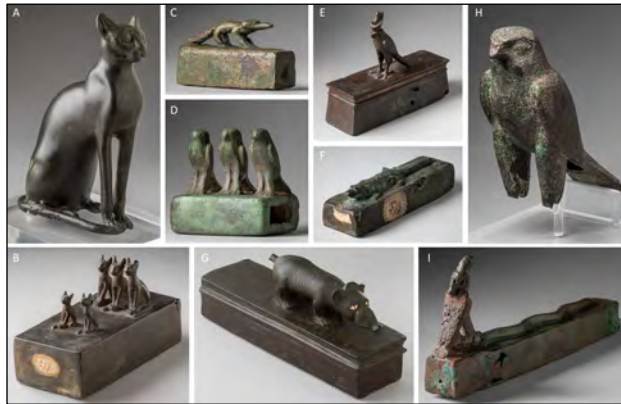


Fig. 7: Selection of bronze votive coffins in the Turin collection (Late to Ptolemaic Periods). A: cat coffin Cat. 867; B: cat box Cat. 892; C: shrew box Suppl. 18099; D: falcon box Cat. 2382; E: falcon box Cat. 2405; F: lizard/gecko box Cat. 2397; G: shrew box Cat. 926; H: falcon coffin Cat. 980 and I: hybrid creature box Cat. 2400/1. Photos Museo Egizio, Turin.

⁶⁸ See, e.g., CG 29778: Gaillard and Daressy 1905, 134.

⁶⁹ For this method, see, e.g., Rama 1995; Sias 2005; Campbell 2015.

The more elaborate the object to be cast was, the more time, resources and work stages were needed as part of the *chaîne opératoire*, which includes: making a casting core, creating the wax model including the gating system, modelling decorative details, fitting the iron core supports, adding the outer mould layers, firing and dewaxing the mould, preparing and casting the bronze charge, destroying the mould and cleaning and finishing the object. It is worth noting that most bronze containers were cast as one-piece objects in a highly skilled fashion, so that no additional time, effort, or resources for further producing additional elements were needed. Since decorative details such as the plumage of the falcons or inscriptions were almost always incised in the original wax model, more costly post-casting work could also be avoided. The few attested inscriptions mention the object's customer only by name and filiation, so that no further prosopographical appraisal of their profession or status is possible.⁷⁰ The incision of the inscription on the original wax model suggests that the bronze workshops were most likely directly commissioned by the customers to make the very product they desired.

The stages of work outlined above, and their successful execution, relied not only on skill and knowledge, but also on the access to and availability of several resources such as beeswax, fuel, clay, sand, organic and inorganic temper, but most of all, copper, tin, and lead to alloy and prepare the bronze charge.⁷¹ Based on the compositional analysis of bronzes from Naukratis and Tell Defenneh,⁷² it has been evidenced that the copper deposits from Faynan or from north-western Anatolia might have been sourced as the main metal ingredient. The lead seems to originate particularly from Laurion in Attica, as well as the northern Aegean and/or Anatolia.⁷³ The multiplicity of sources reflects the enormous complexity of international trade in the Eastern Mediterranean in the 1st millennium BC, which has wider implications beyond the production methods for understanding and quantifying the huge metal demand during the Late Period and beyond, which is evidenced in the vast number of bronze votive figures and animal mummy containers.

⁷⁰ Generally on those texts, De Meulenaere 1990; Weiß 2012, 482-486; on small divine statuary in bronze with inscriptions naming their donors, see Hill 2019.

⁷¹ Cf., e.g., Rademakers and Rehren 2016; Rademakers et al. 2018.

⁷² Masson-Berghoff et al. 2018; Masson-Berghoff and Pernicka 2019.

⁷³ See also Schwab and Willer 2016 for another data set.

Discussion

The choice and use of materials for animal mummy containers represent key elements in the economy of outfitting animal mummies. Alongside the use of dead animals to begin with, the tools for their evisceration, the natron for their desiccation and removal of fat, anointing them with oils and resins, wrapping them in linen bandages, and manufacturing burial containers in the materials and forms discussed here all contribute to the effort of embalming and boxing animal mummies.⁷⁴ This process could have been undertaken with utmost care and using the costliest materials, or, hastily and cheap, so that the costs for each mummy and its container could vary considerably. Many animal mummies were not interred in special containers, suggesting a lower price and overall production value, and some were often deposited in layers on the ground, each layer separated by matting.⁷⁵ However, bird, feline and canine mummies were often sophisticatedly wrapped with linen bandages, creating very colourful geometrical patterns on the front.⁷⁶ This quite costly and skilful treatment could be understood as an alternative to placing an animal mummy in a coffin. Using the Turin animal mummy container collection as a case study, wood seems to have been the preferred material for producing containers for the largest number of species (Tab. 1). The material bronze ranks second in its use for making coffins for animals. Ceramic and stone are underrepresented in the Museo Egizio, clearly a result of its collection and related excavation history and not a reflection of the archaeological evidence.

More than a million bird mummies were produced,⁷⁷ most of which were deposited without special containers or in ceramic vessels. Less frequently, ibis mummies were also deposited in stone coffins. Against this enormous number, the rarer wooden coffins, which could additionally be placed into stone sarcophagi, and bronze containers stand out, which were also used for boxing more species. In this context, a more precise understanding of the value of the material and of its working would be key to addressing further economic implications. Within the different material categories, a stark scaling in terms of the value of the coffin becomes apparent, determined by the

⁷⁴ Ikram 2015.

⁷⁵ S. Ikram, personal communication.

⁷⁶ See, e.g., Tarek et al. 2019; Tamburini et al. 2021.

⁷⁷ See, e.g., Kessler 2005; Ikram 2015, 7; Nicholson et al. 2021, 12–13.

size and quality of execution. Once larger collections of such containers and more studies of the economy of the 1st millennium BC with a focus on the animal mummy and animal mummy container industry are published, it might be feasible to study the value and choice of material more precisely. The aim would be to find out if there are some standard designs and sizes and whether material, size and other categories related to the manufacture of the objects can be used to say more about the social background of the people who commissioned the individual pieces.

In view of the above considerations, it is pivotal to bear in mind that these economic observations are primarily established according to a modern economical yardstick, which is not part of the Egyptian mindset. Cooney's conceptualisation of the "functional materialism" of Ramesside period human coffins can be made fruitful here.⁷⁸ These had to fulfil a variety of roles, not only as containers protecting the dead body, but also as artefacts that were imbued with magic, symbolic, and social significance. This meaningfulness even led to a "sociocultural pressure to purchase the most impressive array of funerary equipment – to the very limits of one's financial ability".⁷⁹ While animal mummies and their containers surely had a quite different cultural and ritual significance, their donation and deposition – as private votive objects or as state-mediated offerings to the gods – were likely following culturally negotiated rules of decorum, status, and prestige as well. One might even suspect that there was some competition between the various donors or sponsors of the animal mummy coffins in terms of material, quality, and value. This competition materialised in the wide range of differing coffins, from the cheapest variants to the ostentatious and pricey ones. But did the Egyptians differentiate between products of different quality, and if so, how? Or did functionality take precedence over aesthetic quality? A coffin was probably valued more for its ritual function than for its aesthetics⁸⁰ and – in the case of the animal mummy containers – the mere act of ritually depositing them in the animal necropolis was key to activate their functionality, regardless of their artistic or aesthetic qualities.

However, the facts that the animal mummy containers come in these varying materials and that they represent a plethora of gradations in terms of workmanship, quality and features speak for a deliberate choice regarding

⁷⁸ Cooney 2007a; *ead.* 2007b.

⁷⁹ Cooney 2007b, 273.

⁸⁰ Cooney 2007a, 177-182.

execution, prestige and value by the entities that commissioned them. The reasons for the selection of the different materials cannot be addressed here in more detail. One might think of prize, chronology, location, and socio-economic background of the customers. Evidence from Tuna el-Gebel suggests that special individual animals were buried in more elaborate coffins.⁸¹ Furthermore, it seems possible that the cheaper forms of animal mummy coffins – which are also the ones encountered in the masses – were in the hands of the priests and the state in order to maintain the animal cult and the related rituals. In contrast, the more elaborate and often also inscribed animal mummy containers made of wood, stone, or bronze might have been gifts from individuals to the respective temples and catacombs, to mark a donation or economic benefaction to the respective temples or ritual settings, as it has been argued for small bronze statues of divinities.⁸²

The fact that votive animal mummies quite often do not contain complete mummified animals, but only parts thereof or nothing at all⁸³ suggests that these pieces still retained their ritual value and communicative significance.⁸⁴ A part of an animal was either sufficient to represent the whole creature, or the mere act of ritually depositing such a package induced its agency. In this regard, it seems that quality understood in the modern sense of the term was not decisive. The aesthetic aspect, however, was surely not neglected and was not only influenced by the fashion and tastes of the time, but also by individual decisions and the social standing of those who commissioned the individual animal mummy containers. Certain materials might have been more appropriate for particular creatures than others, and particular material choices and combinations might have been favoured by the commissioning institutions or individuals, for whom quality and value may have been a way of communicating and affirming their status before both the community and the god(s).

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⁸¹ Kessler 2010.

⁸² Cf., De Meulenaere 1990; Hill 2019.

⁸³ Ikram and Iskander 2002.

⁸⁴ On animal mummies as ritual communicative devices, Bleiberg 2013.

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Gift to Sobek

Preliminary Results of the Analysis of a Young Crocodile Mummy in the Allard Pierson

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Introduction

In 2018 the Allard Pierson – Collections of the University of Amsterdam acquired the mummy of a young crocodile at an auction of Bonhams London (Fig. 1, inventory number APM17925).¹ For the Allard Pierson this was a welcome addition to the small collection of animal mummies that was then used to illustrate religious beliefs in the later periods of ancient Egyptian history. Before including the mummy in the permanent exhibition which was renewed in 2019-2020, the Allard Pierson decided to more thoroughly analyze and investigate its animal mummies. This process started in summer 2021 when the thirteen mummies in the collection were CT-scanned and X-rayed in the Amsterdam University Medical Centers (Amsterdam UMC). Most of these mummies had never been investigated before. Research questions focused on species identification, pathology of the individual animals, conservation and restauration issues, and questions related to the process of mummification.



Fig. 1: Allard Pierson crocodile mummy APM17925, length 107 cm. Photo Allard Pierson, Collections of the University of Amsterdam.

¹ Bonhams London, Antiquities Auction, Catalogue, Thursday 5 July 2018, 138.

Preliminary results were presented in a small exhibition in which the museum visitor could also participate by digitally unwrapping the mummy and formulating research questions. After the exhibition, analyses continued, and the combined effort of radiological, taxonomic and Egyptological expertise enabled the project team to present some of the preliminary results at the ISAAE3 conference.

Provenience and provenance

The provenance history recorded for the crocodile mummy when it entered the Allard Pierson collection traced it back to the Cabinet of Curiosities of Walter Potter (1835-1918), a taxidermist and collector who lived his whole life in the village of Bramber, Sussex, UK.² His Victorian cabinet consisted of humanized animal dioramas, including the famous ‘Death and Burial of Cock Robin’. The cabinet also included more conventional taxidermic specimens as well as curiosities varying from ethnographic and Victorian objects, to archaeological artefacts. All these were exhibited mostly in Victorian display cases in a small building behind the inn of Potter’s father. After Potter’s death in 1918 the contents of the cabinet moved several times, as described by Pat Morris.³ Subsequent owners moved the collection, and in some cases, added objects to the collection.⁴ In 2001 the then owners of the collection retired, and it could no longer be kept together. At an auction by Bonhams in 2003 the objects were dispersed throughout England and the world.⁵ The crocodile mummy was sold again in 2004 at Christie’s London and then again by Bonhams London in 2018.⁶ On all occasions the mummy was accompanied by a Victorian black metal and glass display case,⁷ and reported to have a now-missing old label with the text:

“Ancient Egyptian mummified crocodile. Found at Kam On in Egypt, circa 2000 BC. Sacred to the God Sobeh and worshipped in cities that depended on water, such as the oasis of Crocodilopolis.”

² Van Haarlem 2020, 27; Morris 2013, 2-8.

³ Morris 2013, 8-17.

⁴ Personal communication with Dr. Pat Morris (May–June 2022). See also *ivi*, 8.

⁵ Bonhams London, The sale of the Contents of Mr Potter’s Museum of Curiosities in Bramber, Sussex and then Arundel, Catalogue, 23-24 September 2003.

⁶ Van Haarlem 2020, 27.

⁷ Images exist of the case mounted against a wall in the building where the collection was between 1988 until 2001. Presently, the case is also kept in the collection of the Allard Pierson.

If authentic, then this information seems to relate the crocodile to Kom Ombo, though it does not indicate the context in which it went from Egypt to Britain. The mention of 2000 BC is also remarkable as most mummified crocodiles date from the Ptolemaic and Roman periods, though animal mummies from other sites have also wrongly been attributed to the same period in the 19th century.⁸ The 2003 Bonhams auction catalogue indicates that the collection at that time included multiple crocodiles that were all dated from late 19th until early 20th century AD.⁹ It was not uncommon for a mummified crocodile to be displayed together with mounted/taxidermied specimens.¹⁰

Based on a study of the different surviving catalogues associated with the collection, it seems as if the crocodile mummy was not part of the original Potter collection but might have been added to it between 1972 and 1986 by Mr. James Cartland, a Brighton antiques dealer who acquired the Potter collection in 1972. However, as we cannot be certain about whether earlier catalogues give an overview of the *complete* collection, it is not impossible that the mummified crocodile entered Potter's collection pre-1972 or was even added by Potter himself. It is known that, after the opening of a new museum building at Bramber in the 1880s, Potter's reputation encouraged people to bring material to him, both deceased favorite pets, but also interesting material for his cabinet. This too is the time when animal mummies arrived in England from Egypt in large numbers,¹¹ and it is possible that the crocodile was either purchased by Potter or gifted to him at this time. Further archival research will hopefully reveal more information.

Description of the wrappings

This young crocodile has been wrapped spirally within an apparently single broad band of textile with frayed sides.¹² The weave type is a simple tabby weave which is uniform throughout.¹³ The wrapping started at the head and moved to the tail end, as indicated by the overlap. An occasional fold in the band of textile points towards a less systematic wrapping process. At several

⁸ Cooke 2015, 51.

⁹ Bonhams London, The sale of the Contents of Mr Potter's Museum of Curiosities in Bramber, Sussex and then Arundel, Catalogue, 23-24 September 2003, lots 19, 581 and 618.

¹⁰ Cooke 2015, 49.

¹¹ *Ivi*, 51.

¹² See Incordino and Oliva 2021, 144.

¹³ Van 't Hooft 1994, 16-17.

locations the textile is damaged. This may have occurred through wear, e.g., on the protruding parts like joints (proper left and right front legs and, proper right back leg), but also inflicted damage, for example, a small hole at the height of the proper right lower right back.

Several cords, presumably of plant fibers but still to be analyzed, are tied around the bandaged mummy. Three similar type thicker cords (diam. 5 mm), spun in an S-turn, are: 1) around the neck with a tightened double flat knot on the neck leaving some spacing and then a second double flat knot; 2) on the pelvis, knotted on the underside, and; 3) on the tail with a double flat knot near the proper right underside. Three thin cords (diam. 1 mm), spun in a Z-turn, are: 1) tightly bound around the neck and fixed by overlap without knot(s); 2) remains on the thick thread at the pelvis; and 3) around the tail without visible knot(s). Based on their strongly regular spiraling and less worn character it is currently believed that all these cords are later additions to the mummy, possibly to stabilize it. No other stabilizing has been detected except for a small pin or needle inside the mummy in the proper left rear paw area, clearly a modern addition.

The skull of the crocodile is no longer attached to the spine and is held in place by the textile which has strongly frayed edges on the proper right side. The neck area is damaged, and the textile is much more frayed in this location than in other areas. In general, it can be concluded that the wrappings in the head area are loose and no longer fully encompass the remains within (bones are visible). Hence there is direct access from the outside to the skull and neck area of the crocodile.

Radiological analysis

The radiological analysis of the 107 cm long crocodile resulted in several interesting observations. First of all, it was established that the skull was no longer in an anatomical connection as it was upside down in relation to the rest of the body, and the three anterior neck vertebrae (C1-C3) are missing (Fig. 2). On the remaining bones no injuries related to the detachment of the skull could be observed so far. The small postoccipital scales seem to be missing. The nuchal scales are present, suggesting that only a small part of the neck skin is missing. No incision to remove viscera has been observed yet and the presence of high density rounded objects (gastroliths, presumably small pebbles) in the digestive tract seems to indicate that the viscera were left in place (Fig. 3).¹⁴ The belly and chest area show 'folded' skin, which may be due to shrinking related to the drying process. The animal still has all its legs, which are stretched posteriorly alongside the body and tail. Both the neck and pelvis area show distortion and/or damage (Fig. 4). Currently, it cannot be assessed



Fig. 2: Skull of the crocodile upside down in the wrappings and separated from the neck vertebrae. Photo Amsterdam UMC.



Fig. 3: Gastroliths in the crocodile digestive tract. Photo Amsterdam UMC.

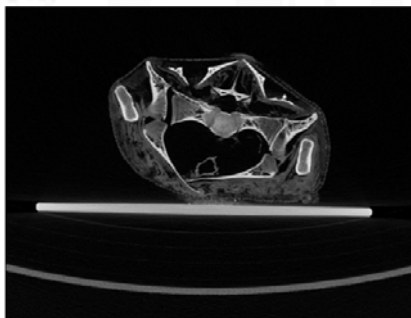


Fig. 4: Distortion of the pelvic area of the mummy with the os pubis disjoined. Photo Amsterdam UMC.

¹⁴ Anderson and Antoine 2019, 35 n. 5.

whether this was ancient or modern. A small fragment of the tail, the length of 2,5 vertebrae, is preserved separate from the rest of the tail.

Morphological analysis of the skull

The skull is in a good condition and shows only slight damage (Fig. 5). In the premaxilla the anterior wall of the alveola of the first tooth and the tooth itself are missing. The second small tooth on both sides is clearly visible. The left and right mandible halves have both fallen apart (not broken) into their constituent parts. The left maxilla bears 16, the right one 17 teeth of variable length of which the first five (including the missing first one) teeth are separated from the remainder by a large diastema in which fits the fourth tooth of the lower jaw. The lower jaw is incomplete. It is represented by six carefully separated parts (dentary, angular and splenial of each side), which together form the anterior part of the lower jaw. The left dentary bears 12 teeth, the right one 11. Three of the lower jaw bones (right dentary, left angular and left splenial) are, like the skull, still within the mummy wrappings, while the other three lower jaw bones are currently not within the mummy, but preserved separately. The posterior (articulating) parts of the lower jaw (articular, supra-angular, coronoid from both sides) are missing. All the individual bones of the anterior lower jaw are complete and suggest that the lower jaw has carefully been completely macerated into its composing parts. What happened to the missing posterior part of the lower jaw remains a mystery.



Fig. 5: 3D Cinematic Rendering of the crocodile skull and three fragments of the lower jaw. Photo Amsterdam UMC.

Conclusion and future research

After the acquisition of the crocodile mummy by the Allard Pierson in 2018, it has been subjected to radiological scanning to find out more about its current state of preservation and answer some of the most basic questions about its condition. The mummy seems to have had a turbulent history, which

has left it in a very fragile state. Its possible role in a cabinet of curiosities, where objects were sometimes (frequently) touched and sometimes damaged, might be a reason for this state.¹⁵ Radiology revealed the state of preservation and provided information that the skull is currently upside-down in relation to the rest of the body, vertebrae C1-C3 were missing, and that the animal had not been eviscerated as the stomach contents were in situ. Further analyses of the data generated by the scanning process possibly will provide more information about the mummy. The results from the morphological analysis will be related to an ongoing DNA-analysis which has recently proved pivotal in distinguishing *Crocodylus suchus* from *Crocodylus niloticus* in mummified specimens and nuancing both our understanding of the species' dispersal in Africa as well as ancient choices for 'mummy material'.¹⁶

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¹⁵ Morris 2013, 12.

¹⁶ Hekkala et al. 2020, Hekkala et al. 2011, Porcier et al 2019.

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The Faunal Remains from the “Economic Annexes” at the Temple of Millions of Years of Amenhotep II (Luxor, West Bank)

Fabio Bona

Introduction

In the last twenty years research undertaken by the *Centro di Egittologia F. Ballerini* has revealed the complex history of the area occupied by the Temple of Millions of Years of Amenhotep II in Western Thebes, which underwent an intensive funerary use and reuse from the Middle Kingdom up to Ptolemaic times¹. During the excavation of the tombs and the “economic annexes” many animal bones were recovered.²

The goal of the work is to understand as much as possible, through the study of a limited amount of faunal remains, about the forms of management and exploitation of food resources during the “life” of the temple and during subsequent modifications of the area.

The osteological finds were collected during the excavation of various fillings of floor layouts and reconstruction of the wall structures of the so-called “economic annexes” located in the southern sector of the Temple of Millions of Years temple of Amenhotep II.

Materials and Methods

The animal bones consist of 1,123 specimens collected during field excavations in 2013/2014, 2014/2015 and 2019/2020 (Tabs. 1 & 2). The bones represent three classes of vertebrate: mammal, bird and fish. Fragments of shells of freshwater clam are present too. The finds without clear stratigraphic indications were not used for this work. The ceramics finds are still being studied.

¹ Sesana 2010; Sesana and Quirino 2010; Consonni et al. 2017; Sesana et al. 2020.

² Bona et al. 2019; Bona et al. 2021; Sesana et al. 2020.

The identification of the bones collected during the excavations was conducted in the field, mainly using published osteological images.³ In addition to identifying species, anatomical element, age, and sex, the bones were examined to identify traces of butchery, burning and various other taphonomic processes. The nomenclature used for domestic mammals follows Gentry et al.⁴ The following parameters were calculated: NISP (Number of Identifiable Specimens) and MNI (Minimum Number of Individuals) for each taxon. The MNI estimates were calculated following Bökönyi, Klein and Cruz-Urbe and De Grossi Mazzorin.⁵

Distinction between sheep and goats was made primarily using the criteria of Boessneck et al. and Prummel and Frisch.⁶ Sexing was based on morphological characteristics of the horns in sheep⁷ and the presence of *baculum* in dogs. The tooth-wear stage of the domestic mammals was recorded following Payne and Grant.⁸ The fusion stages of post-cranial bones were observed and related to age ranges following Barone.⁹ Measurements of skeletal elements were taken following Von den Driesch.¹⁰ The sizes of the animals were estimated using the parameters proposed by Matolcsifor cattle (*Bos taurus*),¹¹ Teichert for sheep (*Ovis aries*),¹² and Koudelka and Harcourt for dogs (*Canis familiaris*).¹³

Stratigraphic evolution of the walled structures of the southern sector of the Temple of Millions of Years of Amenhotep II

The stratigraphic situation of the so called "economic annexes" is complicated as a result of centuries of work of restoration and sometimes of rebuilding. The stratigraphic sections, drawn along the walls of selected rooms, allow us to understand these numerous phases of renovation of buildings and to understand the construction phases and thus the chronology of the deposition

³ Barone 1995; Pales and Garcia 1981; Pales and Lambert 1971; Cohen and Serjeantson 1996.

⁴ Gentry et al. 2004.

⁵ Bökönyi 1970; Cruz-Urbe 1984; De Grossi Mazzorin 2008, with references.

⁶ Boessneck et al. 1964; Prummel and Frisch 1986.

⁷ Boessneck et al. 1964.

⁸ Payne 1973; Grant 1982.

⁹ Barone 1995.

¹⁰ Von den Driesch 1976.

¹¹ Matolcsi 1970.

¹² Teichert 1975.

¹³ Koudelka 1884; Harcourt 1974.

of the bones. Excavations revealed the differences in the use-phases when the area was reorganised.

From a stratigraphic point of view, we see a FIRST PHASE that involves the creation of a first *Dakka* layer (Dakka 3 -Fig. 2) (compacted silty sediment forming a stabilised walking surface and, in some cases, functioning as a base supporting an unfired brick floor) directly on the bedrock (*Gebel*, a cemented heterometric coarse gravel body resulting from the accumulation of deposits of coarse materials coming from the nearby Theban Mountain by means of gravitational accumulation). Some perimeter walls, made of unfired bricks, of structures abutting the external wall of the mud brick temple that was built directly on the *Gebel*, are associated with this first *Dakka*. This phase likely represents the earliest work related to the construction of Amenhotep II's temple. In Amb. 22 and Amb. 17, from Dakka 3, some animal bones have been collected.

Subsequently, in PHASE TWO, the area was levelled, with much use of large fragments (up to, and over, 15 cm) of yellow sandstone, probably waste from the working of stone material to produce the columns, statues, and other architectural features that, today, have almost completely disappeared.¹⁴ The unfired bricks retaining wall of the inner temple enclosure also rests on this infill. During this phase the built area of the southern part of the "Economic Annexes" grows considerably. The arenaceous infill contains ceramic and animal remains (Dakka 2 and Filling 2, 2b and 2c).

PHASE THREE and PHASE FOUR, probably close together in time, see the further northwards expansion of the buildings and a more pronounced internal subdivision of the space, often reducing the dimensions of the rooms. In the sediments that characterized these phases some animal bones are present, mainly in Dakka 1 and Filling 2a.

PHASE FIVE is limited to a few changes, probably almost contemporaneous with PHASE THREE and PHASE FOUR.

PHASE SIX, on the other hand, sees a distinct – and later – layout of the structures with functional infilling to change several internal spaces and the realisation of new walls that have, at the base of the foundation, tens of centimetres of heterogeneous infill, often made up of large deposits of ash (e.g., north wall of room 23). Few animal remains come from Filling 1, 1a, 1b and 1c.

¹⁴ Sesana 2010.

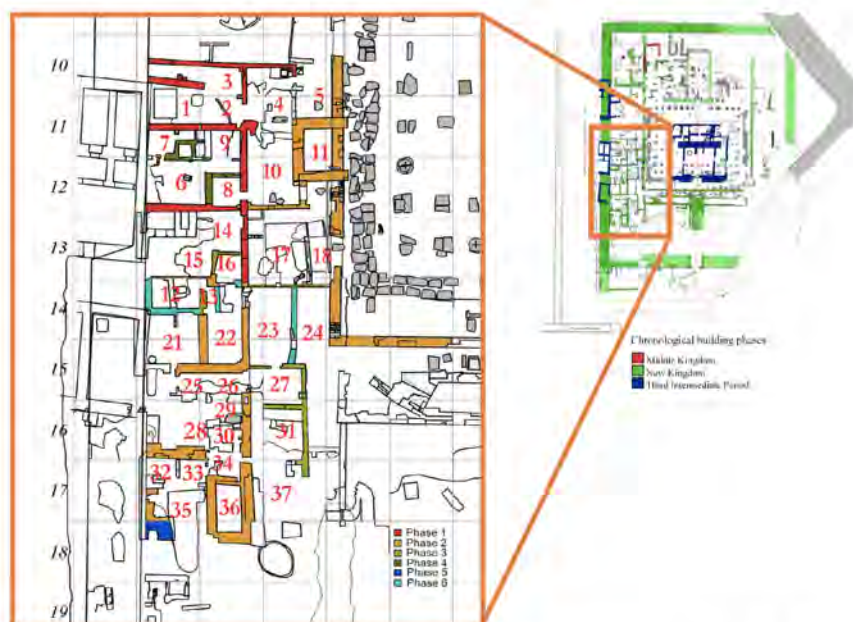


Fig. 1: Plan of the Temple of Millions of Years of Amenhotep II where the distribution of rooms are underline in red.

At this point in our research, we do not have enough evidence to be certain, but it seems that there may have been a PHASE SEVEN, perhaps contemporary with the reorganisation of the internal courtyard, which involved the construction of a Third Intermediate Period (beginning of the first millennium BC) pylon, a levelling of the walls and the construction of an inclined surface leading up to the courtyard level (Figs. 1 & 2)

Faunal remains

Several fillings for the preparation of floors yielded remains of animals, probably consumed during the lifetime of the Temple of Millions of Years of Amenhotep II and beyond. Unfortunately, with the data currently available we are not able to verify any association between the animal skeletal remains and the ovens present in some of the rooms that were investigated. The animal remains represent at least four taxa: Mammals, Birds, Fish and Mollusks.

The best represented mammal taxon are cattle (*Bos taurus*). The cow bone remains were usually modified by man variously: cuts and/or dismembering and fire (burnt bones, sometimes heavily burned) (Fig. 3-C). The age of the cattle span from young calf to adult individual. All the bone remains are, in average, also heavy fragmented. The characteristics of the bovine remains are described, where possible, below rooms by rooms and in consideration of the stratigraphy.

Amb. 8. Dakka 1: the scattered remains are attributable to two individuals, one adult (more than 40-48 months) and one young (less than 15-18 months). Dakka 2: the two individuals detected was both younger than 48 months.

Amb. 10. Dakka 1: the remains allowed to identify two different individuals, one juvenile and the second older than 24-30 months.

Amb. 17. Dakka 1: at least two individuals, one juvenile and one older than 20-24 months. Filling 1a: one individual younger than 20-24 months. Dakka 2 + Filling 2: at least one individual younger than 36 months.

Amb. 22. Dakka 2: the *Bos* finds coming from this dakka allow us to estimate the presence of at least three individuals, one very young, 1 younger than 24-30 months and one older than 24-30 months. Dakka 3: the remains testified the presence of one very young individual.

Amb. 23. Filling 1b: we have remains attributable to an animal of less than 42 months. Filling 2: we have few fragments of a very young individual. Dakka 2+Filling 2: the cow bones allow to detect the presence of one adult individual.

Among the other mammal taxa, it is possible to note the scarce presence of ovicaprids, small equids (probably attributable to the genus *Asinus*, according

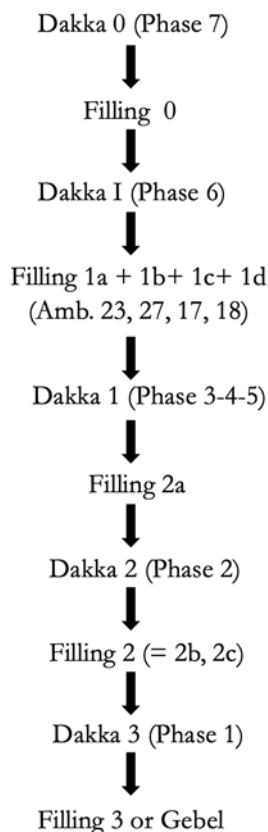


Fig. 2: Matrix of the southern area of the Temple of Millions of Years of Amenhotep II.

to the small dimensions of the remains of an adult individual older than 5 years), dogs and pigs (Tab. 1 & 2). A fragmented pig skull shows clear traces of butchery (Fig. 3-D).

Another taxon numerically relevant is that of Aves where the genus *Anser* is the only one clearly determined.

Animal typical of aquatic environment are also present like fishes, at least catfish, and freshwater clams (Unionidae family).

From the taphonomical point of view, as briefly discussed above, it is important to underline that a large number of remains, from all the taxa, show human modifications like butchery marks and exposure to fire (Fig. 3). Animal activities on bones, as carnivore punctures, have been also detected (Fig. 3-E).

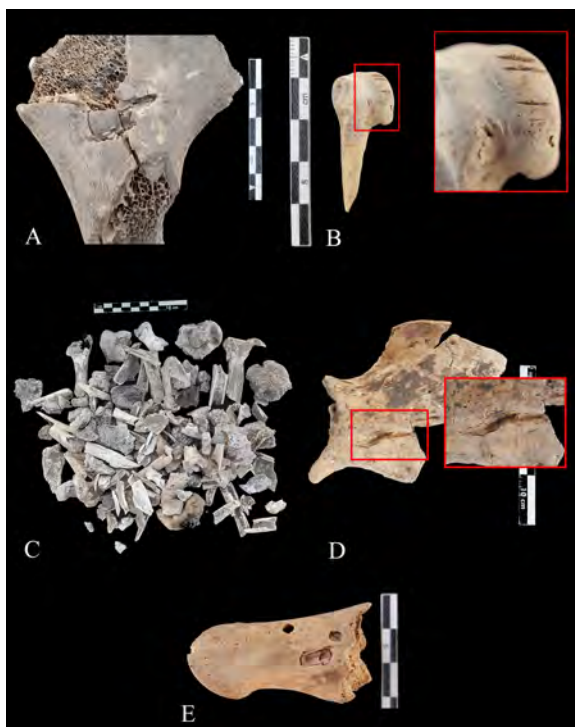


Fig. 3: Some selected bones modified by human and animal activities. A- *Bos taurus*, fragment of ileus with trace of butchery (RF21 – 099, Amb. 10 Dakka 1). B- *Anser* sp., fragment of humerus with traces of disarticulation (RF21 – 210, Amb. 22 Dakka 3). C- Some burned bones <largely attributable to *Bos taurus* (Amb. 8 Dakka 2). D- *Sus domesticus*, neurocranial fragment of with traces of the impact of a heavy tool used in breaking open the skull to have access to the brain (RF21 – 138, Amb. 8 Dakka 2). E- *Bos taurus*, juvenile proximal phalanx with carnivore punctures (RF21 – 198, Amb. 22 Dakka 3)

Conclusions

The life of a religious community such as that of the Temple of Millions of Years of Amenhotep II was characterised by multiple activities that were also linked in various ways to the surrounding social fabric.

There were activities strictly linked to worship that were the prerogative of the priests alone and also activities related to the administration of the religious estate, which implied the presence of scribes who took on management roles. Within the complexes were found the many schools where lessons in writing were given and where the management skills necessary to the functioning of the pharaonic state structure were taught.

Of equal importance were all the activities undertaken by specialised personnel involved in the provision and preparation of food for both the religious and non-religious staff linked to the temple, activities that took place in specific places within the temple compound. It is known that these structures also functioned as warehouses and that the pharaohs themselves guaranteed regular supplies of food to entire villages such as, for example, that of the so-called “tomb builders” at Deir el Medina. A striking example of these relationships is provided by the protest on the part of the inhabitants of the village of Deir el Medina during the 29th year of the reign of Ramesses III: they presented themselves at the south entrance to the Temple of Millions of Years of Thutmose III to claim their food supplies that had been promised but not yet delivered (the “Strike Papyrus”, in the Egyptian Museum of Turin). Beyond official documents, these “economic” activities also left physical traces of the work of the temple kitchens: the bones of butchered (and often burned) animals. These remains are mostly found in refuse pits or mixed with the sediments used as wall filling or in the layers beneath floors, either during initial construction work or during structural reorganisations of the temples.

It is to this last case that the finds presented in the current project pertain. Because of the long history of the site and past clandestine excavations and/or little attention being paid to the naturalistic aspects of the deposits, much of this information has been lost. The CEFB excavations allow us to study how many of these finds remained in their original stratigraphic position and to understand the ways that these animal resources, both vertebrate and invertebrate, were used in the kitchens of the Temple of Millions of Years of Amenhotep II. For the reasons laid out above, the sample is small but, for the understanding of such previously little-studied aspects of the archaeology of the area, every new piece of evidence that can be used in future work is

important. Absolute dating of the deposits is not yet available (studies of the pottery are underway), but we are looking at fills that date from the middle of the 18th Dynasty through to the Late and Ptolemaic Periods.

Among the faunal remains there are aquatic animals such as molluscs and Nile fish and also domestic land animals such as cattle, pigs, ovicaprids, horses and poultry (there is no evidence of game animals). Poultry and cattle are very common but ovicaprids, pigs and equids seem to have been little exploited. Unlike tomb contexts in the same area, ovicaprids are little seen in the context of the “economic annexes” of the Temple of Millions of Years of Amenhotep II. Instead, we see animals that are not documented in rituals related to the sphere of the dead specifically in the area of the temple of Amenhotep II,¹⁵ animals such as pigs, equids, and poultry. As mentioned above, there are plenty of mollusc (Unionidae) remains and remains of freshwater fish, among which are undoubtedly those of the Nile catfish (*Synodontis baten-soda*).

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¹⁵ Bona et al. 2019; Bona et al. 2021.

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Wandering Falcons



On the Referent and Meanings of Nemty Hieroglyphs

( / , G7A / G7B)

Francisco L. Borrego Gallardo

Introduction

Since its beginnings, Egyptology has been compelled to combine data from archaeological, textual, and iconographic evidence with natural science disciplines such as botany, zoology, and mineralogy to better understand the cultural realities of ancient Egypt. More recently, in the framework of (Human) Animal Studies (or Anthro(po)zoology),¹ truly multidisciplinary data and methods have begun to be applied to Egyptological studies in a comprehensive, coherent, and systematic way, mainly implementing studies on animal ethology and studying the ways by which the ancient Egyptians thought and represented the animal world.²

In this paper, I analyse the hieroglyph of the falcon perched on a concave element,  (G7A), and its main variant,  (G7B), where the concave element rests on a kind of platform, to try to discern its probable referents and meanings. To do so, I will focus mainly on the earliest forms of these hieroglyphs, documented in the fourth and third millennia BC.³

Before studying these signs, it is necessary to outline some general aspects of the species belonging to the genus *Falco* in the Nile Valley and its surrounding areas, for which up to eleven species are currently known.⁴ Among the resident species are the Barbary falcon (*Falco pelegrinoides*), the Lanner falcon (*Falco biarmicus*) and the Common kestrel (*Falco tinnunculus*). Migratory

¹ E.g., DeMello 2021; Kalof 2017; Marvin and McHugh 2014; Turner et al. 2018; Waldau 2013.

² E.g., Evans 2010; Massiera et al. 2015.



³ See Appendix.

⁴ Beaman and Madge 1998, 205-206, 207-212, 213-214; Cade 1982, 58-71, 80-87, 112-116, 122-125, 132-141, 144-147, 164-167, 184-188; Cramp 1980, 278-279, 282-300, 302-350, 361-382; Ferguson-Lees and Christie 2001, sp. nos. 275, 277, 289, 291-292, 294-295, 305-306, 309-310; Goodman and Meininger 1989, 199-211; Houlihan 1986, 46; Nicoll 1919, 57-59; Podgórski 2010, 68-79; Vernus and Yoyotte 2005, 369.

species, which are larger in number, include the Peregrine falcon (*Falco peregrinus*), the Eleonora's falcon (*Falco eleonora*), the Sooty falcon (*Falco concolor*), the Red-footed falcon (*Falco tinnunculus*), the Saker Falcon (*Falco cherrug*), the Lesser Kestrel (*Falco naumanni*), the Merlin (*Falco columbarius*) and the Hobby (*Falco subbuteo*). Among these, the Sooty falcon and the Merlin also breed in Egypt.

The earliest representations of falcons in the Nile Valley are attested on several stone figurines from the elite cemetery HK6 at Hierakonpolis,⁵ dated to the Naqada IC-IIA period,⁶ and, somewhat later, on two D-Ware vases dated to the Naqada IIC-D period.⁷ At around the beginning of the Naqada III period, the number of examples increases, as the types and materials of their supports and contexts diversify.⁸ From then they also appear as hieroglyphic signs,⁹ either in the royal tomb U-j at Abydos and rock-art stations,¹⁰ or transcribing early royal names together with phonetic signs and a palace-façade in the first *srhw*.¹¹ Under Aha's reign, a new type of falcon emerges, no longer crouching in a horizontal position, but standing upright and at an oblique angle. Later, in the Old Kingdom, this latter type of falcon sign retains these same morphological features and undergoes a great expansion, appearing in gods' names, the royal titulary, and private names, titles, and epithets.

Previous readings and meanings of Nemty's name

Regarding the hieroglyphs that are the subject of this paper, G7A () and G7B () , so far studies on them have only partially focused on their visual referent and their meaning as an image since attention has been mainly centred on their phonetic reading.¹²

⁵ Hendrickx et al. 2011; Patch 2011, 44-46.

⁶ Hendrickx et al. 2011, 130-132, fig. 3-7.

⁷ BM EA 36328: Hendrickx et al. 2011, 132-133, fig. 8; MMA 15.2.34: Patch 2011, 76-77, 251, fig. 12 (cat. 75).

⁸ Hendrickx et al. 2011, 133-148, fig. 9-18.

⁹ Kahl 1994, 513-518; Regulski 2010, 118-120, 418-430.

¹⁰ Dreyer 1998, 68-69, 84-86, 126-128, 184, fig. 47-48, 79, pl. 32; Regulski 2010, 118.

¹¹ Hendrickx et al. 2011, 139-44; Ikram and Rossi 2004.

¹² E.g., Gardiner 1957³, 468; Hannig 1995, 1049; Kahl 1994, 517; Regulski 2010, 120; Schweitzer 2005, 275.

Until the work of Berlev in the late 1960s, the reading of Sethe and Gardiner¹³ as *ʕntj*, whose etymology they linked to the noun *ʕnt* “claw, talon”,¹⁴ had been commonly followed.¹⁵ Thus interpreted, the sign would mean “the one with claw(s)”, or “the one (equipped) with claw(s)”, with reference to one of the most defining anatomical parts of falcons as predators.

Later, Berlev¹⁶ suggested that these hieroglyphs should be read as *Nmtj*. He based his hypothesis on several texts from the Middle Kingdom (stelae Guimet C 13 = Louvre E 20162, Leiden 21 and Hermitage 1063, and Wadi Hammamat’s inscription G 68),¹⁷ which provide the phonetic rendering of the logogram. This better substantiated reading is also supported by several instances of a spell of the *Coffin Texts*¹⁸ and another inscription from the Wadi Hammamat.¹⁹ As these analyses suggest,²⁰ the word’s etymology seems to derive from the verb *nmt* “to go, to stride through”²¹ or the noun *nmt* “stride”²² rather than the verb *nmj* “to travel, to traverse”.²³ Nemty would thus be construed as a “wandering” falcon.

Evidence for Nemty hieroglyphs in the fourth and third millennia BC

The first attestation of an image like the hieroglyph for Nemty appears in the Naqada II period, on some D-Ware vases, where it surmounts standards carried on ships [Appendix 1-2]²⁴ (Fig. 1). In the Naqada III period it is first used as a hieroglyph in texts on some labels in tomb U-j at Umm el-Qaab [3-4], and later also in inscriptions on stone vessels [8-17] and seal impressions [21]. This use coexists since then with its use in predominantly visual compositions, mainly on cosmetic palettes [18], mace-heads [20], rock-drawings [19],

¹³ Gardiner 1910, 50-58.

¹⁴ *Wb.* 1, 188.1-7; *TLA* 38130.

¹⁵ E.g., Otto 1975; Wilkinson 1999, 279-280.

¹⁶ Berlev 1969.

¹⁷ Brovarski 1987, 29-30; Graefe 1980, 2-26.

¹⁸ *CT* 43, VI 7d and 16h (B9C, B14, B1C); Graefe 1980, 9, 16-17; Meeks 1976, 91, n. 32; cf. Van der Molen 2000, 228 (5).

¹⁹ Koschel 2000.

²⁰ Berlev 1969; Meeks 1976, 91, n. 32.

²¹ *Wb.* 2, 270.4-21; *TLA* 84490.

²² *Wb.* 2, 270.22; *TLA* 84500.

²³ *Wb.* 2, 265.5-13; *TLA* 84130.

²⁴ All references within square brackets refer to the appendix.



Fig. 1: Detail of a D-ware base showing a standard with the Nemty's sign on top (MMA 20.2.10, late Naqada II). Source: www.metmuseum.org (CC0).

and sculpted stone vessels [6-7]. From Naqada IIIC-D, as clearly shows doc. [20], the heights of the two extremities of the curved element are levelled, which is the common shape from the Second Dynasty onward, when a vertical support for it is first attested [22]. By the middle of the Old Kingdom, this type of sign was already fully standardised [23-91]. From the Fourth Dynasty onward, the curved element was usually supported by several vertical elements constituting a base, which from the Fifth Dynasty onwards is more square or rectangular, sometimes with

one or more semicircles on either side (see below).




Interpretations of Nemty hieroglyphs: the previous hypotheses

Up to now, three interpretations of the visual referent of Nemty hieroglyphs have been proposed: 1) falcon on a boat; 2) falcon on a crescent; 3) falcon holding a throw-stick. They should be discussed to better understand the nature and meaning of these signs.

The most widespread interpretation of Nemty hieroglyphs is that they depict a falcon on a boat.²⁵ It has been presented in the greatest detail by Oleg Berlev,²⁶ who based his hypothesis on the concave shape of some of the boats in the hieroglyphic repertoire and the relationship between the probable etymology of Nemty's name as "wanderer". Nevertheless, this interpretation can

²⁵ E.g., Gardiner 1957, 468; Graefe 1980, 25; Seyfried 1984, 464; Wilkinson 1999, 279.

²⁶ Berlev 1969.

be questioned in some points. First, the raptor is not represented either in flight or on a standard, as is usual in sacred barks, but standing or walking. Furthermore, in a single case from Saqqara dating to the Sixth Dynasty [61], there are two examples with a rudder and two without on the same monument, a false-door stela. This unique variant could be explained by a partial confusion with the hieroglyph  (G10), the logogram for the theonym Sokar,²⁷ especially common in the area of Memphis,²⁸ and with which Nemty is exchanged in two variants of the “palanquin song” outside the Memphite area [77, 88]. It could also be argued that in a much later text, *The Contendings of Horus and Seth* in *Papyrus Chester Beatty I*, the god Nemty appears as a boatman in charge of taking the gods to the “Middle Island” (5.4, 5.6, 7.12, 7.13, 8.1).²⁹ However, it is dated to the Twentieth Dynasty, so it is very late in terms of determining the origin of the sign, and the role of Nemty as a ferryman could be due to a later “nautical” reinterpretation of the hieroglyph.³⁰ Moreover, in almost all the evidence from the fourth and third millennia BC, the hieroglyph does not display any nautical element – rudders, oars, prow-mats, sail or masts – nor have the water line, in the keel area, as in most of the boat hieroglyphs from the Thinite period and the Old Kingdom. Furthermore, unlike other boat signs from the fourth and third millennia BC, it lacks the horizontal deck in the area where the bird is located.³¹ In this sense, in the earliest evidence, the painted vessels from the Naqada II period [1-2], the shape of the curved element of the sign on standards differs greatly from the boats where it is located. This contrasts even more if we compare the Nemty hieroglyphs with the well-known monogram of the falcon god Sokar (, G10) on his characteristic vessel, the *Henu*-bark (, P60B),³² and other falcons on boats, such as those attested, for instance, in the *Pyramid Texts*.³³ Besides, the root *nmt* is not attested as a nautical term.³⁴

²⁷ E.g., Brovarski 1987, 29; Gardiner 1957³, 468.

²⁸ E.g. Begelsbacher-Fischer 1981, 185-190.

²⁹ Gardiner 1932, 37-60.

³⁰ Cf. Berlev 1969, 14-15.

³¹ E.g., Gardiner 1957, 498-499; Regulski 2010, 168-170, 578-580; Schweitzer 2005, 385-386.

³² Cf. Scheele-Schweitzer 2014, 421-422 (no. 1553), 630 (no. 2988).

³³ E.g. Anthes 1957, 82-83, fig. 1-2.

³⁴ Cf. Jones 1988.

Other scholars have summarily described the shape of the concave element of the hieroglyph as a crescent (☾, N11)³⁵ or an object resembling a sickle (☾, U1).³⁶ Certainly, the sign reminds one of the representations of the lunar crescent, although less so the agricultural tool. However, it is not until the Middle Kingdom that the moon sign appears inverted in the position that it is assumed to be in the Nemty signs; it is written thus in a few proper names of individuals, and always with the small semicircle in its central part (☾, N62A).³⁷ This makes it difficult, therefore, to identify the concave part of the Nemty hieroglyph with a lunar crescent.³⁸ Moreover, as far this author knows, Nemty does not exhibit any direct connections with the moon.

Recently, Regulski³⁹ and Hendrickx, Friedman and Eyckerman⁴⁰ have taken up the hypothesis of Helck⁴¹ that identifies the concave element as a throw-stick. Certainly, this hypothesis evokes other falcons wielding weapons with their talons, such as mace-and-shield hieroglyphs or a harpoon.⁴² However, in documents such as the Louvre's fragment of the *Hunters' Palette* [18] the shape of the tip of the throw-sticks differs from the Nemty sign of the standard carried by one of the hunters, which, furthermore, has a striped surface. This detail is absent from their weapons, which are more L-shaped compared to the uniform curve described under the falcon, and have a prominent, bulbous tip (Fig. 2). Moreover, the shape of the alleged throw-stick is very blurred in the other contemporary examples mentioned above [1-6, 8-17 and 20-21], which makes this possibility rather unlikely.

³⁵ E.g., Allen 2014, 479.

³⁶ Regulski 2010, 120.

³⁷ García Fernández 2021, 870-871.

³⁸ Cf. Der Manuelian 2003, 202-203; Regulski 2010, 148, 515.

³⁹ Regulski 2010, 120.

⁴⁰ Hendrickx, Friedman and Eyckerman 2011, 144-146.

⁴¹ Helck 1950, 129.

⁴² Hendrickx et al. 2011, 144-145.



Fig. 2: Fragment of the *Hunters' Palette* (Louvre E 11254, early Naqada III period). Source: Unknown artist - Mbzt 2011, CC BY 3.0, <https://commons.wikimedia.org/w/index.php?curid=17165184>.

A new analysis of the Nemty hieroglyphs

The doubts about the three previous identifications of the Nemty hieroglyphs that are stated above call for a different and plural approach to interpreting these glyphs. This should consider the morphology of the curved element diachronically, information relating to the god Nemty, and the ethology and life cycle of falcons.



Firstly, apart from onomastics [22, 25-26, 29-30, 32-36, 40-41, 45, 57-63, 66-67, 70-72, 74-76, 78-83, 89-91],⁴³ toponyms [23-24, 27, 31, 38-39, 43] and some courtly [42, 44, 46-56] and priestly titles [28, 64-65, 68, 84] and epithets [69, 73, 85-87], the theonym Nemty [37, 77, 88] does not appear in texts until the emergence of the *Coffin Texts*, where it appears in two spells. One of them, CT 942, which is very lacunary and is only documented in two versions, reads:

h^cq.n=s j3rtj-Nmtj
db3 hr=s [...] wny

She has shaved the malar stripes (?) of Nemty,
 adorned her face [...].

(CT 942, VII 156f-g (P.Gard.III, P.Gard.IV))

⁴³ Hlouchová 2016, 73, 75.






Here the female individual, whose identity is unknown, is said to have shaved or cut off Nemty's two "malar stripes" (*j3rtj*,  )⁴⁴ (rather than "braids")⁴⁵ that are typical of falcons' faces.⁴⁶

More important is CT 473, a hunting-net spell.⁴⁷ Here Nemty appears in two passages. At the end of the text the deceased says on several occasions that he will rush very aggressively into various parts of the net that seeks to trap him in the form of several deities, Nemty among them:

h3bs.n=j m Nmtj hr jb=s
h3bs.n=j m Nmtj hr tpwj=s
 As Nemty I have attacked on its⁴⁸ middle,
 as Nemty I have attacked on its two tops.
 (CT 473, VI 16g-h (B9C, B1Y, B1C))

A second passage, which appears before, is more relevant. It shows the deceased announcing to the hunters that he will not fall into their trap because he knows their names, which he enumerates and identifies with several gods. One of them reads:

n-ntt wj rh.kw rn n(j) šnw=s
šnw fdw pw (j)m(j)w jbt-Sbk
hr-s3 g3bt-Nmtj
 because I know the name of its netting:
 they are the four hairs that are in the trap of Sobek,
 upon the down of Nemty.
 (CT 473, VI 7b-d (B9C, B1Y, B6Bo, B1C))

Meeks (1977, 80, n. 2) has suggested that the word *g3bt*, (   )⁴⁸, classified with the hieroglyph of the hair (, D3), should be translated as "down" or "fuzz" ("petit poils, duvet"). This allusion to Nemty's down could likely be related to the name of a medicinal plant, *šwt-Nmtj* "Nemty's

⁴⁴ van der Molen 2000, 14 (4).

⁴⁵ Wb. 1, 32.3; TLA 20780.

⁴⁶ E.g., Cade 1982, passim; Cramp 1980, 278.

⁴⁷ E.g., Bidoli 1976.

⁴⁸ The suffix pronoun =s in both sentences refers to the trap.

feather/plumage” (𓆎𓅓𓏏𓏏𓏏 [pEbers 22.12]),⁴⁹ which is an ingredient of *kyphi*.⁵⁰ This phytonym has been identified with Camel grass (*Cymbopogon schoenanthus* (L.) Spreng), which is an aromatic plant whose spikelet-like flowering form has white villous pedicels with a fuzzy appearance between the protruding leaves and sepals (Fig. 3).⁵¹

If it is considered that infant falcons, covered with down,⁵² are represented by the signs of the crouching falcon (𓆎, G11 etc.),⁵³ and, besides, that Nemty always appears in the hieroglyphs representing him as a standing falcon, with its plumage already formed – as the rendering of the wing shows – it is likely that the falcon depicting Nemty represents a young falcon. In that sense, Nemty is not an infant because his plumage is already formed,⁵⁴ but he is young because *g3bt* means “down” and young falcons still have a bit of down over their formed plumage when they are around thirty days old (Fig. 4),⁵⁵ in a way similar to the flowers of Camel grass, which have their leaves and sepals under the fluff of their flowers.



Fig. 3: Flower of Camel Grass (*Cymbopogon schoenanthus* (L.) Spreng), name as *šwt-Nmtj* “Nemty’s feather/plumage” in ancient Egyptian texts. Source: <http://www.atlas-sahara.org/> [11/12/2022].

⁴⁹ Wb. 4, 425.15; TLA 861518.

⁵⁰ Graefe 1975.

⁵¹ Germer 1985, 226-227; 2008, 245-246; Manniche 1999, 15-16, 55, 152, 154.

⁵² E.g., Cade 1982, 48; Monneret 2004, 122-125, 129-135.

⁵³ I have presented this hypothesis in a paper currently in press.

⁵⁴ This would also explain the allusion to the “malar stripes” of Nemty in CT 942.



⁵⁵ See, e.g., Cade 1982, 48-49; Monneret 2004, 125.



Fig. 4: Fledged chick of Eleonora's falcon (*Falco eleonora*) of 28 days old, walking around the nest. Source: Telailia et al. 2013, fig. 9.


With this idea in mind, and before addressing the ethology of young falcons, which moult their down for their first plumage, it is worth asking about the nature of the concave element under the standing bird, looking for something that can explain the graphic variability between the earliest cases, where one of the sides is much higher [7, 18-19], and those from the Protodynastic period onwards, which are more symmetrical [1-6, 8-17, 20-21]. The explanation for this element is likely to be found in falcons' habitat.

In this respect, the work of Linda Evans⁵⁶ on the *šdšd* of Wepwawet, which she has convinc-

ingly proposed to identify with the den or lair of several species of canids inhabiting the Nile Valley, is very inspiring. Her hypothesis suggests that certain elements of hieroglyphs and animal emblems, especially those of sacred animals, may also reproduce spaces, as is the case, for example, with hieroglyphs depicting ducks in a marsh (, G49; , G49D).⁵⁷ As for Nemty hieroglyphs, it is necessary to look for a spatial feature that could explain both the first concave form with a raised side and the more symmetrical concave

⁵⁶ Evans 2011.

⁵⁷ Gardiner 1957, 473; Schweitzer 2005, 296.


form attested since the second half of the Protodynastic period. At this point, it is essential to consider the ethology of falcons, particularly that of those breeding in the Nile Valley. Bearing in mind that falcons generally nest in natural or self-excavated concavities in cliff shelters and close to the rock face,⁵⁸ it is reasonable to assume that the early forms with a raised end would represent the concave nest⁵⁹ next to the rock face of the cliff shelter where they place the eyrie. The fact that the shape of Nemty hieroglyph tends towards symmetry over time is probably due to that the signs of the nests (, G48) becomes standardised around the same time.⁶⁰ It represents a concavity of the same shape as that found in Nemty hieroglyph, which is a feature that appears both in hieroglyphic signs and in contemporary and later reliefs and artefacts.⁶¹ The question that emerges is how to explain this in light of the data concerning Nemty. The answer could lie, again, in the ethology of young falcons.

When fledgling falcons lose their down and have fully formed their plumage at the end of their growth, and before they start to fly fully alone, they spend their time walking around the nest and its surroundings in the nearby crags and branches, returning to the nest to be fed and to sleep.⁶² This coming and going from the nest is reminiscent of the meaning of the verb *nmt* from which Nemty takes its name, as a falcon “wanderer” in its own nest or, at most, between the nest and its immediate surroundings. During this period, they are exercising their wings to be able to begin to fly in the following weeks – cf. the Middle Kingdom variants where the falcon is shown spreading its wings,⁶³ and their aggressive character is accentuated, as they contend with their brothers for the prey brought by their parents and even snatch it from them,⁶⁴ which agrees very well with the aggressive character presented by Nemty in some passages of the *Coffin Texts*.

⁵⁸ E.g., Cade 1982, 70, 86, 114, 136-138, 146; Cramp 1980, 290, 309, 335, 339, 379; Monneret 2004, 110-112.

⁵⁹ Berlev (1969, 16) rejects this possibility without discussing it in detail.

⁶⁰ Regulski 2010, 126, 456.

⁶¹ E.g., Bailleul-LeSuer 2012, 151-152; JE 62072: Desroches-Noblecourt 1963, pl. xlvii. The depiction of the “two fledglings / chicks” (*t3wj*) of Atum as a pair of standing falcons on a nest () in the temple of Hibis (Davies 1953, pl. 3, 6th register, far left) stands out.

⁶² Cf. e.g., Monneret 2004, 134-135, 137-139.

⁶³ E.g., Berlev 1969, II.10-11, II.14-15, II.52.

⁶⁴ E.g., Cade 1982, 48-9; Monneret 2004, 136.

In the case of the variant of G7B (Fig. 5), the platform supporting the nest appears to be made of poles [28, 35, 44, 51, 64-65, 77, 87-88], or as a block with vertical stripes, slightly reminiscent of that seen in mat hieroglyphs [23, 28, 43, 50, 73, 76, 80, 89],⁶⁵ perhaps indicating that the nest is sometimes dug in a ground covered with vegetation. Other instances show the lower element more like a block or a platform [27, 31, 33-34, 41, 45-46, 66, 68, 72, 91], with a possible reference to the occasional use of tree trunks and elevated elements [22, 32, 36, 40, 47, 61, 81] for nesting by falcons. Others still appear as a building [25-26, 29-30, 37, 58, 83] or as a knobbed element, reminiscent of the sign showing a vertical crenelated wall or enclosure [38-39, 48-49, 52, 59, 63, 69-71, 82, 84-85, 86].⁶⁶ The latter may have to do with the fact that falcons nest not only on cliffs, but also at the top of, or in recesses in, buildings and, to a lesser extent, in trees. Thus, in a Middle Kingdom variant of the hieroglyph, the nest is located at the top of a palace-façade.⁶⁷ This could be related to spell CT 148's mentioning of the first flight of Horus, which he makes *sw3.t(j) hr znbw-ḥwt-Jmn-rn* "after passing over the battlements of the Mansion of The Hidden of Name" (II 220a).

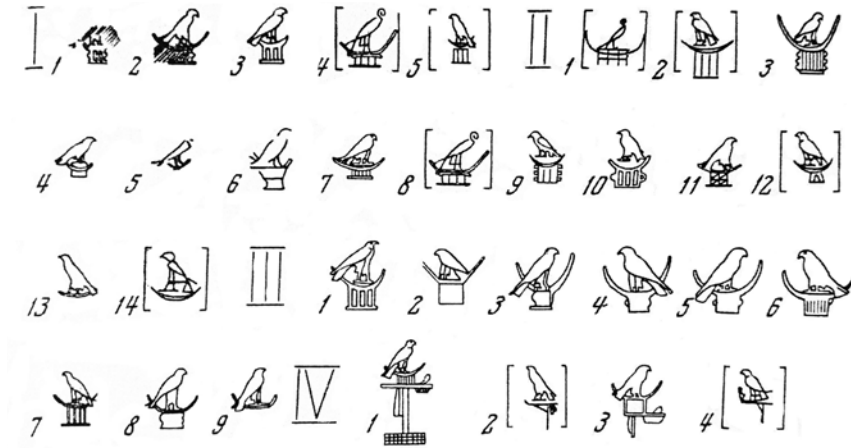


Fig. 5: Main forms of G7A and G7B during the Old Kingdom. Source: Berlev 1969, pl. i

⁶⁵ E.g., Dobrev et al. 2011, 43; Goedicke 1988, 31; Regulski 2010, 170-171, 584-587.

⁶⁶ E.g., Dobrev et al. 2011, 40; Goedicke 1988, 29; Regulski 2010, 160, 562-563.

⁶⁷ Spencer 1982, 23-24, fig. 2, pl. i.2.

Conclusions

To conclude, it is possible to make several observations about the referents and meanings of the Nemty hieroglyph. First, the identifications of the lower concave element of the Nemty hieroglyph as a boat, a crescent or a throw-stick present difficulties that make them unlikely within the body of evidence. They are more likely a concave nest.

Moreover, an analysis considering the etymology of the theonym, its first textual evidence, the set of the earliest attested signs, and the ethology and life cycle of falcons in the Nile Valley makes it possible to put forward a new hypothesis: the Nemty hieroglyph represents a young falcon standing in its characteristic concave nest, either on a cliff or on a platform, showing it as a specimen that has just formed its first plumage and that, with the remains of its down still on it, wanders, walks and exercises around the nest and its surroundings to begin its training in flight.

Furthermore, the occasional confusions of the Nemty hieroglyphs with others, such as those related to Sokar (G10 and P60B), and the reinterpretations of their form and features from the end of the Old Kingdom suggest that at least since that time the original referents of the signs were no longer known. This aspect undoubtedly requires a separate and more detailed analysis.

Finally, this new proposal for identifying the nature of the Nemty hieroglyph should be contrasted in future studies with the characteristics associated with this deity to know their possible implications for exploring his personality and specificity in the religious and ideological spheres of ancient Egyptians.

