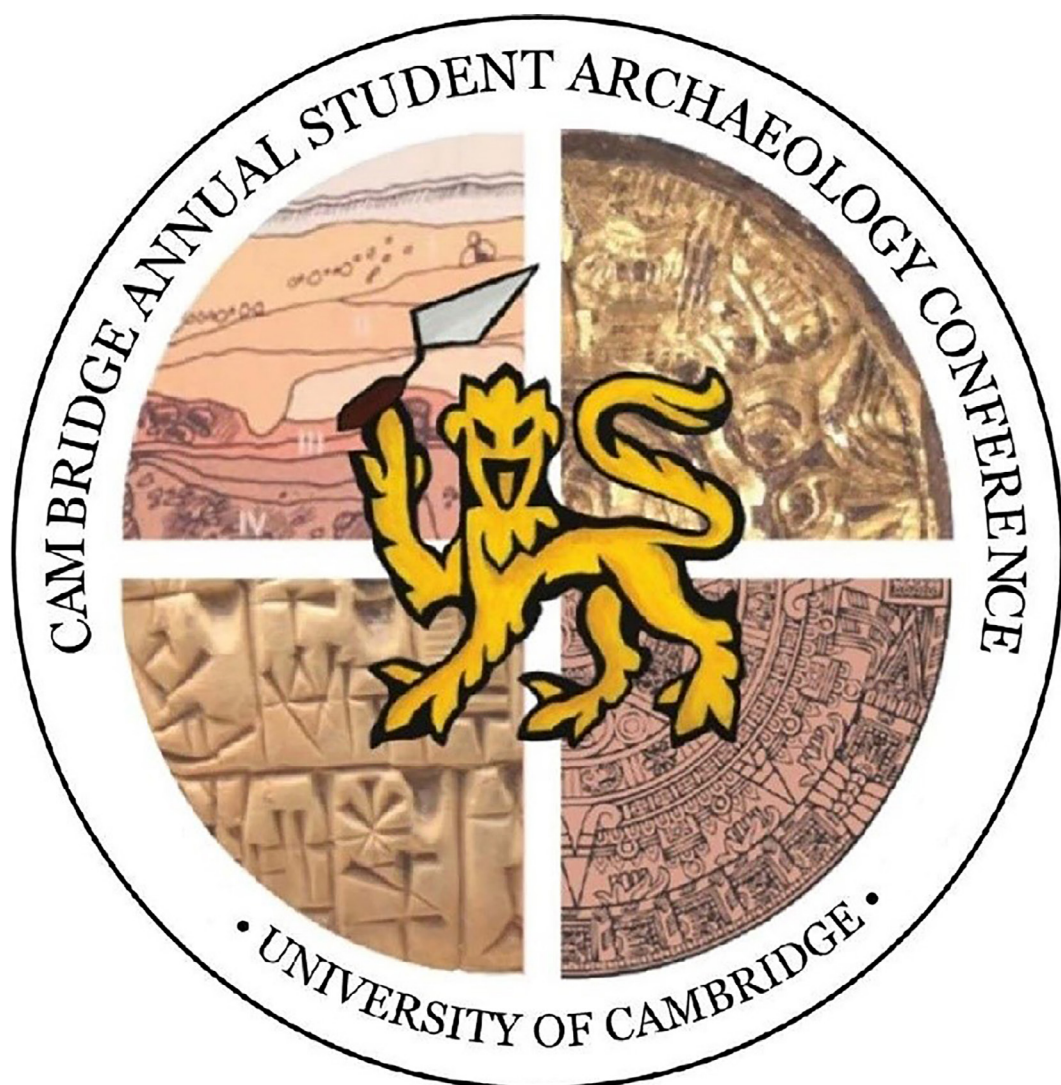


# New Frontiers in Archaeology

## Proceedings of the Cambridge Annual Student Archaeology Conference 2019

Edited by

Kyra Kaercher, Monique Arntz, Nancy Bomentre,  
Xosé L. Hermoso-Buxán, Kevin Kay, Sabrina Ki,  
Ruairidh Macleod, Helena Muñoz-Mojado,  
Lucy Timbrell and Izzy Wisher



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# New Frontiers in Archaeology

Kyra Kaercher<sup>1</sup> and Monique Arntz<sup>2</sup>

## Introduction

This volume is the result of the Cambridge Annual Student Archaeology Conference (CASA) 2019, held at the McDonald Institute for Archaeological Research from September 13–15, 2019. CASA developed out of the Annual Student Archaeology Conference, first held in 2013, which was formed by students at Cambridge, Oxford, Durham and York. In 2017, Cambridge became the home of the conference and the name was changed accordingly. The conference was developed to give students (from undergraduate to PhD candidates) in archaeology and related fields the chance to present their research to a broad audience. The conference is organised by the committee (located in Cambridge) choosing various session topics (submitted by students from around the world) that fit within a broad theme. Each session then accepted up to six papers.

## The Theme for the 2019 CASA Conference

In formulating the theme for the 2019 conference, the committee discussed various large topics, which made us realise to what extent our discipline is affected by large-scale, global issues. A few of us work in Western Asia and are unable to return to sites since the Arab Spring in 2010 and subsequent civil wars (i.e. Syria and Yemen) as well as the advent of ISIS (Casana 2013; Cunliffe 2012; Harmanşah 2015; Kopanias *et al.* 2015; Marchant 2011). With governments cutting funding for grants and projects of an archaeological nature, financing large excavations is becoming harder, and so is increasing student participation in these excavations (Boytner 2012; Killick and Goldberg 2009; Schlanger *et al.* 2010). Lastly, the election of right-wing politicians and subsequent policy-making around the world has had various effects on archaeology; i.e. Brexit (Gardner and Harrison 2017; Spanjer 2017), United States/Mexico border wall and North Dakota pipeline (Braun 2018; Diaz 2019; Lakhani 2019) and politicisation of heritage (al-Houdalieh and Tawafsha 2017; Niklasson and Hølleland 2018).

This has meant that archaeologists have had to adapt and one can see this reflected in the several ways, including the increased use of ‘legacy data’ and a shift to, previously, understudied regions. To bring these diverse issues together we decided on the topic of ‘New Frontiers in Archaeology’. We imagined this conference to include topics such as new geographical areas of research, using museum collections and legacy data, new ways to teach archaeology and new scientific or theoretic paradigms. We were pleasantly surprised at the diversity of the sessions and papers that were presented (see below). From hunting and gathering in the Neolithic to the return of artefacts to Turkey, the papers showed a great variety in both geography and chronology. Discussions revolved around access to data, the role of excavation in today’s archaeology, the role of local communities in archaeological interpretation and how we can ask new questions of old data.

## Sessions and Papers

Our keynote speaker, Professor Joanita Vroom from the University of Leiden, the Netherlands brought all these diverse issues together. Her talk, ‘Most Exciting Times: What Happened in the Eastern Mediterranean After Antiquity’, discussed issues such as ceramic analysis, ancient foodways, experimental archaeology, using data from museum collections and asking new questions of legacy

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data. Using interdisciplinary methods, she was able to show not only ceramic change, but also the change in foodways during the Byzantine and early Islamic periods. Lastly, she discussed the use of museum collections and experimental archaeology in teaching students about archaeology at Leiden.

We held seven sessions, including 38 papers with participants from a variety of countries including Armenia, Brazil, Bulgaria, Denmark, England, Germany, Italy, the Netherlands, Spain, Sweden, Turkey and the United States. This volume presents 18 papers arranged in the six sessions with the two posters in their thematic sessions.

‘Strength in Numbers: Combining Old Datasets to Explore New Questions’, led by Lucy Timbrell (University of Cambridge), had four papers, all of which are published in this volume. This session set out to explore using legacy data to answer new questions. The use of open-access data is a way for students to answer broad, often interdisciplinary questions without having to go to the field to collect the data themselves. This can also lead to re-analysis of large datasets, often updated with new results. The papers in this section focus on hunting in the Neolithic and the role of wild mammals (Rainsford-Betts), the use of reflexive diaries at Çatalhöyük (Sandoval), re-analysis of multiple internment burials (Palmer) and challenges to mortuary archaeology in the Southern Levant (Mura). These papers bring to light the amount and scope of data that has been collected in the past, the biases that must be overcome to use that data and the larger questions that can be answered by combining this data into workable formats.

‘Past and Future-Lifestyle and Inequality’, led by Sabrina Ki (Durham University) and Helena Muñoz-Mojado (Leiden University), hosted four papers, two of which are published in this volume, as well as one poster presentation which is also published here. This session questioned the focus of archaeology on ‘elite’ and ‘male’ perspectives (i.e. monumental buildings, funerary chambers, acropolises) instead of focusing on local people, rural areas, female narratives and/or overlooked forms of material culture. This focus gives us a limited insight into the past, and the session organisers thus argue for adding new approaches to get a broader understanding of past lifeways. The papers range from the role of cognition in mobiliary art in the Magdalenian (Hardman), to hazelnut gathering practices in Mesolithic Sweden (Solfeldt), to spindle whorls and textile activity in 6<sup>th</sup> century BCE Spain (Rosell Garrido). All these papers aim to refocus attention on little studied, but very important, aspects of past lifeways, from gender relations to cognitive processes. In this way, each of these studies provides a more well-rounded understanding of the past.

‘Animal Human interactions in the Past: Becoming, Making Relating’, was led by Izzy Wisher (Durham University) and Kevin Kay (University of Cambridge). It included five papers, four of which are published in this volume, and one poster presentation which is also published here. The goal of this session was to refocus theoretical approaches to animal-human interactions; shifting focus away from humans and instead focusing on animals and material culture in order to better understand the negotiation of animal-ness and human-ness. This section’s papers range from hunting strategies in the Middle Palaeolithic (Priestley), the role of dogs during the Viking Age (Cousen), horses in ancient Thrace (Nikoloa), La Tène animal depictions in England and Wales (Ellis) and the origins of dragons in Medieval Christian depictions (Delia). All these papers show how animals have played an active role in the past, and how they need to be studied as active agents in shaping past lifeways.

‘Public Archaeology in the Light of Global Politics: New Challenges and Opportunities’, led by Nancy Maria Antoineta Braga Bomentre (Independent Scholar), Caitlin Jacobson (University of Aberdeen) and Maria Uvarova (University of Cambridge) had five papers, two of which are published in this volume. This session focused on new paradigms and methodologies used to communicate archaeology to the public, working with indigenous communities, issues of globalisation and post-colonialism, and lastly,

looking at issues of repatriation and the antiquities market. These were all brought together as issues archaeologists face currently. The two papers published are about the repatriation of the Gypsy Girl Mosaic of Zeugma from the United States to Turkey (Dağlier) and surfing in Hawai'i as not only part of a cultural identity, but as a way of undermining Western colonialism (Tonge). Both of these papers discuss the importance of considering local traditions and knowledge to better interpret past lifeways.

'New Frontiers in the Archaeology of Buildings', led by Xosé L. Hermoso-Buxan (University College London) had six papers, three of which are published here. This session focused on the myriad ways in which buildings can inform on past lifeways, from the spaces they occupy, to the materials used in their construction and the way people used buildings. There is a bilateral relationship between how people create the built environment, and how those environments influence aspects of our culture. The papers focus on new interpretations of desert kites (Shakhmuradyan), so called special rural settlements in Germany (Zabolotnii) and the conservation and restoration of fort towers in La Rioja (Martínez-Espinosa). All these papers demonstrate the importance of the study of buildings not only as material culture, but as a way to analyse human behaviour in the past.

Finally, 'New Frontiers in Archaeological Sciences: Trowel-Blazing at its Cutting Edge', led by Ruairidh Macleod (University of Cambridge/University of Copenhagen), had five papers, none of which are published in this volume. Included here is a comprehensive overview of the topic by Macleod. This session focused on new techniques being used to ask a variety of questions about the past. With Ruairidh's specialisation in biosciences, many of the papers dealt with biomolecular studies of the past. Ruairidh sums up the present status of scientific analysis in archaeology and where he sees the field going in the future in his introduction to the session (this volume). From the biomolecular records of bees in the beeswax of manuscripts to reconstructing smells of oases to analysing dog coprolites this session touched on many aspects of scientific research being used in archaeology today. These papers all demonstrated the broad spectrum of scientific research today and the possibilities it offers to archaeology in the future.

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# Strength in Numbers: Combining Old Datasets to Answer New Questions

Lucy Timbrell<sup>1</sup>

## Abstract

Student-led archaeological research is exceedingly valuable to both the student and their affiliated universities or museums. For the students themselves, it provides an education beyond that received in the classroom by allowing them to gain experience with methodologies, protocols and the publishing process. In addition, student-led research projects frequently make significant contributions to science and can further our knowledge about specific topics within the field, increasing the impact of the research group and facilitating a deeper understanding of artefacts, samples or sites. That being said, the scope of research accessible to students is somewhat limited, mainly by time constraints and a lack of resources and/or funding available. An exciting way that students can now overcome such issues is through accessing and analysing open-access data: data that have been made publicly available online at no or very little cost. In particular, aggregating open-access data to form large datasets can be an extremely effective, yet relatively easy and affordable, way for students to answer new, exciting and often interdisciplinary questions with real data rather than ‘simulated’ examples. In this section, we will explore how student archaeologists can benefit from open science, how the aggregation and re-evaluation of existing data can be a fruitful avenue for research suitable for students and the limitations of archaeological data science within student-led research.

**Keywords:** Archaeological Data, Open Science, Student-led Research, Data Handling, Data Storage

## Open Science and Student Archaeology

Open science can be broken down into three key elements: open access, open data and open methods (Fecher and Friesike 2014). Open access refers to the permanent online access to scholarly work without monetary charges, which encourages the wide dissemination of publications and other forms of scientific literature (Marwick *et al.* 2017). Publishing papers in open-access journals, or disciplinary-oriented preprint repositories, is becoming increasingly popular in archaeology. One of the main reasons is that, unlike many other disciplines, archaeology can be a largely destructive process. As such, excavation is irreversible and therefore most primary data cannot be reproduced. Thus allowing unrestricted access to information ensures that the maximum amount of knowledge is gained from this process. Open access publishing formats are also important for early career researchers in developing countries, especially in cases where the excavation is being carried out in these areas, yet the research produced is inaccessible to native archaeologists due to the high costs involved with acquiring this scholarly work.

Conventionally, archaeological data was viewed as the private property of the archaeologists, due to the high costs involved with data collection (Marwick *et al.* 2019). Data ownership mentalities are now usually seen as outdated and data sharing is becoming widely practised, especially as many journals now require data and method protocols to be deposited into a public repository upon paper publication. Open data is particularly beneficial for a discipline like archaeology as it allows researchers access to information from diverse localities, time-periods and cultures (Marwick *et al.* 2017), which is even more advantageous for students who often have constraints on both time and monetary budgets. For example,

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with great ease, one can download data from a huge number of distant archaeological collections around the world that would otherwise be unobtainable without large grants and an extended time allowance for data collection. Collating such data into aggregate databases enables students to perform meta-analyses to provide new insights into the sites, time periods, regions or materials in question.

Transparency of methods applied during data collection and analysis through open methods allows for the reproducibility of scientific archaeological research. This is particularly beneficial for archaeology students, who can follow scripted workflows of similar research and adapt these methodologies and procedures for their own questions and data. It is also important for students to be transparent about their own data collection and analysis methods to reinforce the reliability of their results. A good example of best practise can be found in the paper by Rainsford-Betts (this volume) presenting a meta-analysis of Neolithic hunting practises, where all data and code is available in the supplementary materials. When considering that archaeology students do not necessarily come from scientific backgrounds, data collection and analysis protocols of student-led research need to be particularly scrutinised. In fields like biology and physics, data handling tends to be taught earlier and more ubiquitously, whilst archaeology students are unlikely to have been exposed to the same level of basic training in this field, although this may differ between institutions. That said, training in archaeological data science is starting to become more widespread in undergraduate and postgraduate archaeology courses, with many institutions now offering optional modules in this field.

### **Aggregation of Archaeological Data**

Collating archaeological data is an effective way to expand datasets and explore a wider breadth of interdisciplinary questions. Accessing multiple datasets permits large-scale analyses through both space and time, facilitating the comparison between time periods and/or regions (see Rainsford-Betts this volume). Increased sample sizes through data aggregation can also increase the power and reliability of analyses as larger samples tend to be more representative of the population from which they were sampled. Archaeological samples, especially in earlier periods, are often sparsely distributed thus, through sharing data, archaeologists can improve the statistical robusticity of their analyses. Accessing data from a number of sources is also valuable in terms of placing sites, collections or discoveries within their wider archaeological context. This is very important to gain a comprehensive understanding of cultural phenomena. In addition, the synthesis of multiple types of data can allow students to investigate questions beyond their immediate subject area, i.e. integrating genetic and archaeological datasets to provide insight into gene-culture coevolution, which enables interdisciplinary learning.