Appendix. Attestations of Nemty hieroglyphs in the fourth and third Millennium BCE⁶⁸

[1] D-Ware vase. Late Naqada II. MMA 20.2.10: Graff 2009, 173 (N5o), 271 (no. 232); Patch 2011, 70-72, 250 (cat. 71).

[2] D-Ware vase. Late Naqada II. Oxford AM E.2877: Graff 2009, 173 (N5o), 301 (no. 323).

[3] Label. Tomb U-j (Abydos). Naqada IIIA1: Dreyer 1998, 126, 127, 142, fig. 79, pl. 32 (no. 110).

⁶⁸ The documents cited by Berlev (1969) are referred by his code between curly brackets.

[4] Label. Tomb U-j (Abydos). Naqada IIIA1. Berlin ÄM 15467: Dreyer 1998, 134-135, 142, 184, fig. 82, pl. 35 (no. X187).

[5] Fragment of furniture (?). Hierakonpolis, *Main Deposit*. Naqada IIIC-D (?). UC 14869: Bussmann 2010, doc. H2187.

[6] Limestone vase. Hierakonpolis, *Main Deposit*. Naqada IIIC-D (?). Oxford AM E.347: Bussmann 2010, doc. H5027.

[7] Chlorite vessel. Naqada IIIC-D (?). Louvre E.27202: Hendrickx et al. 2011, 144, fig. 17.

[8] Calcite vessel. Hierakonpolis, *Main Deposit*. Naqada IIIC-D (?). UC 14951: Bussmann 2010, doc. H4066; Kaplony 1968, 14 (doc. 13).

[9] Calcite vessel. Hierakonpolis, *Main Deposit*. Naqada IIIC-D (?). UC 14952: Bussmann 2010, doc. H4071; Kaplony 1968, 14 (doc. 5); Petrie 1937, pl. xvi.196.

[10] Calcite vessel. Hierakonpolis, *Main Deposit*. Naqada IIIC-D (?). UC 14962: Bussmann 2010, doc. H4078.

[11] Calcite vessel. Hierakonpolis, *Main Deposit*. Naqada IIIC-D (?). Oxford AM E.121: Bussmann 2010, doc. H4064; Kaplony 1968, 14 (doc. 11), 16 (3A).

[12] Calcite vessel. Hierakonpolis, *Main Deposit*. Naqada IIIC-D (?). Oxford AM E.4008: Bussmann 2010, doc. H4010; Kaplony 1968, 14 (doc. 11), 16 (3C).

[13] Calcite vessel. Hierakonpolis, *Main Deposit*. Naqada IIIC-D (?). Cambridge E.24.1898: Bussmann 2010, doc. H4068; Kaplony 1968, 14 (doc. 1).

[14] Calcite vessel. Hierakonpolis, *Main Deposit*. Naqada IIIC-D (?). Cambridge E.99.1898: Bussmann 2010, doc. H4049; Kaplony 1968, 14 (doc. 15), 16 (3B).

[15] Calcite vessel. Hierakonpolis, *Main Deposit*. Naqada IIIC-D (?). Chicago OIM: Kaplony 1968, 14 (doc. 12).

[16] Calcite vessel. Hierakonpolis, *Main Deposit*. Naqada IIIC-D (?). Philadelphia E.3855: Bussmann 2010, doc. H4085; Kaplony 1968, 14 (doc. 10).

[17] Calcite vessel. Naqada IIIC-D (?). Private collection: Kaplony 1968, 14, pl. 1, 14 (3).

[18] Hunters' Palette. Naqada III. BM EA 20790 + 20792 + Louvre E 11254: Patch 2011, 140-143, 254-255, fig. 38 (cat. 115).

[19] Rock drawing, Qena-Quseir road, Qef el-'Iglûl: Winkler 1938, 22-23, pl. xix (3).

[20] King Scorpion's Macehead. Hierakonpolis, *Main Deposit*. Naqada IIIC-D. Oxford AM E.3632: Bussmann 2010, doc. H5054.

[21] Seal impression. First Dynasty, reign of Aha. Saqqara mastaba S.3357: Emery 1939, 32-33, fig. 35; Kaplony 1963, pl. 28 (72).

[22] Hetepnemty's copper jar (name). Qau el-Kebir. Late Second Dynasties: Brunton 1927, 17-18, pl. 18 (no. 10).

[23] {A.IV.1} Domains' procession, Snefru's "stone temple". Dahshur. Early Fourth Dynasty: Fakhry 1961, fig. 18.

[24] {A.IV.2} Khenuka's domains' procession. Tehna. Late Fourth Dynasty: Fraser 1902, 76.

[25] Petety's tomb (name: Neferhernemty). Giza. Fourth-Fifth Dynasty: Hawass 2004, fig. 4.

[26] Petety's tomb (name: Nesnemty). Giza. Fourth-Fifth Dynasty: Hawass 2004, fig. 7.

[27] Domains' procession (domain: *Mr-Nmtj-S3hw-R*), Sahura's causeway. Abusir. Early Fifth Dynasty: Khaled 2020, 157, pl. ii.

[28] {A.I.4, A.II.8} Tjenti's false-door stela (title: *w^cb-Nmtj*). Saqqara. Fifth Dynasty. CG 57136, 57138 and 57140-1: Mariette 1885, 88-89.

[29] {A.II.1} Nefernemty's mastaba (name). Saqqara. Fifth Dynasty: Mariette 1885, 297-298.

[30] {A.II.1} Nefernemty's statue (name). Saqqara. Fifth Dynasty. CG 123: Borchardt 1911, 93-94, pl. 27; *PN I* 69.25.

[31] {A.IV.3} Nomes' procession, Nyusera's sun temple. Abu Ghurob. Mid-Fifth Dynasty: Nuzzolo 2018, 190-191, fig. III.63.a.

[32] Rock inscription (name: Nemtyiu). Wadi Maghara. Late Fifth Dynasty: Gardiner et al. 1955, 61, pl. 7 (no. 13).

[33] {A.II.4} Seshemnefer ii's mastaba (name: Hetepnemty). Giza. Late Fifth Dynasty: Junker 1953, 143, 145, fig. 61, pl. xviii.b; *PN I* 70.2.

[34] Perneb's mastaba (name: Nynemty). Saqqara. Late Fifth Dynasty. MMA 13.183.3: Williams 1932, pl. x.

[35] Nefernemty's tomb (name). Sharuna. Late Fifth Dynasty: Schenkel and Gomaà 2004, 130, pl. 77.

[36] Wenis' funerary temple (name: Nemtyiu). Saqqara. Late Fifth Dynasty: Labrousse et al. 1977, 108-109, fig. 99.

[37] Writing board (theonyms' list). Giza. Fifth-Sixth Dynasties. JE 37734: Brovanski 1987, 29-30 (no. 2), pl. i.

[38] Writing board (domain: *Jrt-Nmtj*). Giza. Fifth-Sixth Dynasties. JE 37734: Brovanski 1987, 46-47, pl. i.

[39] Writing board (domain: [...]*t-Nmtj*). Giza. Fifth-Sixth Dynasties. JE 37734: Brovanski 1987, 46-47, pl. i.

[40] {A.II.6} Ptahhotep's tomb (name: Nemty[...]). Saqqara. Fifth-Sixth Dynasties: *LD Erg.* xliii.

[41] Wehemka's tomb (name: Neferhernemty). Saqqara. Fifth-Sixth Dynasties: Kayser 1964, 24-25.

[42] Anonymous tomb (title: *ʿNmtj*). Abusir. Late Fifth Dynasty-early Sixth Dynasty: Bárta 2011, 19, fig. 11.

[43] {A.II.7} Mereruka's domains' procession (name: *Wnjs-Sʿnh-Nmtj*). Saqqara. Early Sixth Dynasty: Duell 1938a, pl. 49 (no. 7).

[44] {A.III.1} Mereruka's false-door stela (title: *ʿNmtj / ʿhqʔt-Nmtj*). Saqqara. Early Sixth Dynasty: Duell 1938a, pl. 62 (no. 12, 25).

[45] Mereruka's false-door stela (name: Nemtyiu). Saqqara. Early Sixth Dynasty: Duell 1938a, pl. 98-99 (no. 6).

[46] {A.III.2} Mereruka's false-door stela (title: *ʿNmtj*). Saqqara. Early Sixth Dynasty: Duell 1938b: pl. 113 (no. 3).

[47] {A.III.3} Mereruka's false-door stela (title: *ʿNmtj*). Saqqara. Early Sixth Dynasty: Duell 1938b: pl. 179, 182.

[48] {A.III.5} Mereruka's false-door stela (title: *ʿNmtj*). Saqqara. Early Sixth Dynasty: Duell 1938b: pl. 180 (no. 4).

[49] {A.III.4} Mereruka's false-door stela (title: *ʿNmtj*). Saqqara. Early Sixth Dynasty: Duell 1938b: pl. 181-182 (no. 4).

[50] {A.III.6} Mereruka's false-door stela (title: *ʿNmtj*). Saqqara. Early Sixth Dynasty: Duell 1938b: pl. 183.

[51] {A.III.7} Mereruka's funerary chamber (title: *ʿNmtj*). Saqqara. Early Sixth Dynasty: Duell 1938b: pl. 212.

[52] {A.III.8} Mereruka's temenos wall (title: *ʿNmtj*). Saqqara. Early Sixth Dynasty: Duell 1938b: pl. 218.

[53] Mereruka's tomb's entrance (title: *ʿNmtj*). Saqqara. Early Sixth Dynasty: Duell 1938b: pl. 204.

[54] Kagemni's mastaba (title: *ʿNmtj*). Saqqara. Early Sixth Dynasty: Firth and Gunn 1926, 132 (no. 14).

[55] Tjetju's false-door stela (title: *ʿNmtj*). Saqqara. Early Sixth Dynasty: Firth and Gunn 1926, 153-154 (no. 43), pl. 61.

[56] {A.III.9} Tjetju's mastaba (title: *ʿNmtj*). Saqqara. Early Sixth Dynasty: Firth and Gunn 1926, 154, pl. 38.

[57] Nyankhnesut's mastaba (name: Nynemty). Saqqara. Early Sixth Dynasty. Berlin *ÄM* 99/66: Málek 1980, 203-204, fig. 2.

[58] Nyankhnesut's mastaba (name: Nynemty). Saqqara. Early Sixth Dynasty. Cleveland 1930.736: Málek 1980, 204; <https://clevelandart.org/art/1930.736> [10/31/2022].

[59] Nyankhnesut's mastaba (name: Nynemty). Saqqara. Early Sixth Dynasty. Cleveland 1930.737: Málek 1980, 204; <https://clevelandart.org/art/1930.737> [10/31/2022]

[60] Nykauisesi's mastaba (name: Nynemty). Saqqara. Early Sixth Dynasty: Kanawati and Abder-Raziq 2000, pl. 48.

[61] Ankhmanemty's false-door stela (name). Saqqara. Sixth Dynasty. CG 1508: Borchardt 1937, 213-214, pl. 44.

[62] Nemtyiu's false-door stela (name). Tura. Sixth Dynasty. TR 31.12.28.12-4: Gunn 1929, 92.

[63] {A.II.3} Nyankhnemty's false door stela (name). Giza. Sixth Dynasty: Junker 1943, 239-240, fig. 101.

[64] Metjenti's tomb (title: *hm-ntr-Nmtj*). Sharuna. Sixth Dynasty (?): Schenkel and Gomaà 2004, 138, Beilage 10.

[65] Metjenti's tomb (title: *shd-hm(w)-ntr-Nmtj*). Sharuna. Sixth Dynasty (?): Schenkel and Gomaà 2004, 138, Beilage 10.

[66] Metjenti's tomb (name: Nefersutnemty). Sharuna. Sixth Dynasty (?): Schenkel and Gomaà 2004, 140, fig. 10, Beilage 10.

[67] Iuhi's tomb (name: Nefernemty). Sharuna. Sixth Dynasty (?): Schenkel and Gomaà 2004, 146, pl. 94.

[68] Iuhi's tomb (title: *(j)m(j)-r(3)-hm(w)-ntr-Nmtj*). Sharuna. Sixth Dynasty (?): Schenkel and Gomaà 2004, 146, pl. 94.

[69] Iuhi's tomb (epithet: *jm3hw hr Nmtj*). Sharuna. Sixth Dynasty (?): Schenkel and Gomaà 2004, 145, pl. 92-93.

[70] Nemtyqaf's tomb (name). Sharuna. Sixth Dynasty (?): Schenkel and Gomaà 2004, 127-128, pl. 73.

[71] Nemtyqaf's tomb (name). Sharuna. Sixth Dynasty (?): Schenkel and Gomaà 2004, 127, pl. 71-73.

[72] Nemtyqaf's tomb (name: Nemtyshepses). Sharuna. Sixth Dynasty (?): Schenkel and Gomaà 2004, 128, pl. 71-73.

[73] Bekheni's tomb (epithet: *jm3hw hr Nmtj*). Sharuna. Sixth Dynasty (?): Schenkel and Gomaà 2004, 173, pl. 130.

[74] Khuennemty's tomb (name). El-Hawawish. Sixth Dynasty (?): Kanawati 1987, fig. 3.

[75] {A.II.14} Merenra's burial chamber (*praenomen*: Nemtyemsaf). Saqqara. Mid-Sixth Dynasty: Pierre-Croisiau and Mathieu 2019, *passim*.

[76] {A.II.2} Nebi's doorjamb (name: Nemtyemhat). Saqqara. Mid-Sixth Dynasty. CG 1525: Borchardt 1937, 226; *PN* I 69.21.

[77] {A.I.3} Song. Pepyankh-Heni-Kem's tomb. Meir. Late Sixth Dynasty: Altenmüller 1984-1985, 21; Blackman and Apted 1953, pl. 31.

[78] {A.II.13} Nemtyemsaf's false-door stela (name). Saqqara, Neit's chapel, Pepy II's funerary complex. Late Sixth Dynasty: Jéquier 1933, 55, fig. 32.

[79] {A.II.13} Merynemty's false-door stela (name). Saqqara, Neit's chapel, Pepy II's funerary complex. Late Sixth Dynasty: Jéquier 1933, 55, fig. 32.

[80] {A.II.11} Pepy II's decree (name: Nemtyemsaf). Giza, Menkaura's funerary complex. Late Sixth Dynasty: Goedicke 1967, 148-151, fig. 12.

[81] {A.II.5} Nemtyiu's inscription (name). Hatnub. Late Sixth Dynasty: Anthes 1928, 20, pl. 10 (no. 3).

[82] {A.II.9-10} Nemtyemdjeref's painted burial chamber (name). Saqqara. Late Sixth Dynasty: Maspero 1889, 199, pl. v.

[83] {A.II.12} Squeeze of a stone altar of Nyankhnemty from an antiquities dealer (name). Sixth Dynasty (?): *Urk.* I 165.9; *PN* I 171.5.

[84] {A.I.2} Isi's false-door stela (title: *jmj-r3-ḥm(w)-ntr Nmtj*). Deir el-Gebrawi. Sixth Dynasty: Davies 1902, pl. xxi.

[85] {A.I.1} Henqu's tomb (epithet: *jm3ḥw ḥr Nmtj*). Deir el-Gebrawi. Sixth Dynasty: Davies 1902, pl. xxiv (l. 2); *Urk.* I 76.11.

[86] {A.I.5} Ankhpepy's tomb (epithet: *jm3ḥw ḥr Nmtj*). Sharuna. Sixth Dynasty: Schenkel and Gomaà 2004, 114, pl. 56-57.

[87] Ankhpepy's tomb (epithet: *jm3ḥw ḥr Nmtj*). Sharuna. Sixth Dynasty: Schenkel and Gomaà 2004, 193, Beilage 14.

[88] Song. Ankhpepy's tomb. Sharuna. Sixth Dynasty: Schenkel and Gomaà 2004, 195, Beilage 15.

[89] Nemtywer's false-door stela (name). Giza. Sixth Dynasty (?). Oxford AM 1885.504: Bland and Málek 1977.

[90] Weta's false-door stela (name: Nyankhnemty; doubtful). Giza. Sixth Dynasty. CG 1479: Borchardt 1937, 166.

[91] Execration text (name: Nemtyiu). Giza. Sixth Dynasty: Abu Bakr and Osing 1973, 107, pl. xliii (no. 100).

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Food for Thought

Considering the Presence of Zoomorphic Figurines in Predynastic Egyptian Burials

Elizabeth Brice¹

Introduction

The study of the function and significance of artefacts in burial assemblages provides us with glimpses into a culture's funerary beliefs and broader socio-cultural concerns. The interpretation of Predynastic Egyptian funerary customs is no different as evidence from cemeteries constitutes the bulk of the excavated data.² Zoomorphic figurines are an interesting yet uncommon category of artefacts that have been found in burials dated between Naqada IA–IID (ca. 3800–3325 BC). They are generally understood to have functioned as replicas of the real animal; although, the corpus of animal figurines have not yet been studied together to examine the validity this hypothesis, particularly in light of the diversity of animals that are represented.

This argument is re-visited from a folk taxonomic and anthropological approach to suggest that this interpretation is, in fact, plausible, and is one of several possible explanations for Predynastic zoomorphic figurines that have been proposed to date. In this paper, clay figurines from burial contexts are compared with contemporary faunal remains from both domestic and funerary assemblages to understand the extent to which the real animals represented in the figurine corpus were actually being used by communities and the possible ways that their remains could be utilised. Within this socio-cultural context, it is argued that zoomorphic figurines were possibly informed by a Predynastic folk taxonomy of consumption and resources that substituted a figurine for the real animal and its benefits for the deceased in the

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² Hendrickx and van den Brink 2002, 346; Tristant 2004, 3.

burial context, functioning in parallel to the deposition of complete and partial remains of animals.

Evidence

Zoomorphic figurines have been recovered from both settlements and cemeteries across Upper Egypt. Within funerary contexts, there are examples made from clay, various stone materials, ivory, and ‘vegetable paste’.³ The focus of this paper, however, is specifically concerned with the substantial corpus of clay figurines in burials as the material and contextual similarities within this sub-group suggests that they may have a shared function. In total, there are 101 clay zoomorphic figurines reported from burial contexts that are dated between Naqada IA–IID. These have been excavated from merely 12 cemeteries in the region, representing a small proportion of the over 60 cemeteries that were used during the early-mid Predynastic period (Tab. 1).⁴ Further, an overwhelming majority of the figurines, 90 in total, were excavated from just four sites: Abydos Cemetery U, el-Amra cemeteries A and B, and Abadiya Cemetery B, suggesting that the deposition of clay zoomorphic figurines in burials was possibly a regional product of the Abydos region.

Among the figurines that could be identified, there are representations of cattle, hippopotamuses, birds, turtles, tortoises, fish, pigs, and crocodiles, which are known to have inhabited Upper Egypt during the 4th millennium BC and feature in other Predynastic Egyptian visual and material culture.⁵ However, this group of animal figurines does not reflect the species interred in Predynastic graves; for instance, dogs, goats, and sheep are seemingly

³ In addition to the clay figurines in funerary contexts, there are flint figurines associated with aboveground funerary architecture at HK6 (Friedman and Nagaya 2021), a corpus of pink limestone figurines representing hippopotami (Droux 2011), and a few examples of figurines made using other materials, such as ivory, ‘vegetable paste’ and other stone materials. While the first two have been analysed, there is currently no published research that examines the entire corpus of Predynastic zoomorphic figurines. An examination and comparison of the material and contextual features of the entire funerary corpus of animal figurines, conducted as part of my PhD research, suggests that the smaller collection of figurines produced in other materials likely had different social contexts and functions to the clay figurines examined in this paper.

⁴ Hendrickx and van den Brink 2002, 348–365.

⁵ Hendrickx and Eyckerman 2010; *iid.* 2012; *iid.* 2015. All except the tortoise are attested in a combination of sources, such as faunal remains, two- and three-dimensional media, and as a material for the production of artefacts.

	el-Badari, cem 3800 (Brunton and Caton-Thompson 1928) Nag ed-Deir, cem 7000 (Lythgoe and Dunham 1965) Mesheikh, cem 2000 (Fisher 1913) el-Mahásna, cem H (Ayrton and Loat 1911) Abydos, cem Φ (Randall-MacIver and Mace 1902) Abydos, cem U (Peet 1914; Dreyer <i>et al.</i> 1998; Dreyer <i>et al.</i> 2000; Dreyer <i>et al.</i> 2003) el-Amra, cem A (Randall-MacIver and Mace 1902) el-Amra, cem B (Randall-MacIver and Mace 1902) el-Amra, unspecified Hiw, cem R (Petrie and Mace 1901) Abadiya, cem B (Petrie and Mace 1901) Armant, cem 1400-1500 (Mond and Myers 1937) Hierakonpolis, HK6 (Adams 2000)												
Cattle	0	0	4	0	1	5	12	12	4	0	0	0	1
Bird	0	0	0	0	0	0	0	0	0	0	6	0	0
Fish	0	0	0	0	0	0	0	0	0	0	1	0	1
Pig	0	0	0	0	0	1	0	2	0	0	0	0	0
Hippopotamus	0	0	0	0	1	3	0	0	0	1	3	0	0
Turtle	0	0	0	0	0	0	0	0	0	0	1	0	0
Tortoise	0	0	0	0	0	3	0	0	0	0	0	0	0
Crocodile	1	0	0	0	0	0	0	0	0	0	1	0	0
Unidentifiable	0	0	1	0	3	12	0	5	0	0	2	0	0
Unidentifiable quadruped	0	3	0	1	0	6	0	1	0	0	1	1	1

Tab. 1: Table overview of the zoomorphic figurines according to the animals represented and cemeteries from which they were excavated.

unrepresented or potentially unidentified within the figurine corpus yet their physical remains are present in burial contexts.

It has been possible to interpret the subject matter of 64 figurines, while the other 37 figurines have been broadly designated as unidentifiable (Fig. 1). The use of 'unidentifiable' as a category is unavoidable as the evidence is sometimes ambiguous in form or only partially preserved.⁶ However, it must also be considered that at least some were deliberately ambiguous to refer to several different animals, whether taxonomically related or unrelated. Among the figurines that could be identified, there are representations of cattle, hippopotamuses, birds, turtles, tortoises, fish, pigs, and crocodiles, which are known to have inhabited Upper Egypt during the 4th millennium BC and feature in other Predynastic Egyptian visual and material culture.⁷ However, this group of animal figurines does not represent all of the species found in burials; for instance, dogs, goats, and sheep are seemingly unrepresented or potentially unidentified within the figurine corpus yet their remains were placed in burial contexts.

The process of identifying the animals represented in the figurines is a largely interpretative process that relies on a comparative analysis between physical form of the real animal and the written and visual documentation of the artefacts, including archaeological reports that describe or name the figurine and often provide photographs or drawings as a supplement; further publications of the material by excavators; museum publications that include descriptions or images of the evidence; and online museum catalogues. The final identification is ultimately up to the individual interpreter. However, the use of as many different sources can provide the interpreter with several perspectives on the same object.

⁶ In some cases, the figurines were recorded in archaeological reports as animal figurines but were not sufficiently well-preserved for the excavators to propose an animal identification.

⁷ All except the tortoise are attested in a combination of sources, such as faunal remains, two- and three-dimensional media, and as a material for the production of artefacts. Hendrickx and Eyckerman 2010; *iid.* 2012; *iid.* 2015.

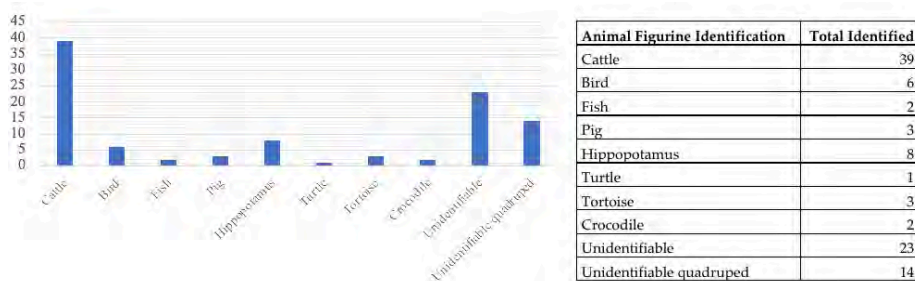


Fig. 1: Bar graph showing the total number of each identified animal in the corpus of Predynastic zoomorphic figurines made of clay in burial contexts.

Existing research

More recently, scholars have started to consider the function and significance of zoomorphic figurines across both settlements and cemeteries.⁸ In some cases, these interpretations are formulated as separate to that of anthropomorphic figurines in light of a growing understanding that the archaeological category of ‘figurine’ does not imply homogeneity in terms of the purpose and use of figurines. Instead, several interpretations or ‘taxonomies’ specific to animal figurines have been raised, including animal figurines as substitutes for the real animal;⁹ as religious ritual objects, either images of a deity¹⁰ or *ex-voto* offerings;¹¹ or as expressions of an elite ideology.¹²

While the interpretation of figurines is diverse, reflecting the visual, material, and contextual variation within the corpus, zoomorphic figurines in burial contexts share several similarities and are often described as symbolic replicas.¹³ Both Hartung and Hendrickx proposed variations of this same interpretation, contending that zoomorphic figurines replaced the real animal in the burial context to provide ongoing sustenance for the deceased.¹⁴ Such an interpretation may be compared with that of small, clay cattle figurines from domestic assemblages, particularly el-Mahâsna, Zawaydah and Armant,

⁸ Hendrickx 2002, 276-277; Anderson 2006, 258-259; 2011, 25; Hartung 2011, 489; Di Pietro 2017, 154; 2019, 56; Brice 2021, 103-5.

⁹ Hendrickx 2002, 276-277; Anderson 2007, 41; Hartung 2011, 489; Brice 2021, 103-105.

¹⁰ Anderson 2006, 258-259; 2011, 25.

¹¹ Di Pietro 2017, 154; Friedman and Nagaya 2021, 345.

¹² Anderson 2006, 258-259; 2011, 25; Hartung 2011, 491.

¹³ Hendrickx 2002, 276-277; Hartung 2011, 489.

¹⁴ *Ibid.*

which may have functioned as replicas of slaughtered or live cattle.¹⁵ However, there are some caveats to both Hendrickx and Hartung's arguments. Firstly, Hartung suggested that while some animals from Cemetery U at Abydos are replicas of the slaughtered animal, others such as the hippopotamus and cattle were instead possibly motivated by an elite ideology.¹⁶ Hendrickx, on the other hand, recognised that several animals would be dangerous and unhelpful for the deceased in the burial context, such as hippopotamuses and crocodiles, and consequently argued that the deceased could not derive any benefit from their inclusion in the burial.¹⁷ While it is certainly true that seemingly dangerous animals are represented in the zoomorphic figurine assemblage, their presence in some Predynastic burials suggests that there was a multi-faceted understanding of these animals that encompassed more than just the danger that they posed.¹⁸

As a result, it is important to posit the motivations underlying the creation of animal figurines based on an analysis of the suite of animals that are represented, particularly in terms of a possible link or shared characteristic. The idea that zoomorphic figurines acted as replicas of the real animal, possibly in tandem with the interments of whole and partial animal remains, is one possible hypothesis that may provide a cohesive explanation for many of the animals that have been identified to date.

Folk taxonomies

Folk taxonomies reflect how "each culture distinguishes groups of animals and plants as part of a larger conceptual ecosystem".¹⁹ Today, there is the Linnaean taxonomy that uses morphological and DNA relations between organisms as its basis (Fig. 2). While we may argue that the Linnaean taxonomy is an empirical classification of all living organisms, it is only one taxonomy and

¹⁵ Anderson 2007, 41; Brice 2021, 103-105.

¹⁶ Hartung 2010, 111; 2011, 470, 491.

¹⁷ Hendrickx 2002, 276-7.

¹⁸ Droux 2021, 303.

¹⁹ VanPool and VanPool 2009, 529.

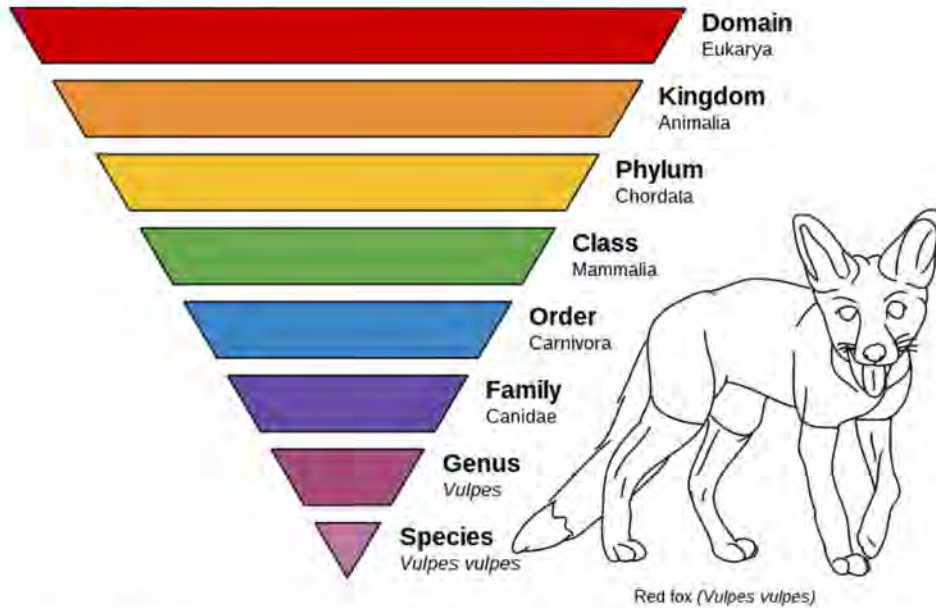


Fig. 2: A graph illustrating the main taxonomic ranks of the Linnaean system by Annina Breen via WikiCommons (Creative Commons Attribution-Share Alike 4.0 International).

does not reflect how other cultures, past and present, organise their own taxonomic systems, which often develops from their unique cultural, geographical, and environmental contexts.²⁰ Therefore, the cultural significance of animals must be considered within the context of each specific culture to understand how they organised living organisms into their own taxonomies rather than solely through the Linnaean system.

Anthropological and archaeological research has established that taxonomies are culturally constructed and formulated through lived experiences.²¹ Rather than being epistemologies like the Linnaean taxonomy, they are a relational ontology that “help people understand their place in the world relative to objects and entities with which they interact”.²² While originally developed for ethnography and anthropology, this type of research has been

²⁰ *Ibid.*

²¹ *Ibid.*; Binnberg 2017; Phaka et al. 2019; Brémont et al. 2020; Caplan, Maley and McCormack 2020.

²² Zedeño 2009, 407.

applied more recently to ancient cultures.²³ However, there are very few works that apply this approach to the study of Predynastic Egypt.²⁴

The use of ethnosemantics could be a useful method to explore the representation of animals in the Predynastic visual record given that iconographic studies have already recognised that some animals were used in similar scene contexts to express socio-cultural concepts. It has been suggested that Predynastic populations recognised that some animals had similar characteristics or behaviours and they appropriated these into their visual culture to express human concepts or concerns.²⁵ The most widely discussed example within a Predynastic context is the animal iconography of power that used representations of dogs, bulls, lions, and African wild dogs exerting dominance and force over other animals, including humans, in conjunction with depictions of interpersonal violence.²⁶ While these animals are unrelated in the Linnaean taxonomy, they are often interpreted as animal agents of power and dominance. Therefore, we may understand this arrangement of animals as a Predynastic folk taxonomy that was developed to express power and dominance through equally powerful, but unrelated, animals in a similar way to the representation of humans exerting their power over others and the natural world that occurred contemporaneously.

If Predynastic Egyptian communities did, indeed, construct taxonomies, such as a taxonomy of power, it may be useful to examine the corpus of clay zoomorphic figurines from burial contexts through this approach to determine whether their selection and production was also based on a similar principle of shared traits. This paper argues that a taxonomy of food and resources may be the unifying theme across the corpus of clay zoomorphic figurines from burials.

Analysis of zoomorphic figurine subjects

Zoarchaeologists have suggested that fishing and breeding of livestock were the dominant animal-based components of the Predynastic subsistence strategy.²⁷ Remains of wild animals, including hippopotamuses, birds, turtles, and crocodiles, which are identified among the clay figurines from funerary

²³ VanPool and VanPool 2009; Binnberg 2017; Brémont et al. 2020.

²⁴ Brémont et al. 2020, 83-85.

²⁵ Hendrickx 2006; *id.* 2010; Hendrickx and Eyckerman 2010; *iid.* 2012; *iid.* 2015.

²⁶ Hendrickx 2006; *id.* 2010; Hendrickx and Eyckerman 2010, 122-7; *iid.* 2015, 201-202.

²⁷ Lesur 2013, 46.

contexts, are also attested in small quantities, inferring that they were also utilised to a lesser extent.²⁸ While the seven animals discussed in this paper are attested in faunal data from domestic contexts, it is important to emphasise that the total zooarchaeological assemblages from these settlements are comprised of many more animals; thus, it is not argued here that the zoomorphic figurines represented *all* components of the Predynastic subsistence economy.²⁹

The zooarchaeological record, both from domestic and funerary contexts, are useful sources for comparison with the corpus of zoomorphic figurines as we may use it to better understand how animals were used in these different settings, and the relationships between them and Predynastic populations, which can help to situate the clay animal figurines within a social context.

However, there are several inherent limitations impacting the interpretation of Predynastic slaughter and consumption patterns that must be considered. First, the data are not representative either by contexts within a settlement, as many are selectively excavated, or on a broader geographical scale, as there are only a few, more recent excavations that have conducted extensive faunal examinations as part of their analyses.³⁰ Thus, while the results across these sites are mostly comparable, their broader regional applicability is unclear. Secondly, the bones of smaller animals, particularly fish and birds, are more susceptible to taphonomic processes and destruction in the archaeological record than larger animals, which would inherently bias the interpretation of the dietary significance of the former animals and those that are alike.³¹ Finally, while the sample of evidence from selected contexts at a small number of sites provides a window of understanding into slaughter and consumption patterns, we do not, for example, have evidence for satellite processing of faunal remains, such as fish along the riverbank or large prey at the kill site.³² However, despite these limitations, faunal data is still an important

²⁸ The data for faunal remains from domestic assemblages is derived from analyses undertaken at el-Mahâsna (Rossel 2007), Naqada (Gautier and Van Neer 2009), Armant (Boessneck and von den Driesch 1994), Adaima (Van Neer 2002) and Hierakonpolis (Linseele, Van Neer and Friedman 2009). Cf. Linseele, Van Neer and Friedman 2009, 112-113.

²⁹ Cf. Linseele, Van Neer and Friedman 2009, 112-3.

³⁰ Boessneck and von den Driesch 1994; Van Neer 2002; Rossel 2007; Gautier and Van Neer 2009; Linseele, Van Neer and Friedman 2009.

³¹ Brewer and Friedman 1989, 1-2; Rossel 2007, 107; Gautier and Van Neer 2009, 34; Linseele, Van Neer and Friedman 2009, 115, 119.

³² Lupo and Schmitt 2016, 188-189.

repository to consult in conjunction with visual media to understand how Predynastic populations utilised animals in different contexts spanning daily life to the funerary domain.

Cattle

The significance of cattle is evident when examining the faunal remains and the diverse collection of two- and three-dimensional media. Figurines of cattle were the most popular identifiable figurine, with 39 attested in burial contexts. Many were executed in a realistic-stylised form that represented several key characteristics of the domestic species, such as their bodily proportions, horns, and painted decoration representing a piebald coat. 28 cattle figurines were from the Predynastic cemeteries at el-Amra alone,³³ many of which were interred in groups of up to four with some even joined together on a large, rectangular clay base. All twelve figurines from Cemetery A were identified as cattle, and although the zoomorphic figurines from Cemetery B were slightly more varied, cattle were still dominant, and of the nine other figurines, seven have been categorised as unidentifiable due to a lack of documentation.

In addition to the socio-cultural significance of cattle, such as the possibility that they acted as ‘mobile wealth’, that has been interpreted from the Predynastic evidence,³⁴ the resources and by-products that cattle produce are also numerous. The most well-known resources are meat and milk; however, almost the entire animal has valuable by-products and raw materials whose use is well-attested from anthropological and archaeological sources. For example, hides from slaughtered cattle can be crafted into garments, furnishings, and funerary wrappings; hairs can be used to manufacture rope and string; and their sundried dung can be used as fuel and a mosquito repellent.³⁵ Thus, it is possible that cattle had a multi-layered significance that included their commodification as livestock, the utilisation of their by-products as well as the projection of socio-cultural concepts onto the animal to express their relative importance to Predynastic communities.

³³ Randall-MacIver and Mace 1902, 16-20.

³⁴ Wengrow 2001; Lesur 2019, 106; Hendrickx, Förster and Eyckerman 2020.

³⁵ Evans-Pritchard 1953, 181; Ikram 1995; Edwards 2004, 57; Russell 2012, 18; Lesur 2013, 46; Vella Gregory 2021, 214.

Birds

Birds are less visible in Predynastic faunal assemblages,³⁶ but feature prominently across several media throughout the Predynastic period, including Decorated (D-ware) vessels, palettes, and amulets.³⁷ Six bird figurines were exclusively excavated from burials in Cemetery B at Abadiya.³⁸ These were stylised in form and only impart the basic features of the animal, including the avian shape with a pointed tail and beak, and often the indication of wings, either protruding out or modelled as raised arches of clay on either side of the body. They were not made with sufficient anatomical details to associate with a particular family, genera, or species of bird; however, this may have been an intentional under-differentiation to refer more generally to birds.³⁹

The underrepresentation of birds in the faunal record may, at least partially, be attributed to taphonomic processes; although, the lack of evidence for domesticated birds during this period may also indicate that they were simply not widely consumed.⁴⁰ Despite this, there is still evidence for the use of bird by-products during the Predynastic period, including ostrich eggs, which were kept intact and inscribed on the outer face or fragmented to manufacture beads; and feathers, which are possibly shown adorning the heads of individuals in two-dimensional media.⁴¹ Thus, while there is currently little in the faunal data to suggest that birds were regularly captured for consumption, there is evidence for the use of other bird products, supporting the idea that Predynastic communities found practical uses for them that may have been beneficial to associate with the deceased.

Fish

Fish were another important fixture of the Predynastic subsistence strategy based on the vast quantity of remains recovered from Predynastic domestic assemblages. Although, their dietary significance does not appear to have carried over into Predynastic visual culture as there are very few

³⁶ Boessneck and von den Driesch 1994, 183; Van Neer 2002, 527-529; Gautier and Van Neer 2009, 34; Linseele, Van Neer and Friedman 2009, 119.

³⁷ Ciałowicz 1991, 28-30; Hendrickx and Eyckerman 2012, 40.

³⁸ Petrie and Mace 1901, 32-33; Payne 1993, 20-21.

³⁹ VanPool and VanPool 2009, 534.

⁴⁰ Gautier and Van Neer 2009, 34; Linseele, Van Neer and Friedman 2009, 119.

⁴¹ Friedman 2007, 12; Gautier and Van Neer 2009, 34; Hendrickx 2011, 252; Hendrickx and Eyckerman 2012, 25; Ali Toybou 2019, 25.

representations of fish in other media,⁴² and only two clay figurines representing fish.⁴³ The complete figurine from Abadiya is a realistic-stylised representation that may represent either the Nile tilapia or Nile perch.⁴⁴ Only the tail of the fish figurine from Hierakonpolis was preserved, so it has not been possible to comment on the style or compare with real fish.⁴⁵

The dynamics of the Nile created shallow and deep-water environments that hosted different species of fish throughout the year.⁴⁶ Fish in shallow waters could be caught by hand, particularly in small ponds or pools of water when spawning occurred, while watercraft and nets were generally needed to catch fish living in deeper channels of the river.⁴⁷ Despite shallow-water fish being more accessible, as they required less equipment to access and catch, there is, on the whole, a greater quantity of deep-water fish in the zooarchaeological record.⁴⁸ While their main product is meat, anthropological sources indicate that fish organs and bones can also be used in a variety of processes, from craft production to health.⁴⁹ Within a Predynastic context, several bone awls at el-Mahâsna were found to have been made from Latidae, Clariidae and Mochokidae specimens, likely used for textile manufacturing at the site.⁵⁰

Pigs

Similar to birds, there is an apparent disconnect with pigs during the Predynastic period when comparing the zooarchaeological and visual evidence. They are present in faunal assemblages, yet they are seemingly absent within the visual culture of the period, with only three tentatively identified pig figurines and some unprovenanced pig figurines made with ivory.⁵¹ The two figurines from el-Amra that possibly represent pigs were stylised-abstracted forms that have triangular shaped ears overhanging a face with an elongated

⁴² Jurgielewicz 2020.

⁴³ Petrie and Mace 1901, 32; Adams 2000, 26-27.

⁴⁴ Petrie and Mace 1901, 32.

⁴⁵ Adams 2000, 26-27.

⁴⁶ Van Neer 2004, 253.

⁴⁷ *Ivi*, 261.

⁴⁸ We must consider whether evidence for fish from shallow water environments has been lost due to the types of satellite processing described earlier. Brewer and Friedman 1989, 77; Rossel 2007, 212; Linseele, Van Neer and Friedman 2009, 115-117, 132.

⁴⁹ Olden et al. 2020, 454.

⁵⁰ Anderson 2006, 211.

⁵¹ Randall-MacIver and Mace 1902, 16-17; Peet 1914, 15; Payne 1993, 21; Lorre 2021.

snout and a barrel-shaped body; unfortunately, they lack other features, such as legs or a tail to identify them more confidently as pigs.⁵² In contrast, the pig figurine from Abydos was more realistic-stylised thanks to the presence of legs in addition to the aforementioned pig features noted from the el-Amra examples.⁵³

Despite their apparent absence from the visual record, pigs formed another important part of the Predynastic subsistence strategy as a livestock animal, although it is to a lesser extent than goats, sheep, and cattle.⁵⁴ They are known to be lower maintenance as they reproduce at a faster rate than other livestock and produce many offspring each time; have low-maintenance land requirements as they do not need dedicated grazing space; and can subsist on organic refuse from human settlements for feed.⁵⁵ Meat is the primary product for human use; however, their hairs may also be used as bristles in brushes, their phalanges can be processed into glue, and their skins into leathers.⁵⁶

Hippopotamuses

The visibility of the hippopotamus in Predynastic visual culture is unparalleled among wild animals during the fourth millennium BC.⁵⁷ Hippopotamus figurines are the second-most popular identified animal in the clay figurine corpus. However, evidence for their physical remains in settlement contexts, which barely exceed twenty specimens across Predynastic settlements with faunal data, does not mirror their prominence in the representational sphere.⁵⁸ This lack of physical remains is in direct contrast to both the prevalence of hippopotamus hunting in Predynastic visual media, and the large

⁵² Randall-MacIver and Mace 1902, 16-17; Payne 1993, 21.

⁵³ Peet 1914, 15. There is a second figurine from this burial that has comparable facial features with a different bodily shape and no legs that has been classified as unidentifiable in this analysis; however, it is possible that it was intended to represent the same animal. Unfortunately, it is poorly documented with only one side profile image and has not been traced to a museum collection.

⁵⁴ Van Neer 2002, 530-531; Rossel 2007, 144-147; Gautier and Van Neer 2009, 38; Linseele, Van Neer and Friedman 2009, 128; Lesur 2013, 46.

⁵⁵ Ikram 1995, 31-32; Lesur 2019, 107-108.

⁵⁶ Ikram 1995, 32; Rossel 2007, 146.

⁵⁷ Droux 2021, 302.

⁵⁸ Rossel 2007, 148-149; Linseele and Van Neer 2009, 124.

quantity of hippopotamus canines which would have been taken from the carcasses once the animal was slaughtered.⁵⁹

Within a Predynastic Egyptian context, consumption has generally not been discussed as part of hippopotamus hunting since the strongest evidence for hunting comes from two-dimensional media rather than faunal remains. However, the consumption of hippopotamus and the harvesting of other by-products must be considered given the collective effort that is known to have been expended to successfully hunt and kill an adult hippopotamus and the large quantity of meat and other by-products that could be yielded from a single carcass.⁶⁰ Modern accounts even note that hippopotamus meat is appetising and comparable to lean beef.⁶¹ Thus, while hippopotamus remains are poorly attested in Predynastic settlements, it is possible that their remains were not transported to settlements as a whole, but instead as portions of only the useable products or their larger bones were cleaned from settlement areas, either or a combination of these two hypotheses may provide some explanation for the inconsistency in the faunal data when it is compared to their prominent representation as a hunting subject in visual media.⁶²

Turtles

Softshell turtles (*Trionyx tringuis*) inhabited the Egyptian Nile Valley during antiquity and were represented in Predynastic visual and material culture, including in Nilotic scenes on White cross-lined (C-ware) ceramics⁶³ and figurative greywacke palettes.⁶⁴ One figurine from Cemetery B at Abadiya has a flattened carapace that is characteristic of a softshell turtle.⁶⁵ There are also three *Testudines* figurines from U-395 at Cemetery U, Abydos⁶⁶ which have domed carapaces that more closely resemble a tortoise. Although no species

⁵⁹ Krzyszkowska and Morkot 2000, 320-321; Hendrickx and Eyckerman 2011, 498; Brémont 2018, 85.

⁶⁰ Ikram 1995, 22; Lupo and Schmitt 2016, 186. Today, hippopotamus hunting is still legal in at least seven countries in Africa and the illegal hunting of hippopotamuses is practiced more widely as part of the 'bushmeat' trade in sub-Saharan Africa (Neilsen and Meilby 2015, 64). Further, several Nilotic populations are known to have hunted and consumed hippopotamuses (Seligman and Seligman 1932, 39, 136).

⁶¹ Eltringham 1999, 122.

⁶² Lupo and Schmitt 2016, 189-190.

⁶³ Droux 2020, C-0020, C-0024, C-0171.

⁶⁴ Fischer 1968, 24-25; Ciałowicz 1991, 20.

⁶⁵ Petrie and Mace 1901, 32; Payne 1993, 22.

⁶⁶ Dreyer et al. 2000, 58; Hartung 2011, 476.

of tortoise has been attested in faunal assemblages at any Predynastic site in Middle or Upper Egypt, nor have any been identified in any visual culture to date,⁶⁷ there are species of tortoise that are known to have inhabited Egypt since antiquity, such as the African spurred tortoise which still inhabits desert, scrub, savanna, and grassland environments in sub-Saharan Africa.⁶⁸

Of the reptiles attested in Predynastic faunal assemblages, the softshell turtle comprises the largest proportion of the identified specimens, which suggests that the red meat and fat was consumed by Predynastic communities.⁶⁹ While some settlements contain a large quantity of softshell turtle specimens, inferring that they were a targeted species,⁷⁰ only a limited number of specimens were identified at other sites which suggests that, in other cases, turtles were accidentally caught as by-catch in fishing nets.⁷¹ Later evidence from Egypt and ethnographic parallels reveal that it is possible to use their eggs, bones, and carapace shell in a variety of ways in addition to consuming their meat.⁷²

Crocodiles

Finally, the Nile crocodile was visible in both the Predynastic zooarchaeological and, to a lesser extent, the visual record, mostly in Nilotic scenes on C-ware vessels. The evidence from these two sources suggests that the crocodile was primarily considered a hunting target. Two crocodile figurines were excavated in an incomplete state of preservation, one from Cemetery 3800 at el-Badari⁷³ and another solely consisting of a curved tail from Cemetery B at Abadiya.⁷⁴

⁶⁷ Boessneck 1988, 111.

⁶⁸ Further research is needed to reconcile the clear tortoise shape of the carapaces on these figurines with the apparent absence of this animal in the Predynastic archaeological record.

⁶⁹ Fischer 1968, 6; Boessneck 1988, 110-111; Linseele, Van Neer and Friedman 2009, 118; Çakırlar, Koolstra and Ikram 2021, 128.

⁷⁰ Rossel 2007, 160; Linseele, Van Neer and Friedman 2009, 118; Van Neer and De Cupere 2021, 6.

⁷¹ Boessneck and von den Driesch 1994, 183; Gautier and Van Neer 2009, 34; Van Neer 2002, 545.

⁷² De Meyer et al. 2005, 69; Çakırlar, Koolstra and Ikram 2021, 128. An exceptionally large softshell turtle carapace was identified from an early burial at Helwan, demonstrating the use of turtle skeletal elements in Lower Egypt during the late 4th-early 3rd millennium BC (Saad 1947, 108-109, pl. XLVII).

⁷³ Brunton and Caton-Thompson 1928, 51.

⁷⁴ Petrie and Mace 1901, 32; Payne 1993, 22.

Similar to the softshell turtle, there is considerable variation in the quantities of crocodile remains found in Predynastic settlements. Most notably, there were almost 200 specimens identified at HK29A, Hierakonpolis,⁷⁵ yet fewer than 10 combined from el-Mahâsna⁷⁶ and Adaïma,⁷⁷ and no remains were recorded at Naqada, Armant or HK11. Thus, it is possible that the hunting and consumption of crocodile was regionally specific, or the remnants of butchering activities have not survived in the archaeological record at some sites. Nonetheless, the white flesh of the crocodile is edible when handled and cooked properly, their skin can be used as a leather material to produce garments and shields, and some cultures use their blood and fat.⁷⁸

Comparison with whole and partial faunal remains in burial contexts

The interment of whole and partial animal remains in burials is another comparative corpus of particular interest for this analysis given the shared focus on animals in the funerary domain. For the most part, the remains of animals in Upper Egyptian burials, either as partial remains as well as whole remains, were co-interred with the deceased within the grave; however, instances of independent animal burials have also been noted in the region.⁷⁹ Overall, the evidence suggests that animal remains were relatively uncommon funerary accompaniments in Upper Egyptian burials,⁸⁰ and there are very few instances where zoomorphic figurines and animal remains co-occurred in the same burial. Since it is generally understood that animal

⁷⁵ Linseele, Van Neer and Friedman 2009, 118; Friedman 2021, 4; Van Neer and De Cupere 2021, 6.

⁷⁶ Rosset 2007, 162.

⁷⁷ Van Neer 2002, 527.

⁷⁸ Boessneck 1988, 110; Ikram 2010, 89; Pooley 2016, 400.

⁷⁹ Flores 2003, 63; Van Neer, Linseele and Friedman 2004; Van Neer, Linseele and Friedman 2017; Van Neer and de Cupere 2021, 6-8. There are two poorly documented contexts from Upper Egypt that Flores tentatively noted as evidence for independent animal burials in the region (Flores 2003, 69). To this we may also add more recent discoveries from HK6 at Hierakonpolis, which has evidence for many independent animal burials clustered around some of the tombs within the cemetery (Van Neer, Linseele and Friedman 2004; 2017; Friedman et al. 2017), and the six animal burials, one pig and five dogs, recorded within the settlement area at Adaïma (Van Neer 2002, 533).

⁸⁰ Flores 2003.

interments, particularly livestock species, functioned as provisions for the deceased,⁸¹ we may compare the species with the figurines.

The practice of interring partial remains of animals, while still relatively uncommon, appears to have occurred more frequently than the burial of whole animal remains. Whole animals have been identified in a small number of burials (Naqada IA–IID) at many Upper Egyptian cemeteries, primarily consisting of small quadrupeds (gazelle/ovicaprid), and dogs, in addition to the diverse menagerie of largely complete animal specimens at HK6, Hierakonpolis.⁸² The interment of partial remains of animals, in contrast, has been recorded in greater quantities from cemeteries across Middle and Upper Egypt: Matmar (10 burials), Mostagedda (7 burials), Badari (3 burials), Nag el-Deir (11 burials), el-Mahâsna (7 burials), Cemetery U, Abydos (98 burials) el-Amra (21 burials), Abadiya (2 burials), Naqada (4 burials), and Armant (3 burials).⁸³ Most interestingly, the recovered body parts consisted of bones from the legs, shoulders, skulls, and jaws, none of which would be considered traditionally ‘fine’ cuts of meat. Ovicaprids largely dominate this category of funerary remains; however, partial remains of cattle were also identified in meaningful quantities.

The presence of whole and partial animal remains, particularly ovicaprids and cattle, is currently understood as either an expression of wealth, symbolising the “flock”, or as “a source of sustainable sustenance in the afterlife”.⁸⁴ Given that ovicaprids were smaller than other livestock, it may have been more spatially and economically viable to place whole animals of these

⁸¹ Flores 2003, 56; Van Neer, Linseele and Friedman 2004, 119; Hartung 2016, 287.

⁸² Flores 2003, 83–8, 91–92, 102–109; Van Neer, Linseele and Friedman 2004; Van Neer, Linseele and Friedman 2017; Van Neer and de Cupere 2021, 6–8. These sparse findings contrast significantly with more recent findings from the ongoing excavations at HK6 where they continue to uncover new animals, particularly large wild and domestic species, interred in pit burials, which are unattested elsewhere in Upper Egypt during this period, making this an unparalleled menagerie (Van Neer, Linseele and Friedman 2004, 72–73; Van Neer, Linseele and Friedman 2017; Van Neer and De Cupere 2021, 6–8).

⁸³ von den Driesch and Peeters 2000, 86–89; Flores 2003, 103–109. It must be emphasised that this is most likely an underrepresentation of the quantity of partial animal remains in burials as reports from cemetery excavation from the late 19th–early 20th century did not publish every burial. Thus, it is highly likely that further graves were also found to include whole or partial animal remains but were not published. Furthermore, the description of partial animal remains within these earlier reports are not specific because excavations lacked any systematic analysis of zooarchaeological remains beyond estimating the size of the animal and possible suborder (i.e., ruminants).

⁸⁴ Flores 2003, 56; Hartung 2016, 287.

species in burials to embody this concept of wealth or sustenance. This may explain the apparent absence of ovicaprid clay zoomorphic figurines in burials. If their physical remains, partial or whole, could be placed with the deceased then it was not necessary to produce a miniaturised form.

Zoomorphic figurines, then, may have acted as symbolic replica of animals that were either too large or less accessible for the living community to prepare for funeral proceedings and burial. The chosen medium possibly depended on the size, value, and expendability of the animal to the living community. Small animal portions and animal figurines may have been a more convenient way to provide sustenance for the deceased through symbolic means rather than placing a complete animal carcass in the small burial space. This concept is particularly well-exemplified by the possibly 'slaughtered' figurines from Abydos, such as the cattle figurines from U-239 and U-560,⁸⁵ which convey the concept of a food offering in a figural form without needing to place any real portions of meat in the grave.

Thus, it is possible that zoomorphic figurines addressed pragmatic sustenance requirements for the deceased in a miniaturised clay form. This mirrors the interpretation of other Predynastic material culture found in burials, such as palettes, pottery, and personal adornments. These objects had a use for the living population, given that many have signs of use-wear and their function within the burial context could be considered parallel to their previous use life with possible symbolic dimensions added to address their new ritualised context.⁸⁶ Neither zoomorphic figurines nor animal remains could be considered 'staples' in the Predynastic funerary repertoire, yet it is possible that their presence in this context was motivated by a desire to provision or sustain the deceased with animal-based food sources, either presented as the real animal or a figural form made from clay. It would not be unreasonable to suggest that this was done to provide familiar or similar food and animal-based resources to those they enjoyed in life presented either as whole, partial or miniaturised animal remains.

Conclusion

This paper has presented the hypothesis that clay zoomorphic figurines in Predynastic burials were motivated by a folk taxonomy of consumption and resources that was intended to replace real animals in a funerary context as

⁸⁵ Dreyer et al. 1998, 84; 2000, 60; Hartung 2011, 470.

⁸⁶ Stevenson 2008, 5.

sustenance and resources for the deceased. The figurine corpus has been compared with the zooarchaeological record from both domestic and funerary contexts in light of an anthropological focus on the use of animals, particularly the products that can be taken from them, dead or alive, and transformed into food, raw materials and objects.

Cattle figurines are the most popular identifiable figurine in burial contexts and are accompanied, to a much lesser extent, by an array of animals, including fish, birds, hippos, pigs, turtles, and crocodiles. As these animals all provide humans with viable food and by-products, it can be argued that their presence in burials was intended to act as provisions for the deceased; although, it is also possible that only a subset of these figurines were intended to fulfil such a purpose, and others were interred to serve the deceased in other ways. It is argued here that the production of zoomorphic figurines may have served a parallel function to the interment of whole and partial remains of real animals, mainly ovicaprids/gazelles as well as cattle. These provided the living with several options, in terms of animal and medium, for how they could provision the deceased with animal-based sustenance. When these two types of animal manifestations in funerary contexts are compared, it is evident that they do not overlap, but instead complement each other to closely mirror many, but not all, of the animals found in the Predynastic faunal record.

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Animals Remains from the Egyptian Collection of the Civic Archaeological Museum of Milan

Conservation and Study Project

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Introduction

The Egyptian Collection of the Civic Archaeological Museum of Milan holds a number of mummified remains, both human and animals. With the exception of a very few mummies which had been on display in the past (either in the permanent Egyptian display – more or less continuously until 2017, when this was closed for a complete refurbishment – or in temporary exhibitions), most of them have always been kept in storage. The reasons for this choice have been different: they surely included ethical considerations, and also the lack of exhibition space within the galleries, yet the primary factor was their state of conservation. Indeed, most of these mummified remains are in less-than-optimal condition, particularly the animal ones, which in some cases show the loosening of the outer layers of the wrappings. Over time, as new and higher standards of preservation and display of such organic material became established (including from an ethical viewpoint), the gallery's old showcases (dating from the 1970s) were deemed no longer suitable for the proper preservation of these remains, as were their storage condition in the warehouse. Therefore, as part of the ongoing project of refurbishment of the permanent Egyptian display – presently closed and expected to reopen within some years, still on its historical premises of the Sforza Castle – the museum's curatorial team decided to turn its attention also to this group of long-neglected artefacts.

Concerns about the overall conditions of the mummies and, in some cases, even the uncertainty about the nature and state of conservation of the organic remains 'hidden' under the layers of bandages, deterred the museum curators from putting them on display without a renewed study and conservation assessment. The project has involved non-invasive diagnostic methods, such as digital imaging, thus minimizing invasive analyses of such fragile materials. The possibility of more hands-on investigation has been considered only as a possible further diagnostic step on the basis of the results of non-invasive techniques. Beyond

the obvious purposes of the scholarly research on ancient Egyptian mummification, and the socio-religious aspects related to this practice (on which new attention has emerged in the past two decades, particularly on the practice of animal mummification),¹ one of the main goals of such a diagnostic approach has been to envisage the more suitable method of preserving the remains themselves in climate-controlled storage, as well as best display them to the public, both in the permanent gallery or in temporary exhibitions.

Starting from 2016, the museum curatorial team thus developed the project *Egyptian Mummies between Archaeology and Science*, devoted to the analysis, conservation and study of the human and animal mummies in the Milanese collection. The project was financed by the Municipality of Milan with the participation of Regione Lombardia.

As part of this broader undertaking, the animal remains underwent their first comprehensive diagnostic study and preservation campaign. Only one of the mummies had a previous X-ray (taken by its former private collector, and transferred to the museum along with it), otherwise the bundles had never been X-rayed nor CT-scanned, and thus they have never been looked at *inside*.

For the imaging, the project gained the collaboration of the Department of Veterinary Medicine and Animal Sciences of the University of Milan, La Statale. Due to budget constraints, it was decided to proceed only with the CT-imaging, whose complete data could have been manipulated to obtain 3D images, which have now become an appealing educational method of presenting mummies to the public as well.² The mummies were CT-scanned at the University Veterinary Hospital of Lodi, all but one (Inv. no. E 0.9.41452, possibly an ibis), that, unfortunately, was still inaccessible at the time the scans had been scheduled and executed. Computed tomography was conducted using a General Electric Bright Speed Elite 16 slices scanner (GE, Madison, WI). The conservation was entrusted to Cinzia Oliva.³

The animal mummies collection: composition and provenance

The Milanese animal mummy collection consists of twenty-three specimens, all supposedly of the votive mummy type, that is manufactured as

¹ Ikram 2005a; Ikram 2005b; McKnight 2010; McKnight, Atherton-Woolham 2015; Ikram 2019.

² McKnight 2010, 26-32, and 114 for critical appraisals on computed tomography applied to animal mummies; cf. also Ikram 2019, 182-183; Anderson, Antoine 2019.

³ See below, under the mummy conservation paragraph.

offerings to the gods.⁴ Specifically, there are: eight crocodiles, one of which is the hind part of one adult/juvenile specimen, and the others are seven baby crocodiles; eight birds; two fish; three cats; one dog; and, lastly, one small mammal, possibly a shrew(?) or a small rodent similar to a shrew.

Of them, only the seven baby crocodiles come from documented excavations. They were unearthed in Achille Vogliano's brief excavation campaign in 1934 at the Graeco-Roman crocodile necropolis of Tebtynis (Fayyum), south of the main city temple dedicated to the crocodile god, worshipped under his local form of Soknebtynis. Unfortunately, we know nothing more about their discovery, for Vogliano's report about his activity at the necropolis is lacking in detail. As a papyrologist, the attention he paid to the necropolis was first and foremost targeted at the inscribed material, as he himself admitted⁵. The purpose of his activity there, was not to find mummies but inscribed papyri reused in the making of the animal wrappings. This was a well-documented practice, especially in the Graeco-Roman Period for adult crocodiles, which where, in many cases, very carefully and aesthetically wrapped.

All the other mummies are from private collections, with no ascertainable provenance, nor a (more or less reliable) claimed provenance. Only the adult crocodile (Inv. no. E 0.9.41398; total length preserved: 1 m) was accompanied with a label declaring it to have been brought from Upper Egypt. Several Upper Egyptian sites are associated with the cult of the crocodile: the caves of es-Samun (al-Maabda) and the cemetery of al-Shutb near Kom Ombo being the most relevant sites, but crocodiles have been found also at Thebes, Esna,⁶ el-Kab,⁷ and Aswan.⁸ Therefore, under the general statement 'Upper Egypt' of its label, remains highly speculative the exact provenance of this crocodile, as too the specific context of its 'discovery', because so far, we have failed to find archive data concerning the mummy's accession to the museum⁹.

⁴ For the different types of animal mummies see Ikram 2005a; Ikram 2019, 181-182.

⁵ Vogliano 1937, 16. Lise 1979, cat. 21-26, records "Sei (sic) mummie di piccoli coccodrilli, 20-25 cm (inv. E 997/1-6), without any other information nor reference to their discovery at Tebtynis, of which he, evidently, had no knowledge. The seven mummies (accessioned to the museum on 8/24/1937) are recorded in Vogliano's unpublished list of finds from the 1934 Tebtynis campaign. On some inaccuracies in Vogliano's report on his work at the crocodile's necropolis, cfr. Gallazzi 2003, 170-171.

⁶ Ikram 2005a, xviii-xx.

⁷ Gautier 2005, 144.

⁸ De Cupere *et al.* 2023.

⁹ The overall reliability of the label is also questionable. More precisely, it reads: "MUMMIE DI COCCODRILLO PORTATE DALL'ALTO EGITTO E DONATE DAL NOB. D. GIULIO VENINI (Crocodiles'

Mummy conservation

Animal mummies are complex artefacts made mainly from organic remains: textiles, mostly realized with a plain weave technique in linen from flax fibres, skeletal remains or more complete remains of animals, and sometimes anomalous material used for stuffing and producing the proper shape of the animal (reeds, sand and mud, wooden sticks and papyrus). Of course, there are also embalming and mummification residues that impregnate both the textiles and the animals.

The combination of the natural oxidation and degradation of the cellulose fibres with the embalming agents can lead to a general breakdown of the textile structure, especially in the presence of severe thermo-hygrometric variations which can occur during improper display or storage conditions. Finally, the three-dimensional shape of the animal mummies can contribute to their general decay.

A further reason for degradation is due to the kind of mummification techniques applied and the thoroughness of the work. For bigger animals the mummification method used was similar to that of human bodies, but in smaller animals the process could have been greatly simplified and the results could affect the final artefact.¹⁰ We have some examples in the Milanese baby crocodiles, roughly wrapped in a single bandage and sometimes made stiffer through the inclusion of a wooden stick. When wrappings are fragile and brittle and no longer strongly connected with the body, the bandages could unravel and expose the bundle's contents, affecting their cohesion and the integrity of the mummy itself.

The majority of the Milanese mummies are wrapped in undyed linen fabrics, sometimes kept in place only by means of strings or linen threads tightly turned around the body. In most cases we found a very fragile state of conservation, with detached textile fragments that led to a loss of organic parts (Fig. 4a).

mummies brought from Upper Egypt and donated by Nob. D. Giulio Venini)", thus mentioning diverse crocodiles, and not just one. But no other crocodile mummies have ever been found at the museum other than this adult/juvenile specimen and the seven baby crocodiles that are certainly from Tebtynis. The Museum's archives record in 1867 the donation of a small collection of Egyptian objects by Giulio Venini/o – a military nobleman, who was awarded the title of earl –, but a/the crocodile mummy (or more than one) is not mentioned among them. However, the possibility cannot be ruled out that the (putative?) companions of this survivor gone destroyed and lost during their museum history (unknown to date), leaving no further traces of them.

¹⁰ Ikram 2005b; McKnight 2010.

The storage conditions play a fundamental role in the good conservation of such organic material. Adverse conditions, like environmental fluctuations in temperature and humidity, or the presence of unsuitable materials for storage (acidic card-board for boxes, woollen padding, etc.) could deeply interact with the natural degradation of the artefacts. For example, the baby crocodiles were conserved in ordinary tissue paper in a cardboard box, as far as we know both of the acid type.

The main goal of the project was to stabilize the general state of conservation of the artefacts, removing the agents of decay, without adding anything that could irreversibly affect the fibres and organic remains in the future.

The work started with preliminary cleaning operation, in order to allow visual access of the materials and the study of the textiles and bandages of the mummies. We are all aware that cleaning is always an irreversible process that can result in a loss of information, but it could prove to be fundamental in removing the dangerous deposits and possible agents of further degradation.¹¹ The cleaning allowed us to proceed with the technical study of the textile wrappings, of which we recorded in a card all the technical elements, like fibres, torsion, types of weaving and the presence of any stitching traces. It then allowed us to proceed with the diagnostic analyses.¹²

The careful vacuum cleaning of the surface was carried out using a surgical vacuum cleaner and, sometimes, when the vacuum treatment was not sufficient in removing impregnated dirt from the fibres, we used the gentle action of vulcanised sponges which helped to remove dirt. The sponges were latex and additive free and they were tested specifically for treatments such as this.

Loose and twisted fragments have been put in place with the help of an ultrasonic-humidifier, with cold steam in order to re-hydrate the fibres and let them recover their original shape and position on the mummy. The following step was to provide adequate support for the wrappings and sometimes to the artefact as a whole.

Regarding the consolidation techniques of the artefacts, the main distinction in the methodology was determined by the future life of each animal: some of them were in such poor condition that it was decided they would have been impossible to exhibit in the museum and their greatest interest remained in the fact that they were case studies, so the main goal was to allow full access to the materials in the future for further studies and diagnostic

¹¹ Oliva and Borla 2019.

¹² See below.

tests. For the mummies to be exhibited we opted for a method that respects the artefact and makes it 'readable' and accessible to the public. To hold loose and detached fragments in position we have used a fine nylon net, properly dyed to match the colour of the ancient material, sewn onto itself using a curved surgical needle in order not to sew through the original material. The choice of nylon net is justified because it is a transparent fabric, which is easy to manipulate, with non-fraying edges and it is elastic enough to follow the three-dimensional shape of the bodies of the mummies¹³. The crocodiles still wrapped in their original bandages were protected locally by a nylon net, sewn onto itself in order to keep fragments in place and to keep the head in the original position. For the two crocodiles which was already unwrapped, it was decided to keep all the elements visible and parted: the bandages, the mummified animal and the broken stick, originally used to strengthen the organic remains (Fig. 1). The bandages were protected with a local support of nylon netting, while the sticks and the body were secured to the support by a few stitches of fine polyester thread.

To allow handling during storage and display of the artefact, it was decided to create a flat and light support, made from a sheet of Correx (a twin-walled polypropylene sheet) covered with polyester wadding and a linen fabric; a three-dimensional support was also inserted under the head and tail sections of the crocodile, in order to completely sustain the body and to follow its irregular profile, which is probably due to the original embalming techniques and, possibly, to the decay of materials that occurred over the course of time.



Fig. 1: Baby crocodile Inv. Nr. E 0.9.41168, after conservation. Photo © C. Oliva.

¹³ Oliva 2016.

For those objects which are case studies and will never be on display, it was decided to make permanent supports that will allow for the handling and provide easy access to the materials in the



Fig. 2: Raptor Inv. nr. E 0.9.41355: example of passive conservation. Photo © C. Oliva.

future. To keep everything in place, the mummies were locally or totally wrapped in nylon net, which was kept in place by cotton tapes. The cotton tapes can easily be opened, the nylon protection removed and the artefacts can be study, analysed and sampled in the future. The aforementioned supports were made from a sheet of Plastazote®, to which the artefact was secured by cotton tapes, protected underneath by strips of soft Plastazote, so as to avoid too much tension on the organic remains (Fig 2).

In case of mummies with fractured but joinable parts, it was decided not to use any adhesive substance, so as to avoid contamination for future analyses. For this reason, the animals were conserved using passive conservation methods. To fully support the curved body underneath, carefully shaped Plastazote was used to accommodate and support the animal. The broken parts of the animal were kept in place using Teflon tape.

We tried to avoid as much as possible the use of metal pins to secure the three-dimensional insertions wherever possible, thus preventing any chemical reactions occurring in the future. After testing several materials, we opted for bamboo sticks, and cotton and Teflon tape.

The animals were then stored in acid free cardboard boxes, custom made for each animal on their proper dimensions (Fig. 3). The baby crocodiles were stored in two boxes made by several drawers, each draw having a side that can slide open and a removable tray, which can be used for display and storage.



Fig. 3: Cat Inv. nr. E 0.9.41364 after restoration, stored in acid free cardboard box. Photo © S. Ceruti.

Imaging of the mummies: some preliminary results

The imaging of the mummies made it possible to verify the state of preservation of the skeletons and soft tissues. It even allowed, in some cases, to re-evaluate old (mis)interpretations of the remains, helping to identify the animal species. In general, the mummies of birds (except for two, highly damaged also from the outside) and fish are the better preserved under the wrappings, the mammals being the more compromised.

Some investigations are still in progress, such as the identification of the cause of death, the treatment of the bodies during the mummification process, and, in some cases, the identification of the species. For this reason, only an overview of the CT-scans results will be provided below.

The seven birds examined, so far interpreted as two ibises and five falcons, are actually six raptors and one ibis (Inv.no. E 0.9.41366): one bundle, previously thought to be an ibis and published as such,¹⁴ is actually a raptor (Inv.

¹⁴ Tiradritti 1999, cat. 55.

no. E 1997.02.17). As for the other 'falcons', only one is actually so, and possibly a *Falco peregrinus* (E 1997.02.19),¹⁵ while the others have to be labelled more generally as raptors, the proper species being still under investigation (Inv. no. E 0.9.41353-55;¹⁶ E 0.9.41365).

The two fish (Inv. no. E 0.9.41329;¹⁷ E 1997.02.18¹⁸) were both found to be catfish of the genus *Clarias*, although it is very difficult to recognize the correct species because of the high similarity between them¹⁹.

Five of the seven baby crocodiles from Tebtynis (range from c. 27 to 31 cm in length) are still entirely wrapped (Inv. no. E 0.9.41357-41361): under the bandages, some of them were found to have their heads detached from the rest of the skeleton, and with part of the body missing. The two others (Inv. No. E 0.9.41168; E 0.9.41356),²⁰ presently unwrapped, are otherwise in an almost perfect state of conservation: the bandages of Inv. no. E 0.9.41168 are still fully preserved (Fig. 1), so it must have been unwrapped after its arrival in Milan.

The analysis of the mammals has revealed more surprises than expected. One of the cats (Inv. no. E 0.9.41362)²¹ is an adult feline (age estimated by teething): its skeleton shows multiple skull and jaw fractures, possibly due to a violent death, that is the method of killing (by strangulation) to make a mummy, as has been found with other examples.²² One of the other two cats turned out to be a 'false mummy',²³ with only a fragment of the feline vertebral column inside (Inv. no. E 0.9.41364), and the second one a highly damaged specimen, with a very fractured, almost powdered skeleton (Inv. no. E 2009.01.01)²⁴. All cat mummies show a cylindrical shape: the felines were

¹⁵ Tiradritti 1999, cat. 50 (with erroneous Inv. no.); Ceruti, Provenzali 2020, cat. 2.20.

¹⁶ Lise 1979, cat. 18-20.

¹⁷ Lise 1979, cat. 17; Ceruti, Provenzali 2020, cat. 2.17.

¹⁸ Tiradritti 1999, cat. 56 (with erroneous Inv. no.).

¹⁹ Giorgio Chiozzi, personal communication.

²⁰ Ceruti, Provenzali 2020, cat. 2.11; see also *supra* footnote 5.

²¹ Lise 1979, cat. 27-28; Ceruti, Provenzali 2020, cat. 2.5.

²² Armitage, Clutton-Brock 1980, 187; Armitage, Clutton-Brock 1981, 195; Ikram, Iskander 2002, 8-10; Raven, Taconis 2005, 240, 253, 258; Zivie, Lichtemberg 2005, 117-118; McKnight 2010, 43; Pubblico 2022, 3-6.

²³ For the type, see Ray 1976, 143; Kessler 1989; Ikram 2005a, 14; Raven, Taconis 2005, 240; McKnight 2010, 81-87.

²⁴ The mummy was accompanied with an old X-ray (1975), which the radiologist tentatively interpreted as a falcon mummy.

wrapped with the hind limbs folded upwards and the forelimbs stretched down along the torso.

The most interesting result was that of a bundle, 20 cm long, with very damaged wrappings and to the touch, apparently containing almost pulverized remains, which had been labelled as a “small animal” (mammal) in the museum’s historical catalogue, from the 1970s (Inv. no. E 0.9.41363)²⁵. The scans revealed a highly fragmented skeleton, with a multi-fractured skull, of a young dog (age by teething and by the incomplete skeletal development evidenced by caudal vertebrae: Fig. 4a-b). This result was indeed highly suspected (and expected): upon closer observation of the mummy’s external shape, the bundle actually appeared to be very similar to the millions of dog mummies unearthed at various sites scattered throughout Egypt.²⁶

The most intriguing case study was that of a very small mummy, broken in two fragments (5 and 1,84 cm long, respectively), contained in a wooden box (L. 10 x H. 4,6 x W. 5,1 cm) with a sliding lid, evidently a coffin, once supposedly decorated with the carved image (now lost) of its content (Inv. no. E 1998.03.265).²⁷ The two mummy fragments did not seem to have an obvious joining point, and it was even unclear whether they belonged together, hence, in this case, the CT-scan results were highly anticipated. Unfortunately, the poorly preserved content of the bundle itself together with the limited value of routine tomography imaging for very small specimens,²⁸ for now has left our questions unanswered. The imaging examination could not involve a scanner with micro-CT technology, which would have been more suitable (and desirable) for such a small bundle.²⁹ Thus, whether it is possible to recognize in the CT-scans the (long-nose?) skull of a small animal, and so, tentatively identify it as a species of *soricidus*/shrew, or possibly a similar-looking rodent, still remains unclear. For their association with the nocturnal manifestation of the sun god, shrews played an important role in the cult of sacred animals, particularly from the Late Period onwards, and many mummy containers (both wooden and limestone) with, or without their mummified remains, have been recovered in several sites.³⁰ As the long, narrow imprint of

²⁵ Lise 1979, cat. 27-28 (recorded along with the cat now Inv. no. E 0.9.41362) .

²⁶ Dunand, Lichtenberg 2005; Dunand et al. 2015, 2017, 2019; Ikram 2013, 2014; Ikram et al. 2013; Kitagawa 2013, 2016; Nicholson et al. 2015.

²⁷ Ceruti, Provenzali 2020, cat. 2.28b.

²⁸ McKnight 2010, 114.

²⁹ Cf. Panzer et al. 2020; O’Mahony et al. 2020.

³⁰ Brunner-Traut 1965; Ikram 2005c, 316-317; Woodman, Ikram, Rowland 2021; Onderka 2022.



Fig. 4a-b: Young dog Inv. nr. E 0.9.41363: (a) before conservation (Photo © S. Ceruti); (b) CT-scan with bones.

the figurine (probably wooden, as the box) previously glued on the coffin lid seems to be quite consistent with the image of a shrew, it is tempting to think of this Milanese coffin as the ultimately resting place of such a small mammal.³¹

The curatorial team decided not to proceed further in the clinical diagnostics, and to not sample for invasive analyses, such as radiocarbon dating (^{14}C). This decision was taken to maintain the good conservation state of the best-preserved mummies, and not to cause further decay in the more damaged ones.

The last phase of the project – which we hope to be carry out in the near future – will be to realize a three-dimensional presentation of the mummies, thus gaining the possibility of virtually displaying them to the public, in cases where their physical display will not be possible or appropriate, due, again, to ethical and preservation reasons or lack of space in the future new Egyptian exhibition gallery.

³¹ Ikram 2005c.

Concluding remarks

The Milanese animal mummies are an antiquarian collection, basically comprising items that reveal the curiosity for the ancient Egyptian culture of the travellers or amateurs who bought them as souvenirs on the antiquities market, and thus shares this characteristic with many others Egyptian collection around the world.

Even if the stimulus for the establishment of the animal mummies' study and conservation project was a practical one – that is, to stabilize the largely compromised state of preservation of the artefacts – it made it possible for the museum to better understand this group of remains, and also expanded the dataset of other Egyptian Animal Mummy projects,³² thus further contributing to our understanding of divine cult and the religious practice of animals worship in ancient Egypt.³³

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³² An updated overview in Ikram 2019, 184-85; cf. also McKnight 2010; McKnight, Atherton-Woolham 2015.

³³ Lastly, Colonna 2021.

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Zooarchaeology in Old Kingdom Egypt

A Comparison between Animal Iconography and Faunal Remains of the Bagrus Fish

Ramona D'Alfonso

Introduction

In analysing Egypt's extensive artistic heritage, the iconography of the Old Kingdom stands out for its rural and naturalistic imagery. The concentration of animal and plant species here reaches high levels, both in terms of quantity and quality of representation. These images have attracted much attention in the last century and have been systematically investigated as a source of important information. The reliefs have been analysed numerous times by recently introducing concepts that allow for more accurate interpretations. In the challenging attempt to read these images, the intra-cultural perspective of the emic approach plays a key role¹.

Researchers have been aware of the presence of *decorum* within Egyptian art for decades. As Baines defines *decorum* as a set of rules establishing what can be represented and how it can be represented.² Moreno Garcia offers a further clarifying definition:

*“Par ailleurs, l’art égyptien était l’expression des valeurs et de la vision du monde de l’élite, de telle sorte que le «réalisme» et le «naturalisme» tant des images individuelles que des compositions obéit, en fait, à des critères d’ordre idéologique qui articulent l’interprétation du monde et la vision du rôle social d’une couche, minoritaire, de la population égyptienne. L’iconographie présente donc une interprétation partielle, biaisée et standardisée de la réalité, tout comme les autobiographies dans le domaine littéraire ou les prétendus «portraits» dans la statuaire”.*³

Despite the awareness that these images do not represent pure but rather filtered reality, they are still sometimes riskily referred to as *daily life* scenes.

The filter that encodes these images has gained widespread recognition in recent decades and the question here is to what extent it impacts the

¹ “An emic approach, therefore, is a study from the culture system itself, using internal criteria and concepts, while an etic one is from the outside via external criteria and general concepts.” van Walsem 2005, 49.

² Baines 1990, 20.

³ Moreno Garcia 2006, 217-218.

representation of animals. Special attention needs to be paid to those species which, unlike mammals, are often overlooked.

The present work analysed the fauna of Old Kingdom iconography and compared it with faunal remains from the same era. The aim is to determine whether the species depicted in art were the same as those in ancient Egyptian daily life. Close attention is paid to fish and birds to add a different perspective to the current state of research. The finding of this study illustrates significant inconsistencies regarding the *Bagrus* catfish, which is absent from the iconography but frequently present in the faunal remains

Methods

The comparative analysis proposed in this research consists of two parts. The first involved the study of Old Kingdom images. The reliefs were selected according to conservation parameters to collect complete and precise image samples. The material was acquired from approximately one hundred and fifty structures and subsequently divided according to the context. This includes slaughtering, field-work, orchards, feeding, hunting in the desert, offering bearers, fowling, fishing, and hunting in the marsh. As animals were the focus of the current research, representations that excluded animals were not examined. The repetition and standardisation of the pictures resulted in a vast and uniform catalogue of animal species. Each species was carefully studied through its depictions and contexts. Their mention in Old Kingdom texts has also been subject to analysis.

The second focused on zooarchaeology. Unfortunately, not all excavation teams include zooarchaeologists, which means that faunal remains are often unstudied. To gather reliable and precise data, only archaeological excavations with zooarchaeologists were selected for the current research. Then, the present analysis of faunal remains is based on studies that produce comprehensive zooarchaeological records, such as those from the Old Kingdom sites of Ayn Asil,⁴ Al-Shaykh Sa'īd,⁵ Elephantine,⁶ Buto,⁷ Kom el-Hisn,⁸ Khentkawes' complex,⁹ and Heit el-Gurab.¹⁰

⁴ Lesur 2015.

⁵ Willems et al. 2009.

⁶ Hollmann 1990; Kaiser 1978; Kaiser 1981; Kopp 2009.

⁷ Boessneck and von den Driesch 1997.

⁸ Wenke, Cagle and Redding 2016, 139-204.

⁹ Tavares et al. 2014.

¹⁰ Redding 2010.

Taphonomic studies indicate that bones preserve differently, and that they are affected by their size, density, the soil, and other taphonomic facts. Different environmental contexts, species variability and preservation conditions are therefore considered in this research.

A similar attempt had already been carried out in the past, highlighting the absence of the pig in Old Kingdom iconography. Volokhine conducted a comprehensive investigation into this and the relative inconsistency between iconographies and zooarchaeological records.¹¹ Despite similar approaches, this paper considers other species that appear in iconographies, such as birds and fish.

Comparing iconography and zooarchaeological records cannot be accomplished superficially. It would be limited to drawing up two simple lists of animals (in iconographies and archaeofaunal reports), comparing them and identifying what is absent in what context. There may be some underlying reasons behind what is not shown, which should be carefully investigated as thoroughly as possible.

Each animal species should be considered individually, i.e., examining their habitats, physical features, and behaviors. A study of their depiction in art and literature is also inevitable. An in-depth investigation remains essential in understanding the Egyptian's perception of each species and the possible religious associations.

Results

As mentioned earlier, research using a similar approach had already been carried out and had led to significant outcomes regarding the conception of the pig in ancient Egypt.¹² The same result comes from this research, as the pig is one of the species absent from Old Kingdom iconography. Yet, it is not the only one.¹³

Besides some physical remains of mammals which are absent from the archaeological sites apparently due to their peculiarly wild nature – e.g., *Lion* (*Panthera leo*), *Barbary Sheep* (*Ammotragus lervia*), *Egyptian Mongoose* (*Herpestes*

¹¹ Volokhine 2014, 81-92.

¹² Volokhine 2014.

¹³ In the current survey, the pig (*Sus sp.*) is found in the following settlements: Elephantine (41 fr.), Buto (1268 fr.), Kom el- Hisn (716 fr.), Khentkawes complex (23 fr.), Heit el-Gurab (1000 fr.). Although important in the diet, it remains absent from Old Kingdom iconographies; see D'Alfonso 2020, 125-154.

ichneumon), *Common Genet* (*Genetta genetta*) – the most glaring inconsistencies occur with regard to fish and birds.

In the swampland hunting scenes birds with distinctive colours and shapes are often identified, such as Lapwing (*Vanellus vanellus*), *Kingfisher* (*Alcedo atthis*), *Pied Kingfisher* (*Ceryle rudis*), *Hoopoe* (*Upupa epops*), and *Golden Oriole* (*Oriolus oriolus*), as reported by Houlihan.¹⁴ Although ubiquitous in iconographic contexts, their bones have not been found in Old Kingdom sites. It may be reasonable to assume that food choices frequently fell on common species such as duck or goose and left these wilder species aside. The colourful and showy nature of these species can easily be considered the main reason for their depictions in art. On the contrary, some birds are identified in the archaeological context but absent in the iconography, such as *Common Coat* (*Fulica atra*), *Moorhen* (*Gallinula* sp.), or *Stork* (*Ciconia* sp.). As anticipated by von den Driesch and Peters,¹⁵ the latter species is absent in Egypt while has a higher occurrence on Elephantine Island due to its migratory movements. For the galliform birds, on the other hand, there is a lack of imagery that matches the rarity of faunal finds.¹⁶

Within the aquatic sphere, significant data concern the *Gilt-Head Bream* (*Sparus aurata*) and the *Bagrus* catfish (*Bagrus* sp.).¹⁷ *Sparus aurata* appears with no less than 141 finds in settlement of Kom el-Hisn and is absent from the iconography. Its omission is justified through its marine and not riverine nature.¹⁸ As Kom el-Hisn is close to the Mediterranean Sea, and was even closer at that time,¹⁹ the presence of this fish in the archaeological rather than in the iconographic sample can be logically explained. However, there are notable data concerning the *Bagrus* catfish. As shown in Tab. 1, the presence of this fish has been identified in four of the seven settlements analysed, with an abundance of finds on Elephantine Island. Although the species is known to

¹⁴ Houlihan 1996, 93-131.

¹⁵ von den Driesch and Peters 2008.

¹⁶ Species absent from the iconography but present with a few bones remains, e.g., *Common Moorhen* (*Gallinula chloropus*) (1 fr. at Kom el-Hisn); *Common Snipe* (*Gallinago gallinago*) (1 fr. at Heit el-Gurab); *Common Coat* (*Fulica atra*) (6 fr. at Kom el-Hisn and 34 fr. at Heit el-Gurab). All of them are absent from the other Old Kingdom sites surveyed; see D'Alfonso 2020, 143-154.

¹⁷ Other inconsistencies concern some species such as *Claroteid catfish* (*Auchenoglanis occidentalis* and *Clarotes* sp.), and *Polypterus* (*Polypterus bichir*.), but their absence in the iconography matches their rarity in the osteological findings; see D'Alfonso 2020, 125-154.

¹⁸ Wenke, Cagle and Redding 2016, 153.

¹⁹ Wenke, Cagle and Redding 2016, 3.

	Ayn asil ²⁰	Al Shayk Said ²¹	Ele- phan- tine: Sa- tet temple ²² + B sec- tor XVIII ²³	Buto ²⁴	Kom el- Hisn ²⁵	Kentkawes complex, Giza ²⁶	Heit el- Gurab, Giza ²⁷
<i>Bagrus</i> sp.	0	41	1140 + 4514	0	70	0	At- tested ²⁸

Tab. 1. The number of bone fragments of the *Bagrus* sp. (NISP: Number of Identified Specimens).

occur in the Egyptian riverine environment, it is missing from the iconographic context and there is no apparent or logical explanation for this discrepancy.²⁹ Accordingly, the *Bagrus* here represents the most remarkable inconsistency between zooarchaeological records and Old Kingdom iconography.

As mentioned earlier, this research brings together zooarchaeological data produced by various researchers, each using a separate sample recovery method.³⁰ Furthermore, one must also keep in mind the context of these archaeological finds since different animal taxa might be found, depending on whether the site is a temple, a house, a slaughterhouse etc. The same applies to habitats and geographic regions: each species has its natural and ideal

²⁰ Lesur 2015, 37.

²¹ Willems et al. 2009, 27.

²² Boessneck and von den Driesch 1982, 105-108.

²³ von den Driesch and Peters 2018, 147-150.

²⁴ Boessneck and von den Driesch 1997, 210-216.

²⁵ Wenke, Cagle and Redding 2016, 146-155.

²⁶ Tavares et al. 2014, 36-39.

²⁷ Redding 2010, 67-73.

²⁸ number of findings not declared by the author; see Redding 2010, 67.

²⁹ Brewer and Friedman 1989, 66.

³⁰ Reitz and Wing 2008, 146-152.

environment. An analysis of these data reports by different zooarchaeologists should take into account all the variables mentioned above.

It can be seen from Tab. 1 that the sites of Ayn Asil, Buto and the Khentkawes complex do not yield any *Bagrus* osteofaunal remains. In Giza, the Heit el-Gurab settlement contains *Bagrus*' bones, although the NISP (number of identified specimens) is unspecified.³¹ By contrast, there is an appreciable number of finds at Kom el-Hisn and Al-Shaykh Said, whereas Elephantine – with its two Old Kingdom survey areas – shows an abundance of *Bagrus* remains, exceeding 5000 fragments.

The Satet temple area shows 1140 *Bagrus* bone fragments.³² The MNI (minimum number of individuals) is estimated at 130. It appears that fish of the *Bagrus* catfish were laid intact in this area, probably after sacrificial meals.³³ From the favourable state of preservation, the length of these specimens was also estimated, with an average of about 95 cm. On the other hand, Area BXVIII consists of settlement remains to the west of the Satet temple.³⁴ Here, fish remains are far more numerous than mammals. Adding up the findings from the various layers between the Second and Sixth Dynasties, the number reaches no less than 4514 *Bagrus* fragments.³⁵ Apart from considering the island environment, the temple context of these bones calls into question the relevance of this catfish.³⁶

Discussion

To gain a deeper understanding of the reasons why *Bagrus* is absent from iconographies, the scope of research must be widened. It is known from the

³¹ Redding does not report the precise number of *Bagrus* fragments found but stipulates a ranking with marine species, from the most present to the rarely identified. The *Bagrus* ranks seventh. The study is described as still incomplete and ongoing in the coming years; see Redding 2010, 67.

³² Boessneck and von den Driesch 1982, 118.

³³ *Ivi*, 105.

³⁴ von den Driesch and Peters 2018.

³⁵ *Ivi*, 150.

³⁶ Remains of similar species, such as Nile perch (*Lates niloticus*), are about half. No other species (aquatic or not) reaches these amounts; see Boessneck and von den Driesch 1982; von den Driesch and Peters 2018.

literature that the Bagrus catfish (Fig. 1) belongs to the family *Siluridae*.³⁷ Two species are present in the Nile habitat: *Bagrus docmak* and *Bagrus bayad*.³⁸

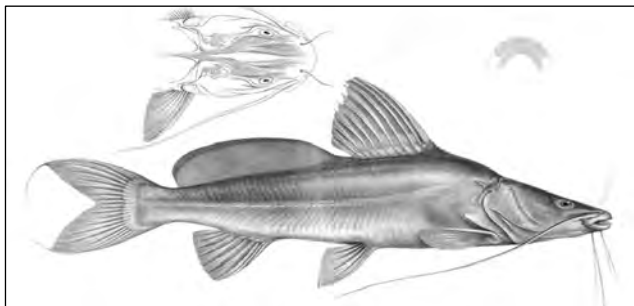


Fig. 1: *Bagrus docmak*, Boulenger 1907, Pl. LVIII.

According to Brewer and Friedman, these two species can be easily distinguished by the differences in their caudal and dorsal fins.³⁹ Boessneck and von den Driesch point out the differences in the shape of the skulls,⁴⁰ as shown in Fig. 2. The species is characterised by its flattened head, short dorsal fins, and long adipose dorsal fin.⁴¹ It also has four pairs of barbels: one nasal, one maxillary, and two mandibular. Adult specimens can reach a maximum size of 1 m. While the *Bagrus bayad* has a silver-grey colour on its back and white on its belly, the *Bagrus docmak* has a greyish/olive blue with a white belly; both may have gold/green highlights.⁴² As seen during an experiment in captivity,⁴³ the Bagrus spends almost all day hiding among the rocks while it is active at night. It prefers deep, well-oxygenated waters and feeds mainly on larvae, shrimps, small fish, and mollusks.⁴⁴ Even today, it is commonly known by Egyptian fishermen, who sell it at the market in quantities.⁴⁵ Studies carried out by Van Neer attest its presence in Egypt since ancient times, in such large amounts that it was exported to the Levant and the Red Sea.⁴⁶ It is one of the most known fish in the Nile ecosystem.

³⁷ Boulenger 1907, 323.

³⁸ Boulenger also identifies *Bagrus degeni*, belonging to Victoria Lake; see Boulenger 1907, 331-332.

³⁹ Brewer and Friedman 1989, 66.

⁴⁰ Boessneck and von den Driesch 1982, 105-108.

⁴¹ Boulenger 1907, 323.

⁴² *Ivi*, 324-330.

⁴³ *Ivi*, 327.

⁴⁴ Brewer and Friedman 1989, 66.

⁴⁵ Sahrhage 1997, 59.

⁴⁶ From the Iron Age to the Ptolemaic-Roman period, there are finds of the Bagrus from the Nile in cities such as Caesarea, Tell Ashqelon, Tell Miqne, Berenike, Lachish, Tell Dor, Kasarvit, Tell Malhata, Tell Miqne; see Van Neer et al. 2004, 108-117.

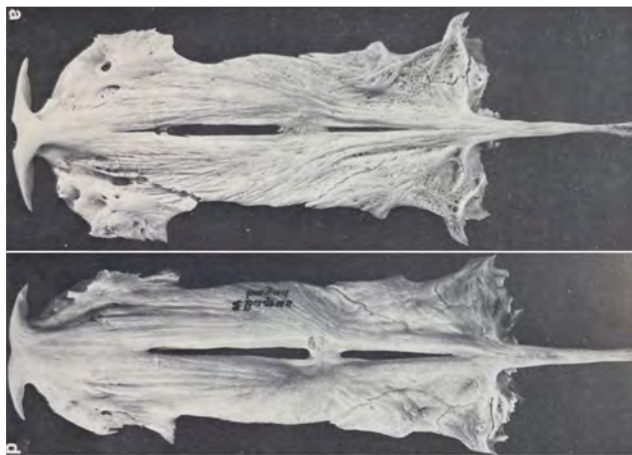


Fig. 2: Skull of *Bagrus docmac* (above) and *Bagrus bayad* (below). Boessneck and von den Driesch 1982, Pl. VIII.

Studying the characteristics of this species allows us to decipher Tab. 1 better. The rocky, deep, and well-oxygenated habitat preferred by the *Bagrus* gives us an insight into its prominent presence in Elephantine. The environment around Elephantine island lends itself perfectly to the living conditions of this fish, flowing fast and creating many fluvial currents. Moreover, while other species enter the floodplain every year to spawn, it stays in the main river for most of its lifetime, being very sensitive to the lack of oxygen.⁴⁷ Whereas species such as *Tilapia* fish (*Tilapia sp.*) or *Clariid* catfish (*Clarias sp.*) were caught in large quantities in the residual pools after the flood, Nile perch (*Lates niloticus*) and *Bagrus* catfish (*Bagrus sp.*) hardly ever left the main riverbed.⁴⁸ To spawn, they do not enter the floodplain but lay their eggs in the main channel near the bank.⁴⁹ These are cyclical behaviors that Egyptian fishermen knew well and on which they based their activities and yields.⁵⁰

While it is possible to obtain a wide variety of information from the ecological and zoological sides, the same cannot be said for the iconographic one. The *Bagrus* is absent from Old Kingdom iconography and its name in ancient Egyptian is not known to date. Consequently, it cannot be identified in the texts.

⁴⁷ Van Neer 1994, 20.

⁴⁸ Ivi, 20.

⁴⁹ Ivi, 253.

⁵⁰ *Id.* 1994, 21-22.

In previous studies, *Bagrus* has only been identified once in the tomb of *Ukh-Hotep* at Meir, dated to the Middle Kingdom.⁵¹ A blurred and barely visible image of this figure has already been presented but without indicating the room or wall of the tomb where it is located.⁵² So far, there is no clear image of the *Bagrus* and no indication of where this image can be found within the relevant publication.⁵³

Through the methodological approach used in this study, a trained eye in the recognition of animal species in Egyptian art has been developed. According to the author, the species can be found on the south wall of the outer room. It is marked by the black circle in Fig. 3. Hunting takes place in a marsh, the most complete type of iconographic context related to animals. Although the state of preservation of this tomb allows only the figures' outlines to be distinguished, a previously unseen figure could be identified here.

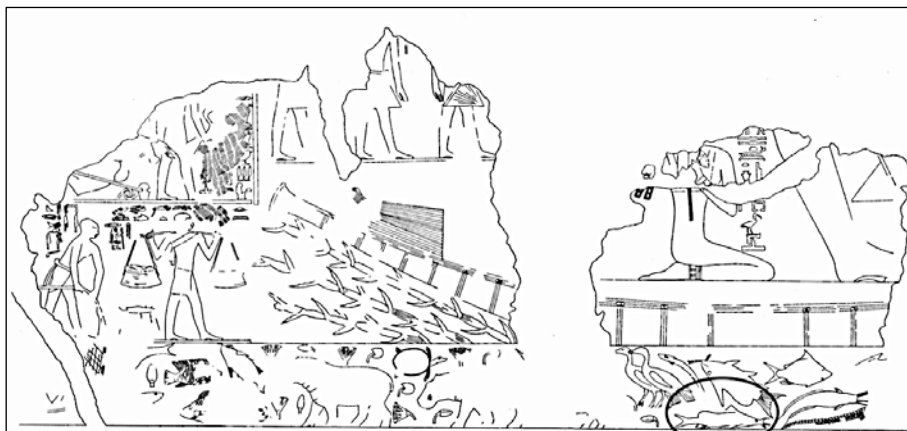


Fig. 3: Tomb of *Ukh-Hotep* at Meir, XII Dyn. The outer room, south wall. Blackman 1915, Pl. VIII.

⁵¹ Brewer and Friedman 1989, 66.

⁵² *Ivi*, 66.

⁵³ Blackman 1915.

Every animal species – whether belonging to the aquatic or terrestrial sphere – has precise contours that can be recognised through a trained study. In this extensive research on the Old Kingdom iconography, the author has never encountered the species highlighted in Fig. 3. Based on its physical characteristics, this new form looks indeed like that of a *Bagrus*.

As anticipated, there is only a single depiction of this species in all Egyptian art. However, the archaeological remains also outside Egypt demonstrate a significant presence of *Bagrus* in everyday life. The question arises why *Bagrus* is only depicted once in art, in a provincial tomb.

Thanks to the extensive fish study conducted by Gamer-Wallert,⁵⁴ further references to *Bagrus* and his presence in Egypt come up. Excavations undertaken by Loat in 1904 in the animal cemetery of Gurob, 19th Dynasty⁵⁵ seem to have uncovered five *Bagrus docmak* mummies. The three egg-shaped pits that contained them were identified as numbers 22, 23, and 39. Number 22 presents a specimen without any preservative, while number 23 presents a *Bagrus docmak* wrapped in ashes (a common preservative). Pit number 39 is perhaps the most interesting, where three specimens were buried under layers of grass, ropes, sticks, and ashes. In this case, the mouths and body cavities were also filled with ashes. These are the only *Bagrus* specimens, as the entire cemetery has mainly *Lates niloticus* remains.

Looking for general information about the *Bagrus*, it turns out that these mummies are just a few of their kind. Brier and Bennett reported information on two mummies unfortunately without context.⁵⁶ Their report states that the mummies were received in 1976 and fully opened for an autopsy. The first *Bagrus bayad* specimen shows several layers of reeds and cloth, with black circles painted at the eyes. It was not possible to tell whether the organs had been removed, as the internal tissue had been devoured by fly larvae. Still attached were two barbels of around 32 cm and the brain remained undamaged as well. The second specimen – received a few months after the previous one – is similarly described in terms of the mummification method. The pattern of the bands led the authors to conclude that they belonged to the Ptolemaic period. Five more mummies like these *Bagrus* were recovered a year later but only had X-rays examinations. The authors stated that they left the

⁵⁴ Gamer-Wallert 1970.

⁵⁵ Loat 1904, 5-6.

⁵⁶ Brier and Bennet 1979.

investigation of all these mummies open for future publications, which unfortunately have not been forthcoming.⁵⁷

These remain the best-known, but perhaps not the only ones. Three mummies identified as *Bagrus* are listed in the British Museum catalogue. Labelled by the numbers EA35740, EA35741, and EA35742, these are more like mummies fragments from Thebes. Due to the poor state of preservation, there are unfortunately no pictures or other relevant information.⁵⁸

Although devoid of any depiction or mention, various information about this species can be gleaned. Before proceeding with the hypothesis concerning the absence of the *Bagrus*, it is worth clarifying a few points.

Firstly, the art encountered in the tombs' reliefs presents a *decorum*: an art that repeats itself with the same themes and styles. Copies and replicas are entered into a system of identification and legitimization.⁵⁹

The figures are almost always identical and often arranged in the same order. As predicted by Moreno Garcia, it is a codified art and an active communication tool.⁶⁰

In related studies, Davis also hypothesised that the canon in art represented historical events in a highly conventionalised way.⁶¹ Records gradually become more abstract, generalised, or symbolic through transformations. It arose with the emergence of central power and took the form of an ideological selection over pre-canonical alternatives.⁶² Even when the intention is to represent richness, aspects of nature cannot be represented entirely due to space issues. The straightforward conventional selection operation must therefore be recognized.⁶³ Thus, the canon is a selection of images that have a specific value in the eyes of the creator. The worth of images can certainly be subjective, which is where the importance of the emic approach mentioned in the introduction returns.

Hence, these images constitute a filter of the creator's eye and a way in which the world can be controlled and mastered. Through these images, knowledge of the Egyptian environment and the surrounding world is

⁵⁷ Brier and Bennet 1979, 133.

⁵⁸ British Museum n.d.

⁵⁹ Kahl 2010.

⁶⁰ Moreno Garcia 2006, 219.

⁶¹ Davis 1985.

⁶² The same happens in historical periods when the central power is less strong, the canon ceases to be used, and new types of images emerge; see Davis 1985, 335-337.

⁶³ Davis 1985, 363-365.

conveyed. In this regard, images define and circumscribe human knowledge. An example can be given through one of the most common representations in Old Kingdom iconography: trawl fishing. Through the investigation of the numerous reliefs, it turns out that there is a repeating pattern among the fish inside the net. The Mullet (*Mugil sp.*) is not always but often the first depicted, with its snout upwards almost as if it wants to come out of the water. This had already been noted by Elsbergen: the trawl net used for this type of intensive fishing is deployed on wide riverbeds and the people involved are urged to move quickly.⁶⁴ This speed would be justified by the short-lived passage of the Mugilids, who – migrating *en masse* at specific times of the year – become the main target of these fishing sessions. Evidence of this is also provided in the Chamber of Seasons of Niuserra, where the arrival of the Mugilids is not only announced but presided over by a government authority.⁶⁵ It could therefore be argued that these images capture some form of knowledge.

Secondly, the current study on Old Kingdom iconography reveals the detailed degree of observation that Egyptians had towards animals. Species in their habitats were depicted with their features and behavior without any need for descriptions. This can be seen in many scenes: e.g., goats climbing trees, frightened herds crossing the river ford or mongooses trying to steal birds' eggs. Even in aquatic contexts, it is possible to find remarkable details: for instance, the depiction of the Upside-down catfish (*Synodontis batensoda*), which – having its mouth on the underside of its skull – swims on its back to take advantage of the food on the water surface. These are actual animal behaviors that the Egyptians knew about.

Just as today, some animal manners are part of common knowledge. However, this specific knowledge involves many species that differ from each other and belong to various ecosystems. If one thinks mainly of fish, these are not easily seen by most people. These animals are primarily known to fishermen and those who encounter them daily. This attitude cannot be assumed to be known by everyone; it arose as specific cultural and non-epistemic knowledge belonging to specific groups of people.⁶⁶

⁶⁴ Elsbergen 1997, 21-23.

⁶⁵ Seyfried 2019 vol. VII, 82.

⁶⁶ Epistemic knowledge is institutionalised, universally recognised knowledge. It is a knowledge that has materiality, space and organisation; see Cancik-Kirschbaum, Kahl and Lee 2018, 2.

Conclusion

While some scholars had already noted *Bagrus*' absence,⁶⁷ the present study specifically examined the iconography, explored the catfish's behavior and clearly identified its single image.

Various reasons can be given for its absence in Egyptian iconography. As some studies made clear, the most obvious answer could be deduced from the habits of this fish: it is mainly nocturnal, spends most of its lifetime on the bottom and swim less in secondary channels.⁶⁸ Being at greater depths and preferring well-oxygenated waters, it was probably more difficult to notice. As a result, it may have probably been forgotten when the catalogue of canonical figures was compiled or perhaps deliberately under-represented by other catfish, such as the *Synodontis*.

If one considers Davis' hypothesis, the canon presents historical events in a highly conventional manner. Records become gradually more abstract, generalised or symbolic through a series of transformations.⁶⁹ Likely, *Bagrus* catfish might be simply absent at the time of this recording. However, as von den Driesch also states, it is puzzling that it was not included in the canon later, being a species of prime importance in the Nilotic habitat.⁷⁰

From a religious perspective, it is possible to consider the nocturnal habits of this fish and its feasible negative reputation. Just as the pig has habits that exclude it from elite diet and iconography, the same could be applied to the *Bagrus*. However, these are personal assumptions as no sources currently confirm this.

Furthermore, the question of the seven mummies is a matter for investigation. From an ideological perspective, the absence of the *Bagrus* in the iconographies is inconsistent with the previously mentioned mummies, particularly those found in the animal cemetery of Gurob. Animal mummies were known to have been part of an entire economic system during the Late Period; this may point to the *Bagrus* being wrapped by mistake or as a filler out of abundance. Nevertheless, these mummies inevitably give rise to the idea that the species has a special value, so much so that it was buried in a New Kingdom cemetery like other well-known sacred species. Similarly, the

⁶⁷ von den Driesch 1986, 17-25; Brewer and Friedman 1989, 66.

⁶⁸ Boulenger 1907, 324-330; van Neer 1994, 20.

⁶⁹ Davis 1985, 529.

⁷⁰ von den Driesch 1986, 17-25.

Elephantine context can also be emphasised, where *Bagrus* osteo-faunal remains are identified as remnants of sacrificial meals.

Considering the canonical aspect of images and their selection, the fascinating question to ask is about knowledge. Since these species were known to fishermen, how did they come to be truthfully represented in elite art with their related features and behaviors? Knowledge of a specific craft passed through several levels of society, being successively filtered and codified in an elite context. A different setting from the one in which the knowledge was created.⁷¹

It is conceivable to state that this originates as specific cultural and non-epistemic knowledge, becoming institutionalised on tomb walls.⁷² It is not complete and pure knowledge but filtered and controlled by elites' ideologies.⁷³

Whether *Bagrus* was voluntarily excluded from this system is a question we will continue to ask ourselves, hoping to find new insights to expand the catalogue of possible answers. Firstly, the discovery of the name *Bagrus* in ancient Egyptian might be helpful for the future of this research. This would lead to identifying it in texts⁷⁴ and understanding whether it was included in the literature. Secondly, further investigations may focus on how the images were acquired⁷⁵ and how the knowledge about animals reached the elite and the artists.

⁷¹ In this case, the transfer concerns the spatial and social dimension, with actors belonging to distant social classes; see Cancik-Kirschbaum, Kahl and Lee 2018, 1-16.

⁷² Such knowledge – commonly passed down orally – is institutionalised through the elite who fixed it within a system of images that describes the Egyptian world and the knowledge they had of it. In this process, the specific cultural knowledge does not remain inscribed within the belonging social group but becomes a shared memory.

⁷³ On the other hand, knowledge is always altered during transfer processes by adapting; see Althoff, Berrens, and Pommerening 2019, 19. In the field of knowledge modification strategies, it would be interesting to understand the degree of consciousness of these modifications. Moreover, there are several factors to consider: who the mediators were (probably different from the actors who possessed the knowledge), the places of exchange, the routes of transfer as well as the motivations; see Pommerening 2018.

⁷⁴ As has already been done for other species.

⁷⁵ For artists to be so precise in their representations, were animals observed dead or in their natural environment? This alluring question concerns how and where knowledge was exchanged.

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The Valuable Role of Animals in the Kerma Culture

Elena D'Itria

Introduction

The Kerma region is located in the centre of Nubia, 20 kilometres south of the Third Cataract, a strategic point for controlling movement along the Nile Valley. The region opens onto the vast floodplain of northern Sudan, which reaches a width of 15–20 km and extends southward for over 200 km (Fig. 1).¹



Fig. 1: Map showing the location of Kerma site. © www.kerma-doukkigil.ch.

¹ Reisner 1923a, 1923b; Privati 1999; Bonnet, 2000; Bonnet, Valbelle 2014; Bonnet 2019; Williams 2021, 179-200.

G. A. Reisner, director of the Harvard-Boston Expedition, was the first to excavate parts of the Kerma site, starting near the western *Deffufa* and the eastern necropolis between 1913 and 1916.² He investigated the cemetery with the royal tumuli and associated funerary chapels making exceptional discoveries, such as particularly rich grave goods and hundreds of human sacrifices. Also, due to the presence of numerous Egyptian objects, including sculptures in the large southern tumuli, such as the statues of the nomarchs of the 12nd Dynasty (1985–1773 BC), Reisner erroneously interpreted Kerma as a Pharaonic settlement with an Egyptian garrison and governor. He theorised that the site was a Middle Kingdom (2055–1650 BC) Egyptian outpost that gradually declined due to the growing influence of the local population.³

In 1973, following a request for intervention by the Sudan Antiquities Service, the Mission of the University of Geneva, under the direction of Charles Bonnet, worked for the first time in Kerma. Since then, archaeological investigations have continued to this day. Through the works of the Swiss Mission, the site of Kerma was identified as the capital city of the powerful Kingdom of Kush, as mentioned in Middle Kingdom and early New Kingdom Egyptian sources.⁴ The Kingdom of Kush spread its political control over a vast territory extending from Lower Nubia and across the Kerma and Letti basins as far upstream as the Fourth Cataract.⁵ The Swiss mission has concentrated its efforts on excavating the capital, the city of Kerma, situated 1.5 km from the banks of the Nile. The archaeological culture that flourished between 2500 and 1480 BC is named after the Kerma site.⁶ Excavations in the town have uncovered a complex of domestic, public, and religious buildings, of which the most impressive building is a massive mud brick temple known as the western *Deffufa*, which was the town's main ritual structure. The original building having been continually modified and enlarged over time and became a major religious compound comprising chapels, a ceremonial palace, and several workshops.⁷ Investigations have also focused on the excavations of the vast necropolis located in the desert, 6 km from the Nile. The eastern cemetery covers 90

² Reisner 1923a, 1923b.

³ Minor 2018, 251–262.

⁴ Bonnet 2019; Williams 2021, 179–200.

⁵ Edwards 2004, 74–77.

⁶ Bonnet 1990; Privati 1999, 41–69; Bourriau 2004, 3–13. The chronology of Kerma culture is divided into four phases: Ancient Kerma (2500–2050 BC), Middle Kerma (2050–1750 BC); Classic Kerma (1750–1480 BC); Final Kerma (1480–1050 BC).

⁷ Bonnet 2004.

hectares and contains over 30,000 burials.⁸ During the Classic Kerma (1750–1550 BC), pits are generally rectangular and the size of the principal burials is impressive. The royal tombs excavated by G. A. Reisner measure up to 90 m in diameter. Two large funerary chapels, known as K XI and K II, were built in association with the largest tumuli K X and K III, in the southern sector of the cemetery.⁹ Since 1977, the Swiss Archaeological Mission has excavated over 280 burials. These are found in 27 sectors and cover almost all phases of the Kerma civilisation (Fig. 2).

Excavations of Kerma sites revealed that the subsistence of the Middle Nile Valley populations was strongly linked to farming, and their physical, social, and religious existence was inextricably linked to livestock.¹⁰ The animal remains testify not only to the economic role of fauna for Middle Nile Valley communities but also their importance in the beliefs and ideology. In this paper, we shed new light on the role of animals in the Kerma civilisation, where fauna, both domestic and wild, had an essential part in the symbolic and religious domain

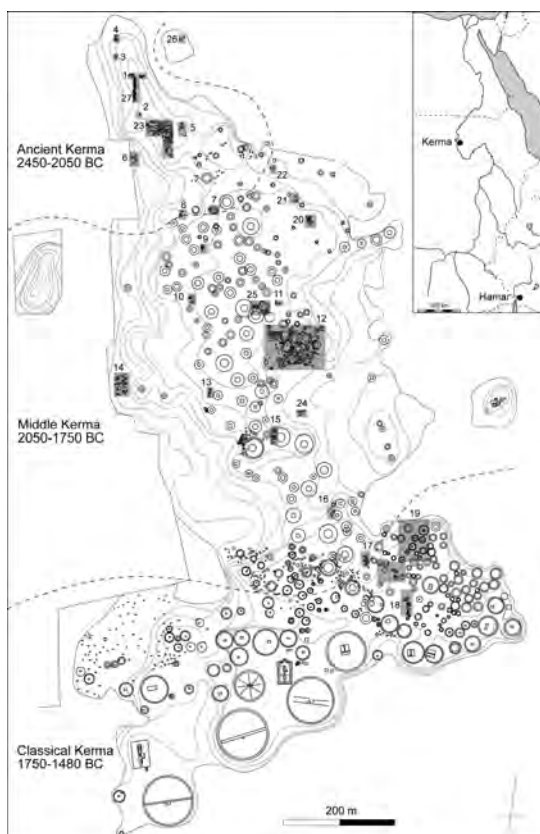


Fig. 2: Plan of the Eastern Cemetery at Kerma, with the location of the excavated sectors (after L. Chaix, J. Dubosson, M. Honegger 2012).

⁸ Bonnet 2000.

⁹ Reisner 1923a, 61-121.

¹⁰ Chaix 1986 ; *id.* 1988 ; *id.* 1990.

The role of animals in the economy of Kerma civilisation

Archaeozoological studies of numerous animal bones found in the ancient town of Kerma show the importance of livestock, representing more than 95% of the fauna.¹¹ The abundance of animal remains discovered gives evidence of the town's economy and shows domestic animals to be predominant.¹² Hunting activities were rare, with only scarce remains of gazelles, hippopotami, and small game of various sorts. The meat diet of the Kerma people was essentially based on cattle (*Bos taurus* L.) caprines, sheep (*Ovis aries* L.), and goat (*Capra hircus* L.), some donkeys were also eaten.¹³ During the early phase of the Kerma civilisation (Ancient Kerma period) cattle represented around 50% of stock breeding, while caprines form 44%. These proportions changed as the Kerma culture developed, and we can detect a shift in the importance of each species during the Classic Kerma (1750–1550 BC). Cattle, most important during the early phase of the Kerma civilisation seem to lose importance for sustenance becoming more rare and precious. In contrast, a strong increase of domestic caprines is noted during the late Classic Kerma onward (around 1750 BC) when sheep and goats became the principal source of protein.¹⁴ The decrease in oxen is probably due to the more arid environmental conditions of the second millennium BC.

The paleo-environmental indications given by pollen remains in ovicaprid coprolites and other preserved plant remains suggest an arid environment, with a predominance of plants such as acacia, jujube, cassia, *Urticaceae*, *Graminae* and *Cyperaceae*, and environmental conditions very similar to that of today.¹⁵ The arid and sub-desert environment is more suitable for small ruminants than large animals. Currently, in the area of the Middle Nile, cattle account for less than 5% of the domestic livestock, while nearly 90% are sheep and goats.¹⁶

The importance of livestock in the funerary practices

Animals had not only an economic role in the Kerma culture but remains found in the necropolis show that they were also an essential part of the ritual

¹¹ Chaix 1990 ; *id.* 1993a; *id.* 1994.

¹² *Id.* 1990, 110-113.

¹³ Chaix et al. 2012, 189-190.

¹⁴ Chaix 1994, 105-110.

¹⁵ Chaix and Grant 1992, 61-66; *iid.* 1993, 339-404.

¹⁶ Chaix and Grant 1992, 62-63.

and religious life. From the beginning of Middle Kerma, towards 2000 BC, complete sheep, goats, and occasionally dog skeletons within the tombs testify to the sacrifice of animals to accompany the dead. The deceased are generally placed on cattle skin, laid on the right side in a slightly flexed position with the head to the east.¹⁷ The area reserved for various offerings was the north of the pit, where pottery, bread models, and many pieces of meat were placed.¹⁸ Probably funeral meals took place during the ceremonies, for a great number of bowls were turned upsidedown on the ground close to the pit, generally on the east side.

Numerous pieces of meat are often found beside the pottery vessels, and most often, they come from conventional butchering of a few month-old lambs placed in the north part of the pit. On the south border of the burial mound, on the exterior of the grave, one finds the horns, frontal, and sometimes nasal bones of oxen skulls, attesting to the preparation of bucrania.¹⁹ The substantial number of bucranos near the tumuli of Middle Kerma not only attests to the existence of large herds but also proves the symbolic role carried out by these animals in the context of Kerma society and perhaps also of the religious imagination.²⁰

In Kerma's Eastern Cemetery, the first bucrania deposits appear during Ancient Kerma. Relatively rare at this time, they become common during Middle Kerma, when several hundreds can be found in front of the largest tombs. During the Classic Kerma, bucrania were still deposited in front of burials, but in lower numbers than in earlier periods. Even in the larger tombs, measuring more than 30 m in diameter, only a few dozen were included. This corroborates with the notion of the decline in stock breeding due to the increased aridity. Human demographic features and changing environmental conditions resulted in cattle steadily becoming more rare, an indication that these animals were also becoming more precious.²¹

What is also interesting is that among the cattle remains found in the town, horn cores – the parts that are found around the tombs – are more or less absent.²² Perhaps the funerary rituals included feasting, the animals slaughtered

¹⁷ Bonnet 2000.

¹⁸ Chaix and Grant 1992, 63.

¹⁹ *Ivi*, 63.

²⁰ Chaix 2000b, 163; Dubosson 2021, 908-926.

²¹ Chaix et al. 2012, 192.

²² Chaix 1985, 33-38.

and eaten in the town, while the skulls of the slaughtered beasts were placed around the tomb to mark the size of the tribute rendered, and thus the deceased's status.

Cattle as tribute

The bucranes were usually placed on the southern edges of the tumuli, facing toward the burial pit, forming a vast crescent. Their lay-out suggests a symbolic herd, with the oxen at the head followed by the cows, often together with a small calf's bucranium. It appears that the number of bucrania found surrounding the tombs relates to the richness of the other grave goods found within the tomb and thus the deceased's social status. Their numbers may be explained by ceremonies in honour of the dead, as is currently in interlacustrine kingdoms and in Madagascar, where pastoralism has played an important role related to the wielding of power.²³ In Kerma, like in these kingdoms, the sacrifice of these animals during particular ceremonies, notably

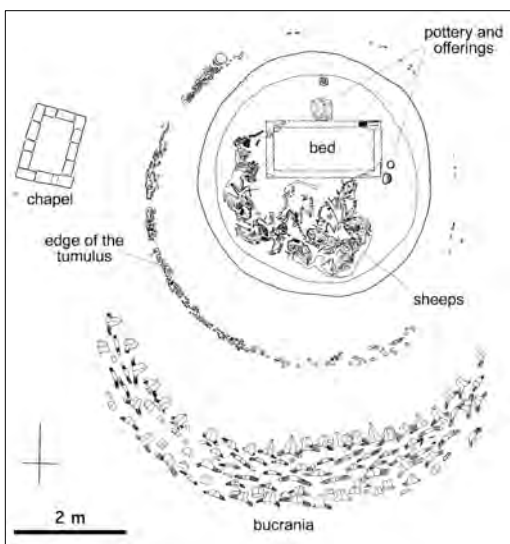


Fig. 3: Plan of grave 115, dated to Middle Kerma (after L. Chaix, J. Dubosson, M. Honegger 2012).

during funerals, must have corresponded to a demonstration of power and a means of establishing one's authority over an alliance network.²⁴ One large tumulus was surrounded by 400 bucrania, a number estimated on the basis of partial excavation of the burial, smaller tombs had fewer bucrania, and some had none at all.²⁵

The complete excavation of tomb 115, where 129 bucrania surrounded the burial, allowed a detailed study of cattle bucrania (Fig. 3). They were placed around the tomb as if they were a living herd, 98 large males in

²³ Chaix, Dubosson, Honegger 2012, 207-208.

²⁴ Chaix, Dubosson, Honegger 2012, 209; Dubosson 2015, 239-244.

²⁵ Chaix and Grant 1992, 63-64.

front, followed by 13 females, some of whom were accompanied by calves. Skulls of calves, aged from newborn to ten months, have frequently been found behind those of a female skulls around other tombs too. The cattle's age range and the way that the bucrania were placed around the tombs suggest a simultaneous killing of a herd of animals at the time of an important personage's of burial, although it is possible that the animals came from different areas, as attested by isotope analysis of Middle Kerma cattle.²⁶ The animals killed seem to have included many that were productive, or in the case of the calves, potentially productive.²⁷

The 129 animals surrounding tomb 115, for example, would have required a minimum of between 100 and 200 hectares to sustain them, and between 400 and 800 hectares would be required to feed the cattle whose remains were found around some of the larger tombs. The Nile provides a long but very narrow and limited oasis through an extremely arid land. The relatively high proportion of cattle remains in the town and the vast number of animals that appear to have been slaughtered at the same time could be explained by the animals not having been locally raised.²⁸ The distinctive diets of certain bovines from the richest tombs dated to the Middle Kerma, highlighted by carbon/nitrogen isotope analyses, suggest different environments.²⁹ Thus the cattle bucrania found around the Kerma tombs may not necessarily have been solely from animals in local herds but may have been those of animals sent to Kerma from many places within or beyond.³⁰ This evidence suggests that cattle may have been brought to the capital from other parts of the Kingdom as tribute on the death of someone powerful or an important leaders. And also worth mentioning that bucrania are only attested at royal and courtly cemeteries at Sai and Kerma,³¹ not in provincial ones. As recently suggested by Walsh, the Kerma state did not appear intent on attaining centralized control of marginal communities, as in the case of Al-Widay I and Mirgissa.³² Commensality, gift exchange, and trade offered particularly effective strategies to foster cooperative relationships with these marginal communities without large scale expenditure

²⁶ Emberling 2014, 144.

²⁷ Chaix and Grant 1992, 63.

²⁸ *Ivi*, 64.

²⁹ Iacumin et al. 2001, 41-46; Thompson et al. 2008, 376-387.

³⁰ Emberling 2014, 134.

³¹ Minor 2012; Gratien 1986.

³² Walsh 2022, 195-220.

of resources.³³ Cooperative alliances would allow for the mobilization of resources, as in the case of herds. In this framework, entire herds sent to Kerma from rural/marginal places, were slaughtered and eaten in the town while the bucrania placed on the southern edges of the tumuli. However, it is also possible that special herds existed, for example, a herd entirely comprised of cattle with forward-pointing horns. Such “royal” herds, belonging to the monarch himself, would symbolise his power and special rank.³⁴

In general, the number of bucrania is proportional to the dimensions of the tomb and symbolically represented the wealth and the power of the dead person. There was a clear connection existed between the deceased’ status and the number of bucrania placed before his grave.³⁵

Many examples of the role of cattle as symbols of power, as currency, or as offerings at funerary celebrations can be found in the ethnographic literature.³⁶ In central Sudan, people sacrifice cattle during funeral ceremonies, distributing various parts of the animals to the deceased’s friends and relatives, while the forelegs are placed in the tombs. The horns, filled with cinders, are placed above the tomb.³⁷ The number of animals sacrificed is related to the social importance of the deceased and a means of establishing one’s authority over an alliance network.

The symbolic role of the cattle

The Middle and Upper Nile culture’s whole existence, physical, social and religious, was strictly tied to the livestock because it provided meat, milk, and skins. For this reason the livestock assumed a significant ritual value shared by Nubian cultures since the fifth millennium.