Whilst aggregating data to perform meta-analyses is a fruitful avenue for student-led research, it must be taken into account that early career students with limited experience in data handling may not recognise seemingly minor discrepancies between datasets, such as those that can arise during data collection, cleaning and storage. These can have major implications when conducting scientifically rigorous analyses (Marwick 2016). Therefore, more data does not necessarily mean better data in student-led research, especially when considering that students may require more supervision and assistance to ensure scientific standards are upheld. That said, open methods, in addition to the peer-review process, are an effective way to validate student-led research. Moreover, increased datasets are not always advantageous over reduced datasets. This is because large amounts of information can produce noise within the data which may affect the ability of certain statistical procedures for recognising patterns. Redundant data do not help to explain relationships between phenomena and therefore should be avoided or omitted where possible. Sandoval (this volume) demonstrates this through an analysis of Çatalhöyük excavation diaries.

## Old Data in New Contexts

Another way in which open science can benefit student-led archaeological research is the re-examination of existing data. Secondary analysis of existing data by archaeology students can help to verify and update obsolete research in the light of new discoveries or methods, whilst providing the students with vital research skills and experience. The process of data recontextualisation is very important in a field like archaeology, where our knowledge is constantly being revised as further excavation takes place, yet more established academics do not always have the time to perform such analyses. Palmer (this volume) shows how the reanalysis of existing data in the light of new data is important for our understanding of archaeological phenomena.

Whilst existing data are useful for student archaeologists, this data can be, often inadvertently, influenced by a number of processes, e.g. the theoretical framework favoured by the archaeologist during each stage of research—from the data's collection in the field through to its publication. Exactly how the data has been affected is not always obvious to the secondary analyst and this may create additional variation between data sources if it is collated (Mura this volume). Students therefore need to be critical of the context in which the data was collected, curated, processed and interpreted, as at each stage bias may be introduced.

## Summary

The following collection of papers explores the benefits and limitations of using and combining open-access data from the perspective of student-led research. Papers resulting from dissertations, theses and group projects are included that have either: 1) explored existing data within new contexts or frameworks, 2) used and/or combined data in novel and innovative ways and 3) explored the challenges associated with open science and/or increased datasets in archaeological research.

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# Hunting in the Neolithic: Zooarchaeological Meta-analysis of the Role of Wild Mammals in Eastern Europe 6500-3000 BCE

Giselle F. Rainsford-Betts<sup>1</sup>

## Abstract

This study collates faunal assemblage data from 126 sites across eastern and southern Romania and Ukraine, to perform a meta-analysis examining the changing role of hunting in Neolithic Central-Eastern Europe. This fills a gap in the coverage of previous zooarchaeological meta-analyses of Neolithic Europe. Theories about the Neolithic subsistence system of Europe are ruled by the persistent narratives of the revolutionary Neolithic package and the cognitive separation of the wild from the domestic. Challenges to these ideas often focus on the rate of transition, and not the evolutionary subtext of the argument. This has fuelled the limited discussion of hunting in the Neolithic, viewing it as a staged process of decline from a risk buffering investment, to a retained social symbolism, to a trade resource. This study demonstrates that, at the majority of sites, wild mammals retained the role of a regular secondary meat resource across the Neolithic period. No evidence was found for an overall decrease in the frequency of hunting over the course of the Neolithic, with the practise instead increasing in the late 5<sup>th</sup> millennium BCE before decreasing again—but not disappearing—in the 4<sup>th</sup> millennium BCE. A link is proposed between this increase in hunting with the increase in social division at this time, opening a possible avenue of future investigation into the relationship between hierarchy, lowered standards of living and the role of hunting.

**Keywords:** Neolithic, Eastern Europe, Hunting, Zooarchaeology

## Introduction

The definition of the Neolithic was originally based on the appearance of polished lithic tools (Lubbock 1865); however, many archaeologists use an economy based on domestic plants and animals as the diagnostic feature of the Neolithic (Thomas 2002, 7). This has resulted in the frequent assumption that, with the advent of the Neolithic, agriculture and pastoralism rose in prevalence, and the exploitation of wild resources was abandoned. Neolithic literature is underpinned by the assumption that the adoption of agriculture and pastoralism allowed for food surplus, settlement, population growth, craft specialism and hierarchies: in short, increased cultural complexity was only possible after the development of farming (Bar-Yosef 1998, 143; Barker 2006, 1). A continuation of 'barbaric' habits like hunting does not fit this evolutionary narrative.

The emphasis on subsistence economy in defining Neolithic societies may have begun with V. Gordon Childe's concept of the rapid Neolithic Revolution (Greene 1999), with Clarke later promoting the idea that domesticates were the necessary precursor to social complexity (Clarke 1969, 70–94). This focus on domestic animals and crops as a requirement for the Neolithic was softened during the post-processual movement. For example, Hodder (1990, 53) took the view that the Neolithic was the creation of the *domus*, a space in which the wild was tamed and culture separated from nature—although this still perpetuates the idea that the wild had no, or a strictly limited, role in Neolithic lifeways.

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Revisions of the Neolithic often focus on the deconstruction of the Neolithic as a ‘revolution’, for example with Zvelebil and Rowley-Conwy’s (1984, 105–106) three-stage model of availability, substitution and consolidation of domestic products over a gradual transition, occurring at varying speeds in different areas. Thomas (2003, 72) revised the Neolithic ‘package’ concept (where pottery, domesticates and large structures appear simultaneously), claiming it would be better characterised as a ‘repertoire’ of new practices implemented in different ways by many groups. Although many now acknowledge the close ‘middle ground’ between foragers and farmers, the transition is still viewed as a one-way process, with no societies maintaining a stable place between the two states (Smith 2001, 3). They are classified instead as transitional, based on their proximity to either definable state (‘complex’ hunter-gatherers vs. ‘incipient’ agriculturalists). This too contributes to hunting not being considered a regular feature of the Neolithic.

Zvelebil (1992, 8–9) identified that this conclusion was not supported by ethnographic observations of recently transitioned agricultural societies, nor by faunal data for the eastern Baltic and Finno-Scandinavia. He proposed a model of a gradual decline in the use of wild animals through the Neolithic period, from a major to secondary food resource, to an only socially important resource<sup>2</sup>, to a trade commodity. Explanations for the persistence of hunting alongside farming include the practise of risk buffering; gaining commodities which cannot be retrieved from domestic stock; protection of crops and domesticates; adaptation to new environments; and symbolic roles or responses to changing societies (Bartosiewicz 2005; Boyle 2006; Halstead 1999; Hamilakis 2003; Zvelebil 1992). These models provide several testable hypotheses to consider the evidence for hunting in the Neolithic and possible reasons for the continued use of wild animals in agricultural societies.

### Meta-Analysis and Eastern Europe

It has been argued above that the assessment of the frequency and significance of hunting in the Neolithic is important, as it is a frequently overlooked practice and may contribute to the persistent debate over the categorisation of the Neolithic as a ‘revolution’. Compiling quantitative zooarchaeological data is a valuable method to examine this issue as it provides a fairly direct reflection of which animals were being exploited by respective settlements. This method has been outlined elsewhere, but in short involves compiling a database recording the site, phase, dating and the entire published contents of each assemblage included in the study for a wide comparative analysis (Conolly *et al.* 2011, 540).

Zooarchaeological meta-analysis is a well-established method, having been used by various researchers to analyse the spread and development of the Neolithic in different regions of Eurasia; South-West Asia (Conolly *et al.* 2011), Anatolia (Arbuckle *et al.* 2014), South-East and Central Europe (Manning *et al.* 2013b), the western Balkans (Orton *et al.* 2016) and the Adriatic coasts (Gaastra and Vander Linden 2018). Boyle (2006) focused less on the spread of the Neolithic, examining the persistence of wild game in Neolithic western Europe, while Manning *et al.* (2013a) retained the focus on the development of the Neolithic but took a large-scale view of Europe as a whole.

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2 Interpretations of the social or ‘ritual’ element of hunting have been widely discussed by ethnographers, but mostly in modern hunter-gatherer or hunter-cultivator societies. Hunting is argued to be crucial to maintaining masculinity in societies where the ‘female’ task of plant acquisition provides greater economic wealth (Turner 1970, 280), and is a common feature of male rites of passage (Barnard 1980, 117). This supports the suggestion that the social symbolism behind hunting could significantly contribute to its persistence in the Neolithic. However the nuances between specific social or ritual acts in the faunal record would prove difficult to demonstrate in a large-scale meta-analysis study such as this.

The EUROEVOL project (Manning *et al.* 2016) compiled large amounts of zooarchaeological data from the Neolithic of North-Western and Central Europe. Not only does this demonstrate that zooarchaeological meta-analysis is well established within the study of Neolithic subsistence, it also illustrates a gap in the data for most of North-Eastern and Central-Eastern Europe (Figure 1).

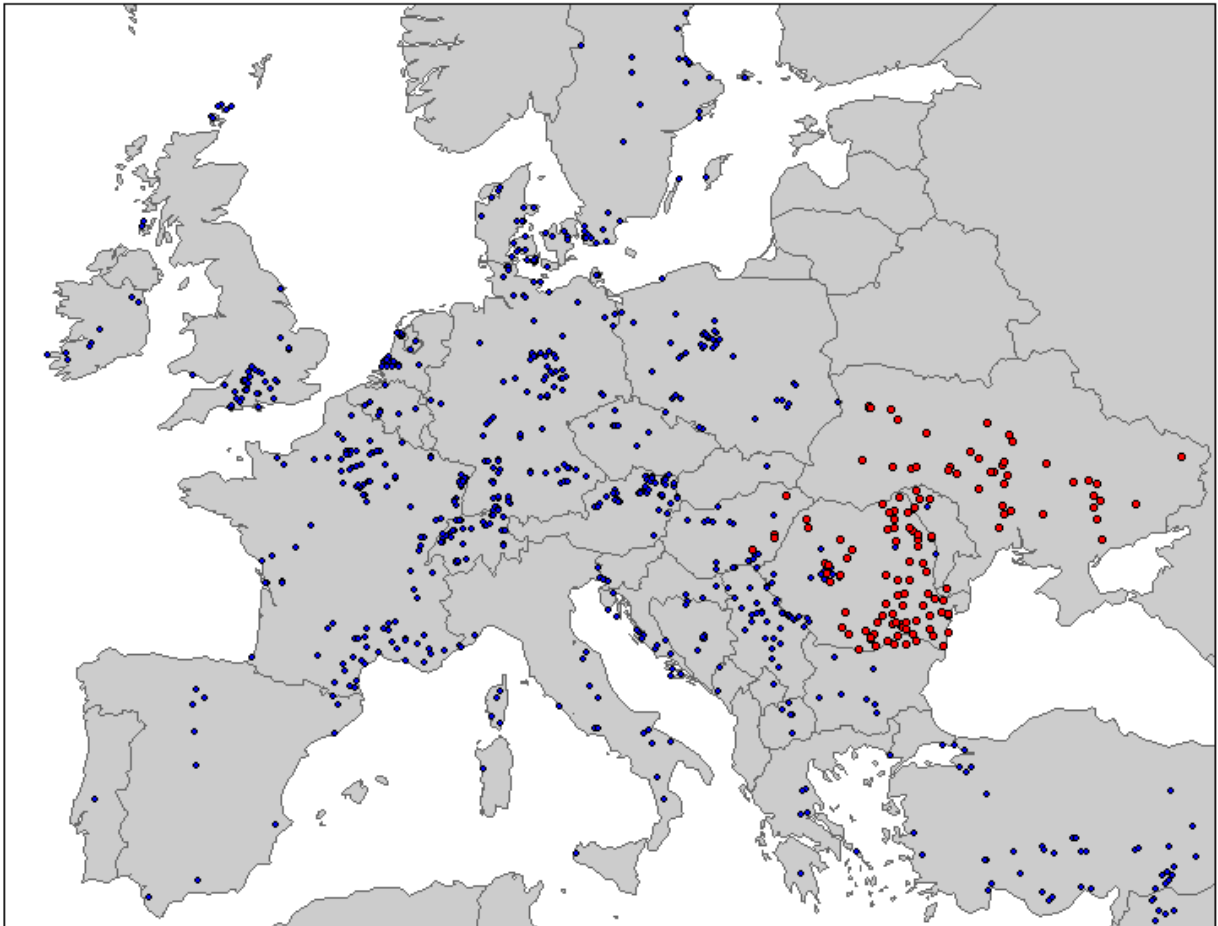


Figure 1. Map showing sites included in previous Neolithic meta-analyses (blue) and the site data retrieved and included in this database (red) (created by author using R package Mapplots (Geritzen, 2014)).

Zvelebil and Rowley-Conwy have published much commentary on the Neolithic transition of the Baltic and eastern Finno-Scandinavia (for example Zvelebil 1998; Zvelebil 2006; Zvelebil and Rowley-Conwy 1984), and Zvelebil and Dolukhanov (1991, 260–262) produced a brief overview of the chronology of the Ukrainian and Moldavian Neolithic transition. Although some of Zvelebil and colleagues' work give macro-scale analyses of general trends in the Neolithic of northeastern Europe, little quantitative data is used to support their arguments, and most of these publications focus on which phases of Zvelebil and Rowley-Conwy's (1984) availability model for agricultural transition are expressed in each culture. This suggests that it would be of interest to develop a macro-scale analysis of these areas' Neolithic faunal data. However, it is well established in the literature that the Neolithic communities of northeastern Europe were ceramic hunter-gatherers rather than agro-pastoralists (Bērziņš *et al.* 2016, 33; Daugnora and Girininkas 1998, 223; Milisauskas and Kruk 2011, 230; Stančikaitė *et al.* 2009, 117; Zhilin 2000, 287). Therefore, a detailed discussion of the role of hunting in the Neolithic of this area could only provide a very limited contribution to current knowledge.

However, data for Ukraine and eastern and southern Romania, have not been covered in detail by previous Neolithic meta-analysis (see Figure 1). The zooarchaeological data for these areas is currently dispersed between many site-specific or small-scale comparison papers (e.g. Bălăşescu 2002; Bălăşescu and Radu 2002; 2003; 2004; 2015; Bejenaru and Bodi 2014; Bejenaru and Stanc 2008; 2012; Bejenaru *et al.* 2009; Bejenaru *et al.* 2011; Bejenaru *et al.* 2016; Cavaleriu *et al.* 2008; Kovalchuk and Gorobets 2016; Kruts 2002; Olenuic and Bejenaru 2011; Shukarov *et al.* 2015), or synthesised and published in Slavic-language books (Kotova 2003; Zhuravlev 2008). Therefore, a prefatory attempt to accumulate some of these resources into one dataset would provide a new macro-scale view of the Central-Eastern European Neolithic faunal data. This is an interesting area for assessing Neolithic hunting as it is surrounded to the south and west by some of the earliest, most well-established farmers of Europe, and to the north by the latest hunter-gatherers of Europe (Telegin 1987, 309). This provides a wide range of neighbourly influences that may affect subsistence patterns in this area.

## Methodology

### *Zooarchaeological Meta-analysis*

Several steps in the zooarchaeological process fall victim to some form of bias. Significant variability in degrees of bone preservation is observed due to differences in bone density and taphonomic processes (Bar-Oz and Dayan 2003; Conard *et al.* 2008). There is further bias in the recovery process—excavators employ different retrieval methods, from hand collection to various levels of sieving, which has a large effect on the degree of material retrieved (Grayson 1984, 168). Furthermore, the zooarchaeological analysis stage—the assignment of taxa based on shape patterns—is an “unavoidably a subjective process” (Wolverton 2013, 392).

One reason for the use of meta-data analysis is that such assemblage specific partialities are (hopefully) limited by the broad scale of the study (Connolly *et al.* 2011, 544), or identified as ‘noise’ in the overall analysis (Jones and Gabe 2015, 2). Nims and Butler (2018, 2–4) propose that the use of an assemblage life history framework could be used to combat the various biases in preservation, recovery, analysis and reporting between sites. However, the scope of the present study does not extend to creating a detailed report of the taphonomy, recovery and analysis methodology of the 131 phases used—even in the unlikely situation that all the relevant information was published. This study therefore adheres to the more general consensus, that the best method of quality assurance for a meta-analysis is the publishing of the primary dataset and scripted code in an openly accessible format, in order to allow analysis replication and data reuse (e.g. Arbuckle *et al.* 2014, 2; Atici *et al.* 2013, 678; Marwick 2016, 426; Orton *et al.* 2016, 3). As such, the data and code have been deposited in the Supplementary Materials. This demonstrates the analytical process employed and the reproducibility of the results, also allowing for the future reuse of the dataset for other analyses.

### *Data Sources*

This study synthesised faunal data from the Neolithic of Eastern Europe from a range of books and journals. Overall, 171,438 specimens from 131 phases at 126 sites were recorded in the database, spanning 6700–3000 BCE and representing ten different material culture groups (see Table 1). The geographical area covered was selected according to location in Europe that had not been discussed in detail by previous large-scale Neolithic studies, as outlined above. As a result, the focus of this study is Ukraine, the Republic of Moldova and most of southern and eastern Romania (see Figure 1). Belarus is excluded from this study as there were no Neolithic zooarchaeological studies available to the author. Unfortunately, information for only two Neolithic sites from the Republic of Moldova were found. Data retrieval was attempted for Slovakia and eastern Hungary as they were not extensively covered by previous analyses, but few additional sites were found.

Table 1. Table describing the ten material culture groups to which the assemblages included were assigned.

Material Culture Group	Geographical Region	Date
Starčevo-Kőrös-Criş	Central and eastern Romania	6600–5000 BC (Biagi <i>et al.</i> 2005)
Bug-Dniester	Western and forest-steppe Ukraine	6400–4500 BC (Telegin 1987; Kotova 2003)
Surskaya	Eastern Ukrainian steppe	6700–5200 BC (Kotova 2003)
Dnieper-Donets cultural complex	Steppe area between eastern bank of the Dnieper river to the Donets river	6050–3750 BC (Kotova 2003; Kovalchuk <i>et al.</i> 2018)
Linear Pottery	Western Ukraine	5500–4600 BC (Kotova 2003)
Cucuteni-Tripillia cultural complex	North-eastern Romania and forest-steppe Ukraine	5800–3000 BC (Zhuravlev 2008)
Hamangia	Southern Romanian Black Sea coast	5500–4600 BC (Bălăşescu and Radu 2004; Haimovici and Bălăşescu 2006)
Boian	Southern Romania, from Wallachia to Dobrugea and down to central Bulgaria.	4300–3500 BC (Bălăşescu and Radu 2002)
Gumelniţa	Eastern and Southern Romania	4500–4100 BC (Bălăşescu <i>et al.</i> 2005)
Sredni Stog	Ukrainian steppe	4100–3100 BC (Anthony 1986)

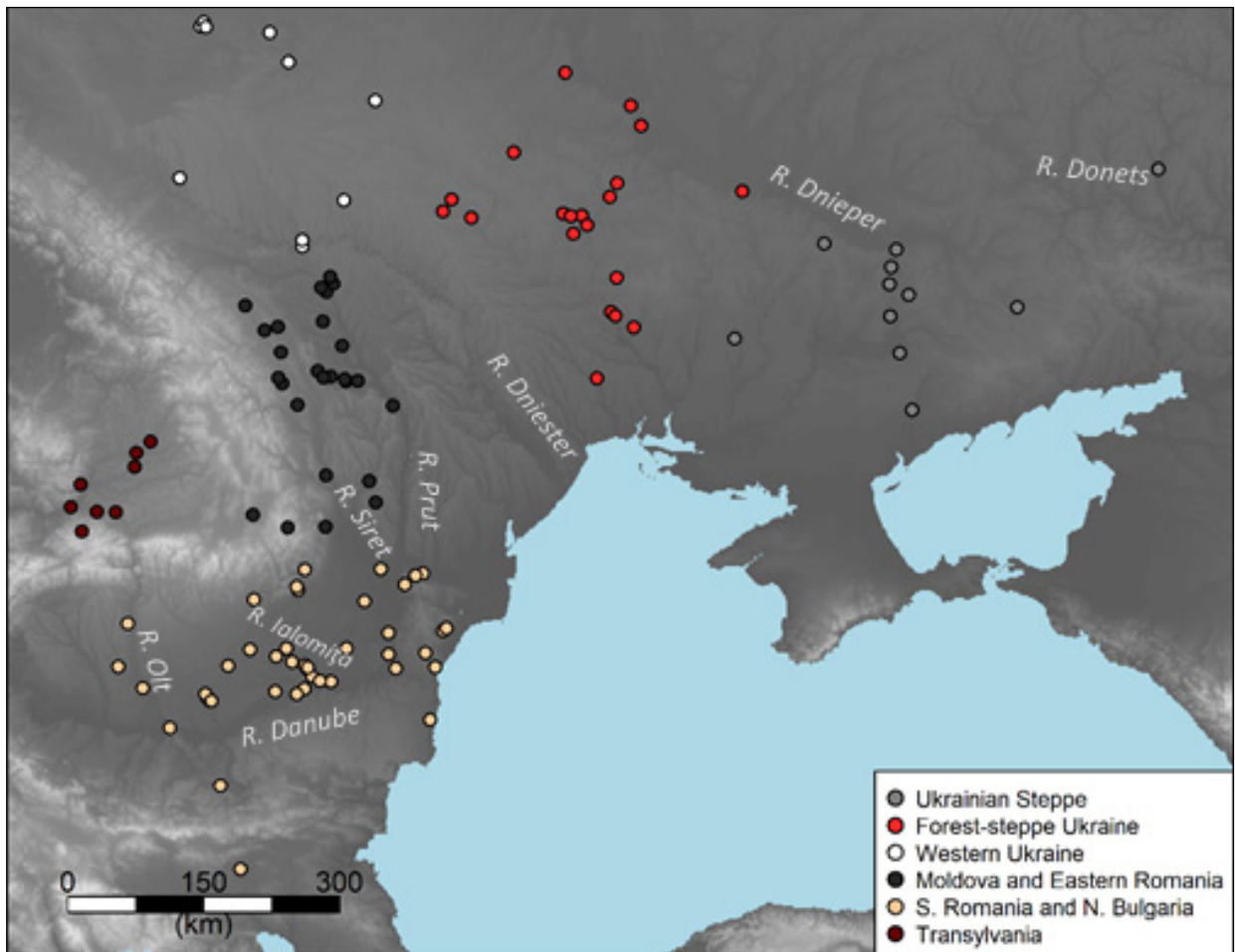


Figure 2. Geographic areas used to split the study area into regions (Created by author using R packages Mapplots and Raster (Geritzen, 2014; Hijmans, 2015). author).

### Data Management

The study area was split into six regions based roughly around the geography of the area—southern Romania and northern Bulgaria, Moldova and eastern Romania, western Ukraine, Transylvania, forest-steppe Ukraine and the Ukrainian steppe (Figure 2). The perimeters of the latter three are self-explanatory, while the label western Ukraine refers to the more heavily wooded area north-east of the Carpathians. Moldova and eastern Romania covers the area around the Dniester, Siret and Prut Rivers, while southern Romania and northern Bulgaria represents the Danube River and its associated plains.

Minimum sample size was not employed while gathering data, but during data analysis in R Studio (RStudio Team 2015). A minimum of 200 NISP was used following Orton *et al.* (2016), to avoid the distorted representation of rarer species in smaller assemblages. Of the 131 phases, 93 had large enough assemblages to be included in the analysis.

### Taxon Status

In order to assess the role of wild mammals in Neolithic subsistence strategies, the status of each taxon was placed into one of seven variables (see Table 2). The ‘domestic’ label applies to the known domestic species: *Bos taurus*, *Ovis aries*, *Capra hircus*, *Sus scrofa domesticus* and *Canis lupus*. The *Capra/Ovis* general taxon was used as it was the most frequently applied classification in the source material, and avoids inter-analyst bias in degrees of sheep/goat identification. ‘Uncertain’ was used for all equids, as it has been demonstrated that differentiation between *Equus* species based solely on their zooarchaeological remains is unreliable. This is due to the complicated and possibly polyphyletic nature of horse domestication (Dzhebir *et al.* 2018, 3), frequent mixing of early domestic and wild horses (Warmuth *et al.* 2012) and the lack of consistent morphometric changes between wild and domestic equids compared to other species (Olsen 2006, 245; Seetah *et al.* 2014, 905). This approach was especially necessary with Ukraine being a focus of this study, as the Eurasian steppe (which includes large areas of eastern Ukraine) is widely discussed as a key area of horse domestication (e.g. Anthony and Brown 2000; Levine 1990; Olsen 2006; Outram *et al.* 2009; Warmuth *et al.* 2012).

Loose identifications crossing the wild/domestic divide, such as *Sus* sp. or *Bos* sp. were infrequent. Where they occurred, the number of fragments assigned to the group were generally low, with only ten sites having more than 20 non-specific fragments. The number of non-specific fragments were split and assigned wild and domestic status based on the ratio of identified wild and domestic *Sus* and *Bos* at each site. However, at seven southern Romanian sites this could not be calculated as the source material gave the domestic species NISP as one lump sum (Bălăşescu and Radu 2002). In these cases, the non-specific fragments were entered separately and given the status ‘non-specific’.

The wild mammals were divided into the above five groups in order to postulate what form of hunting occurred. Wild herbivores were split by size to assess how far the amount of meat recovered was important, although the hares which dominate the small herbivore category were likely hunted for both their meat and pelt. Large carnivores cover those which may pose a significant threat, while small carnivores such as martens, otters and badgers were put into the fur bearing category instead as they are unlikely to present a risk as predators to humans and their livestock. The fur bearing category was assigned to those taxa for which their pelt would have been the most likely motivation for hunting them. Most of the Mustelidae are too small to be earnestly hunted for meat, although there is a fair amount of meat on a badger or beaver. Micromammal remains were not included due to both the chance of their presence being intrusive burrowing, and the lack of active hunting required to catch them.

Table 2. Table showing to which status category the taxa were assigned.

Domestic	Large Herbivore	Medium Herbivore	Small Herbivore	Large Carnivore	Fur Bearing	Uncertain
<i>Bos taurus</i> (cattle)	<i>Cervus elaphus</i> (red deer)	<i>Capreolus capreolus</i> (roe deer)	<i>Lepus europaeus</i> (hare)	<i>Canis lupus</i> (wolf)	<i>Castor fiber</i> (beaver)	<i>Equus</i> species (equid)
<i>Capra/Ovis</i> (goat/sheep)	<i>Bos primigenus</i> (aurochs)	<i>Saiga tatarica</i> (saiga antelope)	<i>Lepus</i> species (hare)	<i>Ursus arctos</i> (bear)	<i>Lutra lutra</i> (otter)	<i>Equus caballus</i> (horse)
<i>Sus scrofa domestica</i> (domestic pig)	<i>Sus scrofa ferus</i> (wild boar)	<i>Dama dama</i> (fallow deer)		<i>Lynx lynx</i> (lynx)	<i>Martes</i> species (pine martens)	<i>Equus ferus</i> (horse)
<i>Canis lupus</i> (dog)	<i>Bison bonasus</i> (bison)			<i>Panthera leo</i> (lion)	<i>Mustela putorius</i> (ferret)	<i>Equus hemionus</i> (wild ass)
	<i>Alces alces</i> (elk)			<i>Panthera pardus</i> (leopard)	<i>Mustela nivalis</i> (weasel)	
	<i>Rangifer tarandus</i> (reindeer)				<i>Vormela peregusna</i> (marbled polecat)	
					<i>Meles meles</i> (badger)	

### Dating

Where possible, site dates were taken from radiocarbon dates given in the journal, book, or database publishing the faunal data, and additional dates were retrieved from sources written on the sites rather than the faunal remains (Lazarovici 2010; Tornero *et al.* 2013). Unfortunately, radiocarbon dates could not be found for every site, in which case the broad, generally accepted date for the cultural sub-period to which the site was assigned was used instead. This was not ideal, but allowed for a greater number of sites to be included in the analysis, and should not have been too detrimental to the validity of the analysis as subsistence change was assessed on a large time scale across several millennia. Raw dates were recalibrated using OxCal online calibration.

### Limitations

Several study specific limitations were encountered during the data gathering process, mostly involving the quantity and quality of available data. Five out of nine sites belonging to Bug-Dniester, and seven of 11 Dnieper-Donets groups sites were unusable due to their small faunal assemblages, while very few published faunal assemblage analyses from Sredni Stog, Surskaya and Linnerbandkeramik groups were retrieved. It is unclear whether this is due to lack of excavation, lack of zooarchaeological analysis, or simply want of publishing zooarchaeological data. The small number of assemblages from the Hamangia group is due to only six sites having been excavated—none of which are from the earliest phases (Bălăşescu and Radu 2004, 67–73).

A serious limitation was the lack of recovery information, either due to it not being provided (Kotova 2003; Zhuravlev 2008) or the author's lack of ability to examine the Romanian sources in detail. This means the effects of the recovery method (hand collected vs. degrees of sieving) on the results cannot be examined, although the assemblages are assumed to mostly be recovered by hand collection only.

## Results

### *Contribution of Hunting*

Figure 3 plots the percentage contribution of wild taxa to total NISP (% wild) through time, while Figure 4 plots this information spatially. There is no evidence of a general decrease in total percentage of wild taxa as the Neolithic progresses. Even in the Early Neolithic, there are many sites with <25% wild, even in the forest-steppe of Ukraine (Gard 3, Pugach 2, Maidanetske)—although there is one site, Surski Ostrov, from the Ukraine steppe with >50% wild. Instead, there is an increase in the range of percentage of wild taxa values for the Middle Neolithic (5000-4000 BCE), particularly between 4500 and 4000 BCE. This is mostly due to the large increase in numbers of eastern and southern Romanian sites with >25% wild. There is some precursor to this, with two Romanian sites, Cernavoda and Costișa, dated 5000-4500 BCE having 60-70% wild taxa, but the large-scale increase in variation does not occur until the late 5<sup>th</sup> millennium. This does not, however, represent a general increase in hunting—there are many sites which maintain <25% wild species in their assemblages—therefore not every site increased its reliance on wild animal resources during this period. In the Late Neolithic (4000-3000 BCE, also referred to as the Chalcolithic or Eneolithic in this area), the Romanian sites appear to almost return to previous levels, all being <30% wild. The steppe and forest-steppe Ukrainian sites retain their levels of variation; several sites cluster at <10% wild (Kosenovka, Nebelivka, Sverdlikova, Talyanki, Veseliy Kut, Derievka), with another group around the 30-50% mark (Molukhov Bugor, Pekari-2, Surski Ostrov, Lisa Gora, Zhvanets Shov) and Ignatenkova Gora alone with an anomalous >90% wild.

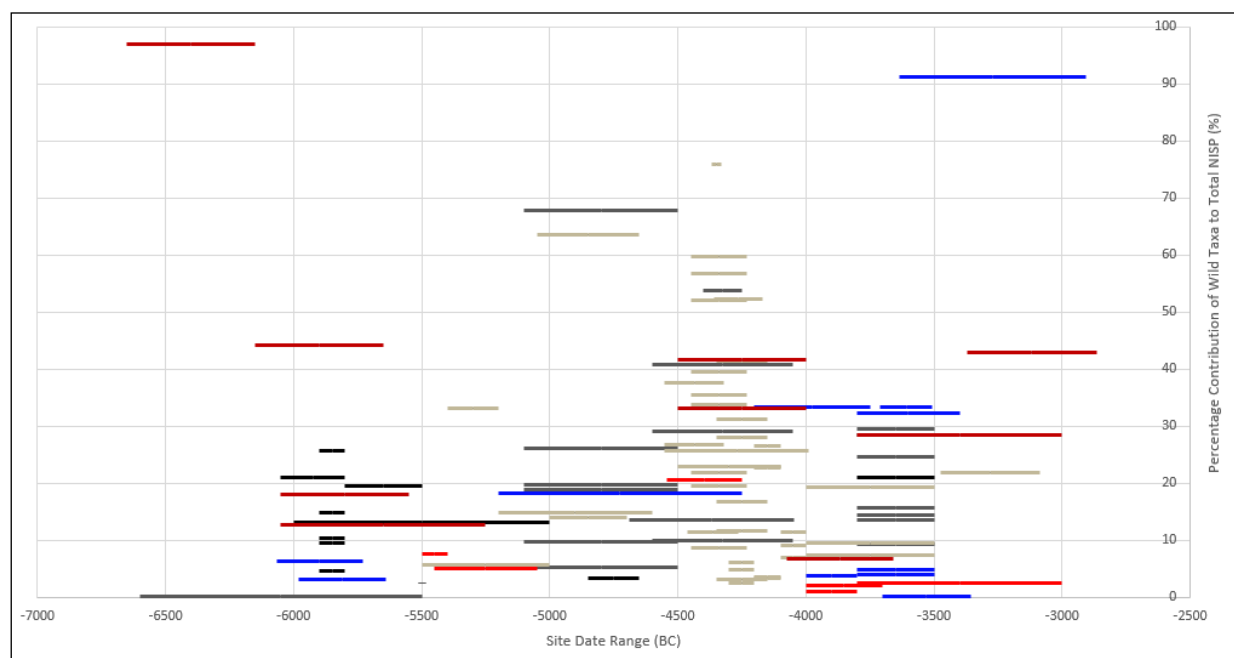


Figure 3. Scatter plot displaying the percentage contribution of wild taxa to the total NISP of each site, by site date range. Points are colour coded regionally, as follows: black—Transylvania; dark grey—eastern Romania and Moldova; light grey—southern Romania and northern Bulgaria; light red—western Ukraine; blue— forest-steppe Ukraine; brown—Ukrainian steppe (author).