Bucrania deposits in the funerary context are known in the Sudanese tombs from the onset of the Neolithic period, around the time when the first cattle burials were also noted³⁸. The first known bucranium originated from the Kerma region and were found atop a child’s grave in the cemetery at el-

³³ Walsh 2022, 215.

³⁴ Chaix et al. 2012, 208.

³⁵ *Ivi*, 194.

³⁶ *Ivi*, 199-209; Dubosson 2015, 239-244.

³⁷ Riefenstahl 1976.

³⁸ The most ancient ox burial dates to circa 5400 BC, found in area E-94-1N at Nabta Playa in southern Egypt. Brass 2007, 7-22.

Barga and dates to circa 5700 BC.³⁹ This practice is well attested during the fifth millennium at Kadruka and the Selim Nasin, south of the Third Cataract,⁴⁰ as well as at Kadada and el-Ghaba in Central Sudan during the fourth millennium.⁴¹ Generally, one or two bucrania were placed within the grave, next to the deceased, together with other offerings and funerary goods. While various forms of cattle deposits are recorded in Egypt and Nubia, the presence of bucrania is specific to Nubia.⁴² During the Kerma civilisation, as was the case with the C Group and the Pan-Grave culture of Lower Nubia, bucrania (if present at all) were deposited on the ground's surface, in front of the tumulus covering the grave.⁴³

The livelihood of the Middle and Upper Nile communities, from the pre-historic periods until today, was strongly linked to the cattle, which were considered guarantors of life and connected to the idea of fertility. It is also likely they represented a god or animal hypostases of one or more divinities. Among the rare images of divinity attested to in Kerma is a goddess depicted with a human body and the head of a cow, wearing a long wig, and seated on a throne. She appears on a sandstone comb for pottery found in a house in the ancient city of Kerma and dated to the Middle Kerma.⁴⁴ The hybrid nature of this iconography had a strong symbolic power, relating the figure of cattle to that of a divinity conceived as a generous nurse. Also, people of the Kerma civilisation associated the image of cattle with abundance and fertility, as in Egypt, where the cow became the sacred animal to the goddess Hathor of Memphis, a generous nurse who embodied the mother goddess.⁴⁵ Already in Ancient Kerma, a symbolism connected to cattle appeared, as evidenced by an ivory amulet found in Sai representing a bovine head.⁴⁶ These remains show the special role of livestock, especially cattle, both in the economic and ritual sphere, in the context of Kerma culture already at this early period.

³⁹ Chaix et al. 2012, 192.

⁴⁰ Salvatori and Usai 2002, 2-7; Reinold 2000.

⁴¹ Reinold 2008; Lecoointe 1987, 69-87.

⁴² Wengrow 2001, 91-104.

⁴³ Chaix et al. 2012, 192.

⁴⁴ Bonnet 1990, 155 n. 34; Berlandini 1983, 33-50; Gratien 1986, 384, fig. 289.

⁴⁵ Bonnet 1990, 89-91.

⁴⁶ Gratien 1986, 58; Bonnet 1990, 185.

The ritual role of sheep in Kerma civilisation

The special status of bovine may also be visible in differences in attitudes to cattle and sheep within the funerary customs. The whole sheep were buried, sacrificed as food offerings to the dead. The living gained no apparent benefit from their slaughter because these animals may have been more commonplace and more easily expendable and replaceable than cattle. Contrarily, cattle meat, which was rarer and considered more important than sheep meat, seems to have been consumed by the living in the town, perhaps during ritual feasts, before being offered as tribute to the dead.⁴⁷

From the beginning of the Middle Kerma, many tombs contained complete sheep burials, the high quality of preservation shows that they were complete, even including their skin and horn. These animals were probably buried alive, generally placed at the southern sides of the grave pits, sometimes with a dog. The goats found inside the graves were young males, usually less than two years old, some wearing a spherical topknot of ostrich feathers on their heads.⁴⁸ Several animals, especially sheep, were buried wearing decorative elements characterised by an ostrich feather disc placed between two horns and held there by leather thongs that passed through the horn sheath and ended in sewn faience bead pendants.⁴⁹ Spherical head ornaments on the rams and sheep in the tombs of Classic Kerma and the red ochre designs sometimes painted on their bodies suggest that they had specific religious or symbolic significance, probably associated with fertility and rebirth (Fig. 4).⁵⁰ The spherical ornament may have represented the sun disk, and this decoration can also be connected to more than eighty rock engravings picturing such animals with disks on the heads that are recorded in the desert west of the Nile and across the Sahara.⁵¹ Thus, these tradition could also be associated with a clay C Group statuette representing a goat with a spherical ornament on its head found in the site of

⁴⁷ Chaix 2003, 219-220.

⁴⁸ Bonnet 1990, 90.

⁴⁹ Chaix 1993b, 161-164.

⁵⁰ Almansa-Villatoro 2018, 178-179

⁵¹ Camps 1980, 1-15; Muzzolini 1994, 247-271.

Aniba.⁵² These animals were possibly placed in graves as offerings to the sun god.

During the Classic Kerma, there is evidence of a ram cult in the Western *Deffufa* as well as in some tombs. Half-way up the staircase of the Western *Deffufa*, a long and narrow internal room was built within its brickwork that appears to have been the residence of a god, who may also have had solar associations. A sacrificial stone, and the remains of either sheep or goats, were found on the stairway landing in front of the internal room of the *Deffufa*. This area seems to have constituted a kind of shrine occupied by a divinity, probably the sun, god who possibly also assumed the form of a ram.⁵³ In light of this, we can assume that caprovines represented the animal hypostasis of the sun god. Recent research in Kerma suggests that the Egyptians incorporated aspects of the indigenous Nubian religion, such as the representation of Amun as ram or as a ram-headed man, into their own.⁵⁴ After the conquest of Nubia, the New Kingdom pharaohs established

the religion of their supreme god Amun throughout Nubia, although the basis of this had already been established during the Egypt's occupation of Nubia in the Middle Kingdom. In his Nubian temples, Amun was increasingly represented as a ram or as a ram-headed man wearing a sun disk on his head. The origin of this "southern" variation of Amun worship was suggested by

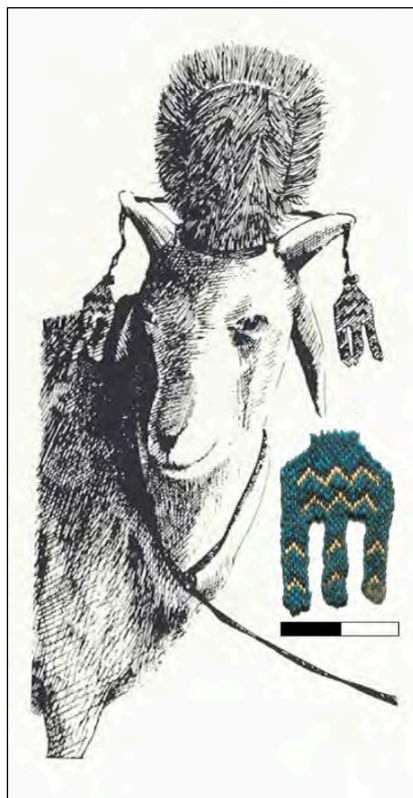


Fig. 4: Artist's reconstruction of a Kerma sacrificial lamb wearing a spherical crown of ostrich feathers and an ornament horns of a ram found in the eastern cemetery of Kerma, CE 8 tomb 81 (after Bonnet 1990).

⁵² Wenig 1978, 129; Chaix 1993b, 161-164; Kendall 1997, 76.

⁵³ Kendall 1997, 77.

⁵⁴ Bonnet 2004, 158-159.

the discovery of sacrificed lambs, ewes, and rams crowned with spherical objects made of ostrich feathers in Kerman graves, which led to the suggestion that these animals may have inspired Amun's new form.⁵⁵ The result was that the Egyptian Amun assumed ram form in Nubia and that this form of the Nubian god became the Egyptian Amun.

The symbolic and religious role of fauna of Kerma civilisation

The frequency of the representations of animals in the religious and funerary contexts led us to discuss the non-economic aspects of fauna in this culture and to suppose that animals played an important part in the symbolic and religious domain.

Animals appear in multiple scenes of wall paintings in the royal funerary chapels,⁵⁶ in the ivory inlays and the mica decorations that respectively decorated the funerary beds and the caps found in the richest private tombs of the Classic Kerma. Also, the feet of the funerary beds of the Classic Kerma represented the leg of a bovine.⁵⁷

Numerous zoomorphic figurines represented the miniaturisation of bovines, cattle and goats were found in the city of Kerma, as well as in Gism el-Arba, a rural area 30 km to the south.⁵⁸ There are two types of clay figurines: the first can be considered "realistic" as opposed to the second more "schematic". In the first case, the animal's legs and some anatomical details are made; the second is distinguished by the absence of legs and the cylinder-shaped body.⁵⁹ Because these figurines were primarily found in the religious and administrative sectors of the ancient city of Kerma, near the *Deffufa*, it has been suggested that they could be associated with administrative practices and used as livestock reckoning counters. Their association with hundreds of seal impressions support this hypothesis.⁶⁰ However, some figurines have been found in the houses, in this case they could be used as children's toys or religious objects associated with the private cult. They could also represent elements of magic related to fertility and prosperity.⁶¹

⁵⁵ Bonnet 1984, 5-20; *id.* 1990, 89-91; Kendall 1997, 76.

⁵⁶ Bonnet 2000, 132, 163-174.

⁵⁷ *Id.* 1990, 209, fig. 249.

⁵⁸ Gratien 1998.

⁵⁹ Chaix and Queyrat 2003, 63-66; Ferrero 1984, 21-25; Ferrero 1990, 132-136.

⁶⁰ Chaix and Queyrat 2003, 65-66.

⁶¹ *Ivi*, 65.

The wall paintings of the royal funerary chapels KII and K XI were arranged according to a similar scheme: on the eastern wall, depictions of Nilotic scenes were concentrated, such as fishing, and scenes of boats with the crew; on the western one, scenes associated with African livestock.⁶² The figurations of wild animals appear to express a desire to dominate the fauna, which symbolised one of the most characteristic aspects of the environment. The regular arrangement of animals in groups according to species, may recall the concepts of the cosmic order, the ideology connected to the sovereign's control of natural chaotic forces also proposed for some works of the Egyptian proto-dynastic art.⁶³ The depiction of powerful and dangerous animals such as hippos, lions, crocodiles, and giraffes in long rows on the western walls of the rooms and the intermediate corridor of K XI represented a long procession directed towards the inside of the sanctuary. Due to the economic connotation of the fauna, the sovereign, depicting both wild and domestic fauna on the wall paintings of his funerary chapel, wants to symbolically represent his control and dominion over the whole territory, characterised by the presence of all these animals.⁶⁴

The arrangement of the animals in long rows on several registers characterised not only the royal chapels' wall paintings but also the ivory inlays and mica decorations found exclusively in the richest private tombs of the Classic Kerma.⁶⁵ Therefore, we could consider the ivory inlays and the mica ornaments as insignia of rank used to legitimise the wearer's role.⁶⁶

It is also interesting to note that the wild animals depicted in the wall paintings and represented on the ivory inlays and the mica decorations were the same species found in the foundation deposits. According to the archaeozoological evidence, the most abundant remains of African wildlife bones found in Kerma is the hippopotamus'. This large mammal was closely connected with the Nubian environment and was particularly popular for its ivory and skin. The hippopotamus also undoubtedly had an ideological value in Kerma, associated with rebirth and regeneration, no doubt because it lived in the renewing waters of the Nile. This association between the hippopotamus and water is also evident from the red polished pitcher of the Classic

⁶² Bonnet 2000, 73-91, 132; Chaix 2000b 174; Minor 2012, 94-96.

⁶³ Bonnet 2000, 101-102; Török 2008, 22; Williams 2006-2007, 409-410.

⁶⁴ Bonnet 2000, 95; Török 2008, 22.

⁶⁵ Reisner 1923b, 264-280; Minor 2012, 170-174.

⁶⁶ Manzo 2011, 217.

Kerma with a spout in the form of a hippopotamus head. Hippopotami were part of the decorative depictions in *faïence* on the royal funerary chapel K XI's façade. Here, hippopotami are predominant in the second entrance room, where forty-two red hippos march northward in rows on the western wall and both stone doorjambs in the same chapel. If the full animal form of the hippopotamus seems to occur only in the rulers' funerary complexes, the goddess Taweret was one of the most popular figurative representations attested during the Classic Kerma. Taweret was depicted on private funerary bed inlays, mica appliqués, and amulets. Considered a powerful goddess of fertility, she was probably incorporated into pre-existing local beliefs during the Classic Kerma.⁶⁷

The hippopotamus and the crocodile, whose dermal plaques were found in the city, were the only wild species not only represented by the amulets but also by a large number of clay figurines and *faïence* statuettes found in Kerma, both imported from Egypt and locally produced.⁶⁸ The crocodile was drawn on small ceramic vessels with spouts dating from Ancient to Classic Kerma, perhaps used as baby bottles,⁶⁹ engraved on some ostrich egg shells dated to Middle Kerma,⁷⁰ depicted in the paintings of the funerary chapel K XI, and reproduced by bone or ivory plates.⁷¹ In the eastern necropolis, along the walk that connected the funerary chapel K II to the royal mound K III, in front of the entrance to the corridor of the mound, two large fragments of a glazed quartz crocodile statue were discovered. The ivory inlays found in the ground of the burial chamber of the minor mound K XV, dated to the beginning of the Classic Kerma, represented two complete crocodiles, at least two turtles, three octopuses, and six to eight elephants.⁷² All these ivory inlays, as also suggested by Reisner, were part of the decoration of the funerary bed of the main burial of the K XV tumulus. Therefore, the animals reproduced on the funeral bed had not only a decorative function but also a prophylactic one. The figurations of hippos, turtles, frogs, crocodiles, flies, lions and scorpions, could be connected to regeneration and fertility due to their association with water or its opposite, the desert. Some of these creatures were also fierce beasts. They could play a

⁶⁷ Minor 2018, 257; D'Itria forthcoming.

⁶⁸ Bonnet 2000, 98.

⁶⁹ Bonnet 1990, 161, n. 58; 222, fig. 290; Welsby and Anderson 2004, 88, fig. 70.

⁷⁰ Bonnet 1993, 8, fig. 11; Chaix 2000b, 168, fig. 121.

⁷¹ Bonnet 2000, 85, fig. 62; Chaix 2000b, 168.

⁷² Reisner 1923a, 481-485; 1923b, 270; Bonnet 1990, 222, n. 290.

further apotropaic function because if these dangerous creatures were propitiated, the danger would have been warded off.

Conclusion

Evidence is plentiful and shows that in Kerma the animals not only played an important economic role but also served a social function and played an important part in the ritual domain. Thus, the many decorative elements discovered on the Kerma site, such as the small figurines found in the ancient city, the walls paintings decorating the large funerary chapels of the Eastern cemetery, the ivory inlays and mica decorations, confirm the omnipresence of the animal in this culture.

As at the capital of Kerma⁷³ or the rural settlement of Gism el-Arba,⁷⁴ the exploitation of the animal world is entirely based on stockbreeding of cattle and caprines, forming more than 90% of the fauna.⁷⁵ Since Middle Neolithic times, cattle played an important role in the beliefs and ideology of these communities,⁷⁶ this is regularly implied in the funerary tradition with bucrania placed in or near the graves. More spectacular, however, is their use in funerary rituals, where hundreds of bucrania are placed in front of burials.⁷⁷ During the Middle Kerma period, hundreds of cattle were killed, and their bucrania were deposited on the southern edge of some tombs relating to the society's increasing hierarchisation of the towards the end of the 3rd millennium BC. Here, we witness to the emergence of individuals or clans seeking to stand out publicly by ostensibly exposing their wealth or social status. There is evidence to suggest that cattle may have been brought to the capital from other part of the Kingdom as tribute on the death of someone powerful or influential. Towards the end of Middle Kerma and especially in Classic Kerma, animal offerings are gradually replaced by human sacrifices which will multiply and become dominant in the southern sector of the necropolis.

Animals have played an important role not only in the economy of Kerma but also in the ritual sphere. This importance is accentuated by the discovery of several goats in the Kerma tombs from the Middle Kerma wearing peculiar head ornaments. Such animals had been widely venerated by the North

⁷³ Bonnet 2004.

⁷⁴ Gratien 1998.

⁷⁵ Chaix 2007, 120.

⁷⁶ Chaix and Grant 1992, 61-66.

⁷⁷ Chaix 2001, 364-370.

African peoples since remote antiquity, and their meaning among the C Group and Kerma peoples must have been profound.⁷⁸ This could indicate the sharing of ritual elements among different populations; probably, the cult of caprines was shared by people of Eastern Sahara, C Group, and Kerma culture.

Therefore, the symbolic value of fauna in the different contexts of Kerma culture is indisputable but not concern only the Kerma civilisation. The symbolic role of animals has its roots in Neolithic times and Kerma shared ritual elements with different groups of people with which they interacted.

To conclude, the representation of animals in the different contexts also reflects cultural contacts and interconnecting influences between various groups of people in the Nile Valley. This study provide evidence for varying trends and influences during the Bronze Age, allowing cultural contacts to be traced when studying Nubia from a broader perspective.

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⁷⁸ Chaix 1993b, 161–164.

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Meroitic Lexemes Concerning Animals

Gilda Ferrandino

Introduction

The aim of this paper is to present a review and preliminary study of Meroitic lexemes concerning animals. While in the Egyptian context art and written sources reveal interesting information about animals, in Meroitic Nubia the texts cannot at present support the analysis of the fauna and the relationship between some animals and the human community in Nubia during the Meroitic period, because of our scarce knowledge of Meroitic language. A different approach characterized by the comparison between iconography and text may in some cases support the linguistic analysis of specific lexemes.

At present, the main information concerning fauna stems from animal remains in archaeological sites and iconography. During the Meroitic period, animal images became increasingly frequent in Nubia and they had an importance for the public and individual religions. Unfortunately, not all the images represented on walls, jewels, amulets, vessels as well as statues, in religious and funerary contexts, were accompanied by a legend or text describing the image indicating the animal's name. It is known that many animals were connected with different gods, such as the god Apedemak represented with a lion-head, or the better-known Amon with a ram-head. In both cases, the god's name does not contain the name of the corresponding animal. It is thus difficult to reconstruct a list of Meroitic names of the most frequent and represented animals in Nubia.

List of words

Of the published list of thirty-nine Meroitic lexemes with a confirmed meaning,¹ less than ten words refer to animals. They are *dime* "cow", *xlbi* "bull", *wle* "dog", *abese* "gazelle", **kele* or **kere* "hawk", *peke* "snake", *abore* "elephant". The first three names present a convincing comparison of the North Eastern Sudanic (NES) languages, the linguistic family to which Meroitic belongs. The other lexemes provide acceptable correspondences.

¹ Rilly 2010b.



Fig. 1: Relief on the wall of the chapel of Beg.N. 11 at Meroe (Ph. Gilda Ferrandino)

As regards *dime* “cow” and *xlbi* “bull”, the words refer to cattle and are present in funerary and royal contexts. They appear together in the texts of commemorations of funerary offerings in the royal necropolis at Meroe: REM 0064 in Beg N. 19, REM 0070 in Beg. N.18, REM 0809 in Beg.N.2. These infrequent texts mention offerings that the family of the deceased had provided the year after the burial and the cited animals were probably sacrifices. Sacrifices of cows and bulls are also represented on the walls of the funerary chapels at Meroe (Fig. 1).

The word *xlbi* appears in the royal texts REM 1044, 1221, 1228, 0094. While in the Taneyidamani inscription, REM 1044, the context may suggest offerings made during the performance of some ceremonies, in REM 1221, 1228, and 0094 the lexeme is used in the royal title, with reference to the hypostasis of Amon at Sanam, defined the “bull of Nubia”. The lexeme *dime* appears in REM 1361D, the so-called Obelisk of Meroe, alluding to an offering, and in

REM 408C a text engraved on the four faces of a block found in the temple of Apedemak M6 at Meroe.

The meaning of both *dime* and *xlbi* has been established by comparing the Meroitic lexemes with lexemes of languages that belong to the NES and with the reconstructed form of the proto-NES (Rilly 2010b).

As far as the lexeme *wle* “dog” is concerned, it has been identified only in a graffito on the great enclosure at Musawwarat es-Sufra. The meaning of this lexeme has been deduced by the associated image and later confirmed by means of linguistic comparison. The text containing the word is recorded as REM 1165 and starts with a presentation sentence *wle-qo* “this dog”. The scene accompanying it represents a dog chasing a hare. Unfortunately, the meaning of the text is not so fully clear as to allow us to try and infer its context. However, Rilly suggests it may refer to a request to the god for a good sale or purchase of a hunting dog.

The lexemes *abese*, **kele* or **kere*, and *peke* were found in texts painted on six wooden plaques of twenty-four (REM 1197, 1198, 1199, 2749, 2750, 2751) which were part of cult practices, discovered in the outer hall of the temple at the north of the cathedral at Qasr Ibrim in Lower Nubia. All six plaques were painted with living animals: snakes, gazelles, and hawks. The animals face a yellow cup on a high base with two ladles hanging from the rim.² In one exception, the gazelle faces a tree (REM 1198). In the case of the hawk (REM 1197), the animal wears a double crown. All these plaques present a brief text which starts using the structure *X-qo-li* “this X” where, according to Rilly, X is undoubtedly the name of the animal.

REM 1197

*keqoli: yimkteni*³ : *srtneyi* : *mlilw* : *ptepl*

ke-qo-li : *yi-mkte-ni* : *sr-t-neyi* : *mli-l-w* : *pte-pl*

hawk(?)—this—DET : PREF—*mkte-ni* : *sr-t-V* to be : N—DET—SUF : *pte-V*

REM 1198

abeseqo[li] : *[y]imkteni[s]* : *slmtneyi* : *mlil* : *pitepl*

abese-qo-[li] : *[y]i-mkte-ni* : *slm-t-neyi* : *mli-l* : *pite-pl*

gazelle—this—[DET] : PREF—*mkte-ni* : *slm-t-V* to be : N—DET : *pite -V*

² Driskell, Adams, and French 1989.

³ The unknown word *-mkte-* might refer to the noun “goddess”. However, the meaning of the complex word, composed of the prefix *yi-*, which remembers the first person of the verbal prefix, and the suffix *-ni*, is actually obscure.

REM 1199

abeseqoli : yimkteni : mlilw : ptepl : htneyi

abese-qo-li : yi-mkte-ni : mli-l-w : pte-pl : h-t-neyi

gazelle-this-DET : PREF-*mkte-ni* : N-DET-SUF : *h-t-V* to be

REM 2749

pekeqoli yimk[teni : ...]sl[ca2]w

peke-qo-li yi-mk[te-ni :] sl[ca2]w

snake(?)-this-DET : PREF- *yi-mk[te-ni :] sl[ca2]w*

REM 2751

pekeqoli : yimkteni : mlilwptep : peke[le]

peke-qo-li : yi-mkte-ni : mli-l-w-ptep : peke-[le]

snake(?)-this-DET : PREF-*mkte-ni* : N-DET-SUF - *ptep-V* : snake(?)-[DET]

The translation of these lexemes could thus be inferred from the association between iconography and text.⁴ There is uncertainty about the lexeme referred to as hawk. The nominal syntagma is *ke-qo-li*. Since the Meroitic words are rendered as CVC or VC, according to Rilly, the syllable might be assimilated with the initial *-qo*. Given this observation and linguistic comparisons, the lexeme might be **kele* or **kere*.⁵

As regards the word for snake, it has been recorded *pete*.⁶ However, analyzing the photos published in Hallof of the wooden plaques (REM 2749 and 2751) the reading appears to be *peke*.⁷

According to Driskell et al., the animals represented on the plaques were chosen because of their association with the goddess Isis, likely adored in the same temple.⁸

In the case of *abese* “gazelle”,⁹ the animal represented is female because of the breasts. In one of the first natural histories, *De Natura Animalium*, Aelian (c. AD 175 - 235) describes the worship of Isis at Coptos and indicates the

⁴ De Voogt and Rilly 2012, 101-105.

⁵ Rilly 2010b, 411.

⁶ Rilly 2010b, 411; De Voogt and Rilly 2012.

⁷ Hallof 2016, 108-109.

⁸ Driskell et al. 1989.

⁹ Rilly 2010b, 411.

female gazelle as the pets of the goddess. In the same text, Aelian refers that male gazelles were used as a sacrifice.¹⁰

Gazelles were also represented as offerings by the Roman Emperor Tiberius on the walls of the Isis temple at Philae. The offering of the same animal is represented on two blue and gold footed flute glasses from Sedeinga, dated in the 2nd half of the 3rd cent. AD.¹¹ The flutes are kept separately in the Sudan National Museum of Khartoum and in the museum of the University of Pisa. The archaeological, iconographical, and epigraphical contexts suggest that the objects and the gazelle are here associated with the funerary rites: the luxurious items were found broken in a tomb; the upper panel brings a Greek inscription *Pie zese(i)n* "Drink to live" generally used on containers in a funerary context. Moreover, the two gazelles represent an offering to the god Osiris seated on his throne. The role of the gazelles in offering gifts is firstly attested in the Egyptian context where they are represented in tombs or found in offering lists.¹²

As for the "hawk" **kele* or **kere*, there are different references to the link between this animal and Isis. In the Meroitic chamber at Philae, the scene of the procession represents priests wearing garments decorated with hawks. Also, in the Amanikhabale stele, the king – offering the triple necklace to the goddess Isis who wears the double crown – is represented with the image of a hawk on his garment.¹³

The last lexeme is *abore* "elephant". This word is not directly associated with an image. Rilly identified the word in the Meroitic toponym *Aborepi* referred to the archaeological site of Musawwarat es-Sufra. Here, many representations such as sculptures, graffiti, and reliefs show the elephant, indicating an important role attributed to this animal. Unfortunately, none is accompanied by a legend. The place name *Aborepi* is attested only in connection with the god Apedemak, indicating his hypostasis, *Apedemak Aborepi-te-li* "Apedemak (who is) in *Aporepi*". According to Rilly, the toponym seems to be composed of *abore* + *pi*¹⁴ "the place of the elephant" or similar (Figs. 2 & 3). Since *abore* does not appear in any other contexts, the translation suggested by Rilly is solely based on linguistic comparisons.

¹⁰ Strandberg 2009, 184.

¹¹ Leclant 1973, 56-68.

¹² Strandberg 2009, 101.

¹³ Pompei 2015.

¹⁴ It is compared with an Old Nubian word translated "be, stay".



Fig. 2: Elephant from Musawwarat es-Sufra (Ph. Gilda Ferrandino).



Fig. 3: Relief on the column, Lion temple at the Musawwarat es-Sufra (Ph. Gilda Ferrandino).

There exists other two words *anese* “donkey(?)” (REM 1088, 1333) and *mreke* “horse” (REM 1088, 1333, 1321), found in a few Meroitic texts. The funerary texts REM 1088 and REM 1333 are attributed to the viceroy Abratoye, also known in graffiti from Philae, while REM 1321 is an ostrakon found in a building of the settlement at Arminna West.¹⁵ In all these cases the lexemes *anese* and *mreke* appear in texts without images. This complicates the identification of the semantic value of the words. However, already Carrier, quoting

¹⁵ Edwards and Fuller 2000, 80-82, 94.

Millet, suggested the meaning of horse for *mreke*.¹⁶ Recently, Rilly confirmed the semantic value of the word on the base of comparative analysis¹⁷. About the word *anese* the meaning is not assured. In a most recent paper, Rilly translated the word as donkey.¹⁸

dime	"cow"
xlbi	"bull"
wle	"dog"
abese	"gazelle"
*kele or *kere	"hawk"
peke	"snake"
abore	"elephant"

Tab. 1

Methodology

The Meroitic basic vocabulary is composed of thirty-nine lexemes with a confirmed meaning. The limited number of known words is due to translation difficulties. With the paucity of bilingual texts and the recent identification of the linguistic macro-family to which Meroitic belongs, the strategies and methods applied to the study of the Meroitic language are mainly the contextual analysis and the comparative method.

The contextual analysis encompasses the study of each inscription by considering its textual, archaeological, iconographical as well as social context. From the textual point of view, each text is compared with other Meroitic texts for the identification of similar elements and structures. This method supported Griffith in the decipherment and translation of some passages. The archaeological and iconographical context are useful because they give insight into the text type, the general content and the words used.

The comparison method consists of finding idioms that show phonetic correspondences with idioms of other languages.¹⁹ The main purpose of this method is to establish the meaning of unknown Meroitic words or morphological elements. As Meroitic is the remote written language of its modern sister languages, and no ancient NES language is attested beside it, one of the strategies to study Meroitic is to proceed step by step with the linguistic analysis. Prior to any comparison with Meroitic, though, it is necessary to reconstruct the proto-lexicon and proto-morphology of the ancestor language, based on the living sister languages. However, this work is still in its infancy,

¹⁶ Carrier 2001.

¹⁷ There is a video on Youtube (EPHE Méroïtique channel) about a conference of Rilly C. dedicated to the analysis of the horse in Meroitic https://www.youtube.com/watch?v=mhlWNwKcHkE_

¹⁸ Rilly 2020, 25, 41.

¹⁹ Rilly 2010a.

because many modern languages are not well described and analyzed. For this reason, the application of the comparative method has to be supported by contextual analysis and other internal methods aimed at paving the way for linguistic comparison.

Another interesting method that has recently yielded good results is the parallel method. It is based on the comparison with texts written in different languages such as Egyptian, Demotic and Greek, but with similar textual, archaeological and iconographical contexts. The use of royal Napatan texts written in Egyptian or the religious texts in Greek and Demotic have recently proved effective in identifying sentences and words. In particular, the study of the religious graffiti in Greek, Demotic and Meroitic, produced by pilgrims who visited the main sanctuaries in Lower Nubia, has allowed the translation of Meroitic texts. The religious graffiti, written in different languages, accompany a representation of a pair of feet, symbolizing the arrival of the pilgrim at the sacred place on foot. The texts in Greek and Demotic start indicating the feet and the name of the pilgrim ("these feet of X", where X is the name of the pilgrim). The parallel analysis with Meroitic graffiti allowed identifying the same standardized structure and translation of the Meroitic texts.

The importance of the iconography in the analysis of the Meroitic words is also attested by execration texts characterized by the representation of prisoners with the enemies' name engraved on the bodies. In this case the representation of the prisoner, characterized by physical elements and specific garments, can support the correspondence between the ethnonym and the ethnic group.

Conclusion

Of the seven lexemes shown here (Tab. 1), three present a convincing comparison with NES languages. The others provide acceptable correspondence. In order to consider assured the meaning of a word, it is necessary to take into consideration different aspects that Rilly resumed in seven indexes: syntactic and semantic compatibility of the word meaning with the whole text; compatibility with other texts where the word appears; relation with the iconography; compatibility with the cultural and archaeological context where the text was found; text type compatibility. Furthermore, he also considered – where possible – the identification of an Egyptian etymon and the equivalence with a term in another language as in the case of parallel texts. According to

this method, an interdisciplinary study is the only way allowing to get an understanding of the Meroitic language.

The study of animal names in Meroitic texts is interesting not only for those interested in increasing the list of words as part of the basic vocabulary but also for those who want to identify animals that are maybe not original to the area. Moreover, the texts could reveal interesting information on the type of relationship between animals and the human community during the Meroitic period, thus confirming or refuting, through the description of a rite or the count of animals used for a given activity, what archaeology and iconography have shown.

List of abbreviations

ADJ	Adjective
DET	Determinant
N	Noun
PREF	Prefix
SUF	Suffix
V	Verb

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The Deformation of Cattle Horns in the New Kingdom Period

Laura Harris¹

Introduction

Since the Predynastic period cattle played an influential role in the society and culture of ancient Egypt, a trend that continued through to the Graeco-Roman period. Egypt was an agrarian society, and cattle were employed throughout the pharaonic period for their draught power during the agricultural cycle.² In addition, the food they provided from their bodies: meat, bone marrow, fat and dairy products supported most of their nutritional requirements.³

For the Egyptians to adequately care for and manage cattle, handling in the form of touch (by hand or via an object) or through vocalising was a necessity. Handling is still a requirement in modern agricultural practice in order for livestock to receive adequate care.⁴ However, for some cattle to fulfil their intended role, they not only required handling, but their bodies had to be physically modified. Modification is defined here as the physical alteration and manipulation of the body. It is often carried out intentionally, but it can also be an unintentional bi-product of a handling practice. Modification can be divided into two categories: *invasive* and *non-invasive*. Invasive modification is the physical alteration of an animal's body, while non-invasive modification is the temporary alteration of the appearance of an animal's body by decoration or adornment. Every modification will potentially affect the animals physically and/or mentally in a positive or negative way, and so it will to some extent affect the cattle's general welfare.

¹ This paper is derived from research from my Master's and PhD thesis and formed part of a broader study on cattle modification and husbandry practices, which were conducted while holding the Macquarie University Research Training Program Stipend Scholarship. I wish to thank Linda Evans who advised and provided very useful comments and suggestions on this paper.

² Evans 2010, 6-66; Houlihan 1996, 17; Osborn and Osbornová 1998, 195; Swinton 2012, 70.

³ Ikram 1995, 8, 12, 175, 179; Lucas and Harris 1999, 330.

⁴ Beattie 1992, 65-67.

Horn disbudding and the dehorning of cattle are examples of invasive practices that are carried out today for the safety of farmers,⁵ being frequently performed without anaesthetic and/or analgesics.⁶ The removal of the horns reduces the likelihood that the animal will gore a handler (un)intentionally. Evidence suggests, however, that horn modification is not a recent practice.

The focus of this paper is the invasive practice of horn deformation in the ancient Egyptian context as depicted in two-dimensional art from the New Kingdom period.

Horn Deformation



Fig. 1: Egyptian ox with lyre shaped horns. Temple of Ramses II, Abydos; photo by the author (2019).

The majority of cattle breeds today are horned, with sizes ranging from short to long and occurring in a large variety of shapes. Horns are normally symmetrical and grow upward away from the face, with their form varying depending on the breed. The horns of ancient Egyptian cattle also varied in size and appearance (Fig. 1). Egyptologists have divided the animals into

three categories based on horn length: long horns, short horns and hornless (polled).⁷ Long horns are lyre or crescent in shape, and short horns are straight, pointing upwards at approximately a 45° angle. Hornless cattle are animals that were born without horns (polled), or their horns had been artificially removed. No examples of horn removal can be confidently identified in two-dimensional art and therefore it is not possible to determine from the artistic representations alone whether the animals represented were naturally hornless.

⁵ Knierim et al. 2015, 34.

⁶ Cozzi et al. 2015, table 2.

⁷ Boessneck 1988, 69-70; Brewer et al. 1994, 82-83; Ghoneim 1977, 49; Houlihan 1996, 11.

When the horn shape differs greatly from the characteristic breed shape in art, this may suggest artificial deformation. The deformed shapes can be divided into two categories: *asymmetrical* and *symmetrical*. With asymmetrically shaped horns, one horn usually remains upright and/or backward, while the other is forward and downward or curves across



Fig. 2: Nubian ox with asymmetrically shaped horns in the Opet Festival. Courtyard of Ramses II, Luxor Temple; photo by the author (2018).

the head (Fig. 2). Symmetrical horns are equally distorted into an unnatural position, such as forward pointing or horizontal.

The first artistic depictions of cattle with deformed horns are found in elite tomb scenes dating to the Old Kingdom (c. 2686-2160 BC).⁸ These representations of horn deformation are not unique to Egypt. They are depicted in rock art throughout the Sahara region, with the earliest examples dating from the 7th millennium BC in Algeria and Libya.⁹ Furthermore, zooarchaeological evidence in the form of bucrania with modified horns has been found at the sites of Kerma and Faras in Nubia.¹⁰

Horn Modification in the New Kingdom (c. 1550-1069 BC)

Two-dimensional art scenes in elite tombs from the Theban Necropolis and Saqqara were examined that show cattle depicted with or undergoing a physical modification. The study also included an evaluation of scenes in the following New Kingdom temples: Luxor Temple, Temple of Ramses II at

⁸ For example, the 5th Dynasty tomb of Niankhkhnum and Khnumhotep (Moussa and Altenmüller 1977; taf. 84.).

⁹ Chaix and Hansen 2003, 275, fig. 5; Dioli 2018, 7, fig. 5b.

¹⁰ Chaix et al. 2012, fig. 2 on 193; Hall 1962, 60.

Abydos, Beit el Wali Temple, Temple of Ramses III at Medinet Habu, Gempaaten Temple and Rwd-Mnw Temple. These provided additional information for the study, such as greater context and detail, which may have been omitted from the visual record in elite tombs due to the limited space.

Seventy-nine cattle in the dataset (see Tab. 1) were found to have deformed horns of either asymmetrical or symmetrical shape.¹¹ Asymmetrically shaped horns are the most frequently represented, making up 85% of the corpus. Cattle with deformed horns appear in eight scene types: within herds of Nubian cattle, in Nubian tribute scenes, decapitated heads on offering tables, within Egyptian herds, branding, fattening, pulling the funerary sledge, and in processions. One example of a hieroglyph (E1) with distorted horns also exists. The majority of examples (37%) found are of decapitated heads that are depicted on offering tables, all of which occur in tombs in the Theban Necropolis.

It may be argued that these animals and the other images could be the result of artistic variation, which was carried out to enliven a scene, break up repetition, or due to space constraints on tomb walls, forcing artists to distort the horns to fit the animal figures within a register. This argument has been made by some scholars, such as Jean Leclant.¹² However, if this was correct then horn deformation should be represented more frequently, especially in herding scenes. In these scenes, herds contain between three and nineteen cattle and the animals are frequently depicted with the same features and painted close together in order to fit inside the register. According to the above criteria, horn deformation should be numerous, but from the 44 herds that were examined, only ten contain one to three animals with deformed horns, suggesting they are not an aesthetic choice.

¹¹ Interestingly, one goat with asymmetrically deformed horns was found in TT 31 (Davies 1948, pl. XV.).

¹² Leclant 1956, 131.

Number	Name	No. Cattle	PM I:	Location	Date	Source Image
TT 82	Unknown, Amenemhat	1	PM 166	Sheikh abd el Qurna	MK XVIII.6	A. Mochmar, 1978, <i>Egyptian Painting</i> , London, cat. 41.
TT 83	Dhotwari	1	PM 173	Dra Abu Naga	XVIII.5-6	See photograph no. 8545.
TT 89	Iyutere	4	PM 171	Kholla	XVIII.5-6	N. de G. Davies, 1922, <i>The Tomb of Iyutere at Thebes</i> , Volume 1, New York, pls. XX, XLIII.
TT 104	Dhotwari	2	PM 218	Sheikh abd el Qurna	XVIII.5-6	A. C. Shedd, 1908, <i>Seil der Grabmalereien in der Zeit Amenophis II. Untersuch. an den Thebanischen Gräbern Nr. 104 und 80</i> , Mainz, taf. 3 [a], 3 [b].
TT 145	Nebamun	1	PM 237	Dra Abu Naga	XVIII.5-6	N. de G. Davies, 1932, <i>The Work of the Graphic Branch of the Expedition, BMMA 27/3 Part 2</i> .
TT 179	Nebamun	1	PM 285	Kholla	XVIII.5-6	G. Scharf, 1932, <i>Die Grabmalereien in der Zeit Amenophis II. Untersuch. an den Thebanischen Gräbern Nr. 179 und 80</i> , Mainz, taf. 16 [d].
TT 318	Amenemose	1	PM 301	Sheikh abd el Qurna	XVIII.5-6	G. Scharf, 1932, <i>Die Grabmalereien in der Zeit Amenophis II. Untersuch. an den Thebanischen Gräbern Nr. 179 und 80</i> , Mainz, taf. 16 [d].
TT 20	Nennuherchopshet	1	PM 35	Dra Abu Naga	XVIII.6	S. Yoshimura (ed.), 2003, <i>The Theban Tomb No. 318 and Other Tombs (Nos. 128, 129, 309 and 317)</i> , The Report of Waseda University's Excavations on the West Bank of Luxor [III], Tokyo, pl. 911.
TT 86	Menkhepereseneb	2	PM 177	Sheikh abd el Qurna	XVIII.6	N. de G. Davies, 1913, <i>Five Theban Tombs (Being Those of Mentuherchopshet, User, Dage, Nennuway and Tah)</i> , London, pl. XI.
TT 99	Sennefert	1	PM 205	Sheikh abd el Qurna	XVIII.6	N. de G. Davies & N. de G. Davies, 1933, <i>The Tombs of Menkhepereseneb, Amenemose and Another (Nos. 86, 112, 42, 226)</i> , London, pl. XIV.
TT 79	Menkhepereseneb	1	PM 157	Sheikh abd el Qurna	XVIII.6-7	N. Strudwick (ed.), 2016, <i>The Tomb of Ptahhotep's Chancellor Sennefert at Thebes (TT 99)</i> , Volume 1, The New Kingdom, Oxford, pl. 28 [a].
TT 85	Amenemheb	1	PM 171	Sheikh abd el Qurna	XVIII.6-7	H. Gutsch, 1993, <i>Die Gräber des Nennuherchopshet und des Menkhepereseneb</i> , Theben Nr. 87 und 85, Mainz, taf. 36.
TT 100	Bedimire	14	PM 209, 212, 214	Sheikh abd el Qurna	XVIII.6-7	N. de G. Davies, 1943, <i>The Tomb of Bedimire at Thebes</i> , Volume 2, New York, pls. XXXIII, L, XXXIV, LXXXV, LXXXVIII-X, XC-I, CIII.
TT 80	Hothotep	1	PM 138	Sheikh abd el Qurna	XVIII.7	A. C. Shedd, 1908, <i>Seil der Grabmalereien in der Zeit Amenophis II. Untersuch. an den Thebanischen Gräbern Nr. 104 und 80</i> , Mainz, taf. 16 [d].
TT 92	Saennut	1	PM 188	Sheikh abd el Qurna	XVIII.7	B. M. Bryan, 2001, <i>Painting Techniques and Artisan Organization in the Tomb of Saennutwet, Theban Tomb 92</i> , in W. V. Davies (ed.), <i>Colour and Painting in Ancient Egypt</i> , London, pl. 20.3.
TT 93	Kennamun	2	PM 192	Sheikh abd el Qurna	XVIII.7	N. de G. Davies, 1931, <i>The Tomb of Ken-Ammin at Thebes</i> , Volume 1, New York, pls. LXI, LXII, LXI E.
TT 96	Sennefert	1	PM 202	Sheikh abd el Qurna	XVIII.7	Photo courtesy of www.orientalnet.net - ©C. Diago.
TT 45	Dhotwari, Deuternheb	1	PM 86	Sheikh abd el Qurna	XVIII.7-XX	N. de G. Davies, 1948, <i>Seven Private Tombs at Karnak</i> , London, pl. IV.
TT 56	Usertat	2	PM 111	Sheikh abd el Qurna	XVIII.7-8	C. Benich-Schneider & A. C. Shedd, 1967, <i>Das Grab des Usertat (TT 56)</i> , Mainz am Rhein, taf. 7.
TT 22	Wah, Mery (amun)	1	PM 37	Sheikh abd el Qurna	XVIII.7-9	See photograph no. 8545.
TT 78	Haremhob	4	PM 132-4	Sheikh abd el Qurna	XVIII.7-9	A. Brack & A. Brack, 1980, <i>Das Grab des Haremhob</i> , Theben Nr. 78, Mainz am Rhein, taf. 13, 30.
TT 38	Djoserkarseneb	1	PM 69	Sheikh abd el Qurna	XVIII.8	N. de G. Davies, 1963, <i>Scenes From Some Theban Tombs (Nos. 38, 66, 162, With Excerpts From 81)</i> , Oxford, pl. 1.
TT 75	Amenhotep-Sise	1	PM 149	Sheikh abd el Qurna	XVIII.8	N. de G. Davies, 1923, <i>The Tombs of Two Officials of Tutankhamun the Fourth (Nos. 75 and 90)</i> , London, pl. XVI.
TT 76	Tjerenet	4	PM 149	Sheikh abd el Qurna	XVIII.8	W. Wierszski, 1988, <i>Atlas zur altägyptischen Kulturgeschichte</i> , Volume 1, Genéve, Paris, taf. 244.
TT 201	Re	4	PM 304-5	Kholla	XVIII.8	S. Redford & D. Redford, 1994, <i>The Akhetaten Temple Project. Vol. 4: The Tomb of Re/a (TT 201)</i> , Toronto, pls. VII, VIII [B], XIII [A].
TT 77	Haremhob	1	PM 151	Sheikh abd el Qurna	XVIII.8, XVIII.9	See photograph no. 8279.
TT 90	Nebamun	1	PM 184	Sheikh abd el Qurna	XVIII.8-9	N. de G. Davies, 1923, <i>The Tombs of Two Officials of Tutankhamun the Fourth (Nos. 75 and 90)</i> , London, pl. XXXI.
TT 52	Nakht	1	PM 100	Sheikh abd el Qurna	XVIII.9	N. de G. Davies, 1917, <i>The Tomb of Nakht at Thebes</i> , New York, pl. VIII.
TT 110	Amennakht	1	PM 110	Sheikh abd el Qurna	XVIII.9	See photograph no. 8545.
TT 69	Menkhepereseneb	1	PM 139	Sheikh abd el Qurna	XVIII.9	S. Redford, 1994, <i>The Tomb of Menkhepereseneb</i> , London, pl. 4234.
TT E02	Nebamun	3	None	Dra Abu Naga(?)	XVIII.9	R. Parkinson, 2008, <i>The Painted Tomb-Chapel of Nebamun: Masterpieces of Ancient Egyptian Art in the British Museum</i> , Cairo, 109 on 102-3.
TT 152	Kheruef	2	PM 299-300	Assasif	XVIII.10-12	The Epigraphic Survey, 1980, <i>The Tomb of Kheruef</i> , Theban Tomb 192, Chicago, pls. 61, 70.
TT 40	Pahemwia	1	None	Saqqara	XVIII.10-12	M. J. Raven, 2020, <i>The Tombs of Pahemwia and Sethnakht at Saqqara</i> , Leiden, 121 right on 89.
TT 40	Amenhotep	5	PM 75-7	Qurnet Maari	XVIII.12	N. de G. Davies & A. H. Gardiner, 1926, <i>The Tomb of Huy, Viceroy of Nubia in the Reign of Tutankhamun (no. 40)</i> , London, pls. VIII, XXX, XXXI.
LS27	Maya	2	PM 32 662	Saqqara	XVIII.12-4	G. T. Martin, 2012, <i>The Tombs of Maya and Meryt</i> , The Beliefs, Inscriptions, and Commentary, London, pl. 29 [28].
TT 49	Neferhotep	1	PM 91	Kholla	XVIII.13	N. de G. Davies, 1933, <i>The Tomb of Nefer-hotep at Thebes</i> , Volume 1, New York, pl. XX.
Neferere	Neferere	1	PM 32 798	Saqqara	XXXX	Chicago, Field Museum of Natural History cat. no. 31652.

Tab. 1.1: Corpus of cattle with horn deformation from elite tombs in the Theban Necropolis and Saqqara.

Temple Name	No. Cattle	PM	Location	Date	Source Image
Temple of Ramses II	1	PM 6 34	Abydos	XIX.3	S. Iskander & O. Goelet, 2015, The Temple of Ramesses II in Abydos, Volume 1: Wall Scenes, Part 1: Exterior Walls and Courts. Atlanta, pls. 3.1.59-60.
Courtyard of Ramses II; Luxor Temple	1	PM 2 308	Luxor	XIX.3	Schott photograph no. 9215.
Beit el Wali Temple	2	PM 7 23	Aswan	XIX.3	R. Ricke, G. R. Hughes & E. F. Wente, 1967, The Beit el-Wali Temple of Ramesses II. Chicago, pl. 9.

Tab. 1.2: Corpus of cattle with horn deformation from temples in Upper Egypt.

Regarding the examples of horn deformation on offering tables, there are no significant spaces or gaps between the animal heads and the other items on the tables. This could be interpreted as representing an artistic decision to make the placement of the offerings fit together well. However, for one of the heads, located in the tomb of Djeserkare-



Fig. 3: Offering table with two bovine heads. The left head is depicted with asymmetrically shaped horns and the right has symmetrically shaped horns. Traced from Schott photograph no. 5561 by T. Nair.

oneb (TT 38), there is another head adjacent to it with both horns symmetrical and upright, leaving a noticeable gap between it and the food above (Fig. 3). This indicates that allowances were made for space to be available between the offerings, and so heads with deformed horns may not be examples of aesthetic choice, but instead reflect genuine animal husbandry practices.

Purpose of Horn Deformation

Cattle with deformed horns in the above scene types can be divided into two main contexts. Firstly, in scenes of Nubians bringing tribute to Egypt, and secondly within Egypt where cattle are in herds or processions. The captions that accompany these scenes provide no information about the animals with deformed horns. Therefore, bucrania with artificially deformed horns from Kerma and ethnographic studies about Nilotic “cattle cultures” were utilised to aid in interpretations.

Cattle in Nubian Herds

Louis Chaix’s excavations at the Eastern Cemetery at Kerma found that bucrania were placed in rows in front of medium to large tumuli, and they

are generally not included in the smaller burials.¹³ The bucrania came from calves and from adult female and male cattle. Bucrania with deformed horns were specifically placed throughout the rows of bucrania with unmodified horns.¹⁴ Chaix et al. believe these cattle had a special significance because they were physically modified to distinguish them from other cattle, and they were specifically placed amongst the rows of unmodified bucrania.¹⁵ Analyses of a number of these bucrania dating from the Classic Kerma period (1750-1500 BC) determined that the animals were brought from outside of Kerma, suggesting that horn deformation was widely practiced throughout Lower Nubia at this time.¹⁶ The ages and sex of the animals from whom the bucrania came and the large numbers that were placed around the tumuli indicate that they were from multiple herds, with each potentially having at least one animal with deformed horns¹⁷. Chaix parallels the composition of the above herds, including the presence of horn deformation, with the herds of Nilotic “cattle cultures” where they use horn deformation to transform a young bull into a favourite ox (Fig. 4). The concept of favourite oxen is very complex, and in brief it is linked to masculinity and identity, with each man forming a great emotional connection to their animal.¹⁸

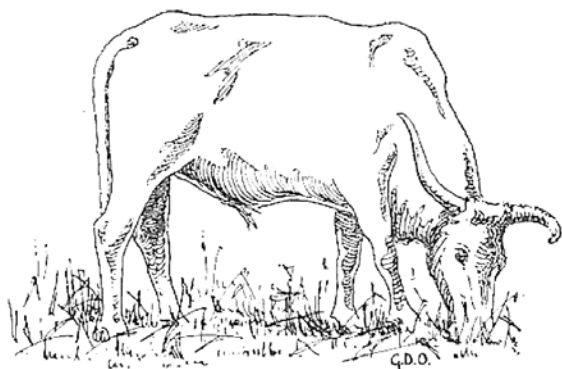


Fig. 4: Nuer favourite ox with asymmetrically shaped horns. Reproduced from C. G. Seligman, 1932. *Egyptian Influence in Negro Africa*, in S. R. K. Glanville (ed.), *Studies Presented to F. Ll Griffith*. London, pl. 74 [g].

¹³ Chaix et al. 2012, 192.

¹⁴ Chaix et al. 2012, 197.

¹⁵ Chaix and Hansen 2003, 272, 274-275; Chaix et al. 2012, 195-196, 208, fig. 8.

¹⁶ Iacumin et al. 2001, 42, 44-45; Thompson et al. 2008, 383, 385.

¹⁷ Chaix et al. 2012, 208.

¹⁸ Hazel 1997, 67-85.

In the current study, three examples were found of Nubians bringing herds of cattle as tribute into Egypt, all of which come from elite Theban tombs (TT 39, TT 78 and TT 100). These may represent family herds as only small numbers of cattle are depicted. However, the surviving captions for these scenes are all similar, providing an overall description, namely, that the Nubians are either bringing tribute to the temple of Amun or to the king. Therefore, based on their intended purpose as tribute, they are likely to represent individual animals chosen specifically for this purpose, rather than one single herd taken from an individual owner. In each example, one or two animals are depicted with deformed horns.

In the tomb of Amenhotep called Huy (TT 40) and in three temple scenes carved during the reign of Ramses II (courtyard of Ramses II at Luxor Temple; Temple of Ramses II at Abydos, and Beit el Wali Temple), procession scenes are depicted showing cattle as tribute or offerings for religious festivals, such as the Opet festival (Fig. 2). Oxen with deformed horns that are labelled as coming from Kush, are included in the procession. It is indicative of the animals' significance that they are shown given as tribute by the Nubians and included in festivals. In addition, part of Egyptian artistic convention was to depict the most recognisable aspects of an object or activity.¹⁹ As only the Nubian oxen in the above temple and tomb scenes are depicted with deformed horns, this may indicate that the Egyptians viewed this practice as Nubian. Due to the similarities between the artistic representations, bucrania and ethnographic parallels, the Nubian cattle depicted with deformed horns may possibly represent favourite oxen similar to that practiced by Nilotic cultures today. Whether these animals had the same emotional significance cannot be determined, but the effort taken to deform their horns suggests strongly that these animals may have held special importance for the Nubians.

Egyptian Cattle with Deformed Horns

Egyptian cattle with deformed horns are represented in nine herding scenes (TT 39, TT 56, TT 76, TT 86, TT 90), TT 145, TT 201, BM EA37976 and LS 27) and six processional scenes (TT 40, TT 78, TT 82, TT 93, TT 100, TT 104). In herding scenes, the number of cattle with deformed horns range from between one (most frequent) and three (least frequent). The small number of oxen with deformed horns parallels the Nubian herds, bucrania and the

¹⁹ Schäfer 2002, 96-104.

ethnographic evidence. These animals may have been favourite oxen as well, but before this is discussed, previous suggestions by scholars will be addressed.

Calvin Schwabe provided two possible explanations for the purpose of horn deformation. Firstly, he proposed that horn modification was associated with cattle cults due to the tombs in which they are depicted being located close to the cult centres of Ptah (Saqqara) and Hathor (Meir and Deir el Bahri).²⁰ The tombs in Schwabe's dataset dating to the Old Kingdom are all located in Saqqara. However, this geographic connection appears to be circumstantial as during that period, Saqqara was the designated burial site for the elites of the central administration. Schwabe applied the same reasoning to the New Kingdom examples. He believed horn deformation was represented because of the Theban necropolis' connection with Hathor, but this site too was the designated burial site for elites working in the central administration. Additionally, the scenes in which the cattle appear have no connection with Hathor.

Secondly, Schwabe believed many of the representations of the cattle with deformed horns came from Nubia and were favourite oxen, such as those by the modern Nilotic Dinka peoples.²¹ Especially in the Eighteenth and Nineteenth Dynasties, Egypt had a very close connection with Nubia as Lower Nubia was under Egyptian control.²² Temples were built at Semna, Kumma, Faras, Kawa, and Abu Simbel, and Nubians were officials in the army. As a result, cattle were entering Egypt through trade and tribute to become part of Egyptian herds, and this included oxen with deformed horns. Consequently, it is more likely that these are the animals represented in tombs.²³ Schwabe's latter interpretation will be further discussed below.

Essam Elsaeed and Hoda Khalifa believe horn deformation was the method used to identify cattle for sacrifice, and the modification of the horn shape resulted in a functional change that prevented fights during mating.²⁴ The presence of an animal with deformed horns in an offering scene in the tomb of Haremheb (TT 78) supports this interpretation. However, this is not the only bovine depicted in an offering scene in the tomb; another ox is shown

²⁰ Schwabe 1984, 154.

²¹ *Ivi*, 153-156.

²² Shaw 2017, 85-87, 122.

²³ Schwabe 1984, 156.

²⁴ Elsaeed and Khalifa 2017, 169.

with unmodified, lyre shaped horns. In addition, out of the 191 horned cattle depicted in processional scenes, only six, including the two Kushite cattle noted above, have deformed horns. If horn deformation was to differentiate cattle to be sacrificed it would be expected that all the horned cattle would have deformed horns in processional scenes. Noura Seada has also put forth the suggestion that horn modification was practiced for identification, but rather, to prove ownership, thus paralleling branding.²⁵

An alternative interpretation is that the cattle may have been favourite oxen for the Egyptians, like those of the Nubians. Herds of Egyptian cattle either belonged to the tomb owner or were in his charge. Presumably, the tomb owner was unlikely to have been involved in the day to day running of his herds. However, due to the importance of cattle in Egyptian society, it is possible that he would have inspected his herds relatively frequently, during which he may have chosen a young bull to have their horn(s) deformed. Some of the cattle with deformed horns are shown in processional scenes in which they are brought as offerings to the tomb owner, and consequently Henri Frankfort noted that their presence could be indicative of their great value to him.²⁶ It is also possible that the "favourite ox" may have belonged to the herdsman in charge of the herd or multiple herdsmen when more than one ox is represented. Herdsmen would have spent a large amount of their time out on the pastures with the cattle.²⁷ This provides an alternative to Frankfort's interpretation that the oxen were selected by the herdsmen to show their respect for the deceased tomb owner.

The Egyptian people were more or less consistently in contact with the region of Nubia from the Predynastic period onwards,²⁸ and artistic evidence shows that they were aware of horn deformation from at least the Old Kingdom period. This suggests the Egyptians were familiar with the Nubian practice of horn deformation for special oxen during this time. If so, then they possibly adopted this custom for their own herds, targeting favourite animals or perhaps those intended for a specific purpose.

Alternatively, as Schwabe suggested, the animals depicted are actually Nubian cattle that have been integrated into Egyptian herds. As discussed

²⁵ Seada 2022, 85. At the time of writing the conference proceedings remains unpublished and the evidence Seada put forth in support of her interpretation remains unknown.

²⁶ Frankfort 1969, 165.

²⁷ Ghoneim 1977, 39; Swinton 2012, 38-39.

²⁸ Schwabe 1984, 155-156; Shaw 2017, 6-7, 20-23, 52-56, 76-77.

above, horn deformation was associated with Nubia, at least by the 18th Dynasty. After Nubian cattle were brought into Egypt as tribute, tax or as prizes from war, it is possible they were assigned to Egyptian herds owned by the king, temples or officials throughout the country.

However, a combination of these interpretations could be correct. *Favourite oxen* may have come from Nubia, while others had their horns deformed within Egypt by the tomb owner or herdsman. It is unlikely, from Egypt's long connection with Nubia, that none had their horns deformed on Egyptian soil.

The Process of Horn Deformation

All the examples that have been found of horn deformation represent adult or yearling cattle. No scenes depict the deformation process nor the tools used to re-shape the horns. However, bucrania with artificially deformed horns from Nubia and ethnographic studies of Nilotic cattle cultures suggest possible methods.

Asymmetrically Shaped Horns

Twelve bucrania with asymmetrically shaped horns were found in Kerma's eastern cemetery (Grave 181, Sector CE19) and two of these date to the Classical II period, which is contemporaneous with the early 18th Dynasty.²⁹ Some of the bucrania from the total corpus have deep incisions on the skull at the horn base.³⁰ Bucrania with the same asymmetrical deformation were also uncovered in the C-Group cemetery (24-E-3) at Faras.³¹ Based on the horn shape, Hall believed this was due to artificial deformation.³² Louis Chaix, who excavated the Kerma bucrania, drew parallels with the current practice of deforming a young bull's horns by Nilotic "cattle cultures", such as the Nuer and Dinka³³. These parallels have also been drawn by other scholars.³⁴

²⁹ Chaix et al. 2012, 193; fig. 2.

³⁰ *Ivi*, 199.

³¹ Hall 1962, 59-60.

³² *Ibid.*

³³ Chaix 2017, 422; Chaix et al. 2012, 199.

³⁴ Brown 1990, 64; Dioli 2018, 6-7; Elsaheed and Khalifa 2017, 170-172; Epstein 1971, 422; Gordon and Schwabe 2004, 86; Schwabe 1984, 147-1556; Seligman 1932, 460-461.

The Nuer, Dinka and Murle deform the horns of their favourite oxen by cutting the horn core with a blade.³⁵ The procedure begins with the selected young bull being thrown and held on the ground using ropes, a man holding his muzzle and another keeping the body steady.³⁶ A specialist then presses a heated spear against the horn base near the skull, softening the sheath. Following this, a white-hot spear cuts deep oblique incisions reaching inside the horn core, damaging the horn-producing tissue, which causes the horn to grow thereafter into the direction of the cut.³⁷ These incisions can be seen in the ancient bucrania.³⁸ Thin streams of blood flow from the incisions, and so bark fibres are wrapped around the horn base to stop the bleeding.³⁹ If the desired angle is not reached the first time, the calf will have to endure more cuts and the removal of thin slices of horn.⁴⁰ Unlike the alternate method,⁴¹ this procedure can be repeated until the desired shape has been reached.

Elsaeed and Khalifa state the Egyptians used a different cutting method, in which the horn was split into two parts in order for the horn to grow backwards,⁴² but unfortunately, they provide no evidence in support of this hypothesis.

Alternatively, the shape of cattle horns can be modified by fracturing the skull at the horn base using a shaped stone. All other Nilotic peoples who practice horn deformation use this method, with the shape of the stone depending on the culture.⁴³ The Pokot use a “ground-stone axe-hammer”, which is carefully fashioned to be the appropriate shape, balance and weight.⁴⁴ Before the skull is fractured, the Pokot smear the axe-hammer with cow dung to ensure the bull remains in good health, eats well, to soften the blow and lessen the pain, and to prevent sorcery.⁴⁵ The efficacy of cow dung is uncertain, but this nonetheless shows the Pokots’ concerns about the animals’ welfare and

³⁵ Chaix et al. 2012, 206.

³⁶ Evans-Pritchard 1937, 230; Schwabe 1984, 145.

³⁷ Chaix et al. 2012, 199; Schwabe 1984, 145.

³⁸ Chaix et al. 2012, 197, fig. 11.

³⁹ Evans-Pritchard 1937, 230.