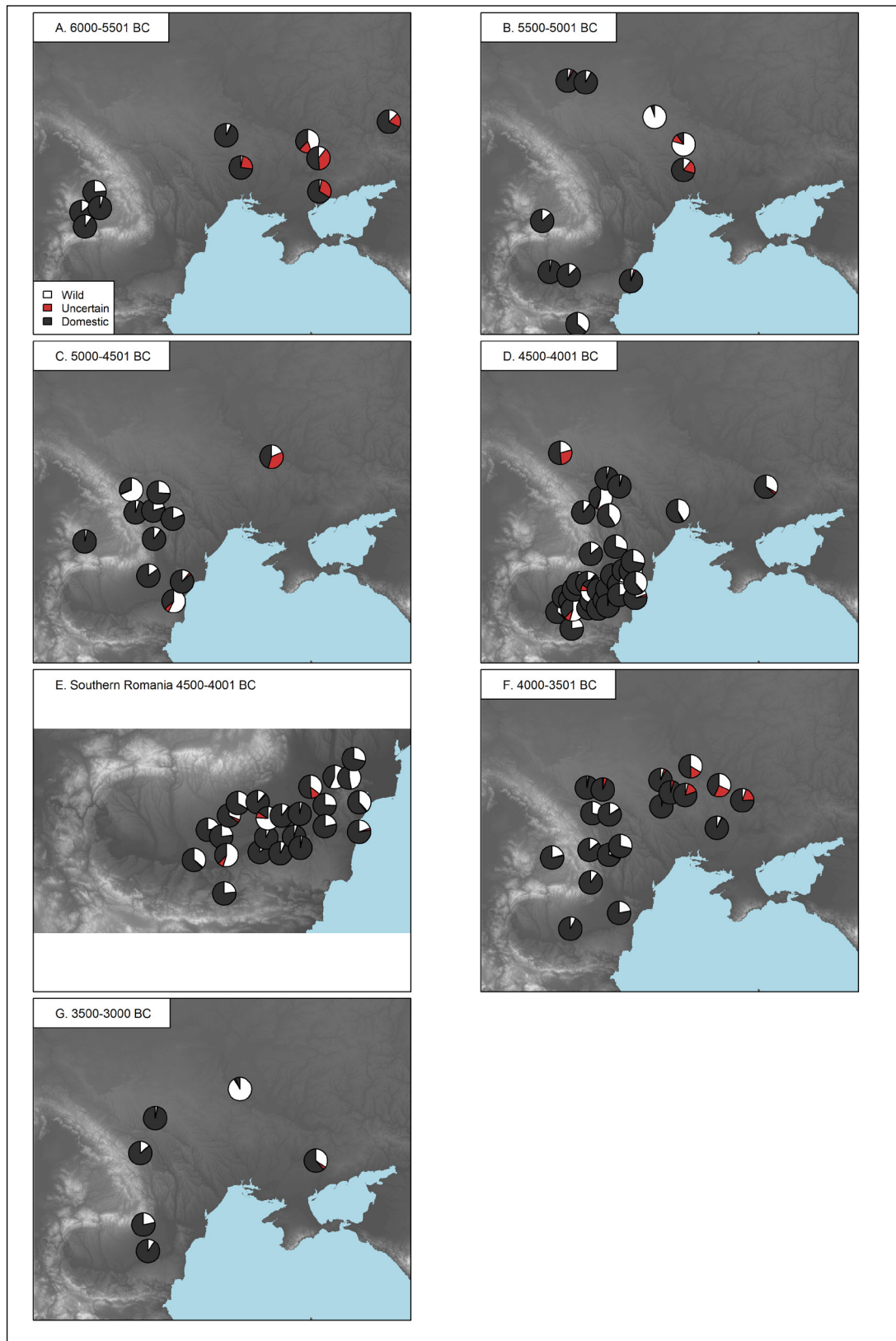


Figure 4. Relative contribution of wild (white), domestic (dark grey) and uncertain (red) taxa to each site assemblage represented by pies, plotted according to the site's spatial location and divided into 500-year increments to illustrate variations across time and space (author).

There are 37 sites with <10% wild values spanning all regions and time periods, where hunting represents little or no contribution to the assemblage. At such low levels, wild taxa are unlikely to represent a significant or regular source of food, and may instead represent symbolic hunts, protective garden hunting, or low-level maintenance of hunting skills as a risk buffer in case of poor domestic yield. The majority, 52 sites, have percentage wild taxa levels between 10–30% where hunted taxa probably represent a regular secondary resource, also from a mixture of all regions and periods. There are 14 sites which maintain levels of 30–50%, possibly representing a more evenly mixed hunter-farming economy, while at 25 sites wild taxa outnumbered domestic with values >50%—the majority of both the latter two categories being from the late 5<sup>th</sup> millennium BCE in Romania.

Neither local environment nor cultural groups seem to have a significant effect on the levels of hunting, beyond the early 6<sup>th</sup> millennium BCE. During this period, the variation in percentage wild and contribution of equids at Ukrainian sites contrasts with the uniformity of the Transylvanian sites, all being <25% wild. This may be linked to the steppe sites representing ‘indigenous’ or adaptive Neolithic groups such as the Surskaya and Dnieper-Donets, compared to the more traditional migratory Neolithic of the Criş group in Transylvania. There is perhaps some patterning in the period 4000–3500 BCE, as all six sites north of the Dniester and west of the Dnieper have very low (<5%) percentage wild values, while the Romanian sites south of the Dniester vary between 10–30% and the sites closer to the Dnieper vary between 5–35%. This to some extent matches the cultural spheres of influence for the time, with the very low values for the Tripillia contrasting with increased variation in the Cucuteni variant of Romania and in the few Sredni Stog and Dnieper Donets sites east of the Tripillia.

Aside from these instances, however, there is significant and seemingly random intra-regional variation, regardless of cultural group, and with proximity to rivers, coasts or mountains forming no visible geographical patterning. This is best demonstrated in southern Romania in the period 4500–4000 BCE, where a group of five sites situated south of the Ialomita River and in close proximity to the Danube all have very small percentage wild values, all <5% (Bogota, Coslogeni, Gălăţu, Gumelniţa, Vărăşti). This may simply represent a focus on domesticates here, but it might be that in such close proximity to river resources the occupants are investing in fishing rather than hunting to supplement their domesticate-based diet. However, this cannot be applied as a general rule. Southern Romania’s situation on the Danube River valley floodplain means that the area is full of rivers (Sommerwerk *et al.* 2009, 66), and there is still a very significant amount of variation in hunting levels in the rest of this lowland drainage area. For example, further north up the Danube, Harsova and Bordusani are situated on the river, both having 20% wild and at the site of Hotnitsa, in the western part of the valley at the confluence of the Olt and Danube, the assemblage is a third wild. Therefore, it seems that general geography and environment cannot be the dictator of subsistence practise.

### ***Types of Hunting***

There is no evidence for a change from large and medium herbivores—primarily hunted for meat—to fur bearing animals—primarily exploited for their commodity product (see Supplementary Materials Figure 1). In every period, the wild portions of almost every site’s assemblage is over 75% large herbivore. One Transylvanian site in the early 6<sup>th</sup> millennium BCE is only 55% large herbivore, the rest evenly split between medium and small herbivores, so the majority of hunting is still probably meat yield oriented—small herbivores, hunted for both their meat and pelt, are more prevalent at this site than others in the same region.

The only exception to the >75% large herbivore pattern in the late 6<sup>th</sup> millennium is the northern Bulgarian site of Sarnevo with 70% medium herbivores—this is due to the report of 754 *Dama dama* fragments from this site. Fallow deer are generally assumed to have been reintroduced to Europe by humans later in

the Holocene after their retreat to Anatolia and possibly northern Italy during the last glacial period (Masseti and Vernisi 2014). However, there is a project by Spassov and Karastoyanova at the Bulgarian Academy of Sciences to demonstrate an early Holocene *Dama dama* population indigenous to the south-east Balkans, based on numerous fallow deer finds from Neolithic Bulgarian contexts (Karastoyanova and Spassov 2018). Therefore, this could represent a true focus on fallow deer at Sarnevo. This is one of the only sites in the dataset where symbolic hunting will be stipulated—Gorczyk and Karastoyanova (2017) report a disproportionate amount of *Dama dama* scapulae, representing more scapulae than could have been retrieved from the number of whole *Dama dama* carcasses present, suggesting biased transport of the upper limbs (Gorczyk and Karastoyanova 2017). Thus, some form of social significance may be influencing the choice of game at this site.

All sites from the early 5<sup>th</sup> millennium BCE adhere to the >75% large herbivore pattern, and only two in the late 5<sup>th</sup> millennium deviate. This suggests that even with the great increase in % wild variation in this period, meat acquisition likely maintained its role as a key reason for hunting. The two exceptions are TEL8 and Lăceni-Măgura, situated close together on the Teleorman River in the lowlands of southern Romania—both are 65% small herbivore. This is much higher than seen at any other sites, and indicates the hunting of a large number of hares, as the sites have overall wild contributions of 20%. In the early 4<sup>th</sup> millennium BCE, all but four sites (Molukhov Bugor, Derievka, Nebelivka and Velika Slobodka) are >75% large herbivores, and those four are all >60% large herbivore in any case. In the late 4<sup>th</sup> millennium, fewer sites are reported, but of the six, Radovanu and Fetesti break from the >75% large herbivore pattern, with only 55% and 45% large herbivore and greater contributions of small herbivores.

In terms of which large herbivore taxa were being hunted, there are no strong regional patterns to attribute to either environment or cultural group. When the sites with very small wild assemblages making up <5% of the total assemblage are ignored, cervids seem to dominate in most assemblages in the 6<sup>th</sup> millennium BCE. The early 6<sup>th</sup> millennium BCE site of Starobelskoye in the far eastern steppe breaks this pattern with 75% boar. The site's presence within the basin of the Donets River may explain the availability of the moisture dependent *Sus scrofa* at a steppe site, and could represent a preference for boar. However, the potential misidentification of domestic and wild *Sus* specimens is a factor that must be considered. There is a similarly anomalous case in the early 5<sup>th</sup> millennium, with Cheia on the Black Sea coast of southern Romania having 85% of its large herbivores identified as boar. Issues of identification must especially be borne in mind here considering the (also anomalous) 50% wild observed at this site.

However, it may be that wild boar were truly important at these sites. In the 5<sup>th</sup> and 4<sup>th</sup> millennia there is generally more variation in which large herbivores are being hunted, with less domination of cervids. This is possibly because there are more sites from the wooded areas of eastern and southern Romania where there are likely to be more of the moisture dependent aurochs and boar available. However, beyond that, there are no strong regional patterns, with much intra-regional variation in levels of cervids, bovids and boar which does not seem to be dictated by local culture or environment.

### **Large Carnivores**

For the most part, the large carnivores present in these assemblages occur in numbers less than 20 NISP, and thus likely represent chance encounters and/or defensive killing. This may suggest that the greater danger in engaging with these animals was unlikely to be viewed as worth the greater pay off in fur pelt size. Nonetheless, there are several exceptions to this; five sites in the 5<sup>th</sup> millennium BCE and one in the 4<sup>th</sup> millennium BCE have larger numbers of wolf and/or bear remains compared to other sites (Table 3). When compared to the total NISP of the sites, the contribution is not significant and unlikely to represent systematic large carnivore hunting, for fur or social purposes. As the majority of these sites

occur in the 5<sup>th</sup> millennium BCE, at the same time as the general increase in non-dangerous wild species in site assemblages, it may be that this increase in hunting herbivores led to more chance encounters with larger predators competing for the kills.

Table 3. Sites with >20 *Canis lupus* and/or *Ursus arctos* fragments.

Site Name	Date	Geographical Region	Material Culture Group	<i>Canis Lupus</i> (NISP)	<i>Ursus Arctos</i> (NISP)	Total Site NISP	% Large Carnivore	Total % Wild
Poduri-Dealal Ghindaru	4687– 4047 BC	Eastern Romania	Cucuteni A	0	24	3260	0.74%	13.6%
Berezovke	4500–4000 BC	Ukrainian Steppe	Tripillya B1	9	25	4406	0.77%	42.6%
Harsova	4550–3990 BC	Southern Romania	Gumelnia A1-A2	26	0	5310	0.49%	23.7%
Bordusani	4450–4230 BC	Southern Romania	Gumelnita A2	65	0	9317	0.7%	21.8%
Vitanesti	4450–4230 BC	Southern Romania	Gumelnita A2	72	21	9086	1.02%	59.3%
Molukhov Bugor	3800–3400 BC	Forest-Steppe Ukraine	Sredni Stog	3	40	5161	0.83%	36.8%

## Discussion

### *Previous Models*

The first conclusion to draw is that the concept of a gradual decline in the contribution of hunting cannot be proposed for Central-Eastern Europe. The evidence does not support Zvelebil's (1992) prediction of significant (up to 50%) wild during the Early Neolithic, this pattern only being seen on the steppe if all equids are assumed to be wild. In Romania and the forest-steppe, however, domesticates rapidly dominate from the Early Neolithic. With percentage wild levels of 15–25% being common throughout the Neolithic, it is likely that hunting still made a regular secondary contribution to diet at many sites.

Furthermore, the replacement of large game hunting in favour of smaller species, whether due to a shift in importance towards fur (Zvelebil 1992) or the depletion of local large game populations due to increased sedentism (Speth and Scott 1989) cannot be demonstrated. Where there are breaks away from the domination of large herbivores, the shift is towards small herbivores rather than fur bearers. This cannot demonstrate a focus on commodity acquisition as the main motivation for hunting, as the hares in the small herbivore category are likely hunted for both their meat and pelt. The overall underrepresentation of smaller taxa is likely to be due to recovery methods more than representing a true lack of these species, so an increase in the exploitation of these species cannot be entirely ruled out. Nonetheless, the continued presence of large game remains in the later assemblages demonstrates that, even if smaller species were to increase in frequency, the importance of large meat bearing game did not suffer as a result. This suggests that hunting game as a secondary food resource was a regular occurrence even in the late Neolithic.

### *Cultural, Environmental and Temporal Trends*

Examining the effects of culture and geography on the changing importance of hunting was difficult due to the patchy data coverage, with no area having a significant amount of data covering the whole period, and so any conclusions drawn on this basis are tentative. However, it appears that cultural affinity and geographic proximities resulted in limited grouping of the results. There does appear to be a temporal pattern, with an increase in sites with >20% wild in the late 5<sup>th</sup> millennium BCE.

This may partially reflect the increased number of sites available for this period, however others have found similar patterns of little evidence of hunting in the earlier phases of the Neolithic, followed by later increase in wild animal prevalence, in mainland Greece (Halstead 1999; Hamilakis 2003) and the Carpathian Basin (Bartosiewicz 2005, 60).

There are several possible reasons for the increased variation seen in the late 5<sup>th</sup> millennium BCE in Central-Eastern Europe. Many of the sites are located in southern Romania, where there are many rivers, floodplains and terraces; settlements in this area were possibly at a higher risk of flooding. This may have led to seasonal dependence on hunting-foraging to make up for lost resources during these periods. However, Macklin *et al.* (2011) show that significant flooding only started in this area from 3900 BCE onwards, at the end of the period of increased variation. Similarly, the 6ka climate event, which caused increased precipitation and flooding of mid-latitude Europe, has been linked to significant settlement disruption in the Balkans to the west of this study area (Botic 2016, 20–21). Turning to hunting during environmental change could only be applied here if all the increased hunting sites dated after the 6ka event, which they do not. If adaptations to climate events were prompting increased hunting, one would expect to see the results in the early 4<sup>th</sup> millennium BCE, not the late 5<sup>th</sup> millennium BCE.

Bréhard and Bălăşescu (2012) link subsistence changes with the actual development of Gumelniţa tells, as they do not appear in this area until the mid-5<sup>th</sup> millennium BCE, noting higher levels of wild taxa at nine Gumelniţa tell sites. Interestingly, they also note an apparent lack of environmental or cultural reasoning behind which of the tells have higher frequencies of wild taxa. However, the increase in variation in hunting levels observed here is not restricted to Gumelniţa tell sites. It occurs throughout eastern and southern Romania and further north around the Dniester. The variation may be linked to population growth, as this would not be restricted to a specific cultural group and may better represent the seemingly random scattering of sites with higher frequencies of wild taxa. Different settlement populations grow at varying rates and adapt their subsistence strategies to support the larger population in varying ways. This may result in the observed increase in the range of percentage wild values.

However, discussions of social change in the late 5<sup>th</sup> millennium BCE in this area focus on increases in social stratification and emerging hierarchies, often linked to the emergence of copper (e.g. Chapman 1990; 1996; Chapman *et al.* 2006; Higham *et al.* 2007; Müller 2012; Renfrew 1986; Windler *et al.* 2013). Müller (2015) notes that there does not appear to be a significant growth in population in this period of increased social division. The increased variation in hunting might be better linked to changes in social hierarchies than population growth. This may match Halstead's (1999) concept of hunting becoming more lucrative later in the Neolithic as households become more individual and no longer compelled to share. Hodder's (1990, 90) alternative idea may be applied, that as social order and control within a society increases, things which do not belong in the domus sphere of control become more attractive. Hodder argues this in terms of increases in cemetery activity in the 4<sup>th</sup> millennium BCE, identifying mortuary activity as outside the domus, but perhaps there is some precursor to this in an increasing interest in hunting (also outside of the domus) in the late 5<sup>th</sup> millennium.