⁴⁰ Evans-Pritchard 1937, 230.

⁴¹ See below.

⁴² Elsaheed and Khalifa 2017, 170.

⁴³ The Nilotic cultures: Longarim (South Sudan; Kronenberg 1961, 271); Hamar, Bodi, Das-sanetch, Mursi, Nyangaton (Ethiopia; Dioli 2018, 6); Turkana, Pokot (Kenya; Brown 1990, 57-67); Dodoth, Karamojong (Uganda; Thomas 1966 9; Gourlay 1999 91-92).

⁴⁴ Brown 1990, 57-59.

⁴⁵ *Ivi*, 62.

health. An expert uses the stone/axe to pound around the horn bases in the shape of a semi-circle creating fractures.⁴⁶ The horns are then pulled and pushed until a crack is heard, signifying the separation of that side of the horn core from the skull. For asymmetrically shaped horns, the chosen horn is then repositioned to point downward and the other is pushed backward. To bend the other horn backwards, the Pokot notch the horn tip and heat it with a smouldering piece of wood.⁴⁷ Following this, a Grant's gazelle (*Nanger granti*) horn is fitted into the notched horn and used as a lever to push the horn backwards into position. Unlike the other Nilotic cultures, this method can only be performed on adult cattle with fully grown horns. Multiple methods are employed to keep the horn that is bent downward in place. For example, the Turkana notch the horn tip, tying a rope from it to a loop of hide attached to the bull's nose,⁴⁸ while the Hamar cut the forehead of the animal and insert a stick into the wound, whereby a rope is then tied from the stick to the horn.⁴⁹

Health Effects of Horn Deformation

Short-term

The Nilotic horn deformation procedures not only includes the action of cutting the horn or fracturing the skull, but also separating the animal from their herd, throwing them to the ground, and restraint. Cattle are a herd species, living in groups as a form of protection against predators.⁵⁰ Recent studies have shown that cattle form bonds with other animals within their herd and have preferences with whom they graze.⁵¹ After cattle are separated from their herd, this increases the intensity of their reaction to negative stimuli.⁵² When separating cattle, many people are often involved, and shouting can arise when the animals or people are not cooperating. The ears of cattle are sensitive to loud noises, such as shouting, and when they are exposed to it, their stress levels increase and they become fearful.⁵³

⁴⁶ Chaix et al. 2012, 205.

⁴⁷ Brown 1990, 62-63.

⁴⁸ Dioli 2018, 6.

⁴⁹ Chaix et al. 2012, 205-206; Dubosson 2018a, 850-851.

⁵⁰ Doyle and Moran 2015, 40.

⁵¹ Phillips 2002, 102.

⁵² Ivi, 58.

⁵³ Pajor et al. 2000, 98-99; Pajor et al. 2003, 103-104, 106.

Being thrown and bound are not experienced by cattle out in the fields, and when they are confronted with this, they will struggle against the restraints in order to remain upright, causing further fear.⁵⁴ The stress may result in lowered immune function, which can cause cattle to become highly susceptible to illness.⁵⁵

The horns of cattle begin to grow when calves are six to eight months old, and during this time the horn core is connected to the frontal sinus of the skull.⁵⁶ This causes the horns to have blood vessels and nerves. If the Egyptians used a method to deform their cattle horns by fracturing the skull using a stone or axe, this would have caused excruciating pain, blood loss and possibly death.⁵⁷ The subsequent pushing and pulling of the horn to further loosen it would have intensified the suffering. Furthermore, infection can result in the sinuses because they are connected to the horn cores.⁵⁸

The alternative method of cutting the horns and skull using a spear is equally painful.⁵⁹ Cutting the horn(s) to produce deep incisions into the horn's core severs the blood vessels and nerves causing blood loss and severe pain.⁶⁰ Regarding the Nuer, Evans-Pritchard observed that the cuts caused blood to squirt "in a thin stream into the air".⁶¹

Long-term Health Effects

The long-term health effects of horn deformation are the same regardless of the procedure, as they both result in a physical distortion. Horns are very important to cattle, both physically and socially, as they are used for protection, to maintain or increase social standing, for thermoregulation, and for courtship.⁶² Modifying the horn shape will thus affect an ox detrimentally. It changes the way the animal can fight and defend itself, which could result in greater risk of injury. When horned cattle fight, their horns usually lock together, which results in a pushing contest, in which there is less chance of

⁵⁴ Grandin and Deesing 2008, 12-13.

⁵⁵ Grandin 2015, 70.

⁵⁶ Beattie 1992, 65; Knierim et al. 2015, 30.

⁵⁷ Chaix et al. 2012, 202; Windig et al. 2015, 1.

⁵⁸ Windig et al. 2015, 1.

⁵⁹ Although for an alternative view, see Elsaeed and Khalifa 2017, 170.

⁶⁰ Pritchard 1940, 38; Schwabe 1984, 145; Knierim et al. 2015, 30.

⁶¹ Evans-Pritchard 1937, 230.

⁶² Li et al. 2011, 179, 182.

physical damage than with goring.⁶³ Also, pressure applied to the horns causes pain, thus potentially lessening the length of the fight.⁶⁴ Animals with deformed horns cannot lock them, which can result in more injuries and an increase in their severity.

Cattle with horns are usually dominant over hornless cattle. In a herd of horned cattle, an animal having a different shape, such as asymmetrical horns, may affect the animal's place in the herd's hierarchy.⁶⁵ When cattle produce a threat display, they arch their back, lower their head and turn one side of their body to face the perceived threat. The different horn shape may impact the reading of a threat display as the signals would appear different, especially with asymmetrical horns.⁶⁶ This may result in more physical interactions. Consequently, all of these factors could potentially have a negative impact on an ox's ability to maintain dominant relationships within the herd.

In addition, cattle use horns for self-grooming and so changing a horn's shape can cause discomfort and a loss of health if they are no longer able to groom themselves effectively.⁶⁷

Finally, there is a growing number of studies suggesting that horns are used by cattle as a thermoregulatory mechanism.⁶⁸ Asymmetrically deformed horns may reduce the effectiveness of the horn's ability to reduce water loss due to its abnormal orientation.

Conclusion

Bucrania from Kerma's Middle and Classical periods and ethnographic studies of Nilotic practices reveal two horn deformation methods, both of which are very painful for the animals involved. If similar procedures were employed by the ancient Egyptians, then tentative speculation about their attitude to animal welfare may be possible.

If a spear was used to cut the horn and the skull at the horn base there would have been a large amount of blood. The Nuer acknowledge this and compare horn deformation to the initiation into manhood, which all boys

⁶³ Knierim et al. 2015, 30.

⁶⁴ Beattie 1992, 67.

⁶⁵ Bouissou 1972, 476; Grandin and Deesing 2008, 29.

⁶⁶ Windig et al. 2015, 2.

⁶⁷ Knierim et al. 2015, 31; Broom and Fraser 2015, 103.

⁶⁸ Summarised in Knierim et al. 2015, 31-32.

must undertake.⁶⁹ During the initiation, a boy will have six horizontal lines cut on his forehead to the bone causing blood to stream down his face. If the Egyptians used a cutting method, they will have seen that blood flowed from the horns when they were making the incisions.

Alternatively, if, a stone or stone axe was used to fracture the skull at the horn base, it too would have been extremely painful for the bull. The Hamar and Pokot acknowledge the pain of the procedure, which they attempt to lessen by placing cow dung on the axe to reduce the blow's force and when the procedure is finished they cover the horn in dung to ease the pain.⁷⁰ If the Egyptians used a similar method, the sound of the horn separating from the skull would have been heard by those present. They would have understood that fracturing the skull was painful due to the injuries sustained from herding cattle on pasture.⁷¹ Furthermore, similar types of injuries were sustained by those engaged in military campaigns throughout Egypt's history. It was not until the New Kingdom that the country held a large standing professional army, and so it is likely that herdsman were included amongst the men called up for military service.⁷²

The amount of pain the Egyptians were aware of regarding their cattle would have depended on the reaction of the animals. However, some individuals may not have expressed the physical symptoms of pain, such as changed behaviour or vocalising.⁷³ Cattle view humans as predators because we have forward-facing eyes like other predators, such as wolves and lions, and so showing any signs of injury or pain can be disadvantageous as it can result in them attracting the attention of, and becoming a target for, predators.⁷⁴ If their animals suppressed their pain and showed no visible signs during or after the deformation procedure, the physical discomfort caused by the process may not have been realised. Under these circumstances, the Egyptians would not have been aware that the cattle were suffering and thus know the procedure was severely affecting the animals' welfare.

If the animal became ill or died as a result immediately after the deformation, the Egyptians may have discerned that it was a direct result of the

⁶⁹ Evans-Pritchard 1940, 38, 249.

⁷⁰ Brown 1990, 62; Dubosson 2018a, 851.

⁷¹ Kanawati and Evans 2014, 49; pl. 130 [d].

⁷² Shaw 1991, 25-26; Shaw 2017, 14.

⁷³ Phillips, 2002, 58-59; Stafford and Mellor 2015, 98.

⁷⁴ Broom and Fraser 2015, 88.

modification, but, if the illness or death came months after, the correlation will not have been recognised.

Equally, herdsmen may not have recognised the social effects of horn deformation, that is, the potential loss of social standing caused by the change in horn shape. They may have observed this occurring, but it is unlikely that they will have understood its cause or psychological effects.

A reduction in the animals' ability to fight may not have been viewed as a negative consequence, as it will have decreased the risk of injury for the herdsmen. Deformed horns may also have lessened an ox's ability to protect itself from wild animals. However, due to the near constant presence of herdsmen when the herds were driven to pasture,⁷⁵ the vulnerability of such animals would have been unchanged.

If, like the Pokot and Hamar, the Egyptians attempted to reduce the pain felt by their cattle by applying dung, it would suggest that the animals' welfare was considered during the deformation procedure. However, such a treatment would only have provided a small amount of pain relief, if at all, but it still attests to a concern for their animals. The importance of the modification appears to have been deemed essential and more important than the pain inflicted on the cattle, suggesting, that the Egyptians chose their own interests over the welfare of their animals. As the Egyptians had great knowledge of cattle, it suggests this decision was an educated one, similar to that of Nilotic tribes, where the practitioners are aware of the pain that horn deformation causes to their cattle, but they still choose to practice it.

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⁷⁵ Brewer et al. 1994, 86.

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Wrapping it Up

Animal Mummy Studies in 2022

Salima Ikram

The significance of animals in the lives, both practical and spiritual, has long been established in Egyptological studies. The most striking roles that animals played in Egyptian religion was in the animal cults that flourished during the twilight of Egyptian history, finally ending during the Roman domination with the advent of Christianity. In these cults an animal was worshipped as a physical manifestation of a god, such as the Apis Bull of Ptah, that was mummified upon its death and buried with great pomp and splendour. Offerings to the gods also took the form of their totemic creature, when an animal was sacrificed, mummified, and given as a votive offering to a god, and finally interred in a tomb of catacomb associated with the cult; thus, ibises were given to Thoth and cats to Bastet. These number in the millions and are found in animal cemeteries spread throughout the Nile Valley and the oases of the Western Desert.¹

Animal mummies have had a chequered career when it comes to their role within Egyptology and the history of collecting. They have been used as fertilizer, fuel, ballast, as well as curiosities to be collected, displayed, and sometimes disposed of summarily.² Antiquarian and Egyptological interest in animal mummies was limited and sporadic, though quite early on Pettigrew made an initial study of animal cults.³ On the whole, animal mummies were collected more as curiosities than as objects that could yield significant information about Egyptian religion, environment, trade, and economy.⁴ The first serious interest expressed in animal mummies, aside from examining them as examples of mummification⁵ and subjecting them to early tests in radiography,⁶ was by naturalists. This started with Étienne Geoffroy Saint-Hilaire

¹ Kessler, 1986; Ikram 2015a, xvii-xx.

² *Daily Graphic*, 12 February 1890; *Punch*, 15 February 1890; Malek 1993; McKnight and Ather-ton-Woolham 2015; Ikram 2019.

³ Pettigrew 1834.

⁴ Ikram 2019; Barber 2019.

⁵ Pettigrew 1834.

⁶ Koenig 1896.

(1772-1844), whose pioneering work in the 19th century on the morphology of mummified crocodiles,⁷ the results of which were largely rejected at the time, has led to new discoveries regarding ancient Egyptian fauna in the 21st century, using DNA analysis.⁸ Naturalists continued to be the driving force in the collection and study of animal mummies from the late 19th to the early 20th century.⁹ It was not until the late 1970s/early 1980s, with the Egypt Exploration Society's work at the Animal Catacombs in North Saqqara, and the work of Dieter Kessler in Tuna el-Gebel, that Egyptologists took an interest in animal mummies, many with considerable reluctance, preferring to focus on the architecture and texts associated with the deposits, rather than the animals themselves, with Kessler's being a notable exception as his team regularly included archaeozoologists.¹⁰ After another hiatus, interest in animal mummies and their associated cults was sparked by the work of Alain Charron and this author. The work of the Animal Mummy Project (AMP) in Cairo, directed by Nasry Iskander and this author, in addition to increasing scholarly interest in the topic, also engaged public interest due to the television documentaries that it inspired. One scholarly result of the AMP was the classification of animal mummy types, which were further refined over time (pets, food, sacred, votive, 'guardian', 'amuletic', amalgam/fake/false, and 'other').¹¹ The publications resulting from the AMP together with media interest, served as an impetus for more scholarly work on animal mummies to be carried out in Egypt as well as abroad. In addition, it has generated several exhibitions on animal mummies, as well as conferences,¹² including the one sponsoring this volume, which is in its third iteration, and others that focus on a specific family or order, the most recent of which (at the time of writing) is the Primates in Archaeology conference held in Konstanz in 2023.

Clearly, animal mummies are now more closely situated in the mainstream of Egyptology, as well as being the subject of increasing archaeozoological research as well as the types of analyses associated with general mummy studies. Two main sources of evidence are responsible for altering and expanding our views on animal mummies: museum research as well as

⁷ Geoffroy Saint-Hilaire 1807.

⁸ Hekkala et al. 2011; Heakkala et al. 2020; Hekkala et al. 2022; Ikram 2019; 2020.

⁹ Nicoletti and Postel 1994; Ikram and Helmi 2002; McKnight and Atherton-Woolham 2015; Ikram 2019.

¹⁰ See Ikram 2019 for an overview of relevant publications.

¹¹ Ikram 2019.

¹² See Ikram 2019 for an overview.

excavations of animal mummy deposits. In the case of the former, case studies from museum collections where single (or small groups) of animal mummies are examined radiologically and often archaeometrically for dating, DNA, and mummification materials, remain significant as they add to the corpus and general information about animal mummies. The large-scale interdisciplinary studies of animal mummies, such as those at the Museo Egizio in Turin, the Musée des Confluences in Lyon,¹³ and the British Museum in London that incorporate imaging, dating, textile and dye analysis, and the identification of mummification materials to create a broader diachronic, geographic, and species understanding of animal mummies, as well as establishing standard descriptions for the bandaging.

Excavations that are yielding fresh, provenanced and well-documented materials that can be used for a variety of studies relating to animal mummies are key to furthering our understanding of animal cults as many of the mummies in museum collections are unprovenanced. On a basic level, the raw data gathered from fresh excavations in terms of species, minimum numbers of individuals, age ranges, and state of health provide a deeper understanding of the relationship between humans and other animals, particular in terms of animal husbandry, veterinary knowledge, and Egyptian belief systems. For example, at Quesna, raptor and shrew mummies are providing a greater insight into the attributes of the god Horus Khenti-Kheti, as well as the working of the temple through the number of seal impressions found at doorways, in addition to mummification technology and materials.¹⁴ At Saqqara, in the vicinity of Pepi I's pyramid, a new deposit of cattle mummies is adding to our knowledge of the different cults celebrated there, their location, and the animals used in these,¹⁵ while the Bubasteion excavations have yielded lions in addition to other felines,¹⁶ raising further questions about the acquisition, care and use of wild animals in these cults. A rich deposit of fish mummies from Oxyrhynchus has helped to clarify the fish cult there as well as provenance hitherto unprovenanced fish mummies in museums.¹⁷ Work at Sheikh Fadl, under the direction of Christiana Köhler is revealing more about the canine

¹³ For example, Richardin et al. 2017; Porcier et al. 2019; Linglin et al; Bailleul-LeSuer 2019; Bondetti et al. 2019.

¹⁴ Rowland et al. 2013; personal observation.

¹⁵ Charron et al. 2022.

¹⁶ Waziry 2023.

¹⁷ Van Neer and Gonzalez 2019.

cult there, and a wide range of data continues to be gathered from Tuna el-Gebel. At Abydos, in the temple enclosure of Rameses II, Sameh Iskander and his team have uncovered a large deposit of rams (Fig. 1), sheep, cattle, dogs, and goats that is raising questions about the different cults that flourished at the site, the length of time that they were active, and the cemeteries associated with them;¹⁸ in addition, a new canine cemetery associated with the Senusert III burial complex has been found by J. Wegner and his team.¹⁹ At Luxor's west bank in Dra Abu el-Naga a Ptolemaic period cemetery of ibises, raptors, shrews, and snakes has been documented, together with some of the texts relating to the working and history of the cult,²⁰ as well as a rare 17th Dynasty ram burial²¹ that extends animal burials in this area further back chronologically.



Fig. 1: Some of the rams found at Abydos excavated by the team of Sameh Iskander in the area of the Ramesses II temple, photo Salima Ikram.

¹⁸ S. Iskander, personal communication and this author's examination of these.

¹⁹ J. Wegner, personal communication.

²⁰ Di Cerbo and Jasnow 2021; Bosch-Pusche and Ikram 2021; Ikram and Spitzer 2022.

²¹ Brink et al. 2021.

Although not technically mummified, the deposits of different animals at Hierakonpolis have led to a greater understanding of Egyptian fauna and the trade of exotic animals in the Predynastic era,²² as have those found in the Red Sea port at Berenike, that date to the Ptolemaic era, the other end of the Egyptian historical spectrum.²³ A large deposit of crocodiles at Kubbet el-Hawa²⁴ has led to the idea of a variety of cult activities in the area in the later periods of Egyptian history, as well as augmented the earlier morphometric²⁵ and DNA work of identifying different species of crocodile in the Nile that were used in the animal cults.²⁶

Furthermore, the remains of mummified animals are serving as proxies for understanding environmental and climatic change in Egypt. This is true particularly small mammals, such as shrews,²⁷ which are now almost unknown in Upper Egypt. This construct might be applied to other species.

In addition to the traditional technologies applied to the study of mummies (imaging, Gas Chromatography Mass Spectrometry, Fourier transform infrared spectroscopy, aDNA, experimental work), proteomics as well as stable isotope analysis are being used to extract more information from these artefacts, particularly in terms of understanding the sourcing (sometimes international) and rearing of the animals.²⁸ Despite all the information that one can derive through archaeometry, as demonstrated on examples from museum collections, it remains challenging to carry out sampling within Egypt due to political issues, which unfortunately impedes the discipline. It is hoped that in the future years these policies change—certainly efforts are being made in this direction by the Ministry of Tourism and Antiquities.

As work on animal mummies continues some questions remain that should be in the forefront of our examination of these artefacts. One of these is the dating of the mummies in order to establish the duration of time that an animal necropolis was active and the diachronic range of this practice as this still remains a matter of speculation; thus, more large-scale radiocarbon efforts are required to address it. A fresh avenue of inquiry associated with the

²² For the most complete bibliography, please see the website for the mission (<http://www.hierakonpolis-online.org/index.php/join-us-now>).

²³ Osypiński and Osypińska 2019; Osypińska et al. 2020.

²⁴ De Cupere et al. 2023.

²⁵ Geoffroy Saint-Hilaire 1807.

²⁶ Hekkala et al. 2011; Hekkala et al. 2020; Hekkala et al. 2022.

²⁷ Woodman et al. 2021; Woodman et al. 2022; Woodman and Ikram 2021.

²⁸ Dominy et al. 2020; Linglin et al. 2020.

mummies is the question of zoonotic diseases that might be identified by analysing the mummies. Another question involves the mechanism of the working of the cult and those who were involved in it. This includes issues of acquiring and caring for the animals, with some information about this being gathered from the mummies themselves²⁹ as well as from texts.³⁰ The question of who was consecrating the mummies and who were the priests/officiants of the cult, which is elucidated largely through texts, also remains in need of further clarification. Some texts from the demotic corpus have been published,³¹ and it is hoped that remaining ones soon see the light of day and that more are found in recent excavations as these contribute significantly to our understanding of cult practices. The methods and materials used in the mummification of the animals are varied, and all of these need to be better catalogued. Such studies will contribute to establishing if the different materials and/or techniques depend on whether the animals have fur, feathers, fins, or scales, or if they are economic choices or ones depending on geographic location, specific ateliers, or related to specific time periods. Thus, while great advances are being made in animal mummy studies, many questions must still be answered in order to fill in the lacunae regarding Egyptian religion, mummification, economy, trade, and the changing environment.

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²⁹ Porcier et al. 2019; Linglin et al. 2020.

³⁰ Ray 1976 remaining a classic.

³¹ Preisigke and Spiegelberg 1914; Hughes 1958; Ray 1976; Thissen 1991; Nur el-Din 1992; Vittman 1995; Martin and Smith 2010; Smith et al. 2011; Ray 2011; 2013; El-Sayed 2019.

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Mythical Animals of Kush

Remarks on the Imaginary Creatures and Religion in Kerma

Andrea Manzo

Introduction

The site of Kerma in Upper Nubia, 60 Kms upstream of the Third Cataract of the Nile (Fig. 1), gave its name to a culture active roughly between the mid-3rd and the mid-2nd millennium BC. Moreover, the region of Kerma represented the core area of a complex hierarchical social organization which from ca. 2000 BC was labelled as Kush in the Egyptian textual sources.¹ This hierarchical society, which from a certain point onward was certainly a state, was a partner and a competitor of Egypt on the Middle Nile for almost 1000 years.² The characteristics of the Kerma/Kush state have recently been discussed³ showing that we may have a case of an African



Fig. 1: Location of Kerma and of the regions and sites mentioned in the text.

¹ Török 2009, 86-87.

² Ivi, 64-156.

³ See e.g., Emberling 2014.

“path to complexity” here, as those described for later phases by Susan Keech McIntosh.⁴ Among the features that often characterize these complex African societies are the light bureaucratic apparatus and the limited adoption of writing technologies. In the case of Kerma, king Kamose’s (c. 1550 BC) stela, erected at Karnak temple, mentions despatches sent to the ruler of Kush that suggests that letters in Egyptian were read (and likely written) in the royal court of Kush within the framework of diplomatic relations.⁵ However, the presence of inscribed Egyptian objects in Classic Kerma funerary assemblages cannot be regarded as definitive proof that access to Egyptian texts was widespread among the Kerma/Kush elite, as has sometimes been suggested.⁶ Nevertheless, an admittedly extremely limited number of other texts, which are always related to and presumably written on behalf of the Kushite rulers, are known.⁷ These other texts confirm that Egyptian texts were produced in Kush. Therefore, their limited number can only be explained by the limits of our present knowledge, with other texts still awaiting to be discovered, or, indeed, by the specific features of the Kerma/Kush state.

Be that as it may, the almost complete lack of textual sources largely compromises our possibility of reconstructing several aspects of the Kerma culture and religion is certainly one of these. As a consequence of this, the contribution of religious studies on Kerma/Kush to an understanding of the later Kushite Napatan and Meroitic religion is very limited, the reconstruction of the religion(s) of the regions South of the First Cataract before the Egyptian conquest being almost completely based only on indirect evidence from Egyptian sources, moreover those that mostly focus on Lower Nubia.⁸ At the same time, the lack of textual sources increases the potential that an archaeological and iconographic approach can have for the study of the religion of Kerma/Kush.⁹

⁴ McIntosh 1999.

⁵ Török 2009, 112-113; Cooper 2018, 154.

⁶ Cooper 2018, 149.

⁷ *Ivi*, 144.

⁸ See e.g., Almansa-Villatoro 2018, 170, 175-180, 185-186; see also Kuckertz and Lohwasser 2016, 26-27.

⁹ Kendall 1997, 76; Manzo 2008, 169; *id.* 2011, 209; Török 2009, 140.

The Study of the religion of Kerma/Kush

Despite the paucity of textual evidence, insights into the religion of Kerma/Kush can be obtained from monuments and material culture.¹⁰ The architectural features of the sacred buildings at Kerma provide evidence, as do the decorative programs characterizing some of them. For example, it has been pointed out that the functional role of the terrace on top of several Kerma chapels and temples may suggest that the religion of Kerma/Kush had sky and perhaps more specifically solar connotations, as is also possibly supported by the adoption of the winged sun disc as the decoration of the lintel of chapel KII and of the vault of the funerary chamber of tumulus KIII.¹¹ This may be also confirmed by the adoption of the pylon, which at least in Egypt had a solar symbolism, yet in Kerma its addition served to monumentalize the entrances of the main Classic Kerma religious buildings.¹²

A crucial contribution to the study of the religion of Kerma/Kush in archaeological terms is the research conducted by Charles Bonnet in the Eastern Cemetery at Kerma. In this area of the site, he extensively excavated a large mud brick structure, labelled KXI by Reisner, which turned out to be a royal funerary chapel dating to Classic Kerma times (ca. 1750-1550 BC).¹³ As perhaps also Chapel KII, Chapel KXI featured a complex painted decorative program, which was discovered by George Andrew Reisner.¹⁴ However, these decorations were largely overlooked by the American archaeologist.¹⁵ A large part of the decorative program consists of representations of animals.¹⁶ Although no imaginary creatures occur amongst these, it will be referred to many times in this article for the purposes of comparing and for contextualizing the representations of imaginary creatures from other Kerma assemblages roughly dating to the same period. The decorative program of KXI is of further importance because its study undertaken by Bonnet and Török certainly represents a starting point in the use of an iconographic approach towards the

¹⁰ Howley 2017, 220-221.

¹¹ Reisner 1923a, 136; Bonnet ed. 1990, 89; Kendall 1997, 23, 46, 65, 77-78; Bonnet 2000, 111-112, 120, 132, figs. 86, 87, 139; *id.* 2004, 65, 152, 160; Manzo 2008, 11-12; see also Török 2009, 155; Minor 2014, 228-229, 231; Howley 2017, 221; Cooper 2018, 148-149.

¹² Manzo 2008, 174-175.

¹³ Bonnet 2000, 54-102, see also *id.* 2004, 157.

¹⁴ Reisner 1923a, 265-271.

¹⁵ Bonnet 2000, 12, 65.

¹⁶ *Ivi*, 65-94.

aim of providing insights into the religion and, broadly speaking, ideology of Kerma/Kush.¹⁷

In KXI both domesticated and wild animals, such as cattle, hippopotamuses, giraffes, fish, birds and a crocodile are represented in ordered rows as well as components of more complex scenes. Indeed, the ordered rows of animals in these representations recall aspects of Egyptian Pre- and Proto-dynastic art in terms of their general organization.¹⁸ Moreover, they also show parallels with the decorative programs of the 5th Dynasty Solar Temple of Niuserra at Abu Gurob, the 6th Dynasty funerary temples and the 11th Dynasty Chapel of Neferu in the Temple of Mentuhotep II at Deir el-Bahari.¹⁹ It has therefore been suggested that they may refer to the capability of the ruler of Kush to dominate the chaotic forces of nature, which are embodied by the animals themselves, but also to guarantee thanks to the god(s) the ordered alternation of the seasonal cycles. Different, but not necessarily alternative, hypotheses can also be proposed: these representations may serve the further function of indicating the real, pretended or merely symbolic control of the ruler over the different territories symbolized by the animals that lived therein.²⁰ Indeed, the rows of cattle may also refer to the fact that the power of the ruler may be represented in this specific social context in terms of his control of a large number of cattle, which is reflected in the hundreds of skulls of cattle, possibly sacrificed during funerary rituals, arranged around the tumuli of the high-ranking people at Kerma.²¹

A further feature of Kerman art that is possibly related to religion is clearly represented by the rows of wild animals on the foot boards of the beds sometimes found in graves of the Classic period at Kerma, by the mica ornaments originally decorating caps and possibly other garments, and by the large-sized *faïence* sculptures and plaques from the same funerary contexts.²² In particular, many have remarked that the ivory inlays and the mica ornaments are related to religion in several iconographic and stylistic features.²³ Moreover, these representations also recall the rows of animals found on the decorations

¹⁷ Bonnet 2000, 95-102; Török 2009, 144-151.

¹⁸ Bonnet 2000, 76.

¹⁹ *Ivi*, 101-102.

²⁰ *Ivi*, 95-96.

²¹ *Ivi*, 142.

²² Reisner 1923b, 265-280; Bonnet 2004, 157; see also Wenig 1978, 38; Manzo 2011, 210; Howley 2017, 221.

²³ Reisner 1923b, 272-273; Wenig 1978, 36; Wildung ed. 1997, 102; Manzo 2011, 210.

in funerary chapels KII and KXI,²⁴ and their interpretations may be the same proposed for the decorative programs of the funerary chapels.²⁵ Indeed, when considering the nature of the monuments and the objects characterized by these decorations and the general contexts where the objects with these decorations were discovered, it is highly likely that the decorations had a religious meaning.

It has been argued that in Classic Kerma times both the architectural and the iconographic expressions of the Kerman/Kushite religion may have featured local traits and elements of Egyptian origin, without excluding the contribution of other traditions from African regions further to the south, east, and west of Upper Nubia, that are unfortunately still very poorly known.²⁶ Moreover, when considering the large number of representations of animals in the art of Kerma, it has also been suggested that the gods of Kush may have been related to animals or animal hypostases.²⁷ In the case of some Egyptian-like figurative elements, like the so-called Taweret, they may be more related to the popular Egyptian religion rather than to the official one, as I have suggested elsewhere.²⁸ Nevertheless, this remark should certainly be reconsidered in the light of recent reassessments of classes of materials like birth tusks.²⁹ Indeed, elements, such as the so-called Taweret depicted on the birth tusks, have traditionally been regarded as expressions of popular religious practices, but Quirke has recently demonstrated how they expressed concepts and beliefs that are also widely found in the Egyptian elite sphere, as shown by the study of the contexts where the birth tusks were found.³⁰ Finally, some specific representations and the overall compositional pattern itself, which consists of several parallel ordered rows of animals, may be deeply rooted in the traditions of the Nile valley, as they already occur at the very end of the 4th-very beginning of the 3rd millennium BC.³¹

²⁴ Bonnet ed. 1990, 89.

²⁵ Manzo 2011, 216.

²⁶ Bonnet ed. 1990, 89, 91; *id.* 2004, 157, 171; Manzo 2008, 174-176, 2011, 213-214; see also Reisner 1923b, 5, 18; Wenig 1978, 31, 35-36.

²⁷ Bonnet 2004, 157-158, 160.

²⁸ Manzo 2011, 214.

²⁹ This term has recently been proposed for the objects which have traditionally been labelled as "magic wands", see Quirke 2016. It is adopted in this article because I think it is more suitable than the more traditional label.

³⁰ Quirke 2016, 9, 573.

³¹ Török 2009, 150-151; Manzo 2011, 214-215.

In this general context, a very specific group of representations that decorate the burial beds and the caps of the Classic Kerma period are what we can call imaginary or fantastical creatures that do not exist in nature.³² This study will provide an in-depth discussion of these creatures and aims to show through an analysis of their various types that they have much to contribute to an understanding of the ideology of Kerma/Kush.

Imaginary creatures in Kerma art

‘Imaginary creatures’ are animals that do not exist in nature and are often amalgams of different animals or animals that are multi-headed. These are most probably related to myths and religion. The various types of representations of imaginary creatures from Kerma, together with their dates and the contexts where they were found, appear in Tab. 1.

The majority of imaginary creatures appear on footboards of funerary beds. These were decorated on the inside, toward the bed’s occupant, with only a couple of exceptions in which the decoration occurs both inside and outside.³³ Reisner had already stressed that these figurative inlays only occur in the burials of the Kerman elite, while geometric inlays are more widely distributed.³⁴ Another location for such images is on leather caps, a typically Nubian craft that is unparalleled in Egypt, featuring representations, made of mica.³⁵ These caps also may have been painted as some of the mica representations show traces of colour.³⁶ A further venue for the appearance of imaginary animals is as amulet-beads³⁷ from funerary assemblages in the Classic Kerma sector of the cemetery at Kerma.³⁸ In addition, the ram-headed lion statue is part of a series of zoomorphic statues decorating the royal funerary complex KIII.³⁹ Imaginary creatures also decorate more mundane objects: an anthropomorphic cow decorates a stone potter’s comb, which may have been

³² Manzo 2011, 210-211.

³³ Reisner 1923b, 266, 269; see also Wenig 1978, 35.

³⁴ Reisner 1923b, 266.

³⁵ *Ivi*, 19, 272; see also Bonnet ed, 1990, 219.

³⁶ Bonnet (ed.), 1990, 218.

³⁷ These are beads whose shape suggests that they may have also had the function of amulets, which are a typical feature of the Kerma culture.

³⁸ D’Itria forthcoming.

³⁹ Reisner 1923a, 139-140; *id.* 1923b, 51; Bonnet 2000, 137.

Type	Objects and material	Contexts	Date	Reference
Anthropomorphic hippopotamus	Ivory inlays from beds	Tumulus K III: KIII 1, KIII 2, K309, 34; K439, S bed, body B and N bed, body A; K449, at the foot of the bed; Tumulus K X: KX B, in the filling to the north of east end; K1001: x; K1053, 1, on the bed; K1056, x; K1065, x	Classic Kerma (1750-1550 BC)	Reisner 1923b, 268-270, Pl. 54, 4, Pl. 55, 1, 4, Pl. 55, 2, Pl. 56, 2
	Mica decorations of caps and perhaps other garments	Cemetery K B: K B 4, surface; K B 15, x	Classic Kerma (1750-1550 BC)	Reisner 1923b, 280, Pl. 57, 2, nos 5, 6, 7
	Amulet beads	Tumulus K III: K311, 320, 338, 339; Tumulus K IV: K444, 453; Tumulus K X: KX, B; K 1098; KXV, x and debris in the west; Tumulus K XVI: KXVI, C; K1604	Classic Kerma (1750-1550 BC)	Reisner 1923b, 125, Pl. 43, 2
	Potter's comb	Southern sector of the settlement	Middle Kerma (2050-1750 BC)	Bonnet ed. 1990, 89, Fig. 92, 155, no. 34
Anthropomorphic cow				
Winged giraffe	Ivory inlays from beds	Tumulus K III: KIII 1, KIII 2, K309, 34	Classic Kerma (1750-1550 BC)	Reisner 1923b, 268-269, Pl. 55, 2
	Mica decorations of caps and perhaps other garments	Tumulus K IV: K435, 14; K451, x	Classic Kerma (1750-1550 BC)	Reisner 1923b, 277, Pl. 60, 2
Two-headed bird	Mica decorations of caps and perhaps other garments	Tumulus K IV: K451, x; Tumulus K XIV: KXIV, xi	Classic Kerma (1750-1550 BC)	Reisner 1923b, 277, 279, Pl. 59, 2, Pl. 60, 1
Ram-headed lion	Faïence/quartz statue	Tumulus K III: KIII comp. 4/3 and comp. 17/3	Classic Kerma (1750-1550 BC)	Reisner 1923b, 51, Pl. 37, 3-4
Multi-headed lion	Mica decorations of caps and perhaps other garments	Tumulus K IV: KIV A debris in entrance; Tumulus K X: K1044, 8, beside the skull of A	Classic Kerma (1750-1550 BC)	Reisner 1923b, 278-279, Pl. 56, 4

Tab. 1

a tool used in everyday life, as its specific findspot within the settlement at Kerma also suggests.⁴⁰

It is noteworthy that, with exception of the potter's comb, all objects decorated with imaginary animals are found in funerary contexts. Many of the objects with representations of imaginary creatures, such as the caps and possibly the other garments, the beds, and the necklaces comprised of amulet-beads, should be considered as grave goods, despite some of them, such as the beds,⁴¹ showing occasional traces of wear.

The diverse types of imaginary creatures recorded at Kerma are discussed in the following sections.

The anthropomorphic hippopotamus

The first and most common of the imaginary creatures is a hippopotamus with a standing human body, legs, hands holding a knife, and breasts, the latter of which clearly shows that we are dealing with a female creature (Fig. 1 a).⁴² It should be stressed that this anthropomorphic hippopotamus is sometimes depicted wearing a long skirt of local design, which is found in association with women at Kerma and C-Group contexts,⁴³ thereby confirming the female gender of the imaginary creature (Figs. 1 b & c). The anthropomorphic hippopotamus is also occasionally depicted with a kind of crest that ends with a tail on the back, perhaps intended to resemble that of a crocodile (Fig. 1 a). Moreover, some examples have long and thick arms, which are most likely to have been wings (Fig. 1 c).⁴⁴ This composite creature is found on both the decoration of the beds and the caps and it is also a common amulet-bead.⁴⁵ All these date to Classic Kerma times (ca. 1750-1550 BC).

As far as the animal components of this creature are concerned, the hippopotamus is a very common subject in the art of Kerma. It occurs widely in the decorative program of chapel XXI, as clay statuettes, and on *faïence* tiles from funerary chapel KII, as well as *faïence* statuettes, very likely imported from

⁴⁰ Bonnet (ed.) 1990, 155, no. 34.

⁴¹ Bonnet (ed.) 1990, 225; *id.* 2000, 107.

⁴² See also Wenig 1978, 146-147, no. 45-46.

⁴³ Reisner 1923b, 19; see also Wenig 1978, 25, Fig. 5; Bonnet ed. 1990, 217; Kendall 1997, 58; Howley 2017, 221.

⁴⁴ Bonnet (ed.) 1990, 217; see also Howley 2017, 221.

⁴⁵ Reisner 1923b, 125; see also Bonnet (ed.) 1990, 89; D'Itria forthcoming.

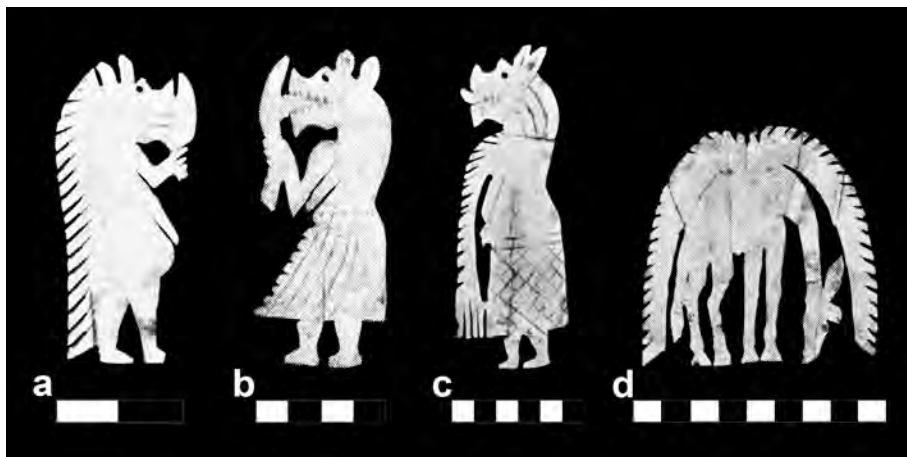


Fig. 2: a) Ivory inlay representing an anthropomorphic hippopotamus (Reisner 1923b, Pl. 55, 1, 4); b) Ivory inlay representing an anthropomorphic hippopotamus with skirt (Reisner 1923b, pl. 56, 2); c) Ivory inlay representing a winged anthropomorphic hippopotamus (Reisner 1923b, Pl. 55, 2); d) Ivory inlay representing a winged giraffe (Reisner 1923b, Pl. 55, 2).

Egypt.⁴⁶ Moreover, amulets in the form of hippopotami are common in Kerma material culture.⁴⁷ Hippopotami are obviously associated with water, and it is very likely that hippopotami had a significance related to prosperity, and fertility. This may be confirmed by the breasts that are sometimes depicted on the composite creature. Nevertheless, the hippopotamus also has a protective attitude for its calves and is an animal that can be aggressive. This characteristic may have held a further protective connotation for this composite creature, also when we recall the fact that it is sometimes represented with a knife in its hands (Figs. 1 a & b).

From the very beginning, this creature was very often labelled «Taweret» in publications on the Kerma culture.⁴⁸ It is impossible to know what this composite creature was called in Kerma, thus I prefer not to use the name Taweret. Nevertheless, the iconographic similarity the creature discussed here has to the imagery of the Egyptian Taweret, the patron of fertility and protector of pregnancy and childhood, is evident and also the function of the Kerma

⁴⁶ Reisner 1923b, 47, 128, Pl. 43, 2, Pl. 44, 2, 173; Bonnet (ed.) 1990, 89, 167, no. 83, 209, 212, no. 260; *id.* 2000, 72-76, 97-98; Chaix 2000, 164.

⁴⁷ D'Itria forthcoming.

⁴⁸ See e.g., Reisner 1923b, 266-280; Wenig 1978, 35-36; Curran 1990; D'Itria forthcoming.

anthropomorphic hippopotamus may have been at least partially similar to that of Taweret in Egypt. Moreover, it is interesting that both the Kerma anthropomorphic hippopotamus at Kerma and Taweret in Egypt are found depicted on both beds and amulets.

It should be stressed that during the first half of the 2nd millennium BC representations of imaginary creatures that potentially had an association with the Egyptian Taweret are not exclusive to Kerma, but they also occur in the Near East and in Crete, thus showing the wide diffusion of this specific iconography.⁴⁹ In particular, among the ivory carvings from El-Jisr, a Palestinian site dating to ca. 1500 BC, are several Egyptianizing elements, where a similar kind of representation to that at Kerma was also recorded.⁵⁰ Parallels have sometimes been drawn between this specific representation of hippopotamus at El-Jisr and the ones from Kerma.⁵¹

It is therefore highly likely that there was a direct link between the Egyptian goddess Taweret and the Kerman anthropomorphic hippopotamus. The way the representation of this figure and perhaps the deity itself found their way to Kerma may be traced through some of the Egyptian type birth tusks that are found in the same general archaeological contexts (tumulus KIII and KX) where the representations of Kerma composite animals are concentrated.⁵² Indeed, Egyptian birth tusks very often include representations of Taweret or, more appropriately, a hippopotamus-lion which has a mane and, sometimes, lion's legs.⁵³ However, these are not evident in the case of the Kerma anthropomorphic hippopotamus. Sometimes, the hippopotamus-lion is shown on the Egyptian birth tusks with a crocodile on its back, and this is reminiscent of the dorsal crest that occasionally features on the Kerma anthropomorphic hippopotamus.⁵⁴

The reference to the crocodile is indeed very appropriate, as, just like in the case of the hippopotamus, in the Kerma culture the crocodile may have held more than one significance: on the one hand the obvious aggressive side of its nature, and on the other a link to fertility and birth presumably due to its connection with water.⁵⁵ The symbolic importance of the crocodile in the

⁴⁹ Wengrow 2014, 63-64, 92, Fig. 6.1 a; Quirke 2016, 504, Fig. 5.116.

⁵⁰ Barnett 1956, 672, Fig. 465.

⁵¹ Curran 1990.

⁵² Reisner 1923a, 140, 186; *id.* 1923b, 260-261, Pl. 53, 1; see also Bonnet ed. 1990, 210-211, n. 254.

⁵³ Quirke 2016, 327-334.

⁵⁴ Bonnet (ed.) 1990, 217.

⁵⁵ See also Chaix 2000, 168.

ideological context of Kerma/Kush also finds support in the presence of a glazed quartz statue of a crocodile in the KII-KIII royal funerary complex,⁵⁶ two clay statuettes of crocodiles in a foundation deposit in the sacred quarter of the city,⁵⁷ a crocodile represented on a decorated ostrich eggshell from a Middle Kerma house at Kerma,⁵⁸ some amulets representing crocodiles,⁵⁹ and some ivory inlays representing crocodiles.⁶⁰ Indeed, two crocodiles are incised on a spouted bowl of the kind often found in the tombs of children and they were perhaps used to feed babies.⁶¹ The presence of the crocodile on the bowl may be interpreted both as a reference to it being an aggressive and therefore protective animal, but also to it being a symbol of birth and fertility, especially when considering its association with water. Perhaps for this reason modelled crocodiles also decorate the body of ceramic pitchers which have a zoomorphic spout that was used to pour liquids.⁶² Interestingly, the zoomorphic spout on these vessels is sometimes in the form of a hippopotamus head,⁶³ thus confirming the ecological and perhaps also symbolic link between the two animals.

Finally, it should be stressed that not all the iconographic variants of the anthropomorphic hippopotamus may have been used at the same time: it has recently been suggested that the crested hippopotamus occurred in early Classic Kerma assemblages, while the crest disappeared later on and a skirt appeared from the middle Classic Kerma period, an addition which was still present when, at the end of the Classic Kerma period, wings begin to be represented on the Kerma anthropomorphic hippopotamus.⁶⁴

⁵⁶ Bonnet 2000, 135, Fig. 98.

⁵⁷ *Id.* (ed.) 1990, 90.

⁵⁸ *Id.* 1993, 8, fig. 11.

⁵⁹ Reisner 1923b, 124, 129, Pl. 43, 2; see also D'Itria forthcoming.

⁶⁰ Reisner 1923b, 270, Pl. 56, 1; see also Bonnet (ed.) 1990, 222, no. 290.

⁶¹ Bonnet (ed.) 1990, 89-90; Welsby and Anderson eds. 2004, 88, n. 70.

⁶² Wildung ed. 1997, 96, nos. 96, 97.

⁶³ Wenig 1978, 38; Bonnet (ed.) 1990, 215, no. 269; Kendall 1997, 89, no. 9; Wildung ed. 1997, 100, no. 99.

⁶⁴ Minor 2018, 257, Fig. 8.

The anthropomorphic cow



Fig. 3: Imaginary creature with human body and head of a cow (or other bovine) represented on a on a stone potter's comb (dimensions 7,4x2,85x1,1 cm) (courtesy Mission Suisse-Franco-Soudanaise de Kerma/Doukki Gel).

Only a single representation of a creature with a human body and the head of a cow (or another bovine) survives at Kerma. It is depicted on a stone potter's comb found in a house in the southern sector of the settlement (Fig. 3). The composite creature is represented sitting on a cube-shaped throne with a low backrest. This scheme recalls the well-known Egyptian cow goddesses (such as Hathor, Bat, Mehet-Weret). A possible relation with Egypt is also confirmed by the two *ꜥnh* signs on the front of her head. For these reasons, Bonnet suggested that this composite creature could be identified with the goddess Hathor of Memphis,⁶⁵ who is herself represented with a human body and an animal head in the New Kingdom, albeit a later period than the example from Kerma.⁶⁶ The fact that this representation seems to be an isolated example but perfectly matches the conventional represen-

tations of Hathor or other cow-headed Egyptian deities has led some to suggest that it may have been made by an Egyptian or possibly a Nubian who went to Egypt and came into contact with the cult of a specific cow-headed deity and its iconography.⁶⁷

⁶⁵ Bonnet (ed.) 1990, 89.

⁶⁶ See Berlandini 1983, 41-42, 47-49.

⁶⁷ Török 2009, 155.

Ram-headed lion

Similar to the case of the anthropomorphic cow, we only have a single glazed quartz statue of a ram headed lion. The probability that the lion's or sphinx's body and the ram head, which were found in the KIII complex and are now in the collections of the Museum of Fine Arts (Boston), were originally part of the same statue was first suggested by the curators of the MFA (Fig. 4).⁶⁸ Considering that we only have a single representation of a ram headed lion from Kerma, the significance of this composite creature remains obscure. Nevertheless, the provenance of the statue from the royal funerary complex KIII suggests a symbolic connection with the ruler.

Indeed, the fact that the lion held considerable symbolic significance for the rulers of Kerma/Kush can be seen in two large *faïence* tiles that have representations of striding lions arranged symmetrically which may have guarded the two sides of the main entrance of the Eastern Deffufa, KII, the funerary chapel related to royal tumulus KIII in the Eastern Cemetery at Kerma.⁶⁹ The possibility that the standing lion may have been a royal symbol, such as the embodiment of the ruler, a semantic determinative, perhaps also corresponding to a specific epithet of the king of Kush, is suggested by its presence



Fig. 4: The two fragments of the glazed quartz statue of a ram headed lion: a) lion body (MFA accession number 20.1180; 33,1x43,6 cm); b) head of a ram (MFA accession number 20.1223; 9,4x10,6x8,3 cm) (by permission of the Museum of Fine Arts, Boston).

⁶⁸ Bonnet (ed.) 1990, 212, no. 259; *id.* 2004, 158; see also Wildung ed. 1997, 102, n. 104.

⁶⁹ Reisner 1923a, 129, 132, *id.* 1923b, 152, Fig. 181; see also Bonnet (ed.) 1990, 209, n. 251; Manzo 2016, 24.

on one of the few existing inscriptions of a king of Kush that has so far been discovered.⁷⁰ Considering the aggressive nature and the strength of the lion, these representations may have been intended to stress the aggressive and triumphal attributes of the ruler of Kush and, in general, of the elite, which is also evident in the deposition of weapons in their tombs and in some imagery of the elite⁷¹ and possibly by epithets given to the king of Kush.⁷² Of course, this is also not uncommon in the rest of the Nile valley and particularly in Egypt itself, where the lion had also been a royal symbol since the origins of the Egyptian state. At Kerma, lions made of bronze sheet were also used to decorate a bed in the KIII funerary complex,⁷³ while an ivory inlay possibly representing a crouching lion decorated a funerary bed in tomb K407.⁷⁴ Some amulets represented lions as well.⁷⁵

As far as the ram is concerned, this not a common subject in the art of Kerma, but its ideological importance is visible in the presence of caprine skeletons whose horns were pierced to fix a decoration consisting of a sphere made from ostrich feathers on top of their heads, which are found in some tombs dating from the end of the Ancient Kerma to Classic Kerma times.⁷⁶ It is feasible that this decoration may have had a connection to a specific attribute these animals possessed as they may also be compared to a C-Group statuette which has a sphere between the horns on top of its head⁷⁷ and to similar imagery found in Saharan rock art,⁷⁸ which may have been related to solar symbolism, as the circle on the ram's head was regarded as a solar attribute.⁷⁹ This feature may fit well in an ideological setting such as Kerma/Kush, where several elements suggest the centrality of solar connotations (see above).

In general, it has been highlighted that the religious meaning awarded to the ram may have marked both the C-Group and the Kerma cultures. Moreover, the later connection between this animal and the god Amon in Egypt may have its roots in the Nubian sphere as contacts with the Nubian cultures may

⁷⁰ Davies 2014, 35.

⁷¹ Manzo 2016, 17-23.

⁷² *Ivi*, 24-25; Cooper 2018, 152-153.

⁷³ Reisner 1923b, 204; Bonnet (ed.) 1990, 216, no. 272; see also Wenig 1978, 151, no. 52.

⁷⁴ Reisner 1923b, 269.

⁷⁵ D'Itria forthcoming.

⁷⁶ Bonnet (ed.) 1990, 73-77, 90-91; Kendall 1997, 58; Bonnet 2004, 158.

⁷⁷ Wenig 1978, 129, n. 20; Wildung (ed.) 1997, 57, no. 51.

⁷⁸ Muzzolini 1994.

⁷⁹ Bonnet (ed.) 1990, 90.

have brought it to Egypt.⁸⁰ Nevertheless, the hypothesis that the Egyptian and Nubian religions shared specific aspects, which may have led to a syncretism in New Kingdom times, cannot be completely ruled out.⁸¹ Be that as it may, the ram is usually considered a fertility and, thus, regeneration and rebirth, symbol.⁸² The fact that this characteristic may also have been held by the ram in Kerma/Kush finds support in the aforementioned presence of the caprine skeletons with the ostrich feathers decoration on top of their heads in the tombs of Kerma, spaces where symbols related to fertility and rebirth can clearly be expected to occur. Traces of the presence of caprines were also recorded in the inner and most sacred room of the Western Deffufa, KI, the main temple of the city, in assemblages dating to the last Classic Kerma phase of occupation.⁸³ According to the initial interpretation offered by the Swiss archaeologists, these traces may be related to presence in the room of the animals who were to be sacrificed.⁸⁴ Nevertheless, the fact that their presence in this very sacred space was apparently prolonged may instead point to them having been kept alive there, perhaps as hypostasis of the main god of the city. Noteworthy, there is a well in this area too, an architectural feature clearly related to the symbolism of fertility, that provided water directly to the inner part of the Western Deffufa KI, where the alive caprine animals were kept.⁸⁵ The same symbolic meaning may have been awarded to the ram's head-shaped spout decorating a Classic Kerma ceramic pitcher which was used for pouring liquids.⁸⁶ As far as the aforementioned possible solar significance of the ram is concerned, it should be stressed that a stair connected the sancta sanctorum of the Western Deffufa with the terrace of the temple, which may have been crucial for the ritual activities that took place there (see above). This suggests if not solar, then at least astral connotations for the main god of the city.

Despite the fact that only a single representation of a ram headed lion has survived from Kerma, this example may indeed represent a highly successful iconographic and ideological experiment, because the criosphinx, which was

⁸⁰ Wenig 1978, 38; Kendall 1997, 76-78; Wildung ed. 1997, 102; Kuckertz and Lohwasser 2016, 27.

⁸¹ Bonnet (ed.) 1990, 91.

⁸² See also Almansa-Villatoro 2018, 178-179.

⁸³ Bonnet 2004, 49, 158.

⁸⁴ *Id.* ed. 1990, 64.

⁸⁵ *Ivi.*, 77; *id.* 2004, 63, 122-124.

⁸⁶ Wenig 1978, 38, 157-158, no. 65; Wildung ed. 1997, 96, n. 96.

usually associated with the Egyptian god Amon, went on to become a very common composite mythical animal in the Nile Valley at a later stage. Apparently, it also remained popular in Kerma itself, where the local variant of Amon, *Imn p3 nbs* or «Amon of the nebes tree», was often represented as a criosphinx under a tree, as seen on the reliefs from the temples of Jebel Barkal and Sanam of the time of Taharka.⁸⁷

The winged giraffe

A further composite creature occurring in Kerma art is the winged giraffe, which is carved on both ivory incrustations and mica ornaments. It is usually represented standing on its paws with open wings which creates an arch covering the long, curved neck, the head touching the base line, perhaps representing the creature when drinking (Figs. 2 d & 5 a).

As in the case of the hippopotamus, the giraffe is also a very common subject in the art of Kerma, as it is widely represented in the paintings decorating chapels KII and KXI⁸⁸ as well as the associated with anthropomorphic figures in the scenes of an as yet unknown meaning on a decorated ostrich eggshell from a house in the city of Kerma dating to the Middle Kerma period.⁸⁹ Noteworthy is also the fact that the only giraffe bone found so far at Kerma was collected from a foundation deposit of a religious building in the religious quarter near KI,⁹⁰ which may confirm that a symbolic and perhaps even sacred meaning was awarded to this animal. Moreover, bracelets made of giraffe hair were found in association with sacrificed individuals in tumulus KIII, and giraffe hair may also have been used for filtering traditional beer,⁹¹ although this may not be related to a specific religious meaning. Of course, representations of giraffes also occur on ivory and mica incrustations.⁹² Nevertheless, it cannot be excluded that in this case the thick tail they have could be interpreted as a representation of the closed wings (Fig. 5 b). Therefore, we may have further evidence here for winged giraffes.

⁸⁷ Kuckertz and Lohwasser 2016, 51, Abb. 18-19; Bonnet et al. 2021, 25, Fig. 15 A-B.

⁸⁸ Bonnet 2000, 76-86, 99, 132; Chaix 2000, 165; see also Reisner 1923a, 124.

⁸⁹ Bonnet 1993, 8, Fig. 11.

⁹⁰ *Id.* ed. 1990, 57; Chaix 2000, 165; Bonnet 2004, 90, 144.

⁹¹ Bonnet 2000, 96; see also Reisner 1923b, 313, Pl. 60, 2, 3.

⁹² Reisner 1923b, 267-268, 270, Pl. 54, 1, 273, 277-278, Pl. 58, 1.

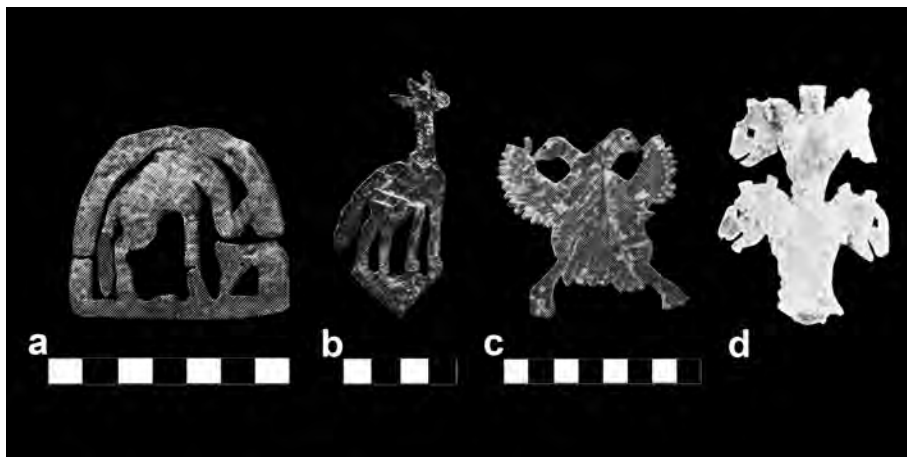


Fig. 5: a) Mica decoration representing a winged giraffe (Reisner 1923, P. 60, 2, 3); b) Mica decoration representing a giraffe with thick tail, perhaps showing the closed wing (Reisner 1923, Pl. 58, 1, 1); c) Mica decoration representing a two-headed bird (Reisner 1923, Pl. 59, 2); b) Mica decoration representing a multi headed lion (Reisner 1923, Pl. 56, 4, without scale).

As far as the second component of this imaginary animal is concerned, the wings are of course related to birds. Several types of birds, such as birds of prey (perhaps falcons and/or eagles), vultures, bustards, secretary birds, and ostriches occur in the art of Kerma, particularly among the subjects on the ivory incrustations decorating the beds and in the mica decorations of caps and perhaps other garments.⁹³ Amulets representing falcons and dating to Classic Kerma times are also known.⁹⁴ It should be highlighted that the only deity of the Classic Kerma pantheon whose name we know is also related to the falcon: Horus.⁹⁵ Indeed, the fact that Horus was worshipped at Kerma-Kush in Classic Kerma times appears clear by the mention of his name in an inscription issued by a ruler of Kush, who was said to have been “beloved of Horus”, at Jebel Umm Nabari in the Eastern Desert.⁹⁶ Moreover, we know that Sepedhor, an official of Egyptian origin serving the king of Kush in the Second Intermediate Period, built or perhaps restored the temple of Horus in the

⁹³ Reisner 1923b, 268, 273.

⁹⁴ *Ivi*, 51, Pl. 37, 2, 52, Pl. 44, 2; Bonnet ed. 1990, 187, no. 164; D’Itria forthcoming.

⁹⁵ Bonnet (ed.) 1990, 89.

⁹⁶ Cooper 2018, 144, 148, 157; see also D’Itria forthcoming.

fortress of Buhen under the patronage of the king of Kush.⁹⁷ Of course, it remains uncertain as to whether the Egyptian Horus was somehow assimilated to a local deity that was also associated with the falcon or a bird of prey, which may have already existed in Middle Kerma times, as suggested by the occurrence of falcon amulets dating to that phase.⁹⁸ Be that as it may, like in Egypt, a specific link may have existed in Kerma between the falcon Horus and the ruler, when considering the aforementioned inscriptions.

In Egypt, there is a clear association between Horus and the sun. The same link between winged creatures and the solar deity may also have been true at Kerma, especially if we recall the representations of winged solar discs, that are clearly inspired by Egyptian examples, depicted on the lintel of royal funerary chapel KII and the paintings in the funerary chamber of tumulus KIII (see above). With regards to the solar connotation, we have already seen how this may have been an important feature of the religion at Kerma/Kush, yet it perhaps finds further confirmation in some of the architectural features of the main religious buildings at Kerma. Indeed, similar to the case of KI, a stair leading to the terrace was also found in KII, KXI, and other sacred building, suggesting that a ritual related to astral if not solar god(s) was taking place there (see above). As far as the specific association between the wings of a possible solar deity and the giraffe at Kerma is concerned, we should be mindful of the fact that the giraffe was also considered a heliophorous animal, occupying a space between the earth and the sky in Predynastic rock art.⁹⁹ The wings may also suggest that the giraffe possessed solar connotations at Kerma too, although, of course, this remains uncertain.

The specific representation of the winged giraffe has been recorded so far only at Kerma. Therefore, it may represent a local invention, perhaps somehow inspired by the winged composite creatures that also occur on Egyptian birth tusks.¹⁰⁰

Two-headed birds

Further composite creatures occurring in Kerma art for which an ideological and religious meaning may be suggested are the two-headed birds,

⁹⁷ Manzo 2008, 175; Cooper 2018, 144.

⁹⁸ D'Itria forthcoming.

⁹⁹ Huyge 2002, 199-200.

¹⁰⁰ Bonnet (ed.) 1990, 214, no. 266; Curran 1990.

sometimes represented in the mica decorations of caps and perhaps other garments (Fig. 5 c).¹⁰¹ While in some instances these are clearly birds of prey, they have sometimes been identified with bustards.

As far as I am aware, no parallels for these two-headed birds can be found in the Nile valley. Therefore, like the case of the winged giraffe, we may have an example here of a local invention.¹⁰² Of course, bulls with heads on both ends of the body, are known in the art of Egypt since Predynastic times and they occur on birth tusks dating to the Middle Kingdom, as well as being found on an early Middle Kingdom axe and on amulets of a later date.¹⁰³ Moreover, double ended sphinxes also decorate some Middle Kingdom birth tusks as they also do on later Egyptian funerary representations.¹⁰⁴ Therefore, images that are somehow related to the general idea of the symmetry characterizing the double-headed birds of the Kerma mica decorations are known in Egypt, even though they are not exact parallels for the Kerma two-headed birds. Nevertheless, close comparisons can be found in the Near East, where representations of two-headed birds occur from the late 4th millennium BC onwards in Mesopotamian seals, but also in iconographic expressions of a later date.¹⁰⁵ The double headed eagle is indeed a well-known motif on Anatolian seals dating to the 19th and 18th centuries BC, as well as on Syrian seals and sculpture of the same date,¹⁰⁶ and on seals from Palestine.¹⁰⁷ In consideration of the similar date between some Near Eastern and Kerman representations of two-headed birds and of the links between the rulers of Kerma-Kush and the Lower Egyptian Hyksos, the possibility of connections with the Near East cannot be completely ruled out and will be discussed in the final remarks of this paper.

While the meaning of the two-headed birds motif at Kerma remains obscure, it is possible that it held triumphal and solar connotations as was discussed above with regards to the falcon and the wings associated with the solar disc.

¹⁰¹ See also Quirke 2016, 513.

¹⁰² Wenig 1978, 152.

¹⁰³ Quirke 2016, 187, 227, 289, 314, 323, 326, 398, 506, Fig. 5.119, 539, and again Reisner 1923b, 275.

¹⁰⁴ Quirke 2016, 29, 105, 187, 224, 227, 257-258, 314, 322-323, 326, 398, 508, 544.

¹⁰⁵ See also Reisner 1923b, 275.

¹⁰⁶ See Pinnock 1992, 114, 116, Fig. 1, Fig. 2 a; Kzzo 2014-2015, 227-228.

¹⁰⁷ Teissier 1996, 15-22, no. 135.

Multi-headed lions

The last (possible) composite creature in Kerma art to be discussed here is comprised of pairs of symmetrically arranged lion's heads of lions facing left and right, respectively, and emerging from a common trunk. These are found as mica decorations on caps and perhaps other garments (Fig. 5 d). They have incised eyes and open mouths. Indeed, in this case it is not clear if a depiction of a real creature is intended or whether this is just an animalistic decorative pattern. Similarly, the central trunk may perhaps be a tree or even an architectural element.¹⁰⁸

No known parallels are available for these representations. The lion heads are certainly related to the importance of this animal in the culture and possibly the religion of Kerma, which we have already discussed above when dealing with the iconography of the ram-headed lion. The issue of the symmetrical representation of animal heads and its possible inspirations were also covered earlier in the discussion of the two-headed birds. Nevertheless, while the two-headed birds possibly find parallels in the cultures of the Near East, no parallels can be found for the representation of lion heads emerging from a single trunk. This may therefore be a purely local motif.¹⁰⁹ Noteworthy, similar multi-headed symmetrically arranged compositions may also have been made with other animals,¹¹⁰ but unfortunately these cannot be identified due to their poor state of conservation.

Final remarks

At this point I believe that some features of the Kerma religion and ideology can be proposed on the basis of the evidence provided by the representations of imaginary creatures. It should come as no surprise that concepts related to protection, fertility, and astral/solar connotations have emerged from our discussion here, as these features occur in almost all religions. However, I think it is more interesting to focus not only on how these concepts were specifically expressed in the context of Kerma/Kush and how the imaginary creatures contributed to this, but also on the dynamics which may have led to the development of these motifs.

¹⁰⁸ Bonnet (ed.) 1990, 220; see also Quirke 2016, 513.

¹⁰⁹ Bonnet (ed.) 1990, 220.

¹¹⁰ See Reisner 1923b, 277, Pl. 58, 2, No. 5.

The variety and specific features of the Kerma imaginary creatures discussed suggest that they originated from several different processes. In the case of the anthropomorphic hippopotamus, this may be a local expression of a widely diffused motif, which very likely originated in Egypt and, at least from a certain point onwards, was related to the goddesses Taweret and Ipet, moreover this motif was also adopted in the Near East and Crete in the Middle Bronze age (see above). In general, the central role different cultures and awarded to concepts such as fertility, reproduction, and protection, as can be seen associated with this specific composite imaginary creature, may have made it easier to adopt and adapt female deities from other cultural contexts into new ones.¹¹¹ This may have also favoured the sharing of traits, motifs, and symbolic elements related to these deities. Howley has also recently suggested that the emergence of the anthropomorphic hippopotamus figure and the incorporation of traits related to similar Egyptian deities into this figure at Kerma may have been favoured by the centrality of the hippopotamus in the local fauna and perhaps by the presence of an earlier Nubian hippopotamus cult.¹¹²

In the case of the two-headed bird, although the hypothesis of a local and independent local origin cannot be dismissed, it may also have been a local expression of a Near Eastern type, that arrived via Egypt, but which was nevertheless never adopted in Egypt itself. Similarly, at Kerma it remained limited to a few examples dating to Classic Kerma times. Nevertheless, we should be mindful of the possibility that this may not be an isolated case of adoption of Near Eastern iconographic traits, as a possible Near Eastern origin can also be proposed for the caprids with the tree of life motif that is also found on some Kerma ivory incrustations.¹¹³ The hypothesis that some Near Eastern traits may mark Classic Kerma culture is perhaps also supported by other evidence, such as the specific technique used for making the ivory incrustations,¹¹⁴ but further investigations are needed to confirm this. Noteworthy too is the recent suggestion that a Semitic loanword may lie behind the origin of the name of or, more likely, an epithet given to the ruler of Kush in a Second Intermediate Period hieroglyphic text.¹¹⁵

¹¹¹ Howley 2017, 222.

¹¹² *Ivi*, 221.

¹¹³ Bonnet (ed.) 1990, 217; Curran 1990; Bonnet 2004, 157; Quirke 2016, 512.

¹¹⁴ Curran 1990; Bonnet 2000, 99.

¹¹⁵ Cooper 2018, 152-153.

But not all the imaginary creatures recorded at Kerma have an ultimately foreign origin: the winged giraffe, for example, is certainly a local creation, which remained limited to the context of Kerma/Kush. This specific design sees the giraffe, whose importance in the art of Kerma is well known (see above), combined with a pair of wings. As pointed out above, this motif fits into a very old tradition, perhaps related to the presence of giraffes in the rock art across the whole of northeastern Africa and the Sahara. It is of course also related to the composite winged animals that are well known in the artistic repertoire of the Nile valley from the end of the 4th millennium BC up until Graeco-Roman times, similar to the case of the griffin,¹¹⁶ which was also used to decorate Middle Kingdom birth tusks and Middle Kingdom tombs.¹¹⁷ Indeed, during the first half of the 2nd millennium BC, winged mythical animals appear more widely also in the Near East. At that time winged sphinxes also occur there, figures which were nevertheless only rarely adopted in Egypt.¹¹⁸ During Classic Kerma times at Kerma we do not find the more broadly distributed winged griffins and sphinxes, but instead some local winged composite creatures, such as the winged giraffe and the anthropomorphic hippopotamus, which was given its wings at roughly the same time. Indeed, as discussed above, wings may have been important to Nubians in Classic Kerma times.¹¹⁹ The use of this motif may be linked to local features, like the sky-solar connotations that mark the religion of Kerma/Kush, as we have already seen in the earlier discussion of some of the architectural features of the Kerma sacred buildings and the adoption of the winged sun disc symbol in funerary and sacred contexts (see above). The fact that these religious developments were also associated with the concepts of kingship and royalty can be derived from the presence of the epithet *s3 R^c* referring to the king of Kush on a seal impression from Elephantine.¹²⁰ Moreover, it cannot be excluded that the popularity of wings and winged composite creatures at Kerma was also linked to the adoption -and possible adaptation- of the Egyptian god Horus in Kush. As mentioned above, the temple of Horus at Buhen was restored under the patronage of the king of Kush, and again Horus finds a direct connection to the king of Kush in the inscription of Jebel Umm Nabari.

¹¹⁶ Bisi 1965, 21-23.

¹¹⁷ Quirke 2016, 353-356; see also Bisi 1965, 25-26.

¹¹⁸ Dessenne 1957, 27-28, 38.

¹¹⁹ See also Howley 2017, 221.

¹²⁰ Cooper 2018, 148-149.

In the case of the lion-headed ram, which, like the winged giraffe, may have been a local creation, we again find symbolism connected to fertility and perhaps even solar and sky attributes (see above). Later on, in New Kingdom times, this specific motif was successfully adopted in Egypt and became a symbol of Amon, who at that time was the main deity of the Egyptian pantheon. However, this possible adoption of religious traits originating in the regions south of Egypt into Egyptian religion should not be considered a unique and isolated case, as Egyptian deities in the First Cataract region had already shown a strong Nubian imprint, if not origin, in earlier times.¹²¹ Nevertheless, the criosphinx of Amon may certainly represent the most striking example for the successful adoption of Nubian iconography for an Egyptian deity.

Therefore, the anthropomorphic hippopotamus and the two-headed birds, as well as the local elaboration of the original winged imaginary creatures and the ram-headed lion show that Kerma/Kush participated in and actively contributed to an «international style» that marked the first half of the 2nd millennium BC. This style is evident not only in Egypt but also involved the Near East and the eastern Mediterranean in general. A crucial issue, however, is the need to understand in which way these patterns and iconographic elements were shared. Indeed, the media through which some Egyptian and Near Eastern motifs may have reached Kerma are likely to have been numerous. They may have been transmitted through imported decorated objects, such as the birth tusks, on which, for example, Taweret or the hippopotamus-lion and winged imaginary creatures were often represented (see above). Some birth tusks were found at Kerma in assemblages dating to the Classic Kerma phase, even though a local production for at least some of these has recently been suggested.¹²² A birth tusk possibly produced in Kerma was also found in a Lower Nubian assemblage at Argin,¹²³ in a region which was controlled by Kush in Classic Kerma times. Whether some of them were locally made or not, the circulation of birth tusks, which were found not only in Egypt and in Nubia, but also in Near Eastern sites,¹²⁴ may have been crucial for the transmission of motifs and perhaps even ideas and beliefs related to the concepts of protection and fertility. Moreover, we cannot exclude that the circulation

¹²¹ Almansa-Villatoro 2018, 175-180.

¹²² Quirke 2016, 180-181, 232, 375, 512.

¹²³ *Ivi*, 182, 375.

¹²⁴ *Ivi*, 180, 232.

of seals and sealings may also have been relevant to the spread of specific motifs, just as was the case in the transmission of specific composite creatures between the Near East and Egypt at the end of the 4th millennium BC.¹²⁵ For example, the motif of the caprids symmetrically represented on the two sides of a tree, as found in the ivory incrustations from Kerma (see above), is also present on some Near Eastern seals.¹²⁶ A seal of the “green jasper workshop” class features the representation of a double-headed eagle,¹²⁷ which recalls the Kerma mica decorations representing two-headed birds. Noteworthy, seal stamps bearing the impressions of Near Eastern seals, along with Near Eastern type seals of this class and others were found at Tell el-Daba, the site corresponding to the capital city of the Hyksos rulers, with which the rulers of Kush certainly had contact and exchange.¹²⁸ In particular, some have suggested that the “green jasper workshop” seals were produced at Byblos, a node on the long-distance exchange network with which Egypt – and in particular Tell el-Daba – certainly had very intense interaction, even though an entirely different centre of production or even a multi-centred system of production cannot be excluded for this specific class of objects.¹²⁹ We can therefore wonder whether the double-headed eagle motif, originated in the Anatolian area, found its way to Kerma via Byblos. Indeed, this city was a crucial coastal node of the long-distance exchange networks between Egypt and Near East during the Middle Bronze age, and it is not inconceivable that from Byblos it may have reached Egypt, from where, despite not being adopted by the Egyptians, it then may have arrived at Kerma. Of course, along with the birth tusks, seals and sealings, other media may have played a role in the transmission of these motifs. These media may have included perishable materials such as textiles, or reusable artefacts, (e.g., metal objects),¹³⁰ but, of course, their contribution to these dynamics remains obscure.

Dealing with the social aspects of these exchanges and interaction, it should be emphasised that the seals (and sealings) are closely connected to the elite, who were involved in the administrative processes within which seals were a crucial tool. For this reason, the decorative motifs on the seals,

¹²⁵ Wengrow 2014, 62.

¹²⁶ See e.g., Teissier 1996, n. 28.

¹²⁷ Collon 2001, 19, Fig. 2,2.

¹²⁸ Kopetzky and Bietak 2016.

¹²⁹ Collon 2001, 18; Kopetzky and Bietak 2016, 361, 372.

¹³⁰ Wengrow 2014, 105.

and consequently on the sealings, were considered a direct expression of ideas and concepts emanating from the elite.¹³¹ Interestingly, this has also recently been suggested for the birth tusks, often decorated with patterns including composite and mythical creatures. For a long time, birth tusks were considered an expression of popular domestic magical practices but on the contrary, Quirke has shown that they are related to the Egyptian palace(s) and/or regional administrative centres and therefore with the elite.¹³² Although referring to the Near Eastern and Egyptian contexts, these general remarks seem to be applicable to Kerma where the representations of imaginary animals almost exclusively occur in contexts related to the elite. In particular, in the case of the representations of the anthropomorphic hippopotamus, Minor highlights that they may have had some importance in the funerary assemblages of high-status women, who wear similar skirts to the one found on some representations of this composite creature.¹³³ The same situation is also emerging from the study of the distribution of the amulet-beads representing the anthropomorphic hippopotamus.¹³⁴ The only exception to this apparently constant link with the elite may be the potter's comb decorated with the figure of a cow-headed goddesses from a domestic assemblage at Kerma. Nevertheless, it has been suggested that this unique and unusual object may be explained by the presence of an Egyptian resident at Kerma or of a Kerma expatriate who has returned from Egypt.¹³⁵ Regarding the rest of the motifs, the fact that the representations of composite animals seem to be restricted to the main ceremonial and political centre of the Kingdom of Kush, i.e., Kerma, and the fact that most of the objects we have been discussing here were collected from royal or elite monuments or tombs confirms a direct link between these composite figures and the aristocrats ruling the kingdom and especially the royal court.

As far as the general dynamics favouring the elaboration, adoption, and adaptation of imaginary creatures at Kerma/Kush, in his 2014 seminal contribution, *The Origins of Monsters*, David Wengrow suggested that the introduction of composite mythical creatures into the early Bronze Age art of the ancient Near East (including Egypt) was associated with «the onset of urban life

¹³¹ Wengrow 2014, 81.

¹³² Quirke 2016, 6, 214-215, 228, 306.

¹³³ Minor 2018, 259-260.

¹³⁴ D'Itria forthcoming.

¹³⁵ Török 2008, 26-27.

and state formation» and resulted «from complex conjunctures of social, technological, and moral processes», and that the occurrence of the same or related composite creatures in several contexts was due to the emergence of long distance exchange networks characterizing those phases.¹³⁶ Referring to the glazed quartz statues of the KII-KIII funerary complex, Charles Bonnet stressed that these bestiary images, only emerged in the late phase of the history of Kerma/Kush.¹³⁷ However, this remark can be extended to all the animal representations at Kerma, also including the composite creatures we have discussed here. We can, therefore, wonder whether similar dynamics to those outlined by Wengrow may also have taken place in Upper Nubia in the first half of the 2nd millennium BC, in Classic Kerma times, which appears to have been a very dynamic period, both in artistic and ideological terms. Indeed, at that time the kingdom of Kush was emerging as a crucial player in the Nile valley and through the diplomatic relations with the Hyksos rulers of Lower Egypt it was involved in broad networks of interaction extending to the Near East.¹³⁸ Bonnet pointed out that the emergence of new chapels and shrines in the sacred quarter surrounding temple KI may suggest the enlargement of the pantheon at Kerma in Classic Kerma times.¹³⁹ This may be related to the composite nature of the society of Kush in Classic Kerma times, which was characterized by the presence of different groups at Kerma,¹⁴⁰ in turn reflecting the increasing extension of the sphere of political and economic influence of the kings of Kush. All this is certainly shown by the increasing monumentality of the temples and the tombs of the kings and aristocrats ruling over the fledging power of Kush, but also in the contemporary refined handcrafted creations, such as those decorated by the representations of animals and composite creatures.

The monumental buildings and the elaborate objects associated with them were intended to be used and displayed by the elite, while the exotic traits they sometimes show, as in the case of some of the representations of imaginary creatures, further stress the ability of the elite to engage and encompass with the foreigners. This must have served to affirm its status in a broad

¹³⁶ Wengrow 2014, 2, 16, 92.

¹³⁷ Bonnet 2000, 138.

¹³⁸ Török 2009, 104-108.

¹³⁹ Bonnet 2004, 113; see also Török 2009, 155.

¹⁴⁰ Bonnet 2004, 139, 150; Török 2008, 21, 2009, 149.

network including the Nile Valley and the Eastern Mediterranean.¹⁴¹ The use of specific exotic elements and composite creatures favoured on the one hand the sharing of concepts with the foreigners present in the capital city of Kush – envoys, merchants, etc. – who would have seen these representations, on the other hand favoured the integration of the elite of Kush with the other elites of the time and mutual recognition.¹⁴² However, it is necessary to underline that at that time, Kushite royalty may have adopted an expression of kingship that was concordant with Egyptian norms.¹⁴³ The use of the Egyptian script (see above) and iconography, as in the case of the well-known stela from Buhen possibly representing the king of Kush with the white crown,¹⁴⁴ were designed to express a mutually understood rhetoric of power, in which the rulers of Kerma/Kush could project their own rulership to Egyptian audiences. These dynamics may have been more evident in the Lower Nubian area, where groups who were used to Egyptian expressions of kingship were becoming part of the Kushite state in Classic Kerma times. Otherwise, in the Kerma region royalty continued to be expressed in a more original and local way, of which the case of the distinctive and increasingly complex funerary rituals are exemplary,¹⁴⁵ as is the development of new artistic and architectural solutions, which, nevertheless, had some northern exotic elements embedded in. On the internal side, these exotic elements could have made access to the new iconographic language and related ideological concepts much easier for the various groups entering the sphere of influence of the fledging power of Kush, which also aimed at their incorporation into it. It has already been pointed out that similar dynamics may also be evident in the original and composite architectural monumental style of Classic Kerma times, which integrated local and exogenous elements. In the case of the Classic Kerma monumental religious buildings, for example, the use of some Egyptian elements in combination with others of diverse origins could be linked to the desire to develop new architectural expressions of a power, which was at that time expanding and incorporating the Egyptian communities in Lower Nubia.¹⁴⁶ It cannot be excluded that similar dynamics may have led to the

¹⁴¹ See also Cooper 2018, 150.

¹⁴² *Sensu* Wengrow 2014, 95.

¹⁴³ Cooper 2018, 143.

¹⁴⁴ Kendall 1997, 32-33; Manzo 2016, 21-22.

¹⁴⁵ Cooper 2018, 159.

¹⁴⁶ Manzo 2008, 183-184, 2017, 127-128.

incorporation of exotic elements originating from other African regions that were involved in the expanding networks centred on Kerma/Kush, but this must largely remain hypothetical due to our still scanty knowledge of the archaeology of those inner areas.

The monumental temples and tombs were likely used as the setting for ceremonies aimed at legitimizing the rulers and the elite and therefore at affirming their status. A new ideological system for the new power may have emerged, and the related artistic dynamism is shown by the development of the new iconographic language of which the imaginary creatures were an important part. These ceremonies did not only aim at engaging with foreigners and incorporating these new subjects and allies, but also at legitimizing the elite, stabilizing its power and reproducing social structures through different degrees of access to the ceremonies and to the structures where these were taking place¹⁴⁷ and of course to the decorative programs of the monuments and the mobile objects used in the ceremonies.¹⁴⁸ The animalistic art at Kerma, including the representations of imaginary creatures and the other symbols which were used, such as the winged sun disk, were also part of this ideological narrative.¹⁴⁹

As is also suggested by their standardization and repetitiveness, the imaginary creatures formed a coherent «system of decorum», to adopt an expression of John Baines.¹⁵⁰ The fact that this system was characterized by specific and well-defined rules finds support in some of Reisner's remarks.¹⁵¹ He noted that in the decoration of the funerary beds the rows of anthropomorphic hippopotamuses, when they are present, take their position on the middle row, like the flying vultures or ostriches with outstretched wings, which are found when the anthropomorphic hippopotamuses do not occur, while the lower row always features terrestrial animals or even birds, but these are never depicted as flying. The caps, garments, and the funerary beds, which are often decorated with animalistic decorative programs, were both likely used in ceremonial occasions, certainly during funerals (see above). Therefore, they were most likely displayed to the people attending. Sometimes archaeology provides insights into the way this may have taken place, as it was

¹⁴⁷ Manzo 2008, 178-180, 182.

¹⁴⁸ Baines 1990, 19-20.

¹⁴⁹ See also Manzo 2011, 215-216.

¹⁵⁰ Baines 1990, 20.

¹⁵¹ Reisner 1923b, 266-268.

possible for Bonnet to convincingly suggest on the basis of archaeological evidence that the body of the dead ruler, and perhaps also those of the other members of the elite, may have been displayed on the decorated beds,¹⁵² most likely along with their paraphernalia and insignia. The glazed quartz statue of the ram-headed lion described above was part of a group that also includes the statues of a crocodile and other animals (see above) guarding a processional way between chapel KII and tumulus KIII. They were therefore part of the monumental setting of the royal funerary rituals, which may have included processional ceremonies attended by large groups of people. In this way, the animalistic art of Kerma contributed to the sharing of ideological concepts being developed by the elite with the aim of building group identity based on these concepts along with reproducing social structures.¹⁵³ The use of composite creatures in this animalistic repertoire may have been a deliberate choice. Due to their exceptionality, these creatures were very efficient from a cognitive point of view for the expression and transmission of ideological messages.¹⁵⁴

The fact that the motifs on these decorative elements were not only a matter of personal taste but were used to express ideas and concepts the elite considered important is clearly emerging from the selectivity seen in the adoption of specific foreign motifs that were then adapted and incorporated into local designs. As Cooper has already observed,¹⁵⁵ the artistic motifs of Egyptian origin were not incorporated into the Kerma repertoire without thought, but were deliberately chosen to suit local conditions, ideological messages, and the specific aspirations of the elite. This is clearly evident in the case of the repertoire of the Egyptian birth tusks, on which Taweret or the hippopotamus-lion is often represented. This type may have been adopted and adapted to that of the anthropomorphic hippopotamus in the context of Kerma. In contrast, other creatures usually represented along with Taweret and often “travelling” with her, like Aha, the winged griffins and sphinxes,¹⁵⁶ were not adopted in Kerma. Indeed, as Quirke has rightly observed,¹⁵⁷ absences of motifs should also be considered when defining the principles and intentions

¹⁵² Bonnet 2000, 59-60, 65, 107, 111.

¹⁵³ Manzo 2017, 127-128.

¹⁵⁴ Wengrow 2014, 23-24.

¹⁵⁵ Cooper 2018, 150.

¹⁵⁶ Wengrow 2014, 64.

¹⁵⁷ Quirke 2016, 407.

underlying a corpus. A similar selectivity is perhaps also evident in the decorative choices of the royal funerary chapels, which, although certainly related to some Egyptian traits, may reflect the specific will and choices of the ruler of Kerma/Kush and his court.¹⁵⁸ In the meantime, other local composite creatures, such as the winged giraffe and the ram-headed lion, were perhaps developed because they were considered more appropriate for expressing ideological concepts that were relevant to the rulers of Kush, maybe due to the locally rooted ideological relevance of the giraffe and of the ram. From this perspective, the specific will to develop an iconographic (and ideological) identity which was not only inclusive, but also perceived as clearly distinct from the others, especially the Egyptian identity, should be also taken into consideration. When considering the symbolic and perhaps even identitarian values of the weapons in the context of Kerma, a similar attempt at forging a distinctive identity may have emerged in Classic Kerma times when a new type of sword emerged, one that was clearly distinct from the Egyptian type that had been adopted earlier.¹⁵⁹

All this seems to suggest that in Classic Kerma times, a period when Kerma achieved an unprecedented level of international status and saw the extension of its political and economic sphere of influence, the elite of Kerma/Kush made an effort to develop new iconographic (and monumental) expressions of its sovereignty and its ideological cornerstones, which also functioned as tools to affirm and strengthen its rule. It should be noted that these material expressions only occur at Kerma, and that the complex and articulated underlying ideological processes remained exclusively bound to the capital city of Kush, perhaps due to the specific nature of the organization of the Kerma/Kush state and the function religion had within it. The distinctiveness of the capital city is also made evident by the fact that in Classic Kerma times its assemblage of amulets is clearly distinct, richer and more varied than that of the other Kerma centres.¹⁶⁰ In contrast, the attempt at approximating Egyptian norms as far as the relations between ruler and deities like Horus and Ra are concerned (see above) seems to specifically characterize Lower Nubia. It has also been suggested that the Lower Nubian experiments may have been «a semi-autonomous venture of the Kerma-affiliated Egyptian elite at Buhen

¹⁵⁸ Bonnet 2000, 100.

¹⁵⁹ Manzo 2016, 15-16, 23.

¹⁶⁰ D'Itria forthcoming.

to project the hegemony of their Kushite patron». ¹⁶¹ This can certainly be true, and of course there is no evidence at Kerma, the capital city of Kush, for an attempt at a complete emulation of the Egyptian ideological and religious models. Noteworthy also are the results from a study by D'Itria, who, after despite what is an admittedly preliminary survey, has argued that the amulets from Lower Nubia may be more related to the Egyptian horizon than to its equivalent at Kerma. ¹⁶² Indeed, when considering the lack of similar material traces in Lower Nubia to those that are likely related to the religious beliefs known in Kerma, Török stated that Kerma/Kush religion «was a religiosity of many regions, inclusive and without a professional priestly class in regions far away from the capital city». ¹⁶³

Therefore, with the presence of commonalities in the ideology of political authority and the way the rulers legitimized their rule or exercised kingship still being debated, ¹⁶⁴ we can wonder whether religion ultimately played a marginal role in the state of Kerma/Kush, which is apparently in contrast with what has been suggested above, with regards to the importance of ceremonies, monuments, and objects related to religion for identity building, legitimizing authority and social reproduction. A different explanation can thus be envisaged, and one that may be related to the specific features of the state of Kush, the investigation of which is, nevertheless, still in progress. Indeed, it is very likely that the state of Kush was different to the other Middle Bronze age states, and was possibly characterized by its own specific features, possibly also related to a pastoral economic base and the diversity in its regions. ¹⁶⁵ Indeed, this general setting may have allowed the presence of distinct ideological solutions and models to emerge in the different regions under the control of Kush. Of course, some kind of unifying events may have taken place in Kerma, the main ceremonial centre of the kingdom of Kush, where perhaps the different regional traditions were somehow incorporated into a more unitarian system. Such a possibility may explain both the variety of the sacred religious buildings characterizing Kerma as well as the variety of the animalistic art and the imaginary creatures themselves (see above). It is feasible that the people from different regions were attending and/or participating in the

¹⁶¹ Cooper 2018, 157, see also 159.

¹⁶² D'Itria forthcoming.

¹⁶³ Török 2008, 27.

¹⁶⁴ Emberling 2014, 149.

¹⁶⁵ Emberling 2014, 147-150.

ceremonies expressing this narrative. It is highly likely that mainly the regional elites were involved in these ceremonies, although of course this remains hypothetical. Nevertheless, it is tempting to relate the presence of delegations from different regions in the capital of Kush to the representations of boats with apparently ethnically variegated crews in chapel KXI.¹⁶⁶ Furthermore, the stela of the official Ka, who was consecrated at Buhen, includes an obscure reference to an act taking place far away from Buhen which required the official to “[wash his] (two) feet in the water of Kush following the ruler *ndh*”.¹⁶⁷ This reference may be interpreted as the participation of a member of the Lower Nubian elite in a royal ritual ceremony perhaps taking place in Kerma.

Of course, due to the lack of written texts, several questions remain unanswered. It is nevertheless hoped that in the future new data from sites in the diverse areas which entered the sphere of influence of the kingdom Kush will provide new insights into its religion, the specific features of its state, and its development. The publication of the materials from the Kerma sites investigated in the Dongola reach, in the Fourth Cataract area and beyond may certainly contribute towards the balancing a perspective biased by the preponderant amount of information relating to Lower Nubia. The re-assessment of the Lower Nubian collections from a comparative perspective with the capital city could also prove useful. Returning to the materials from Kerma itself, after discussing the meaning of the single components of the narrative, the challenge may be to try to gain some insights into the syntax of the compositions, in which the different elements were combined, and its meaning. In the case of the chapel KXI, this perspective was already taken by Charles Bonnet, who emphasized the need to understand the syntax of the entire decorative program, not merely the meaning of each single element within it.¹⁶⁸ Similar attempts have recently been made in the case of the Egyptian birth tusks, a class of materials with representations reminding for complexity the ones of the Kerma funerary beds and caps.¹⁶⁹ In the case of the ivory incrustations of the funerary beds at Kerma, after Reisner’s observations (see above) a lot remains to be done to try to identify and interpret recurrent associations of single elements. This may be a further challenge for the future, also when considering

¹⁶⁶ Bonnet 2000, 89-91, 96.

¹⁶⁷ Säve-Söderbergh 1976, 53.

¹⁶⁸ Bonnet 2000, 100.

¹⁶⁹ Quirke 2016, 407-409.

the potential of the contextual analysis, hitherto only practiced to a limited extent,¹⁷⁰ which may provide new stimulating interpretative insights for the identified patterns. Indeed, this may represent the next step for developing an iconological approach to the investigation of the Kerma/Kush ideology and religion.

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¹⁷⁰ See e.g., Minor 2018, 254-255, 256-260.

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Animal of Ancient Kheny

The Rupestrian Collection

Maria Nilsson, John Ward & John Wyatt

The rupestrian collection

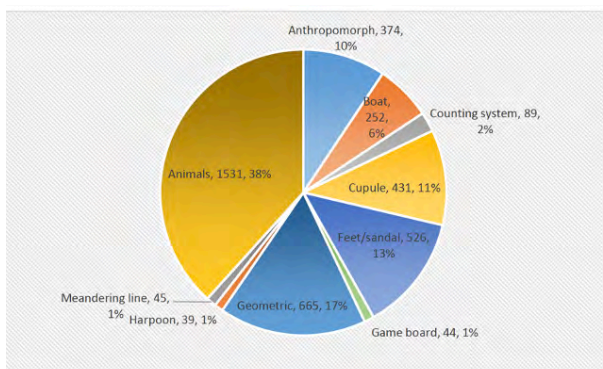
Since the start of the Swedish Mission to Gebel el-Silsila in 2012, 115 rock art locales and thousands of petroglyphs have been documented, ranging in quantity from a single design to several hundred at one site.¹ The locales are distributed over four main areas within the 30 square kilometre concession, including Gebel el-Silsila East and West, Nag el-Hammam and Shatt el-Rigal.² Due to the ongoing nature of the survey, the central and southern part of Nag el-Hammam are excluded from this paper, as are the separate categories of quarry marks and graffiti. The focus of this paper will be images of or relating to animals.

The landscape of the Shatt el-Rigal area (including northern Nag el-Hammam) is largely preserved since antiquity. It differs greatly from Gebel el-Silsila, which was subjected to extensive quarrying having an unquestionable impact upon the rock art preservation, especially along the Nile. This is statistically evident as 18 of the 24 rock art sites of the Shatt el-Rigal area (79 % of the petroglyphs) are located along the mountain ridge near the Nile. In contrast, only five of 25 East bank locales (17 %) and 13 of 60 on the West (35 %) of Gebel el-Silsila are found in similar positions. For the quarried landscape, the preserved rock art locales are generally situated in borderscapes (areas where the mountain meets the plain); on the plateau; or within the wadis (valleys).

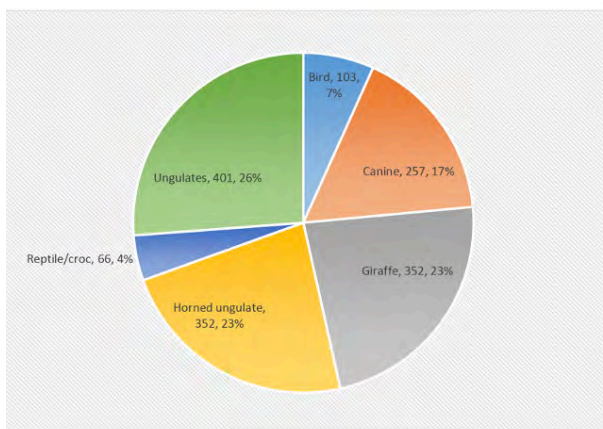
¹ The authors would like to thank the Permanent Committee and its head, Dr Waziri, H.E. Minister of Antiquities, Ahmed Issa, and Dr Abdelmanem Saed, General Director of Aswan and Nubia, for allowing us to continue our scientific work in the Gebel el-Silsila area. As always, we owe our gratitude to the entire Silsila family. The rock art documentation has been made possible by the generous financial support of Gerda Henkel Stiftung (AZ 58-V-15) and Crafoordska Stiftelsen (20140509; 20160607).

² When mentioning specific locales, the following abbreviations are used: GeS.E (Gebel el-Silsila East); GeS.W (Gebel el-Silsila West); NeH (Nag el-Hammam); and SeR (Shatt el-Rigal). 'Rock art site' is abbreviated 'RAS', followed by a succession number.

The techniques for production include hammered, rubbed, incised and drawn designs, with or without outlines. Palimpsests occur, especially in areas of disembarking from the vessels that docked here but are surprisingly rare. Differentiations in patination will only be considered for motifs located within the same panel/surface. Approximately 4700 petroglyphs have been catalogued in detail so far, forming the empirical foundation for this paper and its statistics (Tab. 1).³ Just over 1500 (38 %) represent animal depictions; these are divided into six groups for this primary publication (Tab. 2), including birds, canines, horned ungulates, regular ungulates (i.e., hooved quadrupeds), and reptiles. Giraffes are listed as a separate group based on their high occurrence rate.



Tab. 1: Rock art motif variation (main groups) within the Swedish concession area.



Tab. 2: Main animal groups, based on 1531 petroglyphs.

³ East bank: 1234; West bank: 1648; Shatt el-Rigal area: 1822 (all numbers are preliminary, but confirmed and catalogued). For the West bank, *cf.* Caminos 1987, 62-65; Osing 2004, who list 300 objects, including rock inscriptions (excluded from our numbers herein).

Relative stylistic and technical phases

Phase I

The oldest rock art documented within the concession area is categorised as 'Epipalaeolithic' and represents Phase I.⁴ The petroglyphs are hammered with or without outlines, characterised by their curvilinear, abstract or geometric designs (including some unique 'masterpieces'⁵), and with a patina consistent with the surrounding rock. Motifs are found in 20 locales at Gebel el-Silsila East and West, with no attestations in the Shatt el-Rigal area so far.⁶ The panels range from singular to dozens of designs, chiefly located on higher altitudes (*e.g.*, 120-140 m above sea level) overlooking the wadis or in borderscapes. The surfaces are predominantly horizontal, easily accessible at the time of production. Discernible designs show plants, traps and hunting-related subjects, and some primitive anthropoids.⁷ Phase I includes the site's oldest animal depiction, a crocodile viewed as from above, situated on a vertical surface in locale GeS.E.RAS.3, surrounded by images of plants.⁸

Phase II

Phase II consists of hammered images with no outlines (filled with percussion marks). The motifs are recognisable, although highly stylised and schematic. The petroglyphs are evenly distributed over Gebel el-Silsila West and the Shatt el-Rigal area, stretching from the Nile to the desert plain in the West. At Gebel el-Silsila East the locales are limited to the borderscapes in the North and South. The motifs were incised into vertical and horizontal surfaces, habitually at altitudes of 115 m a.s.l. or more. Overall, they are easily accessible, but not always in a clear line of sight as the landscape is preserved today. Phase II is dominated by animals, including canines, crocodiles, elephants, giraffes, ostriches, wild asses and some horned ungulates. However, the lack of anatomical details makes it difficult to define most specific species within the larger groups of ungulates.

⁴ Cf. Huyge 1998; 2002; 2005; 2009a.

⁵ See the Epipalaeolithic motifs at el-Hosh; Huyge and Claes 2012; Huyge and Storemyr 2012; 2013.

⁶ Nilsson and Ward 2020a, 236-241.

⁷ Nilsson and Ward 2018; cf. Hellström 1970, type A140.

⁸ Huyge 1998, 100, fig. 3; Storemyr 2009, 124, 128, 130, 134, figs. 5d, 13, 16, Tb 1.

Giraffes

Giraffes are the most frequently depicted animals and characterized by an ovoid or rectangular body with long neck and legs and are the largest mammal on any panel (generally c. 50-70 cm tall). The head is small with two or four vertical strokes to mark the ears and ossicones. The neck is essentially held vertically or diagonally (Fig. 1a), but horizontal positions occur too (Fig. 1b). The legs are predominantly straight, and the forelegs and hind legs appear on the same plane (Fig. 1a-c, f). Occasionally, the front legs are arranged as stretched forwards and the hind backwards (Fig. 1d), creating an impression of an animal in movement. A few so called 'sitting giraffes' (Fig. 1c) have been noted, primarily positioned at the panel's left or right perimeter.⁹

Shallowly drawn lines are often connected to the hammered figure to emphasise the animal's features, including its tuft. Such lines also form ropes attached to their necks (Fig. 1b, e, f); lassos or sticks held by anthropoids depicted in the scene. Also, there are rare examples of trees placed in front of the muzzle (Fig. 1f). The latter is an uncommon detail in the Nile Valley, although it has parallels in Nubian rock art.¹⁰ These shallow lines were not later additions to the designs, but rather the opposite: several panels demonstrate how they were used as initial guidelines to receive interior percussion marks and complete the characteristic feature of Phase II. This may indicate that the producer(s) worked based on a certain 'matrix' for their creations.

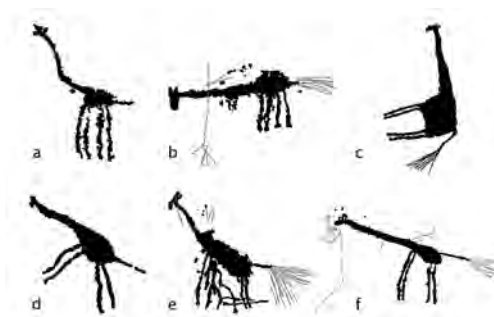


Fig. 1: Stylistic examples of Phase II giraffes: a) standard position, long, parallel stick-legs, neck raised diagonally; b) horizontal neck; c) 'sitting' giraffe; d) 'running' giraffe; e) giraffe with shallow lines added to create the tuft (hunter positioned below the abdomen); f) drawn details added to the hammered design (rope, tuft, and tree/branch). © Maria Nilsson.

⁹ Polkowski 2018.

¹⁰ Kleinitz 2008, 92 with fig. 3A with further references.

The giraffes occur as singular motifs, but more often in herds surrounded by anthropomorphs and canines. No directional preferences are noted, although the tendency is to align with the nearest wadi or towards the Nile.¹¹ Opposing directions between giraffes take place. Overall, they are found within or overlooking wadis, in borderscapes and along the Nile.

Canines

Three 'types' of canine with hybrids have provisionally been identified to date. Canines are highly stylised and geometric, consisting of a rough body with indications of legs, head and a tail, similar to any quadruped. However, its size (c. 5-10 cm tall, 10-15 cm wide) is considerably smaller compared to surrounding animals and is habitually positioned near anthropoid figures, opposing or intersecting wild game (in vertical positions, above, below, in front or behind the game). Identification of canines is sometimes only possible based on their iconographical context and positioning within a scene.¹² Canines are evenly spread, with the directional pattern determined by the hunted game.

Birds

Avian depictions are chiefly represented by ostriches consisting of a rounded body with two long legs and an equally long neck with no emphasis given to the head. It is represented in frontal view and side profile, varying in size from c. 15 to 25 cm in height and 5 to 10 cm wide. Some panels include indications of ostrich hunt or corralling, in which the anthropomorph holds a rope attached to the bird. Ostriches are almost always noted in herds and on panels that include giraffes and anthropoid figures. There are no defined directional patterns. Ostriches in Gebel el-Silsila East and West are concentrated in borderscape areas in the North and South, while those of Shatt el-Rigal are situated near the Nile.

Ungulates

Limited taxa of ungulates – including hooved and horned quadrupeds – occur during Phase II. The images are far from naturalistic, but sometimes recognisable based on anatomical features or characteristics known from

¹¹ Cf. Huyge 1999.

¹² Cf. Darnell 2009; Lankester 2013, 59, fig. 4.18.

contemporaneous panels elsewhere.¹³ This is especially true for horned ungulates as the direction, size and form of the horns can aid the identification of species. On average, ungulates measure *c.* 15-20 cm in height, or 20-30 cm for the horned species, with an ovoid or soft-edged rectangular body physique, straight and parallel legs, rounded muzzle and short tails. While ungulates form the largest group overall (over 400 motifs), very few belong to Phase II – most belong to Phases IV-VI. The wild ass is one of those few breeds, recognised through its characteristic long ears that belongs to Phase II. Wild asses are frequent near and directed towards the Nile, but are overall spread evenly over the rupestrian landscape, adjacent to canines and anthropomorphs.

Phase II is the only phase that includes elephants, which vary in style, but are constructed with a bulky body and distinguishing trunk. Elephants are largely found in locales near or overlooking the Nile, somewhat isolated from other motifs, and never directly controlled or hunted by anthropoids or canines. They are never illustrated in a herd, but site GeS.W.RAS.20 display an elephant cow with a calf. Other identified species include Dibatag and/or Gerenuk, Ibex and Oryx. Dibatag or possibly Gerenuk are medium-sized antelopes with a long neck and legs, and with a slim, oval body and forward-pointed horns. The head mainly consist of a long snout, similar to the wild ass, and the tail is longer compared to other ungulates. The Oryx belongs to the large antelope family and are recognised by their long, scimitar-shaped horns, often exaggerated in length so that they follow the upper curve of the entire body towards the rump. Their legs are considerably shorter than other antelope taxa. Oryxes and Dibatag are primarily depicted individually or in small herds, on surfaces near giraffe scenes within the wadis. The Ibex, most likely Nubian Ibex, belongs to the family of wild goats, and are distinguished by the male's long, ridged and recurved horns. Although the horns are similar to the Oryx's they have a more arched appearance, and the legs are shorter. Ibexes more frequently appear in herds and are spread evenly across the sites.

Reptiles

Phase II include various depictions of crocodiles or lizards and snakes. The crocodiles are easily identified though their shape, seen from above and shaped by a perpendicular line intersected by two shorter horizontal lines. The head is sometimes indicated as an ovoid terminus to the vertical line.

¹³ Cf. Huyge 2009b for the “knife” at the neck of the wild ass. This motif, however, is also represented in Phase IV.

They are habitually placed on horizontal surfaces and depicted as isolated motifs, always near water. The crocodiles are never depicted as a hunting pray.¹⁴ They measure c. 15-20 cm along the vertical line, but larger examples also appear. A few examples show crocodiles with six legs, perhaps a mythological creature – if indeed a crocodile at all. Snakes appear in a limited quantity, consisting of a curvilinear geometric shape with indications of a head.

Phase III

Motifs of Phase III are hammered and stylised with a dark, weathered surface, but are different from Phase II in that they are outlined, sometimes with interior pattern, and incorporate some anatomical details beyond simple linear strokes. However, as Phase II and III images often occur together and display similar shallowly drawn details, one can presume that Phase III is either contemporaneous or not much younger.¹⁵ The repertoire and measurements are similar to the previous, including giraffes, canines, ostriches and ungulates. Elephants and crocodiles are not represented. A few examples of what may be hippopotami appear in large wadis near the Nile. A higher number and variation of hooved and horned quadrupeds are introduced.

Phase III petroglyphs are not as prevalent as those of previous periods, although their range is the same distances from the desert plain to the Nile as Phase II, where the highest concentration is found [near the Nile]. For



Fig. 2: Potential depiction of a turtle at locale GeS.E.RAS.8 (L: original image; R: superimposed with facsimile). Notice that the two linear marks below the figure have not been drawn, as they are part of the natural bedrock. © Maria Nilsson.

¹⁴ Cf. Phases VI-VII.

¹⁵ In total 29 of 39 sites recorded with Phase III motifs also contain Phase II petroglyphs.

Gebel el-Silsila East, the locales are principally situated along the northern mountain ridge. Placement, distribution, orientation and patination are consistent with the previous phase.

A unique petroglyph appears from this period, which tentatively is interpreted as a turtle (Fig. 2). The anatomical features are not as symmetrical as on other media,¹⁶ but this is true also for the vast number of animals depicted in rock art. If this image indeed is accepted as a turtle, it would make the second only known example after the renowned turtle at Gebel Uweinat.¹⁷

Another intriguing feature of this phase is what may be interpreted as paw prints and perhaps also hoof marks.¹⁸ The prospective hoof prints of are situated within contexts that display Phase II giraffes, crocodiles, meandering lines and anthropomorphic figures, with which the patination is consistent. The interpretation, however, is hypothetical.

Phase IV

Phase IV introduces a repertoire of drawn and outlined images, sometimes with rubbed or polished interior. They appear more carefully executed with well-defined edges. The style changes from 'stylised' to 'restricted', meaning that the images have progressed towards a more naturalistic representation with anatomical details and overall harmonious proportions. However, a certain degree of schematicism remain, as do the hammering technique for the production of some outlines. The patination of Phase IV petroglyphs is generally slightly lighter compared with motifs of Phase II and III when displayed on the same rock surface or panel. However, the incision is habitually shallower and perhaps produced with a different type of tool, for which such a relation is not necessarily indicative for a temporal variation.

The motifs of Shatt el-Rigal are largely found near the Nile, positioned as to be viewed from the Nile. At Gebel el-Silsila West, 60 % of the locales are found in the southern borderscape, with 20 % along the Nile and 20 % further into the mountainscape. Only one Phase IV site was noted on the East bank, located near the Nile. Phase IV petroglyphs are principally located on horizontal rock surfaces. The repertoire is a continuation of the previous, and animals remain the most significant motif, as is the hunting theme with a few early expressions of piety. Hunting dogs are easily discernible with realistic

¹⁶ Fisher 1968.

¹⁷ Zboray 2018, 647, fig. 14.

¹⁸ Nilsson and Ward forthcoming a.

anatomy. They rarely occur as isolated motifs, but in packs and with anthropomorphs and wild game, including various taxa of antelopes and barbery sheep. Although not as frequent, wild asses are depicted with a clearly defined 'knife' at their necks (Huyge 2009b). The amount and variation of ungulates increases, and cattle and more antelope breeds (measuring *c.* 15-25 cm in height and width) are introduced. A few giraffes appear too, but are considerably smaller now (*c.* 25-30 cm in height). The legs of ungulates and giraffes remain arranged relatively parallel, sometimes joined at the base, but the inner front and hind legs are now joined with the abdomen as in one uninterrupted line, in which the abdomen is either straight or slightly curved. Ostriches are replaced by a wider range of breeds, such as geese, ducks and potentially some bustards. Reptiles are rare, but the few examples indicate a progress towards a more naturalistic form.

Phase V

Phase V correlates with the Old to Middle Kingdom with drawn, scratched or hammered images in a developed and outlined form, fully recognisable. Adjacent text inscriptions provide a relative chronology for rock art produced with compatible technique and patination. Palimpsests and spatial appropriation occur more frequently, primarily in areas near locations of disembarking. Motifs are distributed over at least 40 sites, with a heavy concentration along the Nile and the southern borderscape of Gebel el-Silsila West. Phase V petroglyphs are primarily found on lower altitudes (*c.* 90-115 m a.s.l).

On the whole, all the animals mentioned previously are represented, excluding giraffes, elephants and ostriches. Crocodiles and hippopotami still appear. The dynastic style is apparent with animals carved in profile with more details, and include breeds connected to the divine world, such as falcons wearing the double crown. Anatomical details are emphasised and the proportions naturalistic. The avian corpus includes ducks, geese, falcons, owls, secretary birds and bustards, to mention just a few. Anthropomorphs with avian features also occur. Canines are anatomically detailed with the characteristic upturned tail, straight ears and thin body. Jackals appear as a separate group. Outlined and sometimes rubbed canines are more frequent, with a few 'stick' variants. They are positioned realistically around the legs of the hunted prey. However, depicted canines are still found placed behind the neck or rear of larger ungulates, as was the case in Phases II-III. The ungulates incorporate a higher number of cattle, habitually surrounded by canines and

a few anthropomorphs. The positioning of the legs of quadrupeds seems to depend on the technique used for production: hammered quadrupeds have pairs of parallel and basic stick legs, often with a single line combining the abdomen with the inner front and hind legs; the legs of drawn quadrupeds express movement with crossed, often skinny legs.

Crocodile are depicted naturalistically, but during Phase V the crocodile-god makes an entrance as “Sobek, Lord of Lake Kharu”.¹⁹ The authors have recently identified this once-only-mentioned lake to be situated deep into wadi Shatt el-Rigal, and the archaeological evidence indicate that it was the initial natural sanctuary for Sobek before the fluvial lake dried up after the Middle Kingdom.²⁰ This Lord of Lake Kharu is depicted reclining on a central podium in a sacred barque at locale SeR.RR, surrounded by a flotilla and scenes of anthropomorphs in expressions of piety with raised hands.²¹

Phase VI

Phase VI is an artistically more delicate and detailed period, characteristic of the New Kingdom. It is a refinement of Phase V, with drawn, chiselled or scratched naturalistic and recognisable images. The phase includes a high number of cattle, canines, birds and hippopotami; and new to the repertoire are a few horses, scorpions and fish illustrations. The Shatt el-Rigal area is essentially abandoned after the Middle Kingdom with only sporadic rupestrian activity thereafter. However, locale SeR.B.3 offers an exception and displays a unique scene (Fig. 3):

The scene is situated on a boulder near and facing the riverfront, likely flooded during the inundation. The boulder is dominated by a scene containing ten standing anthropoid figures, produced with an outlined hammering technique.²² The figures (22–35 cm tall) have rectangular bodies, parallel stick legs and unrealistically short arms, with anatomically marked hands and feet. Navel and breasts are marked out, and each figure wears a penis sheath. The

¹⁹ Sayce 1906, 171.

²⁰ Nilsson and Ward forthcoming b.

²¹ The flotilla of SeR.RR will be described in detail elsewhere.

²² While the style and technique may indicate production during Phase V, a boat with a central mast and sail depicted at the lower end of the panel provides a temporal frame of Phase VI instead. Iconographical parallels are found in New Kingdom papyri.

head is round and rests on a defined neck; the hair is long, spiky and extruding, possibly intended as braids or curls. All figures but one face towards the north/right. The individuals are divided into three encircled groups: a central group of four, flanked to the right by a couple, and below to the

left by another couple (Fig. 3b). Yet another couple, not encircled, overlooks the others from above and right.

Winkler originally published a part of the scene,²³ although omitted the lower part, which shows another anthropoid figure with anatomical features corresponding with the others, but without hair or genitals. This figure is depicted vertically reversed and is devoured by three crocodiles and a large fish (an unfinished crocodile?) (Fig. 3c). Also excluded by Winkler, the right side of the panel includes two anthropomorphs surrounded by canines. The left figure (Fig. 3d) has a physique almost identical to the devoured figure, equally hairless and without genitals, and the face is marked with a central dot. A canine attacks him from behind. The tail is forked into two shafts (perhaps a correction), with each terminal forming a spherical mace head.²⁴ In front of and facing him is a bowman with four canines. The bowman is depicted in a hourglass shape with the legs separated as in movement. While the style of the bowman is different, the technique and patina of all motifs are consistent, which supports contemporaneity; for this, the panel is here interpreted as narrative stages of storytelling. As such, we may also include a barge (raft), a boat with sail, an anthropomorph, a harpoon and a



Fig. 3: Panel of locale SeR.B.3: a) facsimile; b) detail of the three encircled/roped groups; c) detail of vertically reversed figure devoured by crocodiles; d) detail of figure attacked by a canine. © Maria Nilsson.

²³ Winkler 1939, Pl. XII.2.

²⁴ Cf. Taylor 2016, 276-277.

quadruped. Below them is another human-like figure with its head pecked out. This figure too is attacked by a canine, to the right of which is what appears a rope of sorts.²⁵ To our knowledge, there are no known rupestrian parallels, but there may be within the papyrological records.

A papyrus now in the Louvre contains a magical invocation intended to drive away an evil spirit from a woman called Moutemheb, identified as the wife of Ipouy at Deir al-Medina (Louvre E 32308).²⁶ With the aid of Seth, the text describes how the demon will be hunted and destroyed with violence; how a net will be set up against it in heaven, and how it will be forced to sail towards the north without being able to land. In the upper right corner of the papyrus is illustrated how several crocodiles devour the demon. The net finds its origin in the Papyrus of Nu (BD Chapter 153A: coming forth from the net) and is illustrated as “a net fastened at one end to ground below or near water by means of a stake driven through a coil of rope which is drawn tight by the deceased” (BM 10477).²⁷ Several parallels are found from Deir al-Medina, and the vignettes generally include solar barques, Seth-animals and protective symbols.²⁸ In an unnumbered Ramesside papyrus, a canine deity (Seth?) is depicted holding a red rope with which he controls a net that encircles the demon that is devoured by crocodiles.²⁹ Other related vignettes include Seth-animals and jackals, interpreted as Spirits of the West (bAw-Imnt .t) and associated with the protection of the journey in the netherworld and guides of the soul.³⁰

Although the rupestrian scene is very crude compared to the vignettes, it contains certain features of relevance, most evidently the devouring crocodiles. It could also be suggested that, rather than encircling families or marking boundaries, it is the outline of the net that the producer wanted to represent with the rope-like detail. As in Chapter 153A, the depicted net would be grounded in the physical water of the Nile as the panel was submerged during inundation. Perhaps pushing the evidence, one might posit that the four canines in the right section represent the Typhonian jackals and the attacking canine Seth himself.³¹ Does the bald and androgynous, attacked and devoured person represent a demon? If so, we may mention his direction facing North, and the boat in which he is to sail is found in the lower part of the panel.

²⁵ Cf. Horn et al. 2020; Horn and Wollentz 2019.

²⁶ See Koenig 2004. We would like to thank Rita Lucarelli for bringing our attention to this papyrus. For the identification, see Davies 1999, 150.

²⁷ Budge 1898, 277-280.

²⁸ DuQuesne 1998; Koenig 1994.

²⁹ Koenig 1994, 108-109; Duquesne 1998, 617, 628, pl. 1.2.

³⁰ DuQuesne 1998, 617.

³¹ Taylor 2016.

Perhaps, there is regional relevance related to Nu's wish to *rise up like the god Sobek* as mentioned in Chapter 153A of the Book of the Dead (BM 10477, 20 L. 6).

As Shatt el-Rigal was deserted, Gebel el-Silsila became the new hub of industrial and religious motion, including the now stately controlled veneration of Sobek. Fourteen Phase VI locales have been documented on each bank. Petroglyphs are concentrated in the northern borderscape of the East bank, with heavy rupestrian activity in the cemetery and Temple of Sobek. Additional sites are found along the pathways and southern borderscape. Locales on the West are chiefly situated along the Nile.

Sobek is now described as "Lord of Kheny" and received monuments on both banks.³² The crocodile-cult culminates and in addition to rock art and primary epigraphy, headless crocodiles were placed ritualistically outside tombs. Sobek's popularity, however, was considerably short as his status declined already during the Ramesside period. Soon thereafter Sobek was rejected, his sanctuary destroyed and his images eradicated.³³ The final reference to Sobek as Lord of Kheny comes from the West bank and the time of Ramses V.³⁴

Phase VII

Phase VII presents a style and technique consistent with the Graeco-Roman period in Egypt. The distribution pattern differs between the areas as a result of the type of activity. For the quarry-intense East bank, ten Phase VII locales are spread evenly across the site from the North to South, including borderscape areas and along the two main transportation routes along the Nile and on the plateau. On the opposite bank, Phase VII petroglyphs spread over 15 locales close to the quarries, pathways and outlook stations. For the Shatt el-Rigal area, all seven Phase VII locales are concentrated along the main pathway that leads to Gebel el-Silsila.

This phase introduces a wide range of avian breeds, including peacocks, eagles and swallows.³⁵ Horus in his local form as Pachimesen is the favoured

³² For the title, see Godron 1965, 197-198; for a synopsis on the current excavations in the Temple of Sobek, see Nilsson & Ward 2018; 2020b; monuments on the East bank, see Caminos 1987; Legrain 1903; Nilsson *et al.* 2021; Nilsson & Ward 2019; for Sobek in the Speos, see Thiem 2000; the Nile stela, see Nilsson *et al.* 2020; Saad 2019.

³³ See Yoyotte 1962, 103, note 3 for Ptolemaic reference to Sobek as Lord of Khenu at Kom Ombo Temple.

³⁴ Kitchen 1983, 224-225.

³⁵ However, since the majority of birds are catalogued as quarry marks, they will be dealt with elsewhere.

divinity, depicted as a zoomorph with the body of a Roman soldier and the head of a falcon.³⁶ The animals are heraldic and moves away from rock art *per se* towards graffiti. Now, crocodiles are shown as the defeated enemy, often speared with a harpoon.³⁷ Within the limited rupestrian collection, the horse stands out as a favoured quadruped to depict, with or without a rider.

Phase VIII

Phase VIII is only registered at three locales on the East bank, one on the West, and four in the Shatt el-Rigal area. In this period, a single Coptic fish symbol is the sole animal.³⁸

Phase IX

Phase IX coincides with the early Islamic and Ottoman periods, and is documented at eight sites in total, and is characterised by depictions of camels and/or horses. Locales of the final phases occur near dynastic monuments, cemeteries, or entrances to wadis facilitating routes towards the Western Desert.

Conclusion

Rock art production, including the selection of animals depicted, was controlled by the changing landscape and human interest in its natural resources (for a preliminary overview of stylistic horizons, see Fig. 4). Findings from initial surveying indicate the presence of a prehistoric fluvatile lake deep into wadi Shatt el-Rigal, which gives reason for the four rock art sites there, surrounded by game traps and temporary shelters during Phases II-IV, coinciding with the Predynastic chronology. A dedication to "Sobek, Lord of Lake Kharu" at the mouth of the wadi indicates that the lake was still healthy during the reign of Mentuhotep III. However, at that time, it must have already decreased as part of the aridification process, which forced the savannah animals further south, and after which the giraffes, ostriches and elephants disappear from the rupestrian repertoire. Rock art production was now limited closer to the Nile, with new trends of animal depictions, chiefly horned quadrupeds. When sandstone replaced limestone for temple construction during the New Kingdom, the hunted/wild game is almost completely replaced by zoomorphic representations from the divine world, including Horus-falcons with

³⁶ Nilsson et al. 2019, 4-6.

³⁷ Nilsson 2020, 144-146, fig. 4.

³⁸ Winkler 1939 VII.2.

royal insignia, standing Taweret/Ipet-hippopotami with handheld items, and Sobek-crocodiles reclining on a podium.

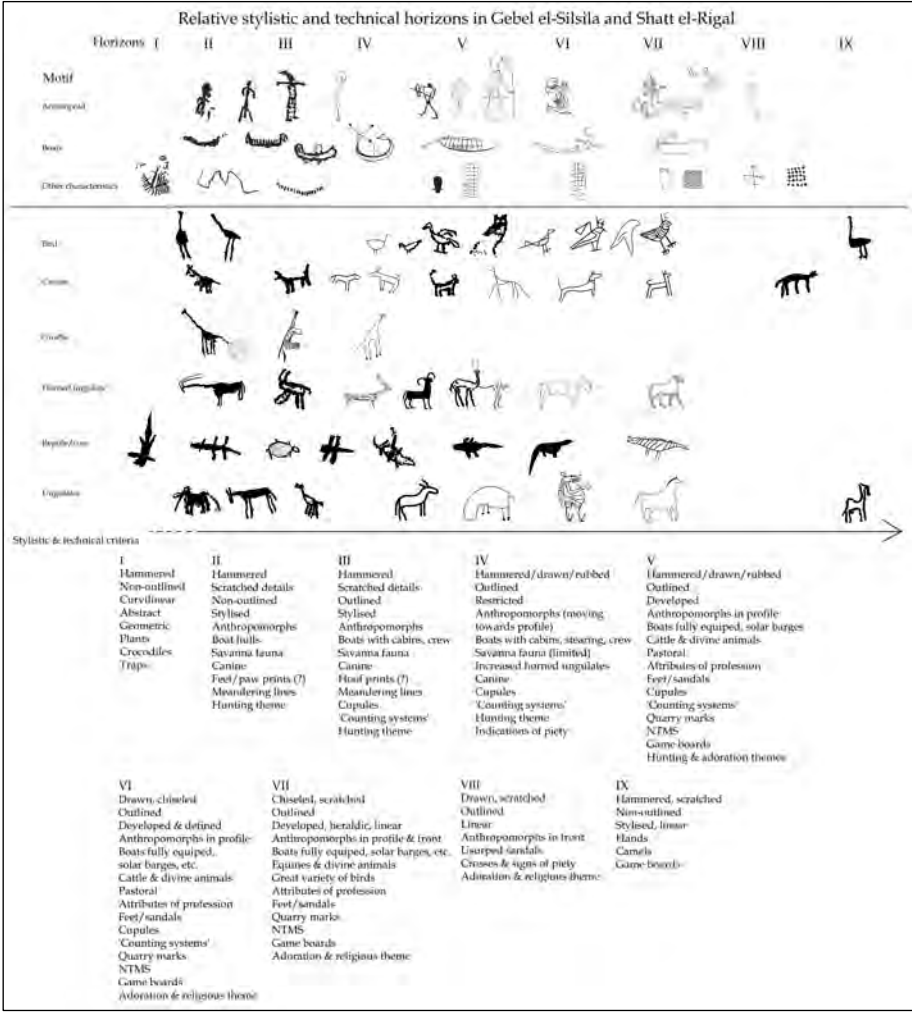


Fig. 4: Preliminary stylistic and technical horizons of animals depicted in the rupestrian collection within the Swedish concession area. Grey images above the horizontal line are included as examples of motifs characteristic for each phase. © Maria Nilsson.