A less heavily cognitive link may also be made between increasing social division and variation in hunting levels. Windler *et al.* (2013) note that increasing social inequality has been linked to decreases in economic productivity in modern countries, and they link increasing inequality to lower average welfare at the late 5<sup>th</sup> millennium BCE cemetery of Durankulak, in North-East Bulgaria. A possible reason that hunting became more prevalent at some sites may be due to a decreasing economic ability to support all levels of the populations within the emerging social hierarchies, rendering hunting a necessary subsistence for a growing number of people. However, this pattern of increased social hierarchy, decreased welfare and increased hunting cannot be maintained at all sites which display increased social complexity. The later Tripillia mega-sites of the 4<sup>th</sup> millennium BCE, for example, all have very low contributions of

wild species. The idea that a social hierarchy was necessary for the planning of such large settlements is questionable (Chapman 2017), so perhaps the link between social division and greater numbers of people exploiting wild resources can be maintained.

## Conclusions

Although the amount of data presented was confined by small sample sizes and a low frequency of zooarchaeological reporting in some of the study area, enough data was collated in order to address the question of what role wild mammals played in Neolithic Central-Eastern Europe. The resulting database may also be used for future faunal studies of this area.

The evidence presented in this study cannot support a general decrease in the importance of hunting wild mammals through time, with lower frequencies of wild taxa being common from the Early Neolithic. Instead, an increase in the variety of levels of hunting during the late 5<sup>th</sup> millennium BCE was found, possibly linked to increased developments in social divisions identified at this time. The evidence for environmental and cultural patterns was limited, although this may partially be due to the patchy temporal coverage for all regions. Based on the available evidence, it appears that wider social developments in hierarchies may have had a larger impact on the role of hunting than that of the environment or culture. However, this proposed link would need an integrated closer examination, investigating more precisely whether there is evidence for developing hierarchy with a poorer general standard of living specifically at sites with increased levels of hunting.

As for the motivation behind the levels of hunting, the overall majority of sites retain significant levels of hunting and a focus on large game, suggesting hunting for meat was a frequent secondary resource. This pattern is present throughout the Neolithic, but particularly prevalent in the late 5<sup>th</sup> millennium BCE. Many other sites had lower levels more likely to arise from protective garden hunting, risk-buffering or perhaps low-level social hunting roles. Although patterns in the frequency of small herbivores and fur bearing animals are difficult to assess due to likely underrepresentation from recovery bias, larger meat-bearing taxa did not fall in importance as the Neolithic progressed. This study has demonstrated that the frequent assumption that the wild is not an ordinary part of Neolithic lifeways, packaged or otherwise, is simply untenable for Central-Eastern Europe.

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**Supplementary Material:** Data and R Code deposited [https://drive.google.com/open?id=1XsYB\\_eaZsdoJejoQXqm\\_GMXEuHkOJZPa](https://drive.google.com/open?id=1XsYB_eaZsdoJejoQXqm_GMXEuHkOJZPa).

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# The Relevance of Çatalhöyük Reflexive Diaries

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## Abstract

This paper presents the results of the analysis of excavation diaries from Çatalhöyük recorded under the principles of the reflexive method as defined by Ian Hodder and his colleagues. The main purpose of the analysis was examining the content of excavation diaries to evaluate how this contributes to improving the credibility of primary data. The investigation led to the identification of relevant and trivial information for such purpose. Overall, this study suggests that archaeologists should be aware of such distinctions for producing higher quality records.

**Keywords:** Quality, Credibility, Archaeological Excavation, Diaries, Reflexivity, Çatalhöyük

## Reflexivity and Recording Methods

“A notebook of experiments is not to be confused with moment-by-moment diary of everything that happened in the laboratory...” (Bloch 1954, 120)

Reflexive archaeology is a theoretical and methodological movement for field practice that has developed over the last twenty years from the ranks of post-processualism (Hodder 1997; 2005). One of the goals of reflexive archaeology is overcoming a series of practical problems that apparently have increased with the emergence of commercial archaeology and the standardisation of recording practices in the United Kingdom. A common criticism is that with the introduction of context sheets there has been an homogenisation of records because every site is reduced to a collection of contexts and every context to a collection of attributes promoting the proliferation of description over interpretation (Andrews *et al.* 2000, 527; Berggren and Hodder 2003, 423; Lucas 2009, 232). Likewise, it is thought that field archaeologists have lost a lot of interpretative skills due to the standardisation of methods (Lucas 2001, 8). In the words of Ian Hodder, the main problem with recent excavation practice can be summarised as follows:

“With the standardization of recording at all levels of analysis, we tend only to record what the forms (the recording system) require us to record. We tend, therefore, not to express worries, doubts, impressions, debates, inconsistencies.” (Hodder 1999, 31)

In this way, reflexive archaeology promotes an alternative field methodology that aims to encourage more interpretation and reflexivity on-site. One of the earliest attempts to define a reflexive method was proposed by Ian Hodder and his colleagues of the Çatalhöyük Research Project. This method is based in the systematisation of additional mechanisms like diary recording, the implementation of site tours and the participation of laboratory specialists on-site for running preliminary analysis and giving feedback information to the trenches (Berggren 2015; Berggren *et al.* 2015; Farid 2015; Hodder 2005). These mechanisms are thought to be crucial for the improvement of interpretive work on-site because after receiving more information, excavators will have more elements to be reflexive or evaluate the plausibility of explanations. With these ideas, reflexive archaeologists aim to develop an alternative set of practices for overcoming the flaws in traditional methodologies like single context recording whose written record largely depends on a sequence of context sheets (Museum of London 1994). Whether such failures are real is controversial because the characterisation of standardised systems as

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un-interpretative and un-reflexive is frequently based on a straw man (Roskams 2001, 244; Spence 1993, 28; Thorpe 2012, 32). Nevertheless, it can be asserted that reflexivity represents an alternative set of practices in which technology and the presence of more digital tools on-site are considered crucial for promoting a better practice.

“Reflexivity is also engendered by the diary writing and video filming, since these processes encourage those on the team to examine their own assumptions and provide contextual information about the excavation process, so others can look back and critically evaluate the claims that have been made.” (Hodder 2000, 9)

This confidence in technology can be clearly appreciated in the implementation of reflexive methods in the Çatalhöyük Research Project (CRP). In the earliest years, they promoted the use of electronic and video diaries for achieving reflexive practice (Berggren and Hodder 2003; Hodder 2005) whereas digital tablets have been considered essential for this goal in the most recent years (Berggren *et al.* 2015; Taylor *et al.* 2018). Moreover, the reflexive method represents a clear movement towards the increment of recording activities on-site and the enlargement of the archive almost in an attempt to capture every aspect of the interpretative process (Chadwick 2003, 103; Lucas 2012, 72). Similarly, there have been a few reflexive experiments elsewhere. For example, a Swedish project replicated some of the reflexive mechanism used at Çatalhöyük in a commercial scenario (Berggren 2001). Another flagship project is the excavation for Terminal 5 at Heathrow airport in London (Andrews *et al.* 2000). This project followed the methods implemented in Çatalhöyük less closely, nevertheless there was an important emphasis in enlarging recording activities on-site (Lewis 2006). Hence, there is some sort of historical irony, because early post-processualism criticised the focus of rescue archaeology on recording activities whereas reflexivity has followed the same path (Tilley 1989).

### **The Role of Reflexive Diaries at Çatalhöyük**

One of the most distinctive instruments of the reflexive method is the revival of excavation diaries. In practice, this means including an additional sequence of diaries on top of the sequence of context sheets. As explained before, one reason for having this additional sequence is because, allegedly, context sheets do not account for the rationale behind the process of layer definition and fail to account for the uncertainties and reconsiderations during the excavation process. For this reason, Hodder and his colleagues believe that the resulting archives are incomplete due to the lack of crucial contextual information that would allow for an understanding of the content of primary records.

“The archives produced over recent decades have increasingly become problematic since they are not sufficiently contextualized within a reasoning process. Many are extremely difficult to use. Diaries are often not present and unless one can talk to the individuals who were involved in the original excavation, it is often difficult to make sense of large amounts of highly formalized data. The provision of a reflexive context must become one of the main aims of methodology so that it is possible to make sense of archaeological fieldwork after the event.” (Hodder 1999, 31)

In this way, reflexive diaries aim to give account of the missing information, especially decisions, ambiguities and reconsiderations related to excavation work. Overall, it is expected that such additional testimony will produce a higher quality archive that enables people to understand and evaluate its content (Hodder 2000, 9; 2005, 651). These reflexive diaries are inspired by the older excavation notebooks, which are now recorded in an electronic database on-site. In the early years of the CRP project, reflexive diaries were described as less codified to facilitate the description of a more personal view of the site and develop wider-scale interpretations beyond the layer and the feature

(Farid 2000, 25). However, this is a rather simplistic way to understand the use of notebooks and research diaries, because issues of systematicity and standardisation have always been crucial for the recording of laboratory and field notes in several disciplines (Department of Physics University of Cambridge 2014; Mulligan 1996; Stocking 1983).

Nevertheless, a different perspective emerged over time after noticing that inexperienced fieldworkers often provided irrelevant data due the lack of guidelines (Farid 2015, 73). Likewise, in the early years of the project, fieldworkers were not very systematic with diary recording and thus a stronger policy to regulate recording activities in following seasons was required (Berggren and Nilsson 2014, 62; Berggren *et al.* 2015, 436–437). Thereby, after some years of trials, more explicit and strict guidelines were implemented. These included a clearer set of goals for diary entries such as describing the process of excavation, explaining the rationale of decisions, put layers and features into wider interpretative scales and being reflexive about the effects of methods in interpretative practice. Likewise, it was expected that fieldworkers should make one or two entries each week (Çatalhöyük Research Project 2014, 33). Altogether, these elements indicate that excavation diaries are not fully detached from the controls of standardised practice. Finally, it is important to mention that the implementation of reflexive diaries has slightly changed over time. In the early seasons, diaries were exclusively recorded by trench supervisors but in later years this task has extended to most excavators (Hodder 1997, 696). The intention was to give more interpretative opportunities to excavators. However, this was not greatly accepted as some people saw it as adding to the workload (Berggren and Nilsson 2014, 62; Farid 2000, 25).

In general, there are important problems with the argumentation around reflexivity as: 1) it is not certain that traditional methods encourage description over interpretation and 2) it is not very clear that context sheets cannot be evaluated in the absence of excavation diaries. Particularly, this seems to be a false problem since reflexive archaeologists lack a notion of documental analysis or a method for interrogating a sequence of related documents like context sheets (Bloch 1954, 54; Ginzburg 1999, 12–13). However, this issue is beyond the scope of this paper. Instead, this paper will focus on comprehensively analysing whether reflexive diaries are successful in achieving their mission or how they contribute to reinforcing the credibility of primary data.

A recent study explains that one of the most important characteristics of reflexive testimonies is that:

“The entry grants access to transitory moments that are traditionally black-boxed in technical archaeological reports and pro forma [...] Only the diary preserves these interpretive steps, permitting those not present at the excavation to enter into and evaluate each stage of the reasoning process.” (Mickel 2015, 303)

In general, this argument aims to justify the relevance of diaries for giving testimony of the different stages of interpretation which is typically absent from context sheets. However, this fails to explain how such testimonies reinforce the credibility of interpretations. For this reason, the purpose of this paper is to present an analysis of a sample of reflexive diaries from Çatalhöyük, to evaluate if these sorts of testimonies contribute to achieving this mission for which they were designed for.

### **Materials: The Excavation Diaries of B49**

Reflexive diaries from Çatalhöyük are stored in a very large online database ([www.catalhoyuk.com/research](http://www.catalhoyuk.com/research)). This includes hundreds of entries recorded in multiple excavation areas between 1993–2017, however most of these testimonies come from the two largest sectors defined as the North and South Areas (Figure 1). The site is formed by large sequences of mudbrick buildings constructed and dismantled one after another resulting in a 20 metre-tall mound that represents 14 centuries of

occupation (7400–6000 BCE; Farid 2015, 60). Hence, the purpose of the North and South Areas was to study the organisation of the site and its chronology, respectively (Hodder and Farid 2014, 3). Given the scale of the project and the architecture of the site, explorations were commonly organised by building and for the same reason recording and publication followed the same pattern. Considering this, a diary sequence from a Çatalhöyük building was selected to investigate the process of reflexive recording. Specifically, the sequence from Building 49 (B49) was selected because it was one of the best examples of systematic documentation which covered most stages of excavation work. Unfortunately, many building explorations only recorded a small number of entries that just covered the earliest stages of exploration. No further detail about such unsystematic recording will be given as these have been described elsewhere (Berggren and Nilsson 2014, 62).

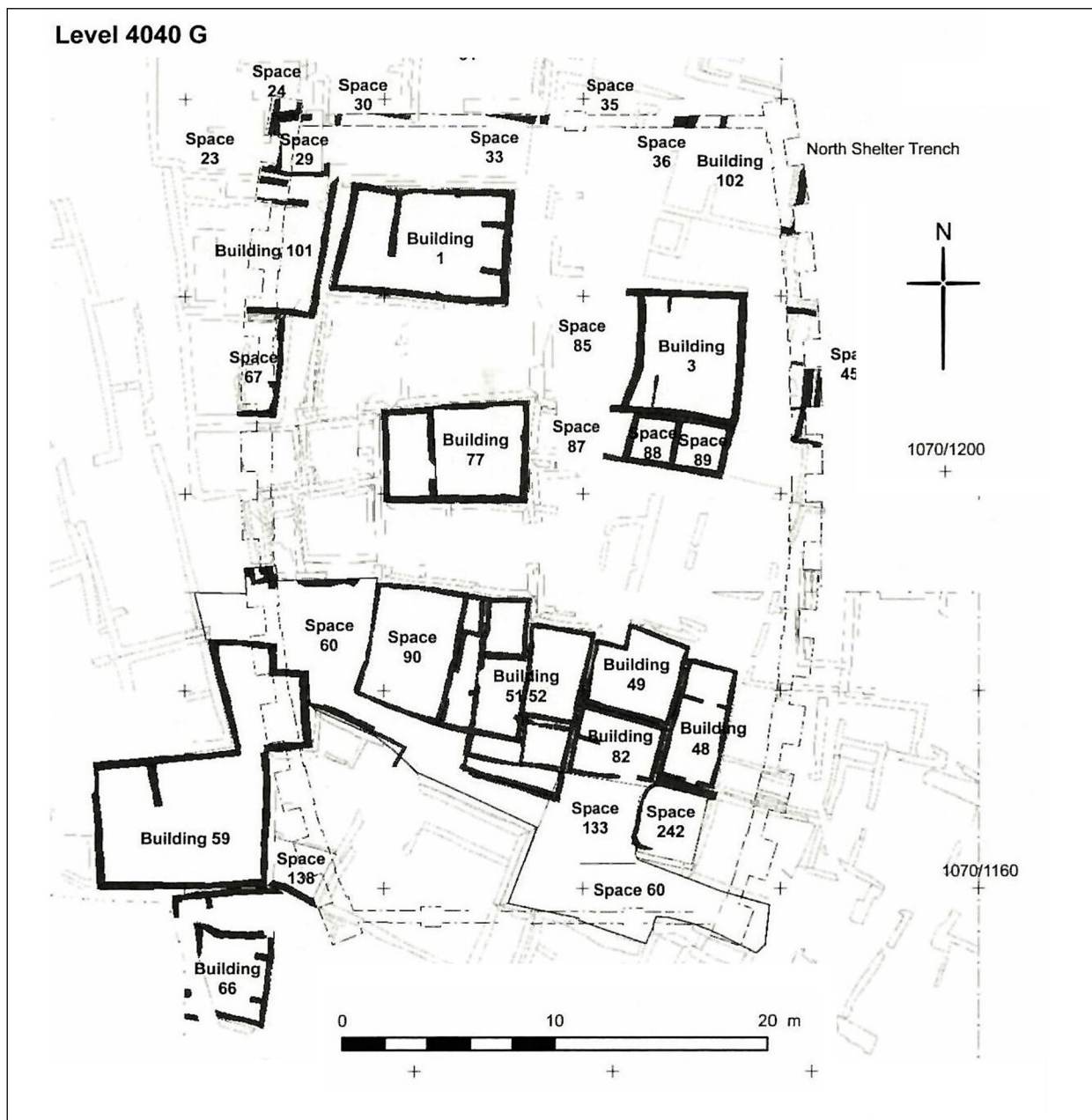


Figure 1. The North Area (Çatalhöyük Research Project).

B49 was in the North Area and corresponded to a small squared building of approximately 4x4 m. It included a larger main room (Space 100) and a smaller side room (Space 334) defined by the remains of a wall. The south area of the main room had a concentration of the remains of hearths and ovens whilst the northern section included various platforms containing human burials and painted walls (Figure 2). B49 was interpreted as a domestic building with evidence of numerous architectural modifications but always maintaining the original plan (Eddisford 2014, 313). Overall, B49 represents a typical Çatalhöyük building as it shared many characteristics with other structures at the site (Farid 2015, 60). B49 was identified in the last days of 2003 after clearing topsoil but excavated during the 2004, 2006 and 2008 seasons. Explorations were done in small units with no more than six archaeologists. In the first season, work was supervised by two graduate students from Stanford University assisted by trainees. A professional excavator from Britain supervised exploration in 2006 and 2008 and was assisted by graduate students and trainees from Berkley University (Eddisford 2014, 356; Krotscheck 2003). Hence, the organisation of the archaeological explorations is in contrast with the recurrent description of the project in terms of large-scale reflexivity (Farid 2015, 59; Jones 2013, 180).



Figure 2. The latest constructive phase of B49 (Çatalhöyük Research Project).

The documental sequence is constructed by numerous entries with a narrative structure that gives accounts of different episodes in the process of discovery of remains, layers, features and structures, as demonstrated by Example 1. In this way, B49's entries coincide with the general description of reflexive diaries as testimonies of the interpretive steps and the “moment by moment hermeneutic process” of excavation (Mickel 2015, 303). This characterisation of reflexive diaries also matches with Matt Edgeworth's (2012, 80) definition of the act of discovery as an epistemic situation during archaeological excavation defined by the continuous movement of soil that creates a threshold between the visible/invisible and the known/unknown. In consequence, the act of discovery is fluid because the constant movement of dirt generates expectation about unexposed areas.

Nevertheless, predictions do not always turn out as expected and therefore excavators must reconsider their decisions and interpretations (Edgeworth 2003, 33). For this reason, a good way to describe reflexive entries is as narratives or chronicles, giving testimony of the act of discovery.

### Example 1

“We have been continuing work on unit 7913, the giant fill layer [**Context definition**]. We have fast-tracked this unit and are steadily going through it, pedistaling [*sic*] anything that looks remotely interesting [**Operative decision**]. We started to follow the lines of bins (?) from unit 7916 out of the fill to find the outline of the structure(s). We think that there are some bins in the south-west corner. Thus far, we have just come down upon the plastered outlines of the bins [**Structural element**]. Today, we (DGN & SHL) began to dig westwards in an attempt to remove the fill bulk. We stumbled upon several plaster lumps that later Ian and Shanina told us to take out, based on previous experience of these types of house fills [**Operative decision**]. By the end of the day, I think we have at least two-possibly three- bins outlined or we think we know where they go. I exposed the plaster on the outside of one bin abutting the east and north wall. I think there are two other bins in the area exposed by unit 7916 [**Uncertainty**].” (SL 10/07/04 with coding in bold by the author)

The sample for B49’s diaries includes 47 diary entries organised by its recording date and identified with the initials of the author. The length of each entry varies and some of them can be as short as a paragraph and others might involve a few pages, but the average length is one page. The total amount of analysed text covers around 15,500 words. The process of data collection was executed from a search of the project’s database which includes predefined categories for displaying entries by year, author, day, building, space, feature or unit. After selecting the number of the building (Building 49), the system returns 17 entries which cover years 2006 and 2008. However, when searching by space, the database released 27 additional entries from year 2004. Finally, three additional entries were found when searching by author. Such troubles must be highlighted because reflexive discourse frequently claims that online storage is enough for facilitating access to primary data (Hodder 2005, 654; Lukas *et al.* 2018).

### Methods

The analysis of diary entries was based on a procedure known as content analysis. This method consists of coding or classifying the content of each entry into different types of information (Silverman 2011, 164). Coding implies breaking a text into smaller pieces of information to study the variability of data. Example 1 shows the process of coding for the opening paragraph of one of B49’s entries. Initially, the entry describes the process of layer definition of a fill and some operative procedures related to this process. It continues with a description of the discovery of some structures and additional operative information in the removal of the fill. Finally, there is an uncertainty statement regarding the discovery of structures.

This process helped to define three classes of information: ‘interpretative’, ‘reflexive’ and ‘non-interpretative’ information. Each class was integrated with multiple types of information which represent the most basic forms of analytical units. ‘Interpretative’ claims refer to descriptions of the process of defining layers, stratigraphic relations, structures, features, spaces, formation processes, constructive phases and functional aspects of B49. ‘Reflexive’ statements include uncertainties, ambiguities and reconsiderations related to the process of interpretation. Finally, ‘non-interpretative’ claims describe different forms of background information which report on observational conditions and operational decisions during excavation work. This class includes an additional type labelled as

'ethnographic' claims which covers descriptions of the actions and events that occur in the project, but which are unrelated to interpretative practice. Hence, although treated as independent classes, one can see there is an intersection between reflexive and non-interpretative content with interpretative data.

Afterwards, the variability and percentage of each type was calculated to get a general description of the sample. There was an additional qualitative evaluation of reflexive and non-interpretative claims to evaluate whether this data contributed to reinforce the credibility of interpretative content. Specifically, reflexive and non-interpretative testimonies were classified into two qualitative sets according to their relevance or triviality. This allowed to calculate how much non-interpretative and reflexive data was important was and how much was unnecessary (Figure 3).

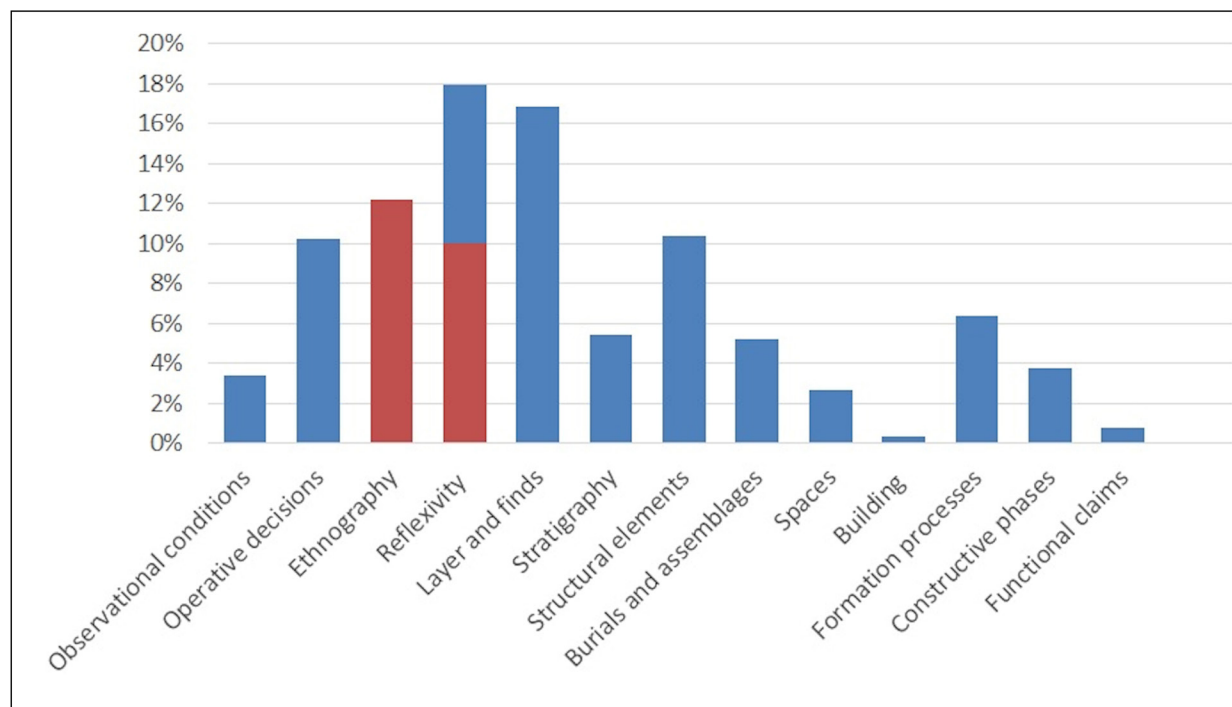


Figure 3. Graph showing the variability and percentage by types of claim in B49 entries in blue and the percentage of trivial information for non-interpretative and reflexive claims in orange (author).

The general distribution of Figure 3 shows that an important amount of information describes the process of discovering layers and finds. For example, many of these entries described the removal of a big fill covering the structural features of the last constructive phase of the building (Example 1) and others described the discovery of numerous horn cores within B49. Entries also included some amount of stratigraphic information or superposing relations among layers, usually included when describing the process of removal of layers. Additionally, diaries included a good number of testimonies of the process of excavation of structural elements like floors, hearths, bins and so forth. Less frequent are the descriptions of the excavation of burials and assemblages. Hence, these data are consistent with the character of the building which was largely constituted by masonry elements (Figure 2). Much less frequent are the interpretations of unobservable aspects like the formation process, constructive phases and the function of the building. In sum, these data show that diaries put more emphasis on describing the discovery of observable remains rather than relating to the interpretation of unobservable aspects.

Non-interpretative information represents around a quarter of the content of B49 diaries. This includes testimonies of observational circumstances and operative decisions. Some entries described visibility problems in the early days of excavation due the lack of a shelter to control sunlight with some operative

implications (see Example 2). Additionally, some operative claims described technical aspects even when working under ideal conditions (see Example 3). However, the most recurrent operative claims were descriptions of complementary arbitrary levels for controlling the removal of layers (see Example 4).

**Example 2**

“The shelter is due to go up within the next few days and we have been instructed not to expose any of the plaster until it has. Also, DGN and I stopped working to remove the fill in the southwest corner because the visibility was just too bad to detect the subtleties in the soil colour change.” (SL 10/07/04)

**Example 3**

“Since burial f. 4000, I brought down the NW platform, 1651, out of phase in order to create a more workable area, as the burials are now over half a meter down from the surface of the platform.” (CM 27/07/2008)

**Example 4**

“Even though we are still in what we call “room fill”, and the unit number should not change, theoretically, I have now become sufficiently worried about taking out almost 1m of fill in some areas to change the unit numbers in some places. These numbers still look very similar to what we have been excavating in the last two days, containing large pieces of mud brick, mortar, and various flecks of charcoal and plaster bits.” (UK 13/07/04)

There was an atypical testimony describing the opposite strategy and instead of producing thinner slices from a layer, excavators lumped a group of layers into a context (see Example 5). However, this testimony is less successful at explaining the reasons for this action, for instance if layers were visible but difficult to excavate or difficult to observe in principle, otherwise this information would have been crucial to contextualise the reliability of interpretation. In other words, Example 5 represents an instance of a testimony that did not meet an adequate standard, therefore having quality problems as the rationale of decisions is not always sufficiently explained.

**Example 5**

“It has been slightly unsatisfying since I didn’t manage to take off the floor layer I had set out as the days project. Dan and I had some difficulties defining the lower boundary but in the end, we ended up lumping several layers and tomorrow it will hopefully all be gone.” (LF 30/07/08)

Additionally, B49 diaries included a large amount of what has been called ‘ethnographic’ testimonies. These claims were commonly located at the beginning and/or the end of entries describing activities related to the project but not related to interpretative work. For instance, having visitors on-site, when someone had a break from fieldwork and so forth (see Example 6). Another recurrent topic of this type of claims was the description of the psychological and physical effects on fieldworkers, for instance excitement, tiredness and stress.

Overall, ethnographic descriptions are considered irrelevant as this type of information does not contribute to the credibility of primary data. In sum, non-interpretative claims provide different forms of background information but only descriptions about observational conditions and operative decision seemed relevant to contextualise interpretive information (Figure 3).

**Example 6**

“At the end of the day, the Stanford team held a brief meeting to assess the past week we have been here. Everyone seems pretty pleased so far, with both the work and the environment.” (UK 12/07/04)

Finally, there are reflexive testimonies or accounts of interpretative doubts (Uncertainty) and interpretative reconsiderations (Fluidity). However, it was noted that many of these accounts described doubts that emerged due to the limited visibility of remains during the process of excavation. Besides, some of these testimonies included predictive conjectures about the character of remains to be exposed. Lastly, as clearance continued, successive entries could provide additional information producing interpretative reconsiderations. Altogether, these testimonies set forth the progressive solution of interpretive doubts as visibility improves. Hence, these examples show that uncertainty and fluidity might be a direct consequence of observational conditions during the act of discovery. For this reason, these situations were characterised as ‘observational reflexivity’ because interpretive doubts and reconsiderations result from the changing threshold of what is visible and invisible. B49 diaries included numerous examples that narrate episodes of uncertainty and fluidity during the process of discovery of layers, burials and structural remains (see Example 7). For this reason, the narrative format is perfectly suited for recording successive episodes of observational reflexivity.

**Example 7**

“We took out a great deal of volume today and hopefully tomorrow we will be able to more clearly outline the area around the other horn core (U. 7920). I expect to find an oven, or perhaps a hearth, in this area but we have not seen anything as of yet. There is a very slight hint of a circular structure, but it was the end of the day, so we’ll examine it a little more closely tomorrow.” (SL 14/07/04)

“The conservators took out the last two horn cores. Mira and Ruth gave input on the southern area of the space, which has been extremely confusing with its various layers of plastered surfaces, feature walls, and burnt material. The current favourite theory is that we actually are seeing TWO hearths/ovens, not just one. One is under 7943—we can just see the top bricks and the arms coming out. This one may not be attached to the south wall. The other one we can see so far only in the presence of heavily burnt gunk in front of the bench/platform in the southeast corner.” (UK 24/07/04)

“DGN excavated the collapsed oven (U.7949) and found it to be rather shallow and well defined on the west and east side. He dug U.7962 back to the south wall to remove some remaining junk and discovered that the plaster was indented in the wall and excavated out a large scoop. The full extent to this is still not clear to me yet so I’ll make more note of it later.” (SL 01/08/04)

Additionally, another type of reflexive testimonies was identified. There was an atypical account where an archaeologist reconsiders the type and function of a structural element. Specifically, the entry discusses whether a structure might be a posthole or a bin (see Example 8). In this case, doubt persists after the act of discovery and is independent of the observational circumstances because interpretation has been made under the best available condition; namely when remains have been exposed. Hence, this example was crucial to identify an alternative reflexive scenario when interpretive doubts are produced by puzzling or ambiguous evidence. For this reason, this type of reflexive accounts was classified as ‘evidential reflexivity’ because doubt or puzzlement is produced by ambiguous evidence,

not by observational circumstances. Likewise, this example was crucial to identify an alternative way to approach reflexive recording because this account takes the form of an argumentative discussion that weights positive and contradictory evidence to evaluate the credibility of interpretative possibilities.

### **Example 8**

“What was originally recorded as post retrieval pit F1495 in the NW corner of building 49 was found, upon further investigation, to be slightly unusual. Vertical wall plaster 13698, 13676 and 13675 obviously enclosed the feature however the inside of the feature, where a post should have stood, was also plastered. This presents two possibilities, firstly an earlier basin was reused as the base for a plastered upright post, however the post was not dug in and left no scar on the back wall. It is more likely the feature was in fact some kind of tall thin bin. Possible uses for such a feature include storage or the feature may have held a lamp or candle. The plaster behind the feature is covered in a thin black greasy residue, this is currently unexcavated but may allow the function of the feature to be identified next season.” (DE 12/03/06)

Testimonies of evidential reflexivity also included examples of interpretive reconsiderations when fieldworkers received feedback from laboratory specialists. Once more, these testimonies take the form of argumentative discussion explaining the implications of new data in the light of previous ideas. Quite often, archaeologists reconsidered preliminary interpretations about formation process after receiving feedback from specialists (see Example 9).

### **Example 9**

“While defining the surface of the platform, I popped up a piece of what looks like blue paint. The colour was found in a lamination layer. Ina had a look at the “blue” paint and took a thin sample of it (Sample #5, unit 7913). I removed the remainder of the block and sent it to conservation at the end of the day. After lunch, Wendy Matthews came and had a look at all the areas with lamination. I had originally thought that they were just thick layers of painted plaster that had fallen down, mainly because of the way in which the pieces were haphazardly situated. After several of these pieces had come up, I was concerned that they may actually have been something else. Wendy came up and confirmed that these laminated pieces were indeed fallen plaster and asked that we saved some of the samples. She also mentioned that the “blue” colour may actually be smoke ‘damage’.” (SL 13/07/04)

Overall, reflexive testimonies describe a cycle of doubt and belief. Doubt is commonly triggered by novel observations that demand explanation; hence doubt is soothed when archaeologists can formulate a preliminary explanation. Yet, the cycle might reactivate when excavation continues and produces new observations (Aliseda 2005, 368). In general, this cycle is well-accounted by the hermeneutic model (Hodder 1999, 33) and the theory of the act of discovery (Edgeworth 2012). Nevertheless, the distinction between observational and evidential reflexivity separates two epistemic scenarios depending on whether doubt is soothed or not. ‘Observational reflexivity’ represents situations where interpretive doubts dissipate, and certainty increases as visibility improves. On the other hand, doubt persists in scenarios of ‘evidential reflexivity’ because evidence is puzzling (Uncertainty) or doubt reactivates when new data are considered (Fluidity) hence affecting the credibility of interpretative claims about the past.