Animals remained the prevalent motif throughout all the phases of rupestrian art in this area and make up for 38 % of the rock art corpus documented thus far (for the spatial distribution of animals across the phases, see Fig. 5). Birds of Phases

II-IV are concentrated along and directed towards the Nile or in borderscapes that were flooded during inundation. As religion developed, new spatial trends occur as images of birds move from the riverside to higher grounds, and the focus shifts from ostriches to the falcon of Horus. Canines intersect the hunted game from all directions, above and below the game; they are evenly spread across the sites and time periods, appearing as an always-present support to the ancient people. Giraffes are in the main located within or overlooking wadis, although exceptions occur along the Nile. Hooved and horned quadrupeds follow a similar distribution pattern to the canines, evenly spread over the sites and time, although oriented towards the Nile or the nearest wadi. Reptiles, primarily crocodiles, are found near water, whether that is the Nile or Lake Kharu. However, there are several exceptions on the west bank, where they are found on the plateau with no apparent water connection. For animals at large, it is plausible that differentiations in the spatial distribution and directional preferences reflect patterns of movement and behaviour for the individual species. As a rock art survey still in progress, the current paper presents preliminary results. The comprehensive rock art corpus is currently prepared for monographic publication.

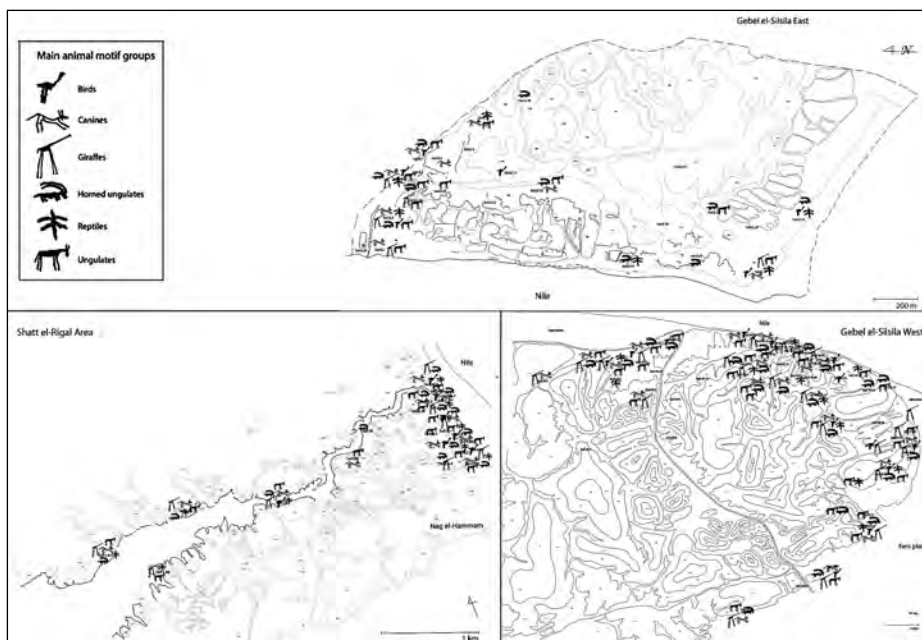


Fig. 5: Spatial distribution of animals depicted within the Swedish concession area (Phases I-IX): Gebel el-Silsila East (top), Shatt el-Rigal area (lower left) and Gebel el-Silsila West (lower right). © Maria Nilsson.

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Collars on Cats and Dogs in Life and in the Afterlife

Function and Fashion in Early Roman Egypt

Marina Maria Serena Nuovo & Iwona Zych

Introduction (MMSN, IZ)

In a fable written in Greek, dated no later than the 2 c. AD, Babrius¹ has a wolf asking a dog about the bare spot on his neck. The dog responds: “the flesh has been rubbed by the iron collar which my keeper forged and put upon me”.² The significance of this for the present paper is the open statement that collars, in this case made of iron, were commonplace on dogs in the Roman age in the East as much as in Roman Italy. The functionality of this approach to domestic animals – restraining them in an effort to prevent their leaving and as a means of marking ownership – is obvious and goes back in time. So does the very human need to decorate these devices if the animal in question is a favorite pet.

The present paper arises from a recent discovery, made at the Red Sea harbor site of Berenike, of a cemetery of companion animals³ from the 1st and early 2nd centuries AD, mostly cats, but also a few dogs, some monkeys, and single examples of other species (Fig. 1).⁴ Fifteen of the cat skeletons were found furnished with iron and copper-alloy collars, occasionally strings of beads and a single instance of a pendant bell; more collars and associated elements were found dissociated from the animal skeletons. The finds spurred a review of four groups of iconographic sources – images on mosaic floors and in wall paintings, terracotta figurines and

¹ The author of the fable is supposed to have been a Hellenized Roman living, perhaps, in Syria.

² Babrius 100; Fields 2016, 68.

³ The companion cemetery is being excavated by Piotr Osypiński and Marta Osypińska (PI) from the Institute of Archaeology and Ethnology of the Polish Academy of Sciences, working in 2017–2020 under a Polish National Science Centre grant (NCN 2016/23/B/HS3/03576), within the frame of the Berenike Project, a joint American-Polish expedition from the University of Delaware and the Polish Centre of Mediterranean Archaeology University of Warsaw. The cemetery continues to be excavated by Osypińska under a new Polish National Science Center grant (DEC-2021/43/B/HS3/02749), carried out in consortium by the Institute of Archaeology of the University of Wrocław and the Polish Centre of Mediterranean Archaeology University of Warsaw.

⁴ Osypińska, Skibniewski and Osypiński 2020, 242.

funerary sculptures/reliefs – from the 1st to the 3rd centuries AD (with a few of slightly earlier date), corresponding to the chronology of the companion animal cemetery. The search for surviving representations of collars, primarily on cats and dogs, reached beyond Egypt to include the northern Mediterranean Roman provinces (Gaul, Italy, Greece), the North African coast (Morocco, Tunisia) as well as part of the Roman East (Turkey).

The broader scope of this query, which is still in a preliminary stage, is justified by the unusual nature of the finds from Berenike. The cemetery contained the remains of nearly 600 burials: 536 domestic cats, 32 domestic dogs, 16 monkeys, one young Rüppell's fox and one adult Barbary falcon. The bodies were not mummified, but carefully inhumed in pits dug in the sand and protected with textiles, mats, wooden planks, or large amphorae fragments, but there were apparently no superstructures of any kind to mark the pits.⁵ Moreover, while there is some evidence of a small shrine lying on a slight sandy rise at the heart of the burial ground on the northwestern fringes of the harbor town,⁶ the burials themselves do not seem to represent sacred animals in the spirit of the ages-old tradition of Egypt, continued in Roman times. Moreover, there is no tangible proof of a deliberate killing of the animals.⁷ So far, neither Egypt nor any other regions of the Roman Empire have yielded any comparative material for this particular form of animal burial practices.

Offering a full catalog of the finds, both iconographical and archaeological, is beyond the scope of this paper. Instead, the authors have focused on identifying typologies, function, and context of the collars shown in the visual arts in order to compare them with the archaeological discoveries from Berenike. It is important to note that the results of the iconographical and archaeological studies are of necessity distinctive but complementary: on one side are the vagaries of artifact preservation at a site like Berenike, and on the other, the inevitable schematization of representations in art. In both instances, the reconstruction of examples of collars is often hypothetical at best.

⁵ Osypińska and Osypiński 2018, 168-174.

⁶ Osypińska and Osypiński 2019, 177, 192.

⁷ Osypińska, Skibniewski and Osypiński 2020, 639.

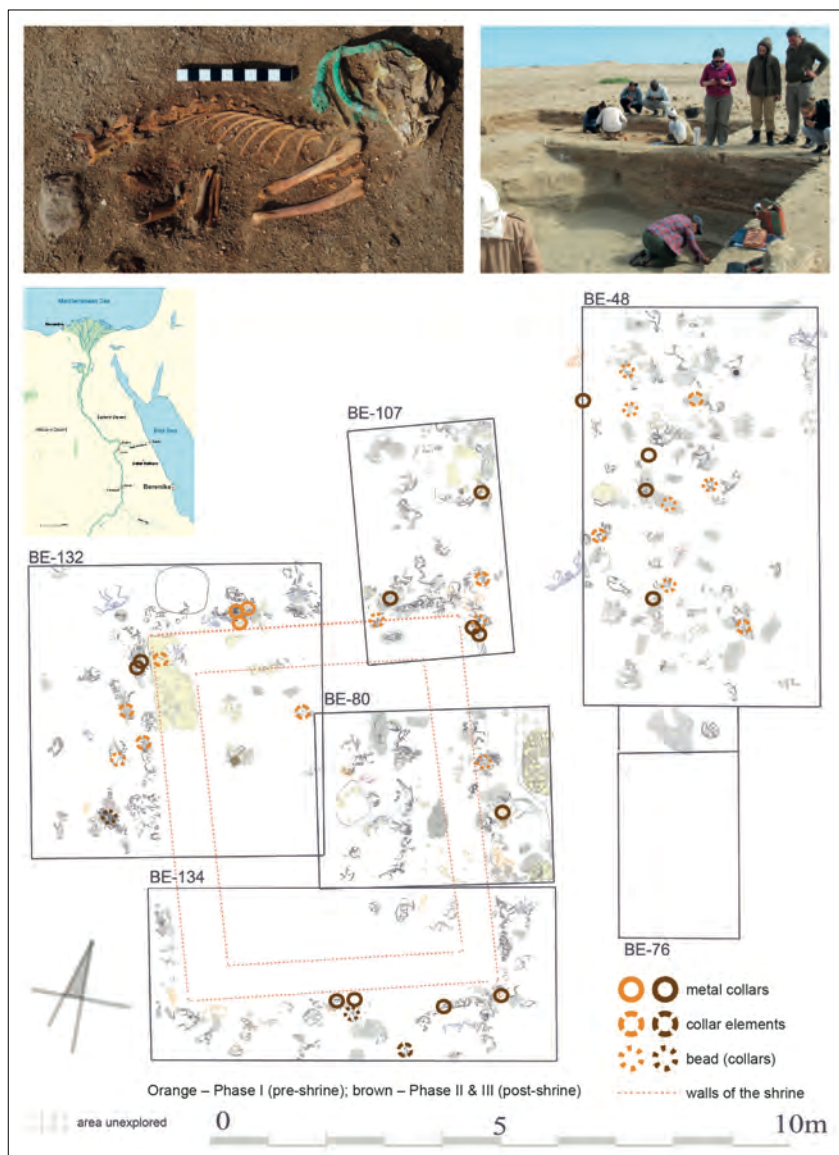


Fig. 1: Plan of the companion animal cemetery in Berenike marking the location of finds of collars and associated elements (location of Berenike in Egypt on the map in the inset). Top left, cat burial with a copper-alloy collar still in place; top right, excavations in 2019. Courtesy Berenike Project (PCMA UW): photos I. Zych, P. Osypiński, plan P. Osypiński; plate make-up K. Krajewski.

Collars in art (MMSN)

Generally speaking, dog representations are very common in the art of the Roman Empire between the 1st and 3rd c. AD. With just a few exceptions (see Fig. 2.11), dogs in these representations wear collars. By contrast, cat iconography is fairly problematic because small dogs and/or puppies are often misinterpreted as cats. The reason for the insecure or impossible identifications is, as C. Johns first pointed out,⁸ the insufficient rigor with which cat identifications were made by some scholars from the 1950s onwards.⁹ Features used to identify cats, i.e., small size, pricked ears, large and prominent eyes, round, flattish, short-muzzled face and long tail, are not exclusive to cats and can easily be attributed to small dogs and puppies as well.¹⁰ For example, the animal carved in high relief on a funerary stela of a girl holding a pet (Fig. 3.1), discovered in 1831 in Bordeaux (France) and dated to the 2nd century AD,¹¹ has been interpreted as either a cat¹² or a dog.¹³ However, the presence of a small protuberance on the underbelly is clear evidence of dog's genitals, characterized by the baculum or os penis, present in dogs but not in cats.¹⁴ Another example is a small quadruped in the arms of a boy depicted on a Gallo-Roman leg/support of a stone table from Mont Auxois (France) (Fig. 3.2). The animal has alert, pricked ears, large eyes, a short muzzle, and curly tail, and wears a collar with a bell. It has been identified as a cat,¹⁵ while others¹⁶ have seen in this quadruped a small dog, especially because of the presence of a curly tail.¹⁷ Moreover, cat representations are much less common in Roman art than those of dogs. Animals securely identified as cats are usually depicted hunting, with prey in their jaws or about to attack (Figs. 2.3–2.6). The number of cat representations with collars of any kind is even smaller.

⁸ Johns 2003, 54.

⁹ See also Cattelain 2015, 101.

¹⁰ Jones 2003, 54.

¹¹ Feider 2017, 191, 262.

¹² E.g., Lazenby 1949, 304; Donalson 1999, 98; Minten 2000/2001, 74; CIL, XIII, 787 erroneously describes the human figure as a boy.

¹³ E.g., Johns 2003, 59; Cattelain 2015, 101.

¹⁴ See also Feider 2017, 262.

¹⁵ Grilhé 1958, 133, fig. 38; Donalson 1999, 98–99; Engels 1999, 100–102.

¹⁶ E.g., Cattelain 2015, 100, 101, fig. 5.

¹⁷ Johns 2003, 54–55.

Dog collars (MMSN)

Dog collars are represented on three mosaic floors from houses in Pompeii, all of them dated to the 1st century AD (Figs 2.1–2.3). In all three instances the dog resembles a massive Molossian, shown either chained or on a leash. It is evidently on guard. The collar is schematically indicated by a red line, marked with a series of white dots (Figs 2.1 & 2.3), while the leash is simply red and the chain is black. An example from Hadrumentum (Tunisia) is dated to the mid-2nd century AD¹⁸ and represents a black hunting dog, similar to a slender greyhound, depicted in the act of running or jumping. The animal wears a large band collar, red in color. Red might stand for leather, naturally reddish/brownish in color, while the white dots might be the collar studs or spikes, common on guard dogs even today.

Two wall paintings from Pompeii, also dated to the 1st century AD, depict dogs with collars around their necks. The first is a hunting dog at rest, accompanying the goddess Selene and the hunter Endymion, painted on one of the triclinium walls of the House of the Ara Maxima (Fig. 2.4). The dog resembles a Cirneco dell'Etna, a Sicilian hunting breed. It is crouched at the feet of Endymion and wears a spike-studded collar painted grey, probably to indicate the metal shining in the moonlight. A reddish/brown element next to the dog can be interpreted as a leash. The second fresco (Fig. 2.5) is painted on the base of the countertop of a *thermopolium* excavated in 2019 in Regio V.¹⁹ A black guard dog with a massive body is represented seated and looking left. The collar is painted reddish/brown and has white spots, possibly to indicate the studs. The leash is of the same color as the collar.

Terracotta figurines, mostly dated between the 2nd and the 3rd centuries AD, are a numerous group. The example discovered at the entrance of the temple of Isis in Berenike (Fig. 2.6)²⁰ can easily be associated with the goddess because the heliacal rise of the Dog Star Sirius announced the Nile flood,

¹⁸ Threshold mosaic from a Roman house in Hadrume(n)tum (Sousse Museum, Tunisia), mid-2nd century AD; Porstner 2020, 16, 17, fig. 7.

¹⁹ Pompeii 2015, 21.

²⁰ Inv. BE22-135/015/001. The excavations of the temple of Berenike are carried out under the aegis of the University of Delaware (S.E. Sidebotham), Heidelberg University (R. Ast) and Leiden University (O.E. Kaper) on the concession of the Polish Centre of Mediterranean Archaeology University of Warsaw (PCMA UW). The authors thank the directors of the Berenike Project, Steven E. Sidebotham, Rodney Ast and Mariusz Gwiazda, for permission to present this unpublished find.

which represented the tears shed by Isis mourning the death of Osiris. A collar can be discerned around the neck of the animal and, conceivably, the remains of a bell suspended from it. Surface treatment in the form of oblique dashes is intended to depict a rope. Three figurines, today in the Egyptian Museum of Ancient Agriculture (Ancient Egyptian Agriculture in the Greco-Roman, Coptic and Islamic Era) in Cairo, come from Egypt, even if their findspots are not always known. The first (Fig. 2.7),²¹ of 2nd-3rd century AD date, found at Karanis (Fayum), resembles a Maltese dog and wears a soft, closely fitting band collar with a single pendant bell. The collar might have been made of textile or some other soft material like skin/leather; alternately, it could depict a two-ply cord made of leather or textile. The second figurine (Fig. 2.8),²² of 1st-2nd century AD date and unknown provenance, is also a Maltese dog. This animal's collar appears rigid and tubular – probably made of metal – and has three pendant ornaments: a central bell flanked by two medal-like accessories. The third Maltese dog figurine,²³ also of unknown provenance, dates from the 2nd-3rd century AD. The collar in this case seems flat, not particularly rigid, perhaps made of metal or leather, furnished with three medal-like pendants. A fourth example, a fragmentary statuette from the Fouquet Collection²⁴ (Fig. 2.9) is of slightly earlier date, 3rd-1st c. BCE. It has been identified as a spaniel-like dog, wearing a large studded collar, most likely leather-made.

Finally, there are several funerary sculptures/reliefs of dogs, with and without collars, reflecting the strong emotional bonds between animal and human in the face of passing. A couch dog, dated to the mid-3rd century AD, is represented on top of a sarcophagus (Fig. 2.10) discovered in Athens in 1937 and thought to contain the burial of a small dog. The dog wears a band collar, probably made of leather or textile, with a bell hanging from it. The edge of the band is visible and seems to be fastened with a squared buckle. The circular and square elements on the collar can be interpreted as inlaid decoration, perhaps made of precious stones, glass paste or metal.

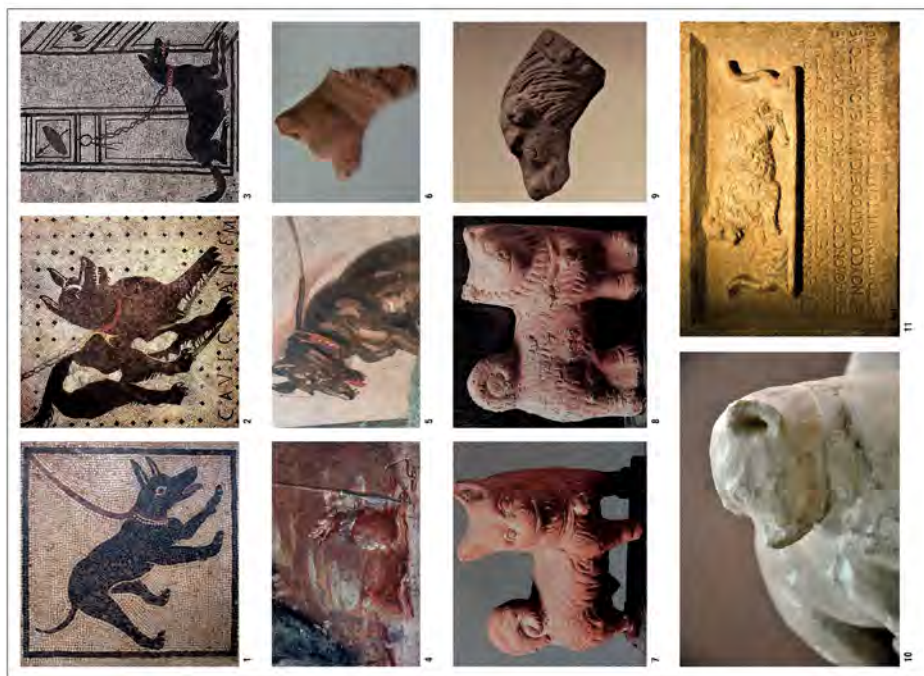
²¹ Boutantin 2012, 103, no. 60. Inv. 850.

²² *Ivi*, 52, no. 59. Inv. 646.

²³ *Ivi*, 114, no. 71. Inv. 4052.

²⁴ Perdrizet 1921, no. 395; findspot unknown.

Fig. 2: Iconographic images of dogs with collars: 2.1 – mosaic from the House of Orpheus, Pompeii, insula VI.14.20, now at the National Archaeological Museum, Naples, Italy. Courtesy of Ministero della Cultura, Museo Archeologico Nazionale Napoli; 2.2 – mosaic from the House of the Tragic Poet, Pompeii, insula VI.8.5. Courtesy of Ministero della Cultura, Parco Archeologico di Pompei; 2.3 – mosaic from the House of Paquius Proculus, Pompeii, insula I.7.1. Courtesy of Ministero della Cultura, Parco Archeologico di Pompei; 2.4 – wall painting from the triclinium of the House of the Ara Maxima, Pompeii, insula VI.16.15. Courtesy of Ministero della Cultura, Parco Archeologico di Pompei; 2.5 – countertop of a thermopolium excavated in 2019 in Regio V. Courtesy of Ministero della Cultura, Parco Archeologico di Pompei; 2.6 – terracotta figurine from the temple of Isis, Berenike (Red Sea). Inv. BE22-135/015/001; 2.7 – terracotta figurine from Karanis, now at the Egyptian Museum of Ancient Agriculture and of the Agriculture of the Graeco-Roman times in Cairo, Inv. 850. After Boutant 2012, 103, no. 60; 2.8 – terracotta statuette of unknown provenance, now at the Egyptian Museum of Ancient Agriculture and of the Agriculture of Graeco-Roman times in Cairo, Inv. 646. After Boutant 2012, 52, no. 59; 2.9 – terracotta figurine of unknown provenance, now in the Fouquet Collection. After Perdizet 1921, no. 395; 2.10 – sarcophagus from Athens (Greece), now in the vault of the National Archaeological Museum, Athens, Inv. Γ 3783. National Archaeological Museum Photographic Archive.



Cat collars (MMSN)

A mosaic from the House of the Mosaic of Venus in Volubilis (Morocco) (Fig. 3.7), dated to the 2nd century AD, depicts a cat clutching a mouse. Inscriptions refer the representation probably to a fable. The cat wears a red collar/harness, probably indicative of leather. The context of the scene is not specified, but, according to J. Aymard,²⁵ the use of the collar/harness is clear evidence of the animal being a domestic cat.

Concerning terracotta figurines, a secure representation of a cat with a collar comes from Egypt (Fig. 3.8), from the Burnt House A in Memphis.²⁶ It is a fragmentary statuette of a seated cat, on which a collar with a medal-like pendant is well visible. The collar is tubular and could be made of leather or textile, less probably of metal because it does not appear to be especially rigid. Another representation of a cat with a collar is a figurine, from Memphis²⁷ as well.²⁸ The cat is shown lying on a base, with the body to the left and the head turned to the front, clutching what appears to be a cockerel. The cat wears a red collar with a hanging black object; this is likely to be a representation of a bell suspended from a leather collar (Fig. 3.9).

A terracotta statuette with an animal, most likely a cat, possibly wearing a collar comes from Egypt (Fig. 3.10) and is now in Budapest, Hungary.²⁹ The statuette is not particularly rich in detail; the cat rides a cock and seems to have a band-like, presumably ribbed collar; however, it is not enough to establish whether the collar was of leather or metal, and whether it was actually decorated.

²⁵ Aymard 1961, 52.

²⁶ Petrie et al. 1910, 45, pl. XL, n. 38.

²⁷ Now at the NY Carlsberg Glyptotek, in Copenhagen (Denmark). The authors would like to thank Tine Bagh, curator of the Collection of Ancient Egyptian Art at the NT Carlsberg Glyptotek, for providing a high-resolution color image taken by Ole Haupt.

²⁸ Engelbach et al. 1915, pl. LXI.45; Fjeldhagen 1995, 186, no. 186; Bagh 2011, 71, Cat, ÆIN 1509, with previous references; 72, fig. 1.96.

²⁹ Collection of the Classical Antiquities in the Museum of Fine Arts. Laszlo Török interpreted this figurine as an illustration of a fable because of a certain comic accent. A fable about a cat and a cockerel appears in *P.Amh.* II 26, a papyrus document acquired in Egypt at the end of the 19th c. (see Scappaticcio 2017, 100-101). Török 1995, 173, no. 284; plate CXLIX, no. 284.

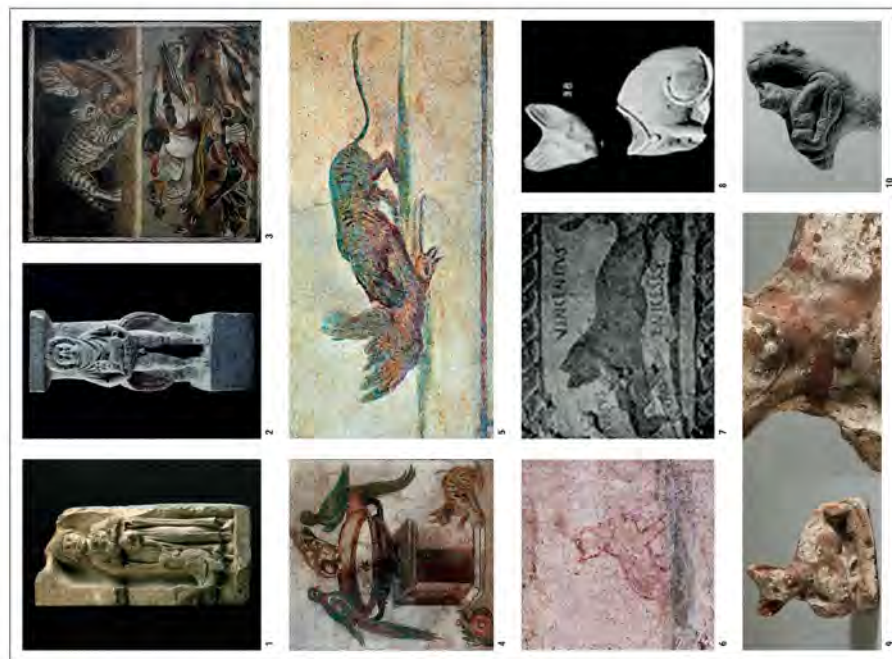


Fig. 3: Iconographic images of cats (or dogs misinterpreted initially as cats) with collars: 3.1 – funerary stela from Bordeaux (France) with a little girl and a dog misinterpreted as a cat, now at the Musée d'Aquitaine de Bordeaux. After Cattelain 2015, 101, fig. 6; 3.2 – leg/support of a Gallo-Roman stone table from Mont Auxois (France), with a boy holding a dog misinterpreted as a cat, now at the Musée d'Alésia. After Cattelain 2015, 101, fig. 5; 3.3 – mosaic from the House of Faun, insula VI.12.5, Pompeii, now at the National Archaeological Museum, Naples Italy. Courtesy of Ministero della Cultura, Museo Archeologico Nazionale Napoli; 3.4 – mosaic from Santa Maria Capua Vetere (Italy), now at the National Archaeological Museum, Naples Italy. Courtesy of Ministero della Cultura, Museo Archeologico Nazionale Napoli; 3.5 – wall painting from the columbarium of Caius Scribonius Menophilus, near the Villa Doria Pamphili, Rome (Italy), now at the Roman National Museum in Rome. Courtesy of Ministero della Cultura, Museo Nazionale Romano-Palazzo Massimo alle Terme; 3.6 – wall painting from the Insula of the Muses, Ostia Antica (Italy). Courtesy of Ministero della Cultura, Parco Archeologico di Ostia Antica; 3.7 – mosaic from the House of the Mosaic of Venedi Ostia Antica (Morocco). After Aymard 1961, fig. 1; 3.8 – terracotta figurine from the Burnt House A, Memphis (Egypt). After Petrie et al. 1910: 45; pl. XL, no. 38; 3.9 – terracotta figurine from Memphis (Egypt), now at the NY Carlsberg Glyptotek, Copenhagen (Denmark), Inv. ÆIN 1509. Photo credit: Ole Haupt; 3.10 – terracotta figurine from an unknown site in Egypt. Collection of the Classical Antiquities in the Museum of Fine Arts in Budapest (Hungary). After Török 1995, pl. CXLIX, no. 284).

Collar typologies (MMSN)

In general, a collar marks ownership. In Roman times, a dog or a cat with a collar was private property, and, according to the social status of the owner and to his/her sensitivity, the animal could have been particularly well cared for and well-fed, as demonstrated by the archaeological evidence from Berenike. The above review of iconographic sources lets us distinguish three different types of collars with a few variants (Fig. 4). The context of their use and the characteristics of the animals wearing them vary accordingly.

Type 1 is a collar with a bell and/or with medal-like pendants. Four variants have been identified:

- 1.A: simple piece of rope, or a two-ply cord either of leather or fabric, or a soft textile or leather/skin band, with a single hanging bell;
- 1.B: made of metal (copper alloy or iron) or of leather, with three pendant ornaments: a central bell flanked by two medal-like pieces;
- 1.C: same as 1.B but with three medal-like pendants and no bell;

1.D: a single bell suspended from a collar, apparently made of leather or metal, and decorated, either with inlays possibly of precious or semiprecious stone or glass paste, or metal appliques, or studs.

This kind of collar is recorded on images of dogs: terracotta statuettes from Egypt, a marble sarcophagus from Athens and a leg support for a stone table from Mont Auxois. Only one case of a cat in a collar is known and it is a terracotta figurine. Thus, one can argue that simple band collars with bells and/or other pendants were common on small companion dogs, like the Maltese, for example, kept at home, fed, well cared for, and sometimes even loved like real members of the family as attested in poems, funerary inscriptions and stelae.³⁰ They appear to have been worn also by domestic cats in Egyptian contexts, at least on the grounds of the iconographic sources collected so far. Bells are used even today to give notice of the whereabouts of an animal inside a house and to prevent accidents. The pendants, however, – like the tentative precious stone inlays – served no particular utilitarian function and must have been intended for fashion purposes, to embellish and, in a way, to humanize the dog. After all, today's dressing of dog pets and their styling as children is not that much different in effect.

³⁰ For an extensive overview of poems, funerary inscriptions and stelae dedicated to dogs see Garulli 2014, 27-64.

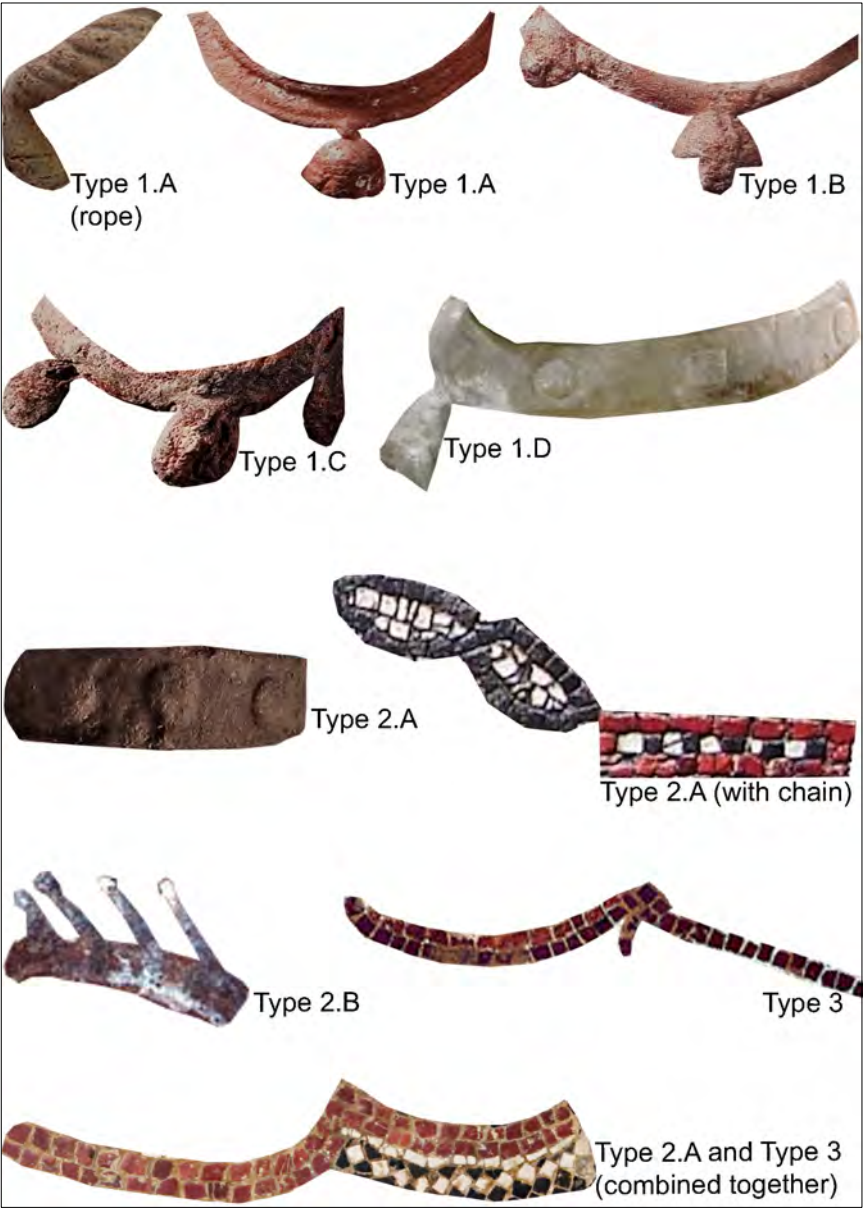


Fig. 4: Collar typologies based on iconographic sources from Figs 2 and 3. Processing M.M.S. Nuovo.

Type 2 is a collar without any suspended elements, decorated with inlays or provided with studs or spike-studs. Two variants have been identified:

- 2.A: made either of leather or metal and provided with studs; used either with a leash or with a chain;
- 2.B: spike-studded collar made entirely of metal; it could also be a leather band with metal spikes.

Collars of this kind, which are wider than the first type, are worn by middle/large-sized dogs with a long neck, thin elongated body and pointed ears, resembling a greyhound. Also, massive Molossian-like black dogs wear such collars. The images on mosaic floors are typically guard dogs, kept on a leash, or chained. The 2.B variant could have been worn also by shepherd dogs guarding herds, the purpose being to keep them safe from attacking wolves, for example. On hunting dogs, collars of this kind would have protected them from wild animals. The utilitarian function of this type of collar is evident because it is meant to protect the neck of the dog and give the animal a more aggressive appearance as a deterrent of sorts.

Type 3 is a simple band of leather, sometimes with a leash or chain attached. On mosaic floors, it is always represented as a line of red tesserae. Like the previous type of collars, they were used for both middle/large-sized hunting dogs and massive, black Molossian-like guard dogs. Cats were also depicted in such collars, as shown on the mosaic from Volubilis.

Based on the collar depicted on a dog from a mosaic in the Pompeian House of Orpheus (Fig. 2.1), a combination of leather collar (type 3) and a collar with studs (type 2) was also possible, depending on the circumstances.

Collars in the archaeological record: the evidence from Berenike (IZ)

Excavation of the cemetery of companion animals in Berenike has yielded a coherent assemblage of metal neck rings and tags, complete and fragmentary, associated with the burials of 15 cats. Cats constituted roughly 92% of the animal population buried in the cemetery, in two phases, over a period of about 150 years, starting from the 1st century BC/1st century AD through the mid-1st century AD. This corresponds to a peak in the development of the harbor site of Berenike as the largest Roman emporium on the Red Sea, the gateway between the Far East, India, South Arabia and sub-Saharan Africa on the one side, and the Mediterranean world on the other. With the total number of excavated cat burials

currently at 566, the collared animals constituted a very small percentage of this set, just about 2.6%. None of the few dogs among the burials (5% of the total assemblage) was found with a collar and the only other species furnished with such an accessory was a young monkey, which archaeozoological studies have identified as an Indian species.³¹

Added to the collars found directly with the burials are several fragmentary rings and loose tags that have been assigned in post-processing analysis to the disturbed burials from the earlier phase of the cemetery. Thus, altogether, the assemblage consists of 20 iron neck rings, three rings of a copper alloy and one that is bimetallic, combining elements made of the two metals. The tags, five of which have been identified for sure, were made of diverse materials: iron, copper alloy, bone and wood. Apart from these neck rings, the cat burials yielded at least 12 cases of bead strings around the neck of the animal and one instance of a small bell combined with finely decorated banded glass beads of Roman origin around a kitten's neck. In terms of percentages, the cats with bead collars add another 2%, altogether 4.6%, to the population of animals furnished with this form of distinction.

The neck rings all take on the same form of an iron rod of square cross section (in one instance a copper-alloy rod) with the ends worked into a circlet and flattened to form end loops, which were part of the closing mechanism (none of the pieces have been cleaned professionally yet, hence not all the technological details are clear) (Fig. 5 top). A rod of the same kind as used for the neck ring was passed through the end loops. One end of this rod ended in a nail-head-like protuberance, the other end was curved into a loop and then twisted around the rod to secure the loop in place. The circumference of the neck rings, wherever preserved complete and calculating in the "swollen" size of corroded iron, ranges between approximately 16 cm and 25 cm when closed. The rod in the closing mechanism would allow usually for an extra 3-4 cm for pushing the neck ring in place. Importantly, the neck ring with the closing rod passed through the end loops was closed from the start. The end loop in the rod would have served to tie on the leash or chain. No evidence of the latter has been recorded.

Rods of the kind used in the closing mechanism have also been found separately, passing through a circular center hole pierced through plaques of oblong shape from square to rectangular (roughly from 4 cm to 10 cm long, the width mostly about 2 cm with a few wider ones).

³¹ M. Osypińska, personal communication.



Fig. 5: Collars from cat burials discovered in Berenike: iron and copper alloy examples, one example with glass beads rusted to the metal. Below, two strings of faience and gold-in-glass beads, a glass bead imitating an *Engina mendicaria* shell (an actual shell is shown at top left for comparison), and the set of four banded glass beads with a wreath motif and copper alloy bell. Courtesy Berenike Project (PCMA UW): photos I. Zych, P. Osypiński; plate make-up K. Krajewski.

These plaques come in iron and bronze, but also in bone and wood, and the material of the rod corresponds in such cases to the plaque (Fig. 6). The bone and wooden rods are worked into a nail-like-head at one end and pierced with a crosswise hole at the other end, the latter obviously replacing the end-loop of the metal examples. The plaques all have holes pierced through them at both shorter ends: either a pair or one centrally on the long axis, or one per each corner in the case of one square-shaped bronze plaque. The holes are either circular, usually smaller than the central hole, or square or rectangular, the shape obviously dependent on the means by which they were attached. They could have been tied onto a collar with string (circular holes) or tacked on in some way (the square or rectangular holes). It should be noted, however, that there is no one clearly preserved example combining a metal neck-ring with a closure rod and a closure rod going through a plaque, implying that we are dealing here with different types of collars.

Beads found with individual cat burials could have been stringed single or possibly double. Among the finds is one set of 29 small gold-in-glass beads, another set of 23 discoidal faience beads combined with larger gold-in-glass beads: two globular, one melon, and one tubular, another set of about 50 faience discoidal beads, and a single striped glass bead (shown here with an example of a Red Sea shell, *Engina mendicaria*, which it appears to have imitated). The finest find of this kind are four large banded glass beads with a wreath motif set against a dark background (Fig. 5 bottom).³² Threaded onto the same string as these four beads was a tiny copper-alloy bell, making this kitten³³ the most fashionable cat around.

The evidence from the cemetery is inconclusive as to whether any other kinds of collars – namely, leather or textile bands – were used. Textile scraps rusted to the iron neck rings appear only on the outside and are most probably remains of shrouds wrapping the animal remains in these specific cases. A set of beads rusted to an iron neck ring suggests that this particular cat had both. Keeping in mind that so few of the cats had collars or neck rings, one cannot but wonder whether they were not a separate class among the cats buried in this cemetery.

³² J. Then-Obluska, personal communication.

³³ Archaeozoological identification courtesy of M. Osypińska, personal communication

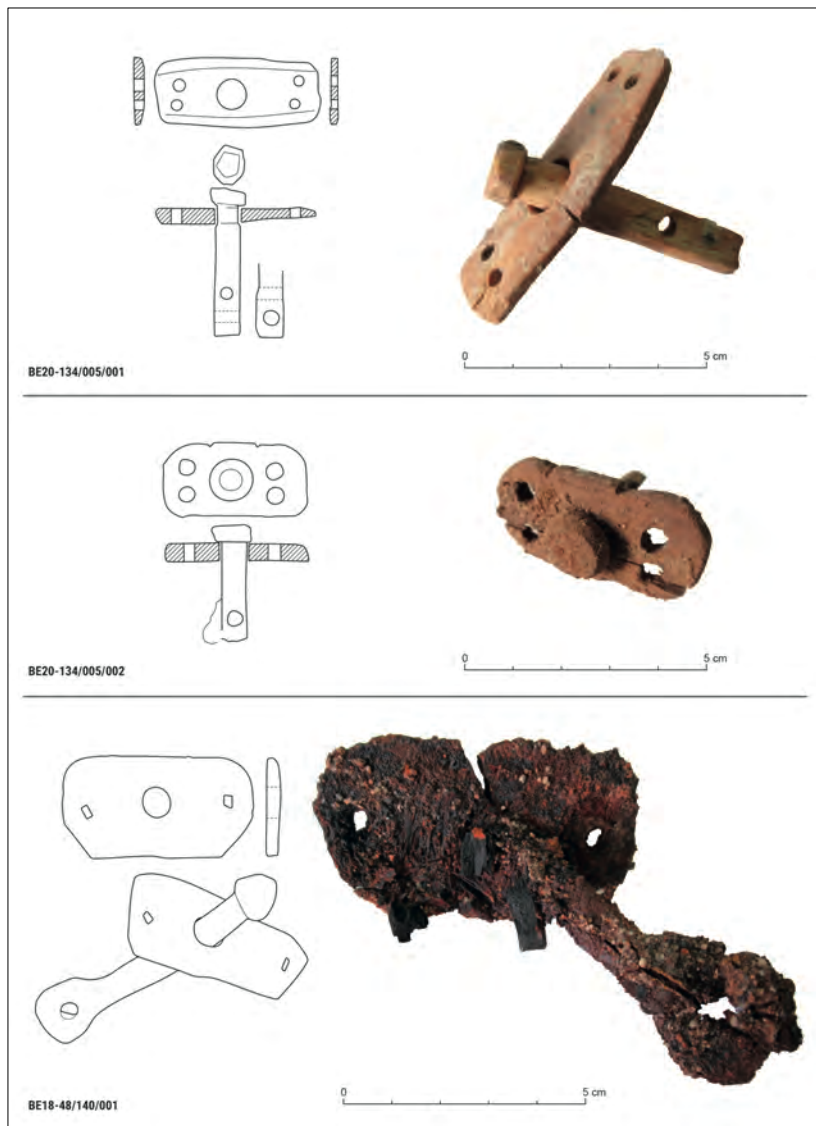


Fig. 6: Examples of tags with attaching device made of different materials (shown from top, animal bone, wood, and iron) from the companion animal cemetery in Berenike; note that the side with the head of the pin must have been on the inside, next to the neck. Courtesy Berenike Project (PCMA UW): photos and drawing I. Zych; digitizing M. Momot; plate make-up K. Krajewski.

Function and fashion: some remarks in lieu of conclusions (IZ)

It does not need to be argued that the metal collars or neck rings, as in the case of the archaeological evidence from the animal cemetery at Berenike, had the prime purpose of restraining animals while marking ownership. The size of the preserved collars suggests neck circumferences between 16 cm and 25 cm, which – by modern collar standards – is a size appropriate for kittens and young adult cats.³⁴ The width of these neck rings was around 0.5 cm, which is a fairly consistent size of iron rods, and even the end loops never exceeded 1 cm, which is the recommended width of a cat collar. The closing mechanism indicates that they were not chokers, just adjustable collars, which – considering that from a technological point of view they were not custom-tailored to the animal – allowed them to be fitted to different neck sizes.

Interestingly, iconographical sources from the early Roman period or other, for that matter) fail to register any form of closing mechanism even distantly resembling the rods recorded in the Berenike material. Neither is there any evidence of plaques or tags. Collars depicted in the sources, when not typically functional as on guard or hunting dogs, are embellished with motifs that can be interpreted as studs or spikes. Especially in the case of spikes, one can be certain that the animal is a working dog, allowed to run free and hence protected in this way from being attacked by wild animals. However, in the case of our Type 1.D, the round and square motifs suggest a more decorative appearance³⁵ and the same goes for collars with pendants, which are prolific in the iconographical sources from the Roman Mediterranean, and bead collars, which are not. One could speculate that beads used for this purpose were a local characteristic at Berenike, perhaps rather like a local tradition. It is not possible to say whether beaded collars were worn in life and were left on the corpses of the animals as part of body care for the afterlife or were just part of the burial ritual. The little bell on one of the collars from Berenike, well paralleled in the iconographical sources, was at once cute and functional, allowing

³⁴ Modern European/American standards for cat collars: kittens, collars applicable from four months old, (minimum 14 cm up to 23 cm) and young adult cats, 8 to 12 months old, minimum 19 cm up to 30.5 cm (Source: internet instructions for collar purchases).

³⁵ In purely psychological terms, decorated collars for large working dogs kept the animal restrained while giving the master an opportunity to show his esteem for the pet (Scott 1978, 229); the decorated iron collars from Lagore crannog near Dublin (Ireland) represent an entirely different tradition deriving from pre-Roman through late Roman Britain, but the reconstruction of the closure mechanism is of interest when considering the Berenike finds.

the small animal to be tracked wherever it wandered. This device is also used to curtail the hunting habits of adult cats, giving potential prey warning. All in all, however, it should be assumed that the collar finds from the Berenike companion animal cemetery are not indicative of any kind of special burial rite or custom, but a reflection of everyday practices, the dead animals being buried in whatever they had been wearing around their necks in life.

Finally, the plaques discovered in the Berenike animal cemetery contribute to the debate on Roman slave collars. A recent exhaustive discussion³⁶ lists neck rings made of lead, copper and brass, and tags of bronze and bone, some of them characteristically pierced on the short sides but without the central hole for the closing mechanism, hence presumably attached by other means to a non-metal support. There are no marks or text preserved on the Berenike tags – as far as can be told before cleaning – but they could very well have served the purpose of identifying the owner or, as in the case of fugitive slaves, indicating where to return a straying animal: “Tene me ne fugiam” (Hold me so I do not run away).³⁷ If so, these tags would support the idea that the cats from Berenike wearing such *collaria* were somehow special.

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³⁶ Trimble 2016; see also Thurmond 1994 and Martínez-Chico 2021.

³⁷ Trimble 2016.

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The Imperial Iseum in Benevento and its Zoomorphic Gods

Rosanna Pirelli

Introduction

“Regnal year eight, under the majesty of the Horus “Strong Bull,” the King of Upper and Lower Egypt, the Lord of the [Two] Lands.....: a splendid sanctuary was built to Isis the Great, Lady of Benevento, and her Ennead, and a large obelisk was erected by Rutilius Lupus...”¹

These are the words on the third face of one of the two obelisks in Benevento. Together with the texts on the other sides, they inform us that, in 88/89 AD, Rutilius Lupus erected a temple in the Samnite city and dedicated it to the goddess Isis to celebrate the emperor’s victorious conclusion of the Dacian wars.²

Although none of the ancient buildings found so far in Benevento can be attributed to an Iseum, the existence of such a temple is confirmed by a large number of anthropomorphic and zoomorphic statues, a few epigraphs and some architectural elements.

With the exception of one of the obelisks - now erected in Piazza Papiniano but documented in front of the Cathedral as early as 1597 - most of the remains were found in 1903 by Almerico Meomartini in a section of the foundations of the ancient city walls,³ which probably date from the 4th century AD.⁴ Other materials were brought to light between the end of the 19th century and the first half of the 20th century in various sectors of the city.⁵

Of the nearly fifty finds, almost all of a very high quality, numerous statues represent “pharaohs”, in both human and sphinx form, two are

¹ The text here supplements the inscription on obelisk A (erected in Piazza Papiniano in Benevento) with that on obelisk B, kept in the Museo del Sannio, and is based on the recent translation by Luigi Prada 2022.

² Müller 1969: in this paper the Italian version, translated by Silvio Curto, will be used: 1971, 13-16; Prada op. cit.

³ Meomartini, Marucchi, Savignoni 1904.

⁴ Rotili 2013 and 2015.

⁵ Müller 1971, 21-25 and 107-110.

anthropomorphic deities, three depict female worshipers, four are priests, while several sculptures represent sacred animals: four hawks, two baboons, four Apis bulls, and a number of uraei on the head of the Benevento pharaoh's "portraits".

This extraordinary set of artefacts belonging to different historical periods, from the Pharaonic to the Ptolemaic and finally Roman times, is one of the largest concentrations of Egyptian and Egyptianising materials belonging to a single cultic context of the Imperial period outside Egypt.⁶

In 1969, Hans W. Müller published a thorough analysis of the Iseum of Benevento. This has long been (and still is) considered a fundamental study of this temple, being much more than a simple catalogue of "Isiac" materials. It is an exhaustive and effective overview of the introduction of the cults of Egyptian divinities to Benevento, their spread, their relationship with the original cults in Egypt, as well as their relationship with other oriental cults in the Samnite city.⁷

In his introductory observations, Müller emphasised the imperial character of the sanctuary, strongly arguing that Domitian was the true patron of the erection of the temple at Benevento and that the sculptural decoration expressed a clear symbolism of power based on the Pharaonic tradition.

Since 1997, a series of exhibitions⁸ and a conference organised in 2005 in Benevento have awakened a new interest in the Samnite Iseum,⁹ and various scholars have begun to discuss Müller's interpretation, in some cases sharing his opinion, in others challenging it. A lively debate has arisen (it is not yet concluded) and various questions have been raised about the identification of the royal statues, the provenance and cultural milieu of the artists, the provenance and symbolism of the stones employed, the location of the

⁶ Pirelli 2006a; *ead.* 2007.

⁷ From then on, materials from the Benevento Iseum have often been cited in works dealing with Isiac cults in the Roman imperial period, both in the series EPRO, published by Brill in the second half of the last century, later merged into RGRW, and in single monographs and papers, but without adding much to what Müller had already established.

⁸ Arslan 1997: catalogue of the exhibition "Iside, il mito, il mistero, la magia"; it was followed a few years later by De Caro 2006, catalogue of the exhibition "Egittomania: Iside e il Mistero".

⁹ The proceedings of the study day, entitled "The Temple of Isis at Beneventum. Comparative models and new studies of the Isiac collection of the Museo del Sannio", held in honour of Stefania Adamo Muscettola, have not been published, but a small volume published by Electa, *Il culto di Iside a Benevento*, contains two articles on the Iseum: Pirelli 2007; Bragantini 2007, which reproduced the essays by the two authors, published in De Caro 2006.

temple, its nature and appearance, the significance of this temple in relation to Domitian's self-representation, and the relationship of this monument to other temples dedicated to Isis and scattered throughout the Empire.¹⁰

Already in 1997, in his review of the volume by Lembke on the Iseum Campense,¹¹ Versluys again drew attention to the significance of the Egyptian and Egyptianising materials within a temple dedicated to Isis outside Egypt. He stated: "There does not seem to be any special criteria in the choice of the Egyptian artefacts which seem to have been chosen on purely practical grounds.....They emphasise the foreign and exotic character: the age or original meaning was not important.", and a little further: "Sometimes even the original meaning is lost: thus sacred baboons may become monkeys."¹²

In 2015, Kristine Bülow Clausen devoted a completely new study to this lost "monument",¹³ the results of her analysis being published in her PhD thesis, *The Flavian Isea in Beneventum and Rome. The Appropriation of Egyptian and Egyptianising Art in Imperial Beneventum and Rome*. As the title suggests, the volume is, however, not a monograph on the temple of Benevento, but a comparative analysis of the two Isea built during Domitian's principate. The author retraces the previous studies of the topic since Müller's publication, and then focuses on points that had been little discussed until that time, namely the relevance of some Hellenistic-style sculptures to both the Isea. The scholar's aim was to challenge the traditionally accepted reconstruction that theorises the almost exclusively Egyptian nature and visual appearance of these two Isea by laying particular emphasis on the possible dialogue between the "Egyptian/Egyptianising" and "Graeco-Roman" sculptures.

Between 2010 and 2018, Pfeiffer also contested Müller's interpretation. He based his argument on the flimsiness (as he saw it) of the data used to maintain the importance of the Egyptian element in the formulation of the imperial image of Domitian, and to demonstrate his direct involvement in the construction of the two Isea, including the choice of furnishings and texts - especially those of the three obelisks - intended to describe him as a pharaoh. He argued that the emperor's interest in Egyptian decorations can best be

¹⁰ Pirelli 1997, *ead.* 2006, *ead.* 2016; Bragantini 2006; *ead.* 2018; Vergineo 2010; Pfeiffer 2010, *id.* 2018; Bülow Clausen 2012 (to cite but a few).

¹¹ Lembke 1994.

¹² Versluys 1997 (following Lembke 1994, 36). A similar opinion had been already expressed some years before by Roullet (1972, 13).

¹³ Bülow Clausen 2015.

described as evidence of an Egyptian fashion, and “a dedication erected in honour of Domitian that presents him as a pharaoh does not mean that Domitian himself wanted to be regarded as pharaoh. It only tells us that his subjects regarded both Egyptian religion and their emperor positively and wanted to create a direct relation between the two”. Furthermore, “More conclusive evidence is needed to demonstrate that Domitian really wanted to be pharaoh; and if this is not possible, one could interpret the obelisk’s inscriptions as a representation of Domitian as expressed by Egyptian priests, who attributed [to] Domitian the power of a pharaoh.”¹⁴

I cannot address all the complex and stimulating questions that some of their theses open up, because this would take us too far from our topic.¹⁵ Thus, in order to stimulate some reflections on some the issues raised, my paper will briefly present the Isiac sculptures of the Iseum of Benevento by attempting to reconstruct, at least virtually, their context, and will analyse the symbolism of the zoomorphic deities with a particular focus on their role in the representation of Domitian’s imperial image.

Materials from the temple of Benevento

Although we have not yet found the cultic context to which the numerous Isiac artefacts belonged, we can hypothesise that it would have been a building similar to other imperial Isea that are documented both from archaeological evidence in Egypt and beyond (Iseum and Sarapeum in Luxor,¹⁶ Pompeii,¹⁷ Carthago Nova,¹⁸ to name but a few) and by coeval representations (the paintings of Pompeii and Herculaneum,¹⁹ the mosaic of Palestrina,²⁰ and depictions on coins²¹). This means a chapel in Hellenistic

¹⁴ Pfeiffer 2018.

¹⁵ A new monograph is being prepared by the present writer, hopefully to be published in 2024, which is intended not only to update the catalogue of ‘Isiac’ materials from Benevento, but also to address in detail the issues mentioned here.

¹⁶ Golvin et al. 1981.

¹⁷ De Caro (ed.) 1992.

¹⁸ Noguera Celdrán 2021.

¹⁹ MANN inv. 8975 (Pompeii); MANN inv. 8924 e 8919 (Herculaneum).

²⁰ Meyboom 1995.

²¹ Vespasian, AD 71: Berlin, Münzkabinett, former collection Martinetti 1748; Domitian AD 94-96, 2 coins from London BM.

style, possibly erected on a podium, in some cases prostyle tetrastyle, in others peripteral, and perhaps surrounded by a portico²².

Concerning the typology of the finds, as in many Isiac contexts of the imperial era, the sculptural furnishings of the Iseum of Benevento consisted both of Egyptianising sculptures, made in Roman times and statues and materials from the Pharaonic and Ptolemaic periods, imported from Egypt. For our discussion, however, I do not think it is useful to deal separately with them following a chronological order, because it is clear that the most ancient materials were fully integrated in the figurative and textual program of the imperial temple. Hence I will proceed by presenting the finds according to the subjects represented, in increasing order of importance within a cultic context: the worshippers, the priests, the sovereign, the gods.

The worshippers

Among the most original sculptures, it is worth mentioning three marble statues of kneeling women, sculpted in a definitely 'Hellenistic' style.²³ The group is very unusual indeed, for more than one reason: a) their clothing, a long draped dress, characterised on the breast with the typical knot, identifies them as figures belonging to the Isiac circle. However, the lack of the heads in all three cases prevents us from being more precise about their real nature. Were they generic representations of women in the act of prayer or portraits of real Isiac worshippers?²⁴ b) Another consideration concerns the kneeling pose: in Greek and Roman art, the kneeling figure represents the vanquished or the suppliant, but it is a common attitude of statues in prayer and in adoration in Egyptian contexts.²⁵ Thus, despite the material (marble is very rare if not completely absent in Egyptian statuary) and the 'Hellenistic' style, there is no reason to doubt that they were pertinent to the Iseum; but c) it is worth mentioning that no other specimen of this type of statue is known from any other imperial temple dedicated to Isis.²⁶

²² In a forthcoming paper, I will propose possible comparisons also with coeval Imperial temples in Egypt.

²³ Müller 1971, cat. 285 (inv. 1923); 287 (inv. 1925); 290 (inv. 1928).

²⁴ As Irene Bragantini suggests (2018).

²⁵ As is also shown in the "Egyptianising" scene from Herculaneum: MANN, inv. 8919.

²⁶ Cf. Eingartner 1991.

The priests

1. A fragmentary block statue of the royal scribe Neferhotep is a sculpture of the Pharaonic period,²⁷ for which a range of dates from the Ramesside to the 22nd Dynasty has been proposed;²⁸ originally, it was certainly set up in the temple complex dedicated to the god Ptah in the city of Memphis.
2. Three statues of priests belong to the Roman imperial period:
 - a) one, a priest with a long draped dress decorated with fringes, and originally holding a sistrum (now missing)²⁹ possibly dates from the reign of Domitian;
 - b) the other two, completely covered by a long cloak that also hides their hands holding Canopic divinities,³⁰ belonged, according to Müller, to the Hadrianic period.³¹ I would express some doubts about this chronology, because their human scale, together with their material and technical details, could possibly associate them with two statues that we will see later, one representing Domitian and the other an anthropomorphic deity. In addition, a direct comparison can be made between the three priests' statues and a painting from Herculaneum (MANN inv. 8924) representing an Isiac ceremony and dated to the 1st century AD at the latest.³²

²⁷ Müller 1971, cat. 282 (inv. 1920).

²⁸ According to Müller (1971, 86), it belongs to the 22nd Dynasty; but Frood, forthcoming, re-dates it to the 19th Dynasty (Personal communication).

²⁹ Müller 1971, cat. 286 (inv. 1924).

³⁰ Müller 1971, cat. 284 (1822); 288 (inv. 1926).

³¹ The "Canopic" divinities seem to be a creation not prior to the 1st century BC/beginning 1st century AD (for an assessment of this subject, see: Wild 1981, 113-123), while hardstone statues on a human scale holding them are attested by the imperial era and are not very numerous. As stone sculptures in the round – in addition to the pair in Benevento – we know of one example in the museum of Alexandria (inv. 4309), one in the Museo del Tesoro di Sant'Eulalia in Cagliari, and one from the underwater excavations off the Abuqir coast (National Museum Alexandria, SCA 449). In this respect, Bülow Clausen remarks that they seem to be connected only with Alexandria, Rome and Benevento (Bülow Clausen 2015, 261), stating that "these three cities seem to have played a particular role in the advent of the Flavian dynasty", but she evidently missed the specimen in Cagliari.

³² Another point of doubt is whether the two statues are actually 'twins'. Some observations made by the writer might lead one to reconsider the relationship between the two sculptures, one of which could be a (later) copy of the other.

The pharaoh

Three anthropomorphic statues depict pharaohs.

1. The most ancient is a fragmentary statue of king Mery-shepses-ra (13th Dynasty), coming from Karnak;³³
2. the others belong to the Roman imperial era:
 - a) one is probably the most representative statue of the Iseum; its attribution to Domitian is today almost universally accepted;³⁴
 - b) the last is a later “Roman pharaoh”, probably Caracalla.³⁵

The sculpture depicting Domitian can be considered a very distinctive example of a mixed style, as it clearly points to the artist's intention to combine two very different ways of representing the human being: the Egyptian, characterised by a rigid pose and a face not marked by physiognomic features, and the Hellenistic, in which, in addition to a greater dynamism of the bodies, the features of the face and facial expressions are intended to individualise the portrait. In this sculpture, the face is characterised by irregular and marked features, the mouth is protruding and framed by expression lines, the eyes are asymmetrical, the ears very accentuated and the uraeus — also asymmetrical — is rendered in an almost “naturalistic” way.³⁶ According to Capriotti Vittozzi's convincing analysis, the sculpture could be attributed to a “coherent group” also containing the following statues, on the basis of precise stylistic and technical analogies:³⁷ a head of Amon now held in the Staatliche Sammlung Ägyptischer Kunst in Munich³⁸, a royal head in Pharaonic style with double crown, now held in the Museum of Florence³⁹ and the face of one of the sphinxes from the Campo Marzio, now held in the Capitoline Museums.⁴⁰

³³ Müller 1971, cat. 268 (inv. 1904).

³⁴ Müller 1971, cat. 260 (inv. 1903); although Bülow Clausen mentions it with a question mark (2015, 98).

³⁵ According to Müller 1971, cat. 264 (inv. 2165).

³⁶ This type of uraeus is considered one of the typical features of Domitianic sculpture (Barbagli 2021, 258-263). Since the complex issue of the identification of the Domitianic portraits cannot be addressed here, the reader is referred to Bergman, Zanker 1981.

³⁷ Capriotti Vittozzi 2003; *ead.* 2014.

³⁸ Inv. GL 68.

³⁹ Florence, Museo Egizio (inv. 8650).

⁴⁰ Musei Capitolini, Inv. Scu 33; Rouillet 1972, 133-134 (cat. 280).

This last sculpture gives us the opportunity to introduce another group of statues in which the sovereign takes the traditional form of the sphinx, where the lion embodies one of the sovereign's prerogatives, namely that of protecting the sacred precinct from internal and external enemies and contamination by the profane. Some sphinx heads - which unfortunately cannot be connected with any of the bodies still extant - come from Benevento, together with several headless sphinxes of different sizes and kinds of stone, of which at least 8 are of pink granite and of large dimensions.⁴¹ It is likely that this ensemble of sphinxes flanked a rather long path to the temple.

Anthropomorphic gods

1. A granite head of Isis⁴² may have belonged to one of the goddess's cult statues. On the basis of the type of granite and style, Müller suggested that the statue came from Behbeit el-Hagara, the monumental granite temple in the Delta erected for Isis by Nectanebo II and completed by Ptolemy II and III;⁴³
2. the remains of an Isis Pelagia⁴⁴ is preserved only as a boat where the feet of the goddess are visible. Even in its present condition, we can tell that the sculpture must have been of refined workmanship. Since the 3rd century BC, texts described and revered Isis as the creator of navigation and the protector of sailors⁴⁵. The type is known from bas-reliefs, numerous images on coins, and a group of statues, almost all dating from the 1st-2nd century AD,⁴⁶ and our specimen might have been from the time of Domitian or, according to Müller, even earlier.⁴⁷
3. According to archival sources, a head of Sarapis may also come from Benevento, although we cannot confirm this with any certainty.⁴⁸

⁴¹ The last one – a large fragment of a red granite sphinx - was found during excavations by the local Superintendency in the area of the cathedral in 2009 (personal communication by Simone Foresta).

⁴² Müller 1971, cat. 261 (inv. 2166).

⁴³ Favard Meeks 1991.

⁴⁴ Müller 1971, cat. 279 (inv. 1917).

⁴⁵ Bricault 2020, 289.

⁴⁶ *Ivi*, 109-128.

⁴⁷ Müller 1971, 77-89.

⁴⁸ I.N. 2574, Ny Carlsberg Glyptotek, purchased in Rome in 1911 through Helbig from the engineer Petrucci; its provenance from Benevento was recorded by Poulsen 1951, 349. Kater-Sibbes 1973, cat. 573, 106 (personal communication by Italo Iasiello).

4. The headless statue of an anthropomorphic deity was interpreted by Müller as an image of Anubis,⁴⁹ one of the deities of the Isiac circle⁵⁰ – a god who listens to suppliants, brings victory and succour, like the other deities of the Isiac gens⁵¹ – but the absence of the head raises some doubts. If the god was represented in keeping with Egyptian iconography, we would expect a canine head covered with a tripartite wig falling over the shoulders (while a fully anthropomorphic appearance is very rare). In an early Roman iconography, the god (in his Hermanubis form) still had a canine head and wore a cloak or perhaps military garb. In the first case the shoulders should have traces of hair; in the second, the god would have a different garment. Should we conjecture a hybrid image? In any case, it is interesting to remark that the first dated attestations of a fully anthropomorphic image of Hermanubis occur during the principate of Domitian. In them the god appears, with a youthful human face, with thick short hair, which does not fall over his shoulders, and surmounted by a *kalathos*, on coins from the mint of Alexandria, in year 11 of his reign (i.e. 91/2 CE).⁵² The Egyptian style of this statue however makes it difficult to imagine such a type of head. So, at the present stage of our knowledge, we have to leave the question undecided. It should be remarked, however, that the statue seems to form a pair with that of Domitian and was probably placed symmetrically in relation to it. The Egyptian style, dimensions, and type of stone make the two sculptures somewhat complementary, an impression that is heightened – as Irene Bragantini has pointed out⁵³ – by the fact that the statue of Domitian is represented in keeping with the traditional Egyptian iconography, with the left leg advanced, while the statue of the god advances the right leg.

Zoomorphic gods

1. Four falcons are present among the Egyptian material from Benevento.⁵⁴ As is well known, the falcon is the earliest animal and divine power to which the Egyptian sovereign was assimilated, and its role inside the

⁴⁹ Müller 1971, cat. 281 (inv. 1919).

⁵⁰ For a general introduction to the god Anubis, from the Pharaonic to Roman times, see Grenier 1977; for a recent reassessment, see Malaise 2014, 73-93.

⁵¹ *Ibid.*

⁵² *Ibid.*

⁵³ Bragantini 2018.

⁵⁴ Müller 1971, cat. 253 (inv. 1894); 254 (inv. 1895); 255 (inv. 1896); 269 (inv. 1907).

temple does not need any explanation. But the presence of four statues (two from the Pharaonic era and two from Roman times) leads us to assume that the value attributed to it in this temple was of considerable importance. The sculptures were probably placed symmetrically along a path to the temple, perhaps alternating with sphinxes and other statues. However, if we consider that Nectanebo II - the last indigenous ruler before the Second Persian Dynasty and the Macedonian conquest – was the object of a particular cult as a falcon during his reign and throughout the Ptolemaic period,⁵⁵ one wonders whether the statues of Benevento may not be related to the popularity of the figure of Nectanebo II in the Hellenistic world. We should remember that his name means “Horus is victorious in Hebyt”, i.e. in Behbeit el-Hagara, and we know that one of the blocks of Nectanebo II found in the Iseum Campense comes from this temple, and that, according to Müller the head of Isis may also come from the same site.⁵⁶

2. Like the falcon (and the uraeus, see below), the bull was linked to the royal figure from the earliest stages of Egyptian history; as a specific manifestation of Apis (one of the gods of the Isiac circle⁵⁷), it has its centre of worship in Memphis. It is first identified as a son of Ptah and then assimilated to the god himself. In documents of the Graeco-Roman period, the sovereign is defined as the heir, friend or son of Apis, to whom the power of procreation and regeneration of the royal strength is attributed.⁵⁸ The presence of three statues of Apis bulls⁵⁹ (one currently standing outside the museum on a base in Viale San Lorenzo) allows us to affirm the god's leading role in the Iseum of Benevento. This is further confirmed by another image of a bull forming part of the decoration in high-relief of a small marble fragment of a frieze.⁶⁰ Yet another image of a bull was hypothesised by Müller as forming part of another fragmentary wall decoration (at the time composed of two pieces, a third being lost⁶¹), whose subject the author had reconstructed by comparison

⁵⁵ Gorre 2009.

⁵⁶ Müller 1971, 57-58.

⁵⁷ Kater-Sibbes, Vermaseren 1975.

⁵⁸ For its iconography and epithets, see LGG 5, 115-119; for a recent synthesis of its solar aspects in the Late and Ptolemaic periods, see Marković 2021.

⁵⁹ Müller 1971, cat. 270 (inv. 1908); 280 (inv. 1918).

⁶⁰ Müller 1971, cat. 250 (inv. 1891).

⁶¹ Müller 1971, cat. 257 (inv. 1898); 258 (inv. 1899).

with a scene from a coeval tomb of Kom el Shugafa (Alexandria). This portrayed the king honouring the zoomorphic god protected by the wings of Isis.⁶²

3. The presence of baboons in both of Domitian's Isiac monuments (two in Benevento,⁶³ three in Campo Marzio⁶⁴) creates a close bond with Thoth and his city, Hermoupolis, where in the time of Domitian a temple was erected to Nehemet-away,⁶⁵ Thoth's wife, to be also identified with Isis. Thoth as the god of wisdom and writing was also considered the vizier of Ra. The same god in his assimilation to Hermes is connected to Isis in the Kyme aretalogy, for instance, where she says, "I was taught by Hermes and with Hermes I devised letters."⁶⁶ The Ariccia relief⁶⁷ could also be interpreted in the same way. The central female figure, to be identified with Isis, holds a roll of papyrus on her lap and is surrounded by various figures, including two pairs of baboons. Lembke connects the relief with the Iseum of Campo Marzio.⁶⁸ Interestingly, we have to remark that Domitian's activity was very intense in Middle Egypt, between Akhmim and Hermoupolis, the whole region being linked to Thoth, where it has also been hypothesised that local priests could have been responsible for some expressions and spellings characteristic of the titulary of the Pamphilj obelisk and of the two in Benevento.⁶⁹
4. The last zoomorphic divinity that I will speak of briefly is the cobra-goddess Wadjyt placed on the forehead of the sovereign since very ancient times.⁷⁰ As stated above, one of the typical features of Domitian's portraits – including those in Benevento – is the so-called "naturalistic" uraeus,⁷¹ characterised by striped coils, non-symmetrical volutes and a

⁶² Müller 1971, 22, 50-54, fig. 1.

⁶³ Müller 1971, cat. 252 (inv. 1893); 256 (inv. 1896).

⁶⁴ Roullet 1972, cat. 345, 193; cat. 366, 198.

⁶⁵ Snape 1989.

⁶⁶ Grant 1953, 131.

⁶⁷ Museo Nazionale Romano, Palazzo Altemps, inv. 77255.

⁶⁸ Lembke 1994, 174-176; on the same subject, see also more recently, Capriotti Vittozzi 2014.

⁶⁹ For a wide examination of the subject, see Capriotti Vittozzi (2014) and Barbagli 2021, 186-188.

⁷⁰ Although there are no freestanding sculptures depicting the goddess Wadjyt among the materials in Benevento, I feel that the emphasis placed on this zoomorphic deity - demonstrated both by the peculiarities of her morphology in Domitian's portraiture and by the texts of his obelisks (see below) - deserves some consideration in this section.

⁷¹ See above: note 36.

rather upright hood, which reflects the actual attack position of the cobra. The cobra is one of the natural powers depicted on Predynastic objects, and was transformed very early – in the 1st Dynasty – into a divine power associated with the king both as one of the symbols of his *nebty* title and in aggressive scenes of conquest. The snake's ability to launch sudden attacks, its aggressiveness, dangerousness and strength, made it one of the principal symbols of the sovereign in the early stages of the unification of the two lands and the conquest of foreign regions.⁷² After a period of absence from the royal iconography – probably due to the need for a reformulation of its symbolism, then closely associated with the solar aspects of the king and his protection⁷³ – from the 4th Dynasty (reign of Djedefre), the cobra as a uraeus became a constant symbol of royalty. In the New Kingdom, when the military aspect of the pharaoh became one of the main prerogatives of the king – think for example of his Horus name constantly introduced by the expression *k3-nḥt*, “powerful bull” (except in the case of Hatshepsut) – the uraeus resumed its aggressive nature. It is called for instance “*The Wadjet of Pharaoh who burns the corpses of foreign enemies*”; or “*The lady of fire*” as an epithet of the eye of Ra who annihilates enemies.⁷⁴ Some of these expressions are also present in the Saitic period (the age of Egyptian renaissance), but if we look at the references to the goddess in Ptolemaic and Roman times, we will find her inserted above all in religious ceremonies and cultic contexts, without any reference to her aggressive nature.

Now if we turn to the textual evidence in hieroglyphic writing from the time of Domitian, some expressions from the faces of his obelisks (the two in Benevento and the one in the *Iseum Campense*) appear very distinctive, as on the whole they reflect epithets and features typical of the royal figure from the Pharaonic era with a remarkable degree of fidelity.⁷⁵ Domitian is

⁷² Vinci 2006.

⁷³ Pirelli 2006b.

⁷⁴ LGG 2, 269-273.

⁷⁵ Domitian is one of the few emperors who had a complete Pharaonic titulary composed for him (on this point, see also Ciampini 2005). This was very rare for Roman emperors even in Egypt, although we have two cases documented in temples built during Domitian's reign: the temple of Aswan dedicated to Khnum, Satet e Anuket (Hölbl 2004, 37-39 and bibliography); and that devoted to Nehemet-Away in Hermoupolis (Snape 1989). We should also not forget that Domitian was the first emperor who certainly had original texts composed

described, for instance, as “The Horus ‘Strong Youth’, the Two Ladies ‘He Who Conquers through Might’, the Golden Falcon ‘Powerful of Years and Great of Triumph’, The King of Upper and Lower Egypt ‘Emperor Caesar’, son of Ra ‘Domi[t]ian’, ever-living, he who collects tribute from the Two Lands and the subjugated foreign countries”⁷⁶ (face 1 of the Benevento obelisk B); or “the Horus ‘Strong Bull’, the King of Upper and Lower Egypt, the Lord of the [Two] Lands, the God, the Son of the God, Beloved of all the Gods, the Son of Re, the Lord of Crowns ‘Domitian’, ever-living”⁷⁷ (face 3 of the Benevento obelisks); while on face 2 of the Pamphilj obelisk, originally erected in the Iseum Campense, we read: “Horus: beloved by the Two Lands, ruler of the shores. The perfect god, great in strength, with a strong arm, who overthrows enemies, with a mighty arm,the earth trembles for fear of him,who sits on the throne of Horus, who saves the sanctuaries of the gods, who subdues those who oppose him, who subdues the Nubian tribes, who collects tributes in Asia, whose uraeus pursues the beduins...”.⁷⁸

Two features, among others, are particularly revealing: the close link with the sun god and the military aspect of the pharaoh/emperor,⁷⁹ both of them being connected with the nature and functions of the uraeus⁸⁰, which symbolises the warlike power of the king, connects him with Ra, and protects him from all enemies.

and inscribed in hieroglyphics for his obelisks: uncertainties still persist about the identification of the emperor to whom the Borgia and Albani obelisks were dedicated (Prada 2022, 108-112). As for the Pincian or Barberini obelisk, erected by Hadrian, it was inscribed with original texts between 130 and 138 AD, but was mainly dedicated as a funerary monument to Usir-Antinoös after his death by drowning in the Nile (for a recent translation, see Ciampini 2004, 168-187).

⁷⁶ According to the recent translation by Prada 2022, 117.

⁷⁷ According to the recent translation by Prada 2022, 133.

⁷⁸ For recent translations, see Ciampini 2004, 161-163; Bülow Clausen 2015, 147-148.

⁷⁹ It will be useful here to recall that scholars commonly identify the occasion for the erection of the two obelisks of the Samnite Iseum with Domitian’s victorious conclusion of the Dacian wars; so already in Müller (1971, 15), but cf. also Colin, 1993; Bülow Clausen, 2015, 9; Bricault, Gasparini, 2018.

⁸⁰ In dealing with the text of the Pamphilj obelisk and with the role of the maternal goddesses mentioned on it, Ciampini (2005) states: “the couple Uadjet and Nekhbet, dynastic patronesses and mothers of the king ...confirm his power by means of milk: with it they suckle the young king, giving to him the divine nature of rulerThus suckling is an expression of the royalty of the triumphant king”.

Conclusion

Given the theme of this conference, the analysis of the Benevento materials has been conducted by giving a certain space to the role of the divine entities embodied by certain animals (lions/sphinxes, falcons, baboons, Apis bulls, cobras) that represented fundamental aspects of the pharaoh from the very beginning of the Egyptian history. And even from this necessarily limited perspective, I believe that the important emphasis on the symbolism conveyed by these divine images can hardly be explained as Versluys did in dealing with the Iseum Campense.⁸¹

In my opinion, on the contrary, the Pharaonic and Egyptianising monuments were not chosen for purely decorative purposes or simply to create an exotic setting,⁸² but on the basis of a precise requirement: to create a new imperial image based on the ancient and successful model of divine sovereignty embodied by the Egyptian pharaoh and expressed by his assimilation or ties to various divine entities, traditionally represented also by sacred animals; and especially if we consider that the worship of animals was not held in high regard outside Egypt, and particularly in Rome,⁸³ their marked presence in a cultic context dedicated to an emperor merits close scrutiny. For all these reasons, not only were the age and the original meaning of those materials important, but I would go even further and suggest that their provenance was also significant. I propose, in other words, that the monuments imported from Egypt and inserted in the Iseum may have been collected from those areas which had been in some way functional to the

⁸¹ See above.

⁸² On the contrary, I had already argued in 1998 that the presence of the *Samtawytefnakhte* monument in the temple of Isis in Pompeii (Pirelli 1998) must be somehow connected to the content of the text engraved on it, despite the fact that the sanctuary in Pompeii is clearly 'non-imperial'. Of a similar opinion is the more recent contribution by Capriotti Vittozzi (2014), who attributes an extremely significant role to the 'dialogue' between Egypt and Rome in the decoration of Isis monuments in Italy, with particular reference to the construction of the image of the Flavian emperors, and more specifically Domitian.

⁸³ For instance, we can mention Cassius Dio (51.16.5), who says that Octavian "wished to worship gods, not cattle".

formulation of Domitian's regality: Karnak⁸⁴, Hermoupolis,⁸⁵ Memphis,⁸⁶ Behbeit el-Hagara⁸⁷ are all regions connected to the presence – albeit not physical⁸⁸ – of the Emperor.

Now, to return to the objections raised by some scholars against Müller's overall interpretation of the Benevento Iseum (as well as the many scholars who agree with him⁸⁹), if we go back to what we have observed, the resulting picture seems to point to specific choices in the composition of texts, symbols and materials that can hardly be attributed only to the will and initiative of a private individual,⁹⁰ as might result from Pfeiffer's position.⁹¹ The monumentality and quality of the finds, the integration of the original Pharaonic materials and those made in Roman times and the dialogue

⁸⁴ At Karnak, in the eastern contra-temple of Thutmosis III, a structure with an evident solar connotation, Domitian had a monumental portal built and inscribed, and two outer walls of the complex decorated with texts and images dedicated to different manifestations of the solar deity (Klotz 2008).

⁸⁵ On this subject, see above, 316 and note 60.

⁸⁶ The statue of Neferhotep in Benevento comes from Memphis, and I suggest that at least two of the Apis bulls may also have come from there (Pirelli forthcoming).

⁸⁷ See above, 314 and notes 43 and 44.

⁸⁸ Unlike Vespasian and Titus, Domitian never travelled to Egypt.

⁸⁹ For a summary of the opinions of the proponents of two opposing views on the subject, see Pfeiffer 2018.

⁹⁰ Although of great interest, the role of 'private' patronage in the monumental building programmes of the Roman era is not among the aims of this paper and, given its complexity, could not be addressed here. However some short notes may be usefully presented: in Egypt for instance, during the Flavian era, there were monuments that were certainly erected by private individuals and dedicated to the emperors: a stela erected in the complex of Philae for Vespasian (Brophy 2015, 37); a chapel erected by a certain Petronia and her children to Domitian at Kom Ombo (PM VI, 200), and, to the same emperor, a temple (?) at Kom el-Sheikh Ahmed in the oasis of Bahria (Colin 2004). However, I agree with scholars who argue that both large-scale building projects, such as those relating to large national temples (in Italy as in Egypt), and regional ones, intended to serve strategic territories for the economic and/or political interests of Rome, must have been undertaken with precise objectives, and would therefore have been approved and supported (at least in part) by the imperial administration, given the scale and complexity of the operations (Kaper 1998) and the fundamental role they played in the representation of sovereignty. On this topic, it may be useful to cite Rosso (2010), though her contribution deals specifically with the birth of the imperial portraiture of the Flavians and does not address the issue of "Egyptian and Egyptianising" monuments: "la diffusion à très grande échelle d'une image impériale fixe et officielle est nécessairement une opération fortement centralisée, programmée et contrôlée". This is all the more evident in the case of the economic and organisational commitment necessary for the construction of "Egyptian" monuments outside the mother country, which involved the transport of numerous original works from Egypt. On this subject, see Lembke 1994, 135; Bragantini 2007; *ead.* 2018.

⁹¹ See above, 314 note 14.

between them, the specific references to royal ideology and Egyptian religious thought, all seem to be the result of a meticulous attempt to construct the image of a sacred sovereign.⁹² The monumental manifestation of this image must have been built on a successful and firmly established model,⁹³ and its visual language and vocabulary, in my opinion, could only be that which adhered most closely to the original tradition.

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⁹² We should not forget that the Roman emperor could only be declared divine after his death by the Senate.

⁹³ On this subject, see also Ciampini 2005.

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A Study of Egyptian Animal Mummy Styles (SEAMS) Project

An Introduction

Maria Diletta Pubblico¹

Introduction

Animal mummies are arguably one of the most unique material aspects of Ancient Egyptian religion. Animals were believed to have a divine nature, possibly due to the benefits they rendered to the community.² From the Predynastic Period (ca. 4000/3900-3300 BC), they were sacrificed and buried in both human and independent graves.³ However, the mummification of sacred animals surged in the New Kingdom (ca. 1550-1069 BC) and peaked between the Third Intermediate Period and the Roman Period (ca. 1069 BC-380 AD).⁴ During this time a specific type of mummy increasingly gained popularity, namely votive animal mummies. Some animals (such as cats, dogs, hawks, ibises, crocodiles, snakes, fishes, shrews, and baboons) were perceived to be the avatar of specific deities and deliberately killed in order to be sold as mummies to worshippers.⁵ Through the mummification process these animals, which were not sacred in themselves, became the soul of the gods with whom they were associated. Two texts belonged to the Archive of Hor clearly state that animal mummies are the souls of the god with which they are linked.⁶ Similar to human souls, the souls of the mummified animals might move through this world and that of the divine, acting as messengers through which believers might easily address their concerns to the gods.⁷ After being

¹ This article stems from the HE-MSCA-2022-PF-GF, Project Acronym: SEAMS (A Study of Egyptian Animal Mummy Styles), Grant agreement ID: 101105365.

² Diodorus Siculus, 1, 86-87; Plutarch, 74; Kessler 1986, 571-587.

³ Flores 2003.

⁴ Bleiberg 2013, 79; Ikram 2015a, 2-3.

⁵ Armitage and Clutton-Brock 1980, 187; 1981, 195; Ikram and Iskander 2002, 9-12; Raven and Taconis 2005, 253, 258; Porcier and Lichtenberg 2011, 244; Zivie and Lichtenberg 2015, 117-188; Ikram 2015b, 9-15.

⁶ Ray 1979, 73-80, text 19, recto 4-8, 92-93, text 25, 1-4.

⁷ Hornung 1983, 137-138; see also Migahid 1986, 38-44, 115-129, 137-139.

donated to the corresponding gods as votive offerings, many thousands of mummies were buried in sacred necropoleis throughout Egypt.⁸ During the 19th and 20th centuries, these sites were subjected to large-scale illegal excavations with the aim of collecting and then shipping animal mummies to Europe, where they were used in paper and fertilizer industries. At the beginning of 1890, two cargo ships (the SS *Pharos* and SS *Thebes*) arrived at Liverpool's port, carrying unwrapped cat mummies from the necropolis of Isthm 'Antar. This unprocessed fertilizer was auctioned and bought by the fertilizer company Leventon and Co., an occurrence that greatly attracted public interest, as shown by two cartoons published by the *Daily Graphic* on 12 February 1890 and the *Punch* on 15 February 1890.⁹ Animal mummies were also used as ballast, fuel, medicine, paint, and bought as souvenirs by travelers and tourists.¹⁰ They were also bought as souvenirs by travelers and tourists. In 1833, the cleric Father G ramb remarked that people used to return from Egypt "with a mummy under one arm and a crocodile under the other".¹¹ This trade is confirmed by a letter sent in March 1890 by the Neapolitan lawyer Alfonso Donnabella to the General Secretary of the *Societ  africana d'Italia*, Giuseppe Careri. Donnabella, who was visiting Egypt, wrote from Mansura, asking if the shipment containing cat mummies had been received. It was a gift that he probably sent to enrich the collection of the Colonial Museum.¹² Thus, many specimens survived the looting activities and became part of museum collections. However, due to the above-mentioned vicissitudes, as well as the history of casual collection, there is often no information on where they came from and/or when they were produced.

State-of-the-art

Studies devoted to reconstructing the story of animal mummies occurred slowly, as animal mummies were long regarded as mere curiosities and an odd expression of later Egyptian religious practices. Some classical writers commented humorously on the Egyptian interest in animal cults, while others looked on it as a strange phenomenon.¹³ Animal mummies have long been

⁸ Ikram 2015c, XVIII-XX.

⁹ Cooke 2015, 51.

¹⁰ Ikram and Dodson 1998, 72; Ikram 2019, 169; Zivie 1985, 295, n. 9; Zivie and Ginsburg 1987, 6; Zivie 2000, 177; Zivie and Lichtenberg 2003, 605, Ikram 2015a, 8.

¹¹ Ikram 2015d, XV.

¹² SAI archive, B2 1890, Egyptian section. Cf. Intartaglia and Scaramella 1992, 65.

¹³ Clement of Alexandria, 3, 2.4, 2-4; Diodorus Siculus, 1, 83, 1.

neglected by modern scholars as well. The very first scientific interest in this topic began during the Napoleonic expedition, when one of the *savants*, Étienne Geoffroy St. Hilaire was so attracted by these artifacts that he collected some samples in order to deepen the study of animal species and ancient Egyptian environment.¹⁴ Notwithstanding this interest, the first real contributions to the study of animal mummies date to the early 20th century, thanks to the efforts of L. Lortet, C. Gaillard and G. Daressy. Their works are the cornerstones of animal mummy studies.¹⁵ However, mainstream Egyptology continued to pay scant attention to this topic. Yet, this situation has changed over the last thirty years, with the number of projects devoted to this topic growing considerably.¹⁶ By working hand in hand with specialists from various disciplines, Egyptologists have mainly engaged in interdisciplinary research focused on the study of each individual species' evolution,¹⁷ the animal remains,¹⁸ and the mummification process.¹⁹ Seldom have attempts been made to trace the date and origin of the mummies, yet they have involved gathering invasive samples in order to perform archaeometric investigations.²⁰

In order to shed light on the contextual data of votive animal mummies, this author proposes an innovative project named *SEAMS - a Study of Egyptian Animal Mummy Styles* which is focused on their aesthetic appearance. In contrast to other forms of Egyptian material culture, animal mummies do not have an epigraphic apparatus that normally helps in reconstructing their story. However, while some of the mummies' features remain unchanged over time, there were a great variety of wrapping styles.²¹ This author strongly believes that this variety possibly depends on when and where these artifacts were manufactured, as their mass production promoted a certain degree of craft specialization and changes at both a chronological and geographical level, especially in terms of wrapping techniques and styles. Therefore, the

¹⁴ Ikram 2015-2016.

¹⁵ Lortet and Gaillard 1905-1909; Daressy and Gaillard 1905.

¹⁶ Ikram 2019, 179-191; see also Ikram this volume.

¹⁷ Wasef et al. 2019, 341-329; Ottoni and Van Neer 2020, 38-45; Hekkala et al. 2022, 3-14.

¹⁸ Ikram and Iskander 2002; Raven and Taconis 2005; McKnight 2010; Bewes et al 2016, 173-177; Porcier et al. 2019b; Anderson and Antoine 2019, 31-37.

¹⁹ Buckley, Clark, and Evershed 2004, 837-841; Bruno 2013a, 124-128.

²⁰ Wasef et al. 2015, 355-361; Richardin et al. 2017, 595-607; Porcier et al 2019a, 283-292.

²¹ Bruno 2013b, 133-137; Dunand et al. 2019, 145-153.

SEAMS project aims to investigate the mummies' bandage weaves in order to demonstrate that they are markers of specific periods and regionalism.

This investigation has never been undertaken before as the wrapping weaves have rarely been considered by Egyptologists. In 2019, conservators began to pay attention to this topic by running autoptic investigations, but only focused their sample on specific cemeteries and/or animal species.²² In recent years, another significant project provided a thorough insight into the patterns and composition of the textiles chosen for wrapping the animal mummies, but the sample is restricted to the specimens kept at the Museo Egizio in Turin.²³ Taking its cue from these seminal studies, the SEAMS project aims to go further by widening the sample in terms of Museum collections, the species of animal mummy and their production sites, which thus ensures that data collection is carried out fairly.

Materials and method

The study is to be carried out through an innovative interdisciplinary methodology that combines traditional techniques with new technologies. The animal mummies under study, kept in different Museums worldwide, have been chosen because of their elaborate wrapping system and a related archive dataset. They include cats, dogs, hawks, ibises, crocodiles, snakes, fishes, and shrew mummies, mainly coming from the necropoleis of Saqqara, Tebtunis, Manfalut, Asyut, Abydos, Thebes, Esna. The date range of specimens already sampled for radiocarbon dating is between the late Pharaonic and Roman Periods.

The first step will employ photogrammetry to create high-accuracy 3D models for each mummy in order to retrieve geometric information on the wrapping patterns. Photogrammetry has already been extensively used to examine various ancient Egyptian artefacts.²⁴ However, it has rarely been used in the analysis of mummy wrapping patterns, though it is the most suitable instrument to analyse the wrapping weaves' geometry. This non-invasive, low-cost, diagnostic tool allows the original aspect of patterns to be unravelled. These were never really documented through traditional approaches as they are not only completely invisible to the naked eye (because of the interweaving and overlapping

²² Letellier-Willemin 2019, 221-229; Tarek et al. 2019, 315-321.

²³ Oliva et al. 2022.

²⁴ Lucarelli 2019, 137-150; Bryson 2020, 309-322; Mainieri, Mandelli, and Rossi 2022, 335-341.

of the bandages themselves), but also their current state of conservation (e.g., strip loss and/or detachment) affects the interpretation of the original decorative module. This is especially true for the strips dyed with bright colours (red, pink, green, dark brown), which were themselves interlaced with pale bandages to produce a more sophisticated pattern. Often only mere scraps of coloured bandages have survived since they were mostly broken down by the materials used in the dyeing process.²⁵ The colourants used will be investigated through a set of broadband photographic methods: visible-reflected (VIS), ultraviolet-induced visible luminescence (UVL), infrared-reflected (IRR), ultraviolet-reflected (UVR), infrared-reflected false colour (IRRFC), and ultraviolet-reflected false colour (UVRFC). These multispectral imaging (MSI) techniques will allow to highlight the spatial distribution of the dyes present on the bandages.²⁶

At this stage, by using both tangible evidence and objective data obtained through photogrammetry and MSI techniques, any volumetric and chromatic gaps found in the patterns will be filled in the digital replica through a virtual stylistic restoration.²⁷ This will produce a digital edition of the mummies, which is reliable and corresponds to their original appearance, as well as improving the legibility of the wrapping weaves.

The virtual restored replicas of the mummies, the available metadata on the story of each one (i.e., acquisition, findspot), and the other data gathered until this stage will be merged into a relational database which will facilitate data storage, management, and retrieval of collected information. Moreover, through multi-scalar and cross analysis, recurring patterns on mummies with matching metadata will be identified via specific queries and then grouped into types. These types will be provided with a well defined terminology that has been lacking until now.

An autoptic approach has already allowed some recurring decorative patterns to be highlighted.²⁸ Some mummies were wrapped with bandages spirally arranged around the body. As is the case with cat mummy 67 kept at the Museo della Società Africana d'Italia in Naples, the light brown bandages folded in half are placed on the lower part of the next layer of strips, dyed

²⁵ Pubblico and Oliva 2019, 302.

²⁶ Dyer et al. 2018; Tamburini and Dyer 2019, 494-511; Tamburini et al. 2021, 106-132.

²⁷ Nemoto et al. 2018, 241-245; Pietroni and Ferdani 2021, 167-197.

²⁸ Pubblico 2022, 6-9.



Fig. 1: Museo della Società Africana d'Italia (Naples), Inv. no. 67, © Collezioni della Società Africana d'Italia-Sistema Museale di Ateneo dell'Università di Napoli "L'Orientale.

with a dark brown colour (Fig. 1).²⁹ More elaborate wrapping systems are lozenge patterns. Snake mummy P.1441, held at Museo Egizio in Turin, shows twelve square lozenges arranged in an ever more tightly interlaced pattern and placed on the front of the bundle. The complex design is made even more sophisticated since originally the lozenges were half light brown and half dark brown in colour (Fig. 2). Bi-coloured bandages are also used to make a diamond lozenge pattern. This elaborate design, which consists of rhombus-shaped lozenges progressively intertwined more or less tightly, is actually very common, as the ibis mummy 1969.112.42 of the World Museum in Liver-

pool shows. The bandages can also be arranged to form meander lozenges. The decorative model consists of repeating lozenges, placed on the front and

possibly on the sides of the mummy. The meander is usually made with dark brown bandages, while the lozenges are created with pale coloured strips, as in the case with the dog mummy C. 2347/1, held at Museo Egizio in Turin (Fig. 3). Herringbone lozenges are also attested. Usually made with pale bandages, this design can be also realized with bi-colored bandages, as seen on the crocodile mummy N



Fig. 2: Museo Egizio (Turin), Inv. no. P.1441, © Museo Egizio, Torino.

²⁹ Pubblico 2017, 523; Pubblico, Oliva 2019, 302.

2901ter kept at the Musée du Louvre. The herringbone pattern is also used without lozenges. This design could be made alternating light and dark bandages, as in the case of the cat mummy EA6758 held at the British Museum, as well as using exclusively light strips as the ibis mummy E 2805 kept at the Musée du Louvre. Pale and dark-brown bandages are interlaced in order to create the rarer checkerboard pattern, shown on the body of the crocodile mummy 6-21634 held at the Phoebe A. Hearst Museum of Anthropology. The head can be covered with cartonnage masks as well as pale or blackened linen, as shown by the dog mummy C. 2347/2, held at Museo Egizio in Turin. Facial details are usually painted and/or naturalistically modelled with paddings applied underneath the wrappings, especially cheeks and muzzle. Mouth is internally padded to give a raised appearance or indicated with a horizontal pale linen bandage on which vertical black lines define the teeth, as seen on the crocodile mummy 2901bis of the Musée du Louvre. Whiskers are further represented by rolled linen threads or painted symmetrical columns of parallel black and red lines, as is the case with cat mummy 66 kept at the Museo della Società Africana d'Italia in Naples (Fig.4). Eyes were made applying two linen buttons with black painted pupils, while ears could be soft and irregular or stiffened conical-shaped strips, as the dog mummy EA6743 held at the British Museum shows.



Fig. 3: Museo Egizio (Turin), Inv. no. C.2347/1, © Museo Egizio, Torino.



Fig. 4: Museo della Società Africana d'Italia (Naples), Inv. no. 66, © Collezioni della Società Africana d'Italia-Sistema Museale di Ateneo dell'Università di Napoli "L'Orientale".

Some wrapping aspects are so typical of a site or an area that they easily allow the specimens to be contextualized. This is the case with some of the cat mummies with individually bandaged paws found at the Bubasteion in Saqqara (Fig. 5). However, it often happens that specimens showing the same type of wrapping pattern come from diverse necropoleis,³⁰ such as the two crocodile mummies 6-21633 kept at the Phoebe A. Hearst Museum of Anthropology and 16.11.06.153 held at the World Museum in Liverpool which came from Esna and Tebtunis respectively, or belong to different periods, as in the case of the cat mummies 42.18.2 kept at the World Museum in Liverpool and C. 2349/5 of the Museo Egizio in Turin which dated to the Late Period and Roman Period respectively. In addition, several different species often show the same wrapping pattern, for example, the cat mummy EA37348 of the British Museum and the ibis mummy 11296 kept at the Manchester Museum, both wrapped in the same meander pattern.



Fig. 5: Cat mummies, tomb of Khufu-Imhat (Saqqara), © Egyptian Ministry of Antiquities.

³⁰ Hegmon 1992, 526-527.

Therefore, how can the presence of a specimen within a specific period and/or site be recorded? The answer is to go beyond the mere typological study by taking a closer look at the concept of style. Style has been defined in a variety of ways.³¹ Unfortunately, a precise definition of style will never be possible, due to its very nature. However, scholars agree that style is always grounded in some cultural context or frame of reference. From this, it should not be surprising that style is diverse, multivalent, and elusive, especially when in another context.³² Thus, the analyses of stylistic variations of recurring wrapping weaves on votive animal mummies will provide a means of highlighting the characteristics of regional wrapping styles and understand whether they could be linked to specific ateliers and/or a more refined time frame.³³

Their study also offers a unique perspective from which to unravel the existence of social, economic, religious, and technological changes as well as identify any potential meanings attributed to the recurring patterns in different religious contexts.³⁴ The stylistic analysis will be carried out by performing morphological and stylistic comparisons between the restored 3D entities grouped into the same wrapping type, by using the advanced functionalities offered by an open-source mesh processing tool (i.e., MeshLab or CloudCompare). The stylistic variations will be then combined with information gleaned from archives, especially priestly and photographic archives (i.e., Lucy Gura Archive),³⁵ and archaeological fieldwork reports. This will allow comparative investigation with well-contextualized specimens along with other artifacts (i.e., human mummies), which will give information about local beliefs hidden in stylistic designs, wrapping techniques or textile choices. At El Deir in the Kharga oasis, for example, both the human and dog mummies were wrapped with reddish bandages. This constitutes a local religious practice and a precise economic choice which allows the definition of a regional style.³⁶

Following the identification of the weaving styles variations, the next challenge is to provide information on wrapping manufacture. Analysis of the images that were previously acquired through non-invasive analytical tools

³¹ Sackett 1982, 63; Wiessner 1990, 106–107; Hodder 1990, 45.

³² Conkey and Hastorf 1990, 2.

³³ Ikram 2019, 182.

³⁴ Moreno Garcia 2014, 138–139.

³⁵ Reymond 1973; Ray 1976.

³⁶ Dunand et al. 2017, 201.

(i.e., Dino-Lite digital microscope) will shed light on the nature and torsion of the fibres employed as well as identify the presence of fringes and stitching details (hems, darning, seams) that may suggest the reuse of textiles (mostly linen, but wool, cotton, hemp and jute fibers are also attested).³⁷ Through textile and experimental archaeology protocols, the SEAMS project will reproduce exact replicas of the recurring wrapping patterns using the digitally restored replicas as their main references. The replicas will further an understanding of how the bandages were held in tension, what the interweaving stages were, and which tools, if any, were used. This information will lead to draft the very first classification of votive animal mummies based on their wrapping techniques and styles. The results will offer a unique insight into the animal mummy craft, especially by providing information on the raw materials favoured by specific production centres and consequently an in-depth understanding of their environment, as well as shed light on the economic impact of the votive animal mummy business.³⁸

The high-resolution 3D models and restored replicas of the mummies together with other data (metadata, texts, images, videos) gathered during the course of the research will be widely shared in a timely fashion through a visual repository, made accessible to everyone for free through the 3D Heritage Online Presenter (3DHOP) viewer, thereby avoiding the use of commercial software.³⁹ In doing so, users will be able to make queries according to their expertise and needs and dynamically browse the 3D entities directly on the webspace.

Conclusions

Through the multidisciplinary methodology proposed, the SEAMS project stands to make a significant contribution to recent studies in the animal mummies field and beyond. Developing a consistent terminology for the identified wrapping patterns allows a level of standardisation to be created, which has been lacking until now. This factor will have an impact of considerable magnitude among peer researchers, fostering an interoperability of data and facilitating communication. The classification of votive animal mummies provides the scientific community with an especially useful comparative tool that will potentially help to

³⁷ Bruno 2013c, 111-115; Letellier-Willemin 2021, 185, 187-188.

³⁸ Ikram 2015a; Letellier-Willemin 2019, 226-228.

³⁹ Potenziani et al. 2015, 129-141; Scopigno et al. 2017, 1-9.

identify the currently unprovenanced specimens held in museums. This tool is set to reconstruct the story of these artefacts towards a more profound understanding of their meaning. In doing so, it will reduce the necessity to carry out expensive diagnostic investigations involving destructive sampling - usually used to retrace contextual data - and consequently, it will play a key role in the continued preservation of the objects by avoiding direct contact and any stressful transfer of such fragile materials, as well as in decreasing costs. Moreover, the resulting 3D entities will become part of the multimedia contents of the museums involved in the project, and will enhance visitor experience. They will further contribute to raising public awareness on the importance of animals in Antiquity and the ethics of how to approach of animal remains. Therefore, by using a combination of new technologies (photogrammetry, MSI techniques, virtual restoration, relational database), SEAMS will offer important insights into the manufacture of votive animal mummies and shed new light on Egyptian craft specializations, *chaîne opératoire*, technologies, and favoured materials, as well as on the economy of state and local religious communities. Moreover, by providing essential information on the wrapping sequences of votive animal mummies, it will form a major contribution to our knowledge on this neglected category of artefacts.

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Some Remarks on Roman Period Mummy Masks from Kellis with the Jackal Motif

An Update on Regionalism and Craftmanship in the Western Egyptian Desert

Carlo Rindi Nuzzolo¹

Introduction: The Cartonnage from Kellis

A total of 27 tombs have been excavated by the Dakhleh Oasis Project (DOP) within the southernmost sector of the Kellis 1 cemetery on the outskirts of Ismant al-Kharab;² this is the only area so far explored of a necropolis containing 300+ tombs (Fig. 1).³ Several of the bodies buried therein, whether anthropogenically mummified or skeletonised, were provided with cartonnage coverings and usually had a 'set' composed by two pieces: a mummy mask and a foot-case. In rarer instances, a full body cover was used.⁴ The cemetery yielded more than 90 pieces of cartonnage, including 40 mummy masks, 28 foot-cases, and 14 full body covers discovered in 19 tombs of the 27 explored. Additional pieces from each of these categories were found in the North Tombs, which are not included in the following discussion. Investigation of the manufacturing details and iconography of these pieces demonstrated the presence of multiple groups of craftsmen producing cartonnage for the Kellis funerary market. Within the cartonnage production of the area, the craftsmen manufactured two main types of mummy masks: masks with a decorative programme in line with indigenous Egyptian tradition (Group I), and masks decorated predominantly following Roman fashion (Group II) featuring a tunic with *clavi*, shawl, jewellery, etc.⁵

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² Site number 31/420/C5-1 in the DOP site numbering system.

³ Birrell 1999; Mills and Churcher 1999, 260-261.

⁴ Schweitzer 2002; Hope et al. 2022; Rindi Nuzzolo 2022.

⁵ Hope et al. 2022; Rindi Nuzzolo 2017; *id.* 2023.

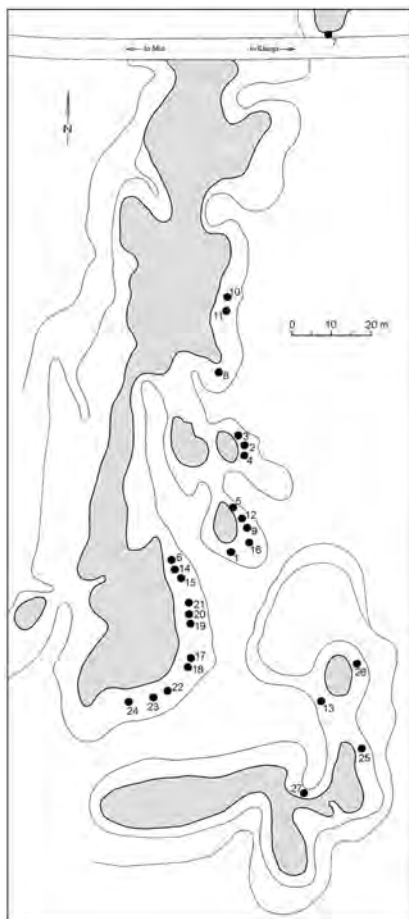


Fig. 1: Map showing the general view of the Kellis 1 Cemetery, with the location of tombs 20 and 25 indicated. Drawing by the author based on an original drawing present in the Kellis Field Notes.

Mummy Masks from Kellis

Among the above-mentioned mummy masks, a number of pieces are of interest due to the presence of a large vignette featuring jackals as the main element; the vignette is always positioned in a large horizontal register on the lower section of the chest cover. Mummy masks including a large register featuring jackals in the decoration are known from other cemeteries, for instance Deir el-Bahri or Hawara.⁶ However, the Kellis variant is of interest as it includes elements and arrangement that are uncommon and are exclusively found in the Dakhleh Oasis production, identifying them as regional characteristics.

Mask 1 (Group I)

A mummy mask bearing the jackal motif was initially identified among the findings of Tomb 25;⁷ it was not discovered on a body, but in a disturbed context together with other cartonnage artefacts.⁸ The mask shows an individual wearing a head covering decorated with images of deities and a broad collar with flower motifs followed by a horizontal line of hieroglyphs. Below this is a large

⁶ Riggs 2000.

⁷ Rindi Nuzzolo 2017; *id.* 2022, 36.

⁸ Birrell 1999; Schweitzer 2002; Rindi Nuzzolo 2022, fig. 1.41.

scene with two seated black jackals flanking a barque with incurving ends in the form of lotus flowers (Figs. 2 & 6a).

Within the barque, the deceased is painted in red and lying with head on the left proper. The flanking jackals are facing outwards, and remnants of decoration show they are tied to the barque. The mask also includes a falcon with folded wings on the back of the head. Until recently, this mask was believed to be the only one of its kind originating from the area.

Mask 2 (Group Unknown)

During 2017, while in Dakhleh, this author identified a small fragment pertaining to the edge of an additional mask originating from Tomb 20 (Figs. 3 & 6b). The fragment only had a partial section of a jackal on it, but its positioning and dimensions suggested it was part of the same scene as that on the mask from Tomb 25.⁹ Furthermore, its measurements, exactly matched those of the mask from the latter tomb. This demonstrated that the motif was not an isolated case. Although it was impossible to establish to which group the mask pertained to (Group I, decorated in Egyptian tradition, or Group II, in Roman fashion) due to its fragmentary state, it proved that the motif was used on additional masks from the area suggesting a repeated production.



Fig. 2: Mask 1 (Tomb 25); photograph by the author.

⁹ Rindi Nuzzolo 2023.



Fig. 3: Mask 2 (Fragment from Tomb 20); drawing/photograph by the author. Mask 3 (Group II)

A further fragmentary section of a third mask was discovered in Tomb 18. Its surface is partially blackened, although the decoration is still visible (Fig. 4). It depicts one jackal, on the right-hand side of a boat, of which only the last part of the lotus terminal is visible. The head of the deceased within the bark is barely detectable, and vertical fringe-like strokes have been painted in front of the jackal. The fragment in question is of particular interest as it belongs to a mummy mask of Group II, and it testifies that the motif was also used on mummy masks decorated in Roman fashion. In fact, just above the register painted with the jackal motif, it bears traces of the garments used in the decoration that identify it as a Group II mask.¹⁰

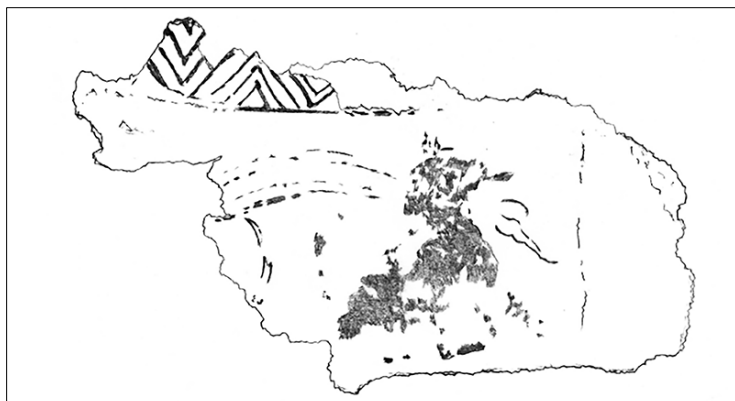


Fig. 4: Mask 3 (Fragment from Tomb 18); drawing by the author.

¹⁰ Rindi Nuzzolo 2022, 70, fig. 2.28.

The decorative programme of these masks is well exemplified by an intact mask of Group II discovered in Tomb 25, although not featuring the jackal motif. This depicts a woman with gilded face (Fig. 5). She wears a wreath and has realistic curly hair, rendered using vegetal fibres covered in black paint, falling on her shoulders. Her garments consist of a light tunic (*Chiton*) with *clavi*, a fringed mantle (*Himation*) around her shoulders tied in a knot in the centre of the chest and which descends on the lower abdomen. She has her arms crossed, left over right, and wears heavy jewellery including bracelets, armlets, a ring, and a necklace with *lunula*-pendant.



Fig. 5: The mask from Tomb 25 decorated with the "everyday dress"; photograph by the author.

Unprovenanced Mummy Masks

The previous three examples demonstrate that the jackal motif was used at Kellis on both masks of Group I and II. However, to further investigate how frequently this motif was used in the area, and given the apparent scarcity of the excavated material, it is necessary to look at some of the artefacts which have appeared on the art market.¹¹ I will demonstrate how this material can relate to the Kellis cartonnage production and, thus, can help integrate the scant archaeological remains of this motif and allow a general reconsideration on its frequency of use.

Mask 4 (Group I)

A cartonnage set composed by mummy mask and foot-case, the former featuring the jackal motif (Fig. 6d), appeared on the French art market during

¹¹ Only a selection of pieces is presented here. A dedicated study investigating the collection history and provenience of such pieces is under preparation. For additional examples see Rindi Nuzzolo 2022, 173.

1996.¹² The mask is strikingly similar to Mask 1 not only in the decorative programme, but also in how the pieces are moulded and their general craftsmanship. The mask is decorated with seated and standing gods holding sceptres and lotus flowers positioned in the wig registers, as on the example from Tomb 25 at Kellis. The face, eyes and eyebrows are also identical to those on Mask 1, as is the jackal motif. The only visible difference is the body of the deceased lying in the barque, which in this instance is not painted entirely in red but features a yellow head. Moreover, a corrupted inscription is now located below the vignette, instead of above. A further proof that Mask 4 comes from Kellis is provided by the foot-case included in the same cartonnage set; this has the same colour scheme and decorative programme as the mask, and it is noteworthy that this foot-case is identical to one excavated in the Kellis 1 cemetery within Tomb 3.¹³ Once again, moulding, craftsmanship, decoration and details all match the example from Kellis, and thus allow to ascribe this entire cartonnage set to the Kellis 1 cemetery.

Mask 5 (Group II)

A cartonnage mask (Fig. 6e) appeared on the British art market in 1998.¹⁴ It is manufactured for a woman. She has realistic curly hair and is wearing the same kind of tunic with *clavi* seen on the mask discovered in Tomb 25 of the Kellis 1 cemetery and on Mask 3, with a fringed shawl tied in the centre of the chest. Jewellery is also the same as on the Kellis example, with bracelets and necklace with *lunula*. The mask differs from the example from Tomb 25 in that it is decorated with a single jackal, depicted below the left elbow and facing outwards. This is the only element of the jackal motif present on the mask but is painted in the same way as on Mask 1.

¹² Galerie Samarcande, Paris, 7-8 October 1996, lot 268.

¹³ Rindi Nuzzolo 2023, pl. XIX.

¹⁴ Bonhams, London, 24 June 1998, lot 374.

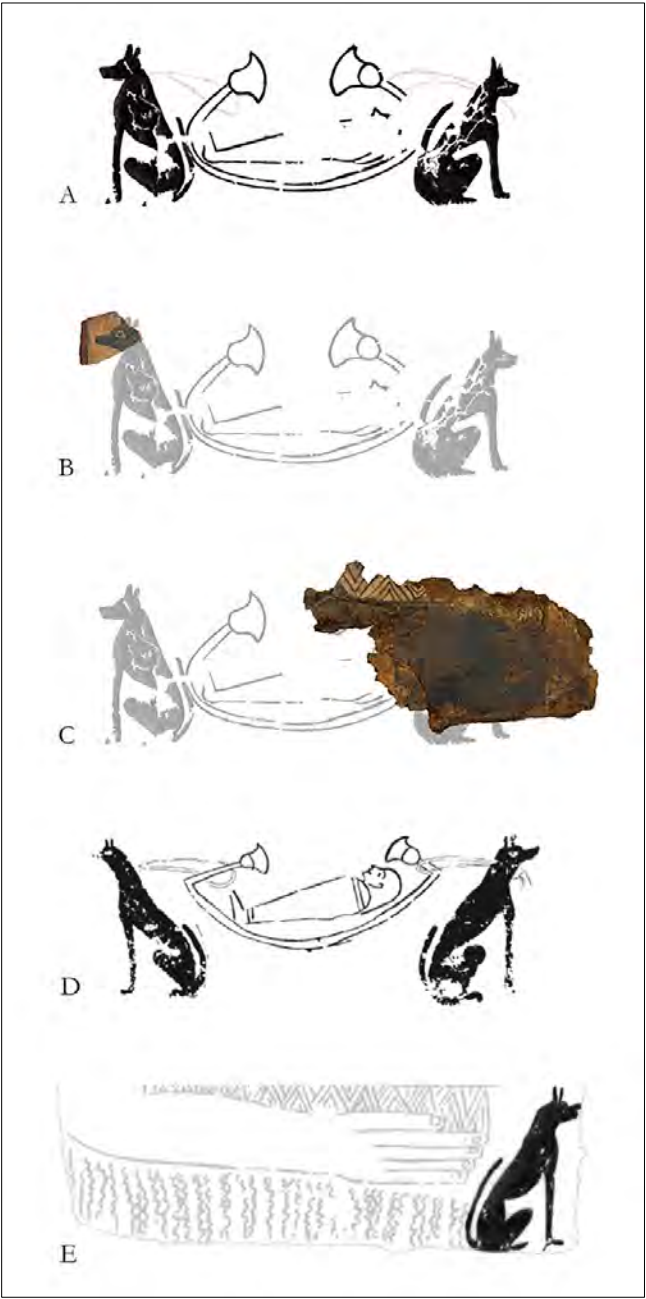


Fig. 6: The jackal motif on Masks 1-5. drawing/photograph by the author.

Conclusions

These artefacts offer an interesting opportunity to further analyse aspects connected to this motif. Firstly, they allow to prove that the motif was tied to the Kellis cartonnage manufacture. Even in the case of Masks 4 and 5, I will demonstrate how these can relate to the Kellis production. For Mask 4, it has been seen how both pieces in this cartonnage set are identical, in shape and decoration, to those found on the site. Furthermore, from the craftsmanship standpoint, both the mask and the foot-case bear the red preparatory lines which are still visible underneath the painted surface. Again, this is also found on Mask 1, where the red guidelines are particularly visible in the jackal motif area as well as in the back of the mask. These guidelines, also visible throughout the entire chest cover of Mask 5, are a particular characteristic – in that they are always visible – relative to a group of craftsmen which I identified at Kellis.¹⁵ Moreover, numerous fragments bearing identical blue and black *clavi* without dotted decoration are present in the Kellis material, as well as fragments showing hands and fingers realised in the very same fashion.¹⁶ Additionally, the time frame of appearance of these objects on the art market also matches the excavations in the Kellis 1 Cemetery.¹⁷

Second, these new data allow a quantitative reconsideration on the use of such motif. Initially, Mask 1 was believed to be the only mask bearing this motif at Kellis. Although fragmentary, Masks 2 and 3 prove that it was used on more examples. The art market investigation, with Masks 4 and 5, complies with what has been found on site. Additionally, thanks to the above-mentioned striking similarity, the complete cartonnage set of Mask 4 allows to hypothesise the presence of more pieces in the cemetery itself possibly bearing the motif. An identical foot-case in Tomb 3 must have been provided with a similar mask; whereas multiple mask fragments from Tomb 16, once again with the same style and manufacturing as Masks 1 and 4 possibly represent another cartonnage set. Finally, a further small fragment from Tomb 22, depicting the incurved terminal of the barque in the shape of a lotus flower, certainly was part of the same motif on an additional mask.¹⁸

¹⁵ Rindi Nuzzolo 2022, 115-119, pl. IV.

¹⁶ *Ivi*, 175.

¹⁷ *Ivi*, 183-187.

¹⁸ *Ivi*, 184, 301-302.

Third, the new examples allow to understand *how* the motif was used, and that it was not only confined to masks with traditional Egyptian imagery (Group I), but on masks decorated following Roman fashion (Group II) as well, as demonstrated by Masks 3 and 5. Although both groups are indeed Egyptian in nature, as the belief system they exemplified, this is of interest as it demonstrates that craftsmen were drawing from both stylistic repertoires when decorating these pieces. As mentioned, vignettes involving jackals standing seated at the sides of a barque are found on a variety of funerary materials, including cartonnage masks as well as stelae.¹⁹ The motif used at Kellis, however, includes jackals always facing outwards which, even though tied to the barque, are not represented in the act of pulling it. By looking out from the main scene, they seem rather to guard the deceased in the funerary barque. Mask 5 stands out as it is only one so far provided with a single jackal, and this suggests that the concept of the motif was still ideally represented despite the lack of space. This also applies to several inscriptions found on cartonnage pieces at Kellis; although these do not yield a running translation '*we should be careful not to dismiss such texts as pseudo-hieroglyphs. Individual signs may contain clear references to a specific context or practice, and overall the Roman period brings some changes in the perception of the script. A few signs could be enough in a given context to conjure up the desired reference*'.²⁰ In the same way, one single jackal on the mask was enough to express, *pars pro toto*, a reference to the entire motif. This could also suggest, as in the case of Kharga Oasis,²¹ that the craftsmen at Kellis were not always strictly following the same patterns but that they were also allowed a certain degree of freedom to modify them and create them anew. Future research will be directed to understanding whether the motif was used at other sites within the Dakhleh Oasis.

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¹⁹ Abdalla 1992; Riggs 2000.

²⁰ Kaper in Connor et al. 2022, 198.

²¹ Dunand 2004, 579.

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Appendix

Programme of the 3rd International Symposium on Animals in Ancient Egypt, the Middle Nile and their Hinterlands

Keynote lectures


- Wrapping it Up: Ancient Egyptian Animal Mummy Studies in 2022. Salima Ikram.
- Mythical Animals in Kush. Remarks on the Composite Creatures in Kerma Art. Andrea Manzo.
- “When everything is human, the human is an entirely different thing...” Animal Powers in the Ancient Egyptian Demonic Imagery. Rita Lucarelli.
- Sacred Animals in Domitian’s Iseum in Benevento. Rosanna Pirelli.

Session Museology/scientific analysis and archaeozoology (Chairmen: Salima Ikram, Maria Diletta Pubblico)

- Palaeopathology of Captive Baboons from Wadi Gabbanat el-Qurud, Upper Egypt. Stéphanie Porcier, Wim Van Neer, Stéphane Pasquali.
- Animal Mummies. First Insights into the British Museum’s Collection. Marie Vandenbeusch, Daniel Antoine, Salima Ikram.
- Animal Remains from the Egyptian Collection of the Civic Archaeological Museum of Milan. Sabrina Ceruti, Cinzia Oliva.
- Preliminary Investigations of Crocodile Mummy from the National Preserve “Kyiv-Pechersk Lavra” (Ukraine). Yevheniia Yanish, Dario Piombino-Mascali, Wilfried Rosendahl, Mykola Tarasenko.
- The Crocodile of “Castel Nuovo” in Naples (Italy): Religion, Taxidermy and Conservation. Emanuele Casafredda.
- Dressing animal mummies: the collection of Museo Egizio, Turin. Cinzia Oliva, Matilde Borla, Sara Aicardi.
- An Innovative Approach to Study Votive Animal Mummies. The SEAMS - a Study of Egyptian Animal Mummy Styles - Project. Maria Diletta Pubblico.
- Ceramic, Wood, Stone and Bronze: Animal mummy Containers in the Museo Egizio, Turin. Johannes Auenmüller, Federica Facchetti.
- Exploring the Morphological Diversity of Mummified Canids in Ancient Egypt Through 3D Modelling of Skulls. Colline Brassard, Stéphanie Porcier, Hassen Jerbi.

- Potted Dog: a Special Burial from Gebelein. Salima Ikram, Sara Aicardi, Matilde Borla, Federica Facchetti.

Session Animals in art, craft and texts (Chairmen: Cinzia Oliva, Maria Diletta Pubblico)

- The Valuable Role of Animals in Kerma Culture. Elena D'Itria.
- In the Presence of Giants: Giraffe-pots in Meroitic Sudan. Loretta Kilroe.
- Zooarchaeology in Old Kingdom Egypt: a Comparison between Animal Iconography and Faunal Remains. Ramona D'Alfonso.
- "I caused to live the hill of the *nega*-bulls". Ancient Egyptian Zootoponymy during the 3rd Millennium BC. Andrés Diego Espinel.
- Wandering Falcons: on the Referent and Meanings of Nemty's Hieroglyphs (, G7A/G7B). Francisco L. Borrego Gallardo.
- How Now Modified Cow? Horn Deformation in the New Kingdom. Laura Harris.
- A Re-discovery of the Monkey-like Figurines of Deir el-Medina. Audrey Crabbé.
- Shabtis for the Apis-bull. Federico Poole.
- Animals of Ancient Kheny: the Rupestrian Collection. Maria Nilsson, John Ward and John Wyatt.
- Cartonnage from the Dakhleh Oasis Featuring the 'Jackal Motif': Aspects of Regionalism and Craftsmanship in Egypt's Western Desert. Carlo Rindi Nuzzolo.

Session Animal impact on human society and economy (Chairman: Ilaria Incordino)

- Food for Thought? Considering the Presence of Zoomorphic Figurines in Predynastic Egyptian Burials. Elizabeth Brice.
- Animals in the Diet During Late Period: the Example of Plinthine (Lower Egypt). Nicolas Morand, Martine Leguilloux, Mennat Allah El Dorry, Charlene Bouchaud, Mikaël Pesenti, Séverine Marchi, Rim Saleh.
- Fishy Business: Fishing and Government Control in Ptolemaic Egypt. Lisa Vanoppré.
- Butchers and Bureaucrats: The Role of Meat in the Economy and the Fiscal System of Graeco-Roman Egypt. Nico Dogaer.

- The Identities of the Ancient Berenike Society Through the Relations to Animals. Marta Osypińska, Piotr Osypiński.
- Marine Resources Exploitation in Hellenistic Berenike (Red Sea, Egypt). Alfredo Carannante, Marek Adam Woźniak, Iwona Zych.

Session Archaeology and current fieldwork (Chairman: Elena D'Itria)

- The Animal Necropolis of Syene/ "Old Aswan" and the Material Culture. Wolfgang Müller, Mariola Hepa.
- Animal Cult in Ancient Asyut. Jochem Kahl, Chiori Kitagawa.
- The Dogs of Anubis - the Good, the Bad and the Ugly? - Zooarchaeology at el-Sheikh Fadl (Middle Egypt). Herbert Böhm.
- Collars on Cats and Dogs in Life and in the Afterlife: Fashion and Function in Early Roman Egypt. Iwona Zych, Marina Maria Serena Nuovo.
- Animals in the Decorative Repertoire of Byzantine Pottery from the Monastery of Manqabad (Asyut, Egypt). Ilaria Incordino.



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