This separation echoes the distinction between predictive and retrodictive conjectures when tracking an animal or reconstructing an event, respectively (Ginzburg 1989, 102). Thereby, there is similarity in the process of tracking an animal and following a cut from their visible clues as both exercises imply making conjectures to the future (Edgeworth 2012, 79). However, when one finally finds the animal or discovers the cut, one no longer has evidence of such things, one can see them directly (Austin 1962, 115). In contrast, ‘evidential reflexivity’ focusses on discussing interpretations about unobservable things, especially when the evidence is puzzling and affects the credibility of claims about the past. This echoes what Natalie Zemon-Davis (1983, viii) characterises as the ‘perhaps’ and the ‘might-have-beens’ of historical explanation when evidence is inadequate or perplexing about some aspects of the past.

Considering this distinction, testimonies of evidential reflexivity represent epistemic situations in which fieldworkers evaluate the credibility of retrodictive interpretations when evidence is puzzling or when new evidence is considered. For this reason, evidential testimonies are more relevant to contextualise the reliability of primary data than observational reflexivity that only describe doubts and reconsiderations under changing observational circumstances. Based on this assumption, testimonies of observational reflexivity were quantified as instances of trivial information (Figure 3). Finally, there are some cases when entries report situations of evidential reflexivity but without engaging into argumentative discussion. For instance, an entry mentions that a find might belong to an assemblage (see Example 10). However, this account fails to explain the reasons of uncertainty, for example if the artefact was located between two layers or if it seemed intrusive. For this reason, although relevant this testimony also had quality problems.

#### **Example 10**

“Along with the young female skeleton were a number of ground stone beads closely associated with the neck of the skeleton. There was a small greenstone axe in the fill, possibly associated with the infant 14440.” (CM 14/07/08)

#### **Discussion**

In a recent study, a former participant of the CRP examined the content of reflexive diaries to explain the relevance of these testimonies (Mickel 2015). Specifically, the study classified the content of diaries into two categories: distinctive and redundant information. Redundant information included various types of claims recorded in excavation sheets and diaries such as: descriptions of layers, features and relationships among layers and features. Distinctive information included data exclusively recorded in diaries such as: chronicles of excavation, discussions of finds and hypotheses (Mickel 2015, 302). Redundant information corresponds to what this study defined as interpretative claims, whereas distinctive information fits with what have been called reflexive and non-interpretative content. In general, both studies reach similar quantitative descriptions as distinctive information is less frequent than redundant information.

According to reflexive archaeologists, one of the main arguments for the relevance of diaries is their distinctive content that apparently work to reinforce the credibility of interpretive claims. Specially, they stress the role of narratives of discovery: “Only the diary preserved these interpretative steps, permitting those not present at excavation to enter into and evaluate each stage of the reasoning process” (Mickel 2015, 303). However, this argument fails to explain the way in which such testimonies contribute to accomplish this task. For instance, the way in which a narrative of the discovery of a wall reinforces the testimony of having observed a wall, which typically is accounted with a description, a drawing, or a photograph. Specifically, a) it is not clear why having an additional narrative of the changing impressions is relevant when digging a remain if its character becomes evident after being

exposed and b) especially at Çatalhöyük where the preservation of remains is very high. In short, one does not require a textual testimony of the discovery of Building 49 when a photograph can give a reliable testimony of having observed it (Figure 2).

Archaeologists must record their reasoning process when interpretive doubts persist after the act of discovery and when new evidence demands revision of retrodictive conjectures. However, these testimonies should take the form of argumentative discussions to evaluate interpretive possibilities. In sum, the main problem with Mickel's (2015) view is failing to notice the importance of discussions of evidence over chronicles of discovery. And instead, she presumes that having more information implies having better testimonies. For these reasons, reflexive recording as defined by Hodder and his intellectual progeny is simplistic (Hodder 2000, 9; 2005, 651). In this way, the distinction between observational and evidential reflexivity not only characterises two distinct epistemic situations. It also represents an opinion about the relevance of those testimonies.

Overall, B49's sequence is an account that describes the exploration of a building. However, archaeologists knew from the earliest stage of exploration that they were excavating a building (Figure 4). This explains the major emphasis in describing the discovery of internal features in diaries and occasionally they mention the discovery of a building (Figure 3). Likewise, functional claims are not very frequent, but some of these testimonies mention the interpretation of a domestic building: "Building 49 is a small house, with plaster and the traditional features that characterise Çatalhöyük" (CM 17/07/08). However, B49's entries never explain or discuss the domestic character of the building. This is an important aspect because despite the presence of a building was evident, its domestic character was not.

Previously, James Mellaart had suggested that Çatalhöyük's buildings represented both shrines and houses (Mellaart 1967, 3). Later, Hodder's project addressed this issue with the exploration of two buildings (B1 and B5), concluding that the structures were domestic (Hodder and Farid 2014, 3). However, this raises a controversial issue because it is not fully legitimate to presume that subsequent buildings to be excavated (B49 among them) also represent houses (Figure 1). Hence, the absence of a reflexive discussion regarding the domestic character of B49 is an important failure because: 1) this is the most important interpretative claim in the exploration of B49 and 2) if one considers the research context of this investigation or what was already evident about B49. Then, by uncritically embracing the premise of the domestic character of B49, one of the main aims of reflexivity, namely the examination of archaeological assumptions was left aside (Hodder 2000, 9). It's likely that a more relevant type of reflexive testimony could have arisen if excavators had been instructed to think about the functional character of buildings considering the evidence of structures, assemblages and so forth. But achieving this task would have required considering the epistemic context of investigations, for example, the character of remains and the background knowledge of the site. In other words, if excavators had recorded a more systematic discussion of the function of each structural element similar to the discussion of F1495 (Example 8), this could have provided a reflexive background for making a general judgment regarding the functional character of the building.

### **Concluding Remarks**

One of the main problems with the reflexive method is promoting a simplistic notion that presumes that improving the quality of excavation records only requires recording more information without concern about the relevance and the quality standards of this information. As explained before, reflexive diaries contain an important amount of trivial information which is not very relevant for supporting the credibility of interpretive content. This does not mean that such information is absolutely useless, for example, ethnographic testimonies might be valuable for studying the social life within the project. Still, this should not be the primary concern of archaeologists and for that reason I define it as trivial.



Figure 4. Detection of B49 during the last days of season 2003 (Çatalhöyük Research Project).

Additionally, another problem with relevant data is that archaeologists do not always use adequate standards for reporting this information, especially for scenarios of operative decisions (see Example 5) and evidential reflexivity (see Example 10). In other words, these are formal aspects subject to standardisation that can be improved in future experiments.

Nevertheless, a major problem with reflexive methods is the lack of consideration of the epistemic circumstances of investigations. In other words, the Çatalhöyük Research Project had favourable conditions to produce a more relevant reflexive recording system by addressing functional aspects based on the background knowledge of the project, the character of the site and the tools at hand. However, this should not be interpreted as presuming that reflexive recording should always address these questions. For example, a team excavating at Star Carr, where evidence is more fragmentary, could implement reflexive recording to discuss the previous existence of wooden structures (see Conneller *et al.* 2012, 1012). In other words, these aspects of reflexive recording are not subject to standardisation and instead must be tailored according to the epistemic circumstances of each project. If one considers these arguments, there might be good reasons to be sceptical about claims that frequently qualify projects with a stronger descriptive component as bad practice (Andrews *et al.* 2000, 528; Berggren and Hodder 2003, 424). Specifically, such judgments do not take into account the differences between working at a new site and having only fragmentary evidence as opposed to working on a previously excavated site with good preservation.

A possible limitation of this study could be that results are based on a reduced sample. Additional analysis of entries from different phases of the project perhaps would allow to consider whether there have been improvements in reflexive methods. Unfortunately, I think that is unlikely because the rhetoric of reflexive methodology has not changed much over the years and in general it puts a lot of

trust in technology (Berggren *et al.* 2015). In this way, the reflexive fashion of recording the discovery of remains is becoming a new trend even in commercial digs as if having a tablet or recording a video clip is sufficient for producing a reflexive testimony. During the analysis of B49 diaries it was very clear that some fieldworkers were much better at reporting relevant data whereas others put much more emphasis on trivial information. Hence, the capacity to develop relevant reflexive recording is not based on using an excavation diary or a context sheet but in the capacity to observe and interpret archaeological traces. However, as it has been rightly argued before, this capacity is an outcome of experience and skill (Edgeworth 2012).

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# Multiple Datasets, Multiple Meanings? A Reanalysis of Multiple Internment Burials in Early Anglo-Saxon England

Caroline Palmer<sup>1</sup>

## Abstract

This paper examines a dataset of multiple burials in early Anglo-Saxon England previously published by Nick Stoodley in 2002. The focus here is on updating his research with post-2002 data and reassessing his conclusions. Stoodley's paper entitled 'Multiple burials multiple meanings? Interpreting the early Anglo-Saxon multiple internment' presented a comprehensive overview of multiple burials in a way that had not been previously done. This paper expands upon that, revisiting Stoodley's analysis and conclusions and questioning his application of available data. This paper concludes that Stoodley's analysis was not representative of his own data and found trends where they did not exist, such as suggesting incorrectly that females rather than males were almost exclusively buried with subadults. Stoodley's final argument that multiple internment burials were 'amulets' for dealing with high-stress deaths is examined more empirically in this paper and added upon by suggesting that the individuals interred together were tied by social relationships that were not necessarily rooted in biology. The various multiple interment burials of the early Anglo-Saxon period marked the ending and renewal of social relationships, whether it be occupational or dealing with societal-familial roles, such as conceptions of caretakers. As the social relationship is broken in death, enacting that relationship in death repairs the lost relationship. Finally, this paper widens the discussion surrounding multiple burials, contextualising previous tangential work on the subject and suggesting the imperative and neglected need for a comprehensive study on human-animal multiple burials, both in terms of cremations and inhumations during the early Anglo-Saxon period.

**Keywords:** Multiple Burials, Early Medieval, Early Anglo-Saxon, Mortuary Practices, Social Identity

## Introduction

Social identity "refers not only to personal perceptions of the self but also to the external categorisation of individuals and groups. Hence, social identities are a nexus of interpersonal and inter-group relationships" (Williams and Sayer 2009, 1). Social identities are mediated through many fields of interaction, burial ritual being one of them. In this context, the importance of understanding burial practice in general and unique burial practices in particular becomes essential in understanding the construction and maintenance of social identity.

Early Anglo-Saxon mortuary practices evolve multiple times, especially during the 7<sup>th</sup> century CE, which might include a degree of confusion among people as to where and how to bury their dead. During this time period we see many small cemeteries, isolated burials in barrows and a general lack of continuity in location and method of burial. In the midst of all of this variability, we find the multiple inhumation burial. These burials consist of two or more people inhumed together, whether it be side-by-side or stacked. They are generally either contemporary, when the inhumations occur together simultaneously, or consecutive, when the grave is reopened for the deposition of additional individual(s) (Stoodley 2002).

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Before the writing of this paper, only one comprehensive survey of multiple burial internments for this period existed. Nick Stoodley's article, written in 2002 which appeared in the book *Burial in Early Medieval England and Wales*, has been frequently quoted by excavation reports and is generally agreed to be the seminal work on the subject. Other authors such as Andrew Reynolds (2013), Michael McCormick (2015) and Sally Crawford (2007) have written on the topic of multiple burials, but all in the more specific incidences of deviant burials, 'mass graves' and the presence of subadults in multiple burials respectively.

The focus of this paper is to build upon Stoodley's 2002 analysis with data collected post-2002, and thus testing the 18-year-old report based in large part on pre-2000 data Stoodley collected as part of his DPhil. The purpose of this paper is to fill in the gap and observe whether the findings of the early 21<sup>st</sup> century are consistent with Stoodley's 20<sup>th</sup> century data-driven conclusions.

### **An Overview**

In his 2002 article, Stoodley endeavoured to provide a workable framework to understand these burials in various contexts, especially trying to suggest explanations as to why these burials occur when they occur and *what they mean*.

Stoodley presented a dataset of 231 individuals, performing analyses that are replicated here with an additional 112 individuals in 53 multiple burials published since 2002 (see Table 1). One observation that Stoodley (2002, 112) made based on his research is that male-female adult double burials are the most commonly found type of multiple burial. Concerning adult-subadult pairings, females are more likely to be buried with children and infants than males, who are more likely to be paired with older subadults (Stoodley 2002, 112–113). Based on these observations, he suggests that there was a relationship between adult females and young subadults that was inherent in society to the point that "the grave of any available female was considered an appropriate last resting-place" (Stoodley 2002, 118–119). He also challenges the argument that male-female adult double burials were the product of both husband and wife dying around the same time. In his dataset only five multiple burials were of confirmed similarly aged individuals of the opposite sex (Stoodley 2002, 116). Despite not knowing much about the early Anglo-Saxon practice of marriage, it would seem more likely that opposite sex pairs could be more of a reflection of other societal relationships or sibling pairs (Stoodley 2002, 117–118). Stoodley made the ultimate conclusion that multiple burials were used as an 'amulet' for dealing with stress, but did not really explain what that concept meant.

Spatial and (when possible) chronological relationships between the multiple burials and their surrounding cemetery are investigated here. This paper considers contemporary and consecutive burials, while Stoodley almost exclusively focused on contemporary ones. It is problematic to assume a direct relationship between consecutive multiple burials, as associations between the individuals inhumed are not always apparent. However, they are still important to consider and, with strict parameters surrounding consecutive burials providing optimal control for accidental consecutive stacking, it is difficult to explain the tendency to chance. One parameter is the requirement that the grave cut had to be the same in each instance of grave reopening, as accidentally intercutting is often evidenced by truncating the original internment or misalignment. The social identities of the early Anglo-Saxon period are evaluated in more depth here as well as a consideration of what Stoodley (2002, 121) meant when he stated that the multiple inhumation practice was an 'amulet' for dealing with stress.

Table 1. Post-2002 cemeteries presented with number of individuals in multiple burials by site.

Cemetery	Region	General Preservation Condition	Total Individuals in Sample	Individuals in Multiple Burials	Percentage
Water Lane, Melbourn	Cambridgeshire	Moderate	59	17	28.81
Tittleshall	Norfolk	Poor	26	4	15.38
Shrubland Hall Quarry, Coddenham	Suffolk	Poor	51	2	3.92
Blacknall Field	Wiltshire	Poor	105	4	3.81
Boss Hall and Buttermarket, Ipswich	Suffolk	Poor	111	15	13.51
Wasperton	Warwickshire	Poor	177	4	2.26
Finglesham	Kent	Good	248	16	6.45
King's Garden Hostel	Cambridgeshire	Poor	21	2	9.52
Marlborough Road, Aldbourne	Wiltshire	Poor	26	4	15.38
Minerva Business Park, Alwalton	Cambridgeshire	Moderate	34	2	5.88
Quarrington II	Lincolnshire	Moderate	15	2	13.33
Worthy Park, Kingsworth	Hampshire	Good	105	15	14.29
Barrow Clump, Figheldean	Wiltshire	Poor	13	2	15.38
Oakington	Cambridgeshire	Good	124	15	12.1
Collingbourne Ducis	Wiltshire	Good	83	8	9.64
<b>TOTAL</b>			<b>1198</b>	<b>112</b>	<b>9.35</b>

## Materials and Methods

Although this sample attempts to be representative of the literature of post-2002 early Anglo-Saxon cemeteries containing multiple burials, it inevitably cannot include everything. This being said, Stoodley (2002, 105) also did not include all examples of early Anglo-Saxon cemeteries containing multiple burials in his sample published up to 2002. One recent example of limitations that would preclude a site from analysis can be found in the site report for the eastern cemetery of Saltwood tunnel, Kent (Booth *et al.* 2011). This cemetery of 17 inhumations contains two multiple burials—W1490 consisting of two juveniles and W1810 consisting of an adult (presumably unsexed) and infant (Booth *et al.* 2011, 355). Additionally, the multiple burials are located next to each other along a trackway, which would have been a valued addition to the current author's post-2002 dataset if the data had been usable for such a purpose (Booth *et al.* 2011, 351). Unfortunately, no information is provided in the site report beyond what has already been mentioned, rendering further analysis impossible. This publication is not peculiar in passing over multiple burials in favour of other topics, thereby reducing the dataset(s) presented here to their current states.

Table 2. Multiple burial types by site from post-2002 data.

<b>Proportion of Multiple Burials by Type</b>		
<b>Burial Type</b>	<b>Number</b>	<b>Percentage</b>
Contemporary Stacked	2	3.77
Contemporary Side-by-side	30	56.6
Consecutive Stacked	17	32.08
Consecutive Side-by-side	4	7.55
<b>TOTAL</b>	<b>53</b>	<b>100</b>

Table 3. Combined pre/post 2002 data showing combinations in consecutive multiple burials with only sexed adults and aged subadults.

<b>Combinations in Consecutive Multiple Burials (no unsexed)</b>		
<b>Combination</b>	<b>Number</b>	<b>Percentage</b>
Male-male	9	15
Male-female	18	30
Male-infant	2	3.33
Male-child	6	10
Male-adolescent	3	5
Female-female	6	10
Female-infant	1	1.67
Female-child	5	8.33
Female-adolescent	6	10
Child-child	3	5
Child-adolescent	0	0
Infant-child	1	1.67
Infant-adolescent	0	0
<b>TOTAL</b>	<b>60</b>	<b>100</b>

Within the data, multiple burials can be separated out into two types (consecutive and contemporary) and within each category there are several subtypes of multiple burials. Double burials, the most common type of multiple burial (only four of the multiple burials or 7.55% include three or more individuals in the post-2002 dataset), are found in a variety of forms. These include spatial components (such as side-by-side vs. stacking styles of interment), gender/sex components and age components. Each of these in turn are analysed to determine patterning that can then be used to provide insight into early Anglo-Saxons' reasoning for choosing multiple interment burials. A breakdown of the different components and prevalence for each can be found in Tables 1-5.<sup>2</sup>

<sup>2</sup> Stoodley personal communication 8/5/2019 verified excluded individuals were unsexed adults.

Table 4. Combined pre/post 2002 data showing combinations in contemporary burials with only sexed adults and aged subadults.

<b>Combinations in Contemporary Multiple Burials (no unsexed)</b>		
<b>Combination</b>	<b>Number</b>	<b>Percentage</b>
Male-male	9	6.57
Male-female	24	17.52
Male-infant	1	0.73
Male-child	24	17.52
Male-adolescent	10	7.3
Female-female	9	6.57
Female-infant	18	13.14
Female-child	24	17.52
Female-adolescent	4	2.92
Child-child	8	5.84
Child-adolescent	3	2.19
Infant-child	2	1.45
Infant-adolescent	1	0.73
<b>TOTAL</b>	<b>137</b>	<b>100</b>

Table 5. Prevalence rate expressed as percentages for combined pre/post 2002 data general adult-subadult combinations by cemetery.

<b>Type</b>	<b>Male</b>	<b>Female</b>
Adult-Subadult Cemetery Combinations, total percent	43.18	56.82
Adult-Subadult Cemetery Combinations where only one sex represented in percent	38.46	61.54

Table 1 summarises a composite dataset, based on cemeteries published since 2002 containing multiple burials. This information has been combined with the data analysed by Stoodley in order to test some of his conclusions against a larger dataset. Unlike Stoodley’s, this study only includes cemeteries that contain multiple burials (13 cemeteries, or 22% of his dataset, did not contain multiple burials). Several of the cemeteries included have not been fully excavated. The sites that are (nearly) fully excavated are Tittleshall (Rogers 2013), Blacknall Field (Annable and Eagles 2013), Buttermarket (from Boss Hall and Buttermarket, Ipswich; Scull 2010), Finglesham (Hawkes *et al.* 2006), Quarrington II (Dickinson 2004) and Oakington (Richard *et al.* 2017). This makes the statistical analysis from this new dataset more representative of the whole cemetery than Stoodley’s dataset, as a higher proportion of the cemeteries in this analysis are nearly or more fully excavated than his.

All of the burials included in this analysis are from the early Anglo-Saxon period, primarily focusing on the late 6<sup>th</sup> to early 8<sup>th</sup> centuries CE (see Figure 1). This focus is in line with Stoodley’s (2002, 106) observation that multiple burials increased in frequency around the 7<sup>th</sup> century. Stoodley’s dataset includes 10 cemeteries dating from around the 7<sup>th</sup> century, with four additional ‘long-lived’ cemeteries that spanned several centuries including the 7<sup>th</sup> (Stoodley personal communication 8/5/2019). As such, Stoodley’s pre-2002 dataset is likely a relatively accurate representation of early Anglo-Saxon sites published at the time of writing. The current author’s post-2002 dataset attempts to do the same on a smaller scale, to most accurately portray potential continuing trends.

In the additional post-2002 data, there is regional clustering in the multiple burial practice—the underrepresentation of northern England data potentially showing a bias of early Anglo-Saxon cemetery excavations since 2002 rather than being representative of a wider trend (see Figure 2). The visible clustering in East Anglia (especially for Stoodley in Northamptonshire and the East Midlands) and Wessex are commonalities shared with Stoodley’s dataset (Stoodley 2002, 106). The consistent regional

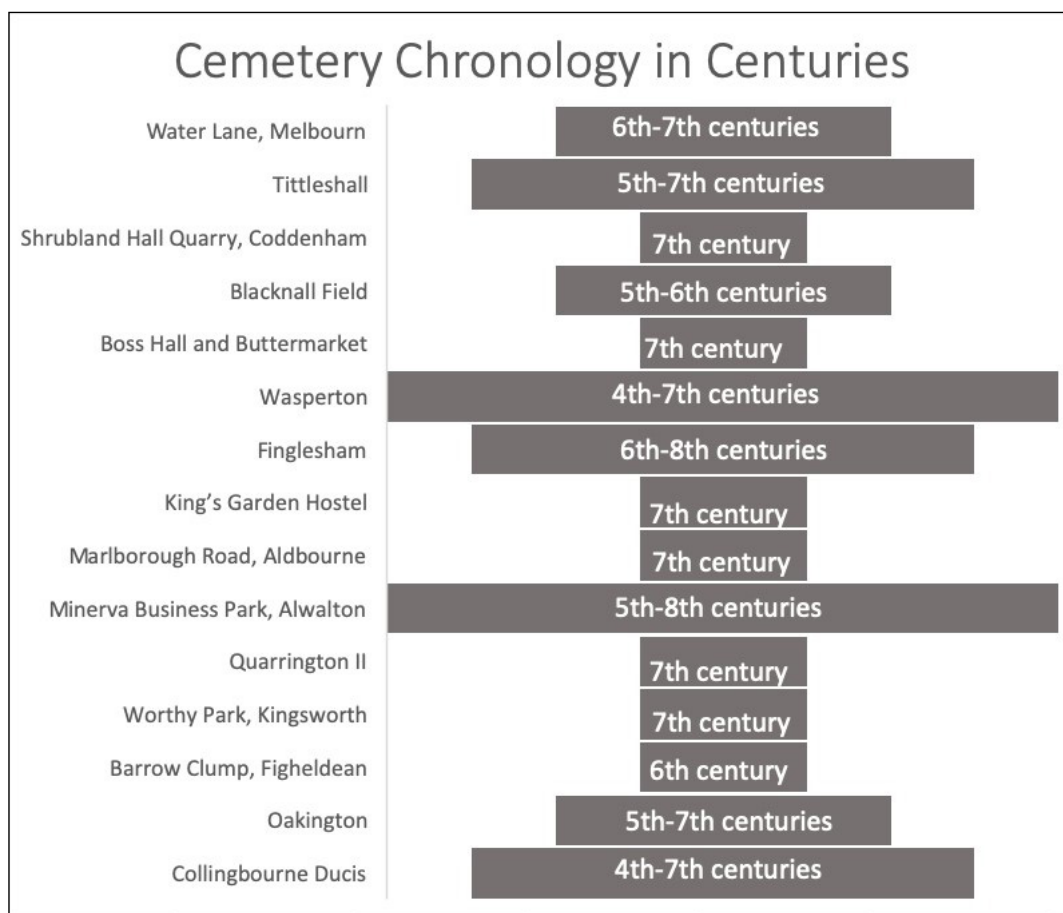


Figure 1. Chronology of post-2002 cemeteries (author).

clustering across so many sites is likely indicative less of excavation bias and rather truly indicative of the concentration of the practice of multiple burials in those regions.

## Results

Upon close examination of Stoodley’s data, minor and major discrepancies were discovered that affect the analyses presented in this paper. Minor discrepancies include rounding errors and vague explanations used to discard data. These minor discrepancies do not limit the current author’s ability to replicate and combine analyses. As such, summaries demonstrating the combinations of sexed adults and aged subadults for both contemporary and consecutive multiple burials can be found in Tables 3–4. It is essential to note that although these are combined tables of the two datasets and thus could be a more accurate reflection of past trends, the tables altogether are missing eight burials from this dataset and 89 from Stoodley’s due to questions over sex assignment for adults (Stoodley personal communication 8/5/2019). The only other table that is replicable from Stoodley’s analysis can be found as a combined dataset table in Table 6. This table describes the prevalence in cemeteries of adult-

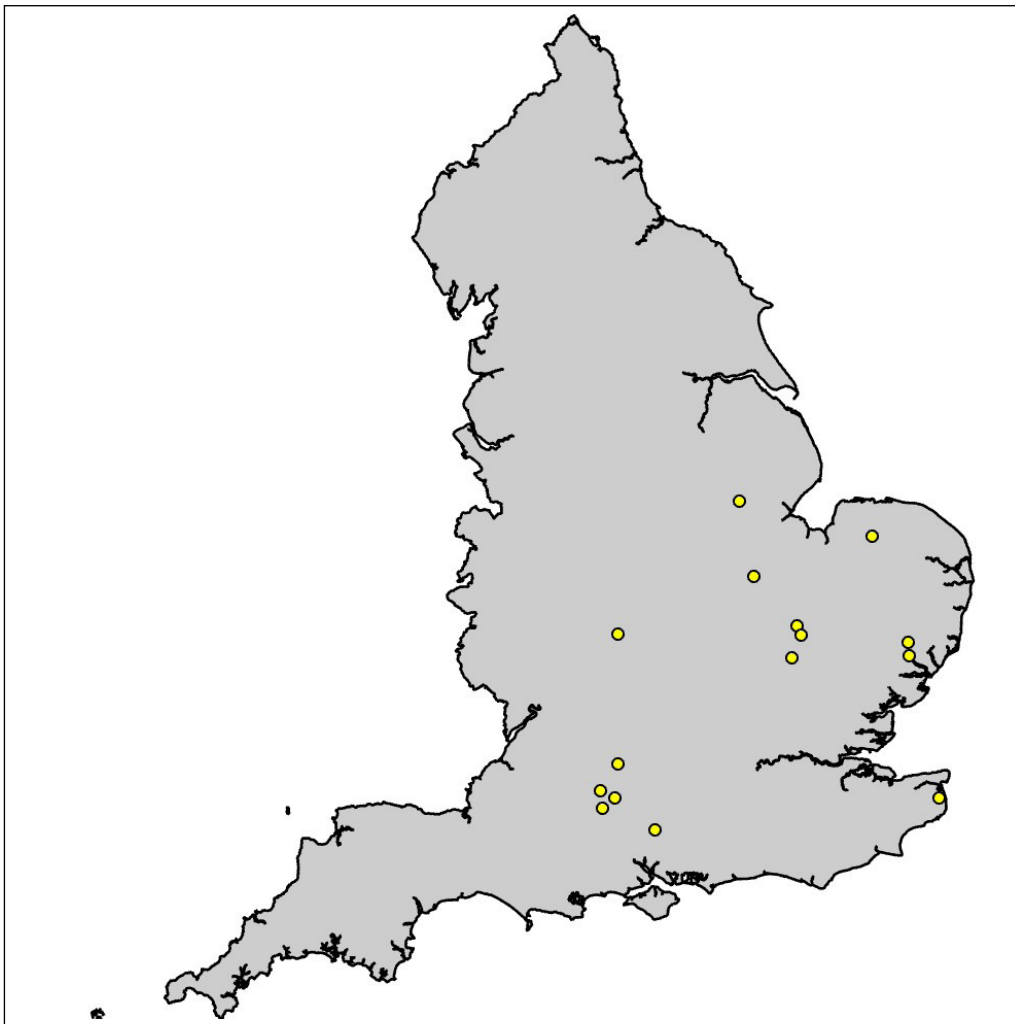


Figure 2. Distribution of post-2002 sites (author).

subadult combinations in both datasets. The current dataset contains almost equal figures for each aspect of the table and therefore does not affect the overall proportions from Stoodley’s dataset, to be discussed later in this paper.

Unfortunately, there exists some insurmountable issues with Stoodley’s presentation of the data. Although it is likely that burials were omitted from analysis for a good reason, those reasons were not supplied and therefore could not be replicated. It is beyond the scope of this paper to reconsider the 231 multiple burials in Stoodley’s dataset on an individual level and attempt to recreate his reasoning.

Table 6. Post-2002 data of multiple burials into contemporary and consecutive types.

Type	Number	Percentage	Double	Triple	Quadruple	5 people
Contemporary	32	60.38	30	1	0	1
Consecutive	21	39.62	19	2	0	0

As such, where this author cannot replicate his data, the post-2002 dataset is presented by itself. It is therefore important to note that conclusions made from this smaller dataset alone may not be as strong as conclusions made from the larger combined sample.

The first major issue the current author came upon in replicating Stoodley's data is that not enough information was presented. For example, Stoodley (2002, 106) mentions that his dataset contains 173 contemporary multiple burials and 28 consecutive multiple burials, but then only gives information concerning the number of individuals in each grave (i.e. double, triple, etc.) for contemporary multiple burials. Ironically, the next instance of this type of occurrence concerns burial type, this time focusing purely on consecutive stacked and side-by-side burials, rather than contemporary ones (Stoodley 2002, 109). The mystery of missing data for burial type also includes the fact that only 19 out of 58 recorded consecutive burials are considered to be stacked or side-by-side, leaving the other 39 unexplained (Stoodley 2002, 19). As Stoodley (2002, 106) himself states, "multiple burials can be divided into two principal groups: contemporary and consecutive types" with a footnote that states "fourteen of the burials within the sample were of an unknown type". It is curious that within consecutive burials alone 39 burials are unaccounted for.

Although Stoodley does provide workable definitions, he does not fully explain most of his tables. For example, in his table entitled 'Frequency of multiple burial by date,' he does not explain what 'early,' 'late,' or 'long-lasting' mean (Stoodley 2002, 106).<sup>3</sup> Later on and as previously mentioned, he omits most of his dataset without explanation, such as in his table where the total number of multiple burials who have positions equals 71, rather than the actual 231 multiple burials in his dataset (Stoodley 2002, 108). Because every burial in the updated dataset is assigned a category,<sup>4</sup> the tables mentioned as unreliable in Stoodley's paper are replicated with this author's entire dataset to aid in analysis. Finally, he states that there are 245 multiple burial internments from 59 cemeteries, but never includes any information that adds up to these figures. This includes his first table which in fact adds up to over 245 multiple burials and 59 cemeteries, although only 46 of those cemetery site reports actually report occurrences of multiple burials (Stoodley 2002, 103 n.3-104).

Because of this omission, certain data are presented with only the post-2002 data. As can be seen in Tables 2, 6-8, important information such as the positions of individuals in multiple burials, division of sex and types and numbers of multiple burials are incomplete in Stoodley's data. The large proportion of indeterminately sexed individuals from Table 7 is largely representative of subadults and graves with such poor preservation that only a few bones or stains remain. Likewise, in Table 8, the other category represents either burials with combinations not presented in the rest of the table, such as a side and half-turned multiple burial combination, or it represents a situation in which one or multiple of the internments' positions were unidentifiable.

In cemeteries where several multiple burials appear, there tends to be a clustering effect. In some instances, such as at Worthy Park Graves 17, 18, 25 and 26, the clustering may have been due to chronological similarities (Hawkes *et al.* 2003, 8; see Figure 3). In other cases, such as presented by the authors of the Finglesham report for Graves 20, 21, 36, 38 and 62 (all clustered multiple burials), there is no grave chronology given and therefore it is impossible to decipher (Hawkes *et al.* 2006, 29; see Figure 4). It is reasonable to assume that the clustering of multiple burials is not due to spatial constraints, as Stoodley (2002, 105) suggests based on two of his cemeteries, because none of these cemeteries are

3 From personal communication (Stoodley 8/5/2019), long-lasting was explained to be a cemetery spanning multiple centuries (presumably at least three).

4 Stoodley provides an 'other' section as well for his table concerning the positions of bodies, whereas the current author places burials with preservation too poor to know the exact positioning of the bodies.

particularly cramped for space.

**Analysis**

Looking at Tables 3–4, it becomes clear that one of Stoodley’s main arguments is tenuous, before even

Table 7. Multiple Burials by sex from post-2002 data.

<b>Multiple Burials By Sex</b>		
<b>Sex</b>	<b>Number</b>	<b>Percentage</b>
Male	23	20.53
?Male	6	5.36
Female	25	22.32
?Female	10	8.93
Unsexed	48	42.86
<b>TOTAL</b>	<b>112</b>	<b>100</b>

Table 8. Post-2002 data showing positions of individuals in multiple burials.

<b>Positions of Individuals in Multiple Burials</b>		
<b>Position</b>	<b>Number</b>	<b>Percentage</b>
All extended	9	16.98
Extended and half turned	5	9.43
Extended and on side	7	13.21
Extended and crouched	2	3.77
Extended and prone	1	1.89
Both crouched	0	0
Crouched and half turned	0	0
Crouched and on side	2	3.77
Crouched and prone	0	0
Both on side	3	5.66
Both prone	0	0
Prone and half turned	2	3.77
Other	22	41.51
<b>TOTAL</b>	<b>53</b>	<b>99.99</b>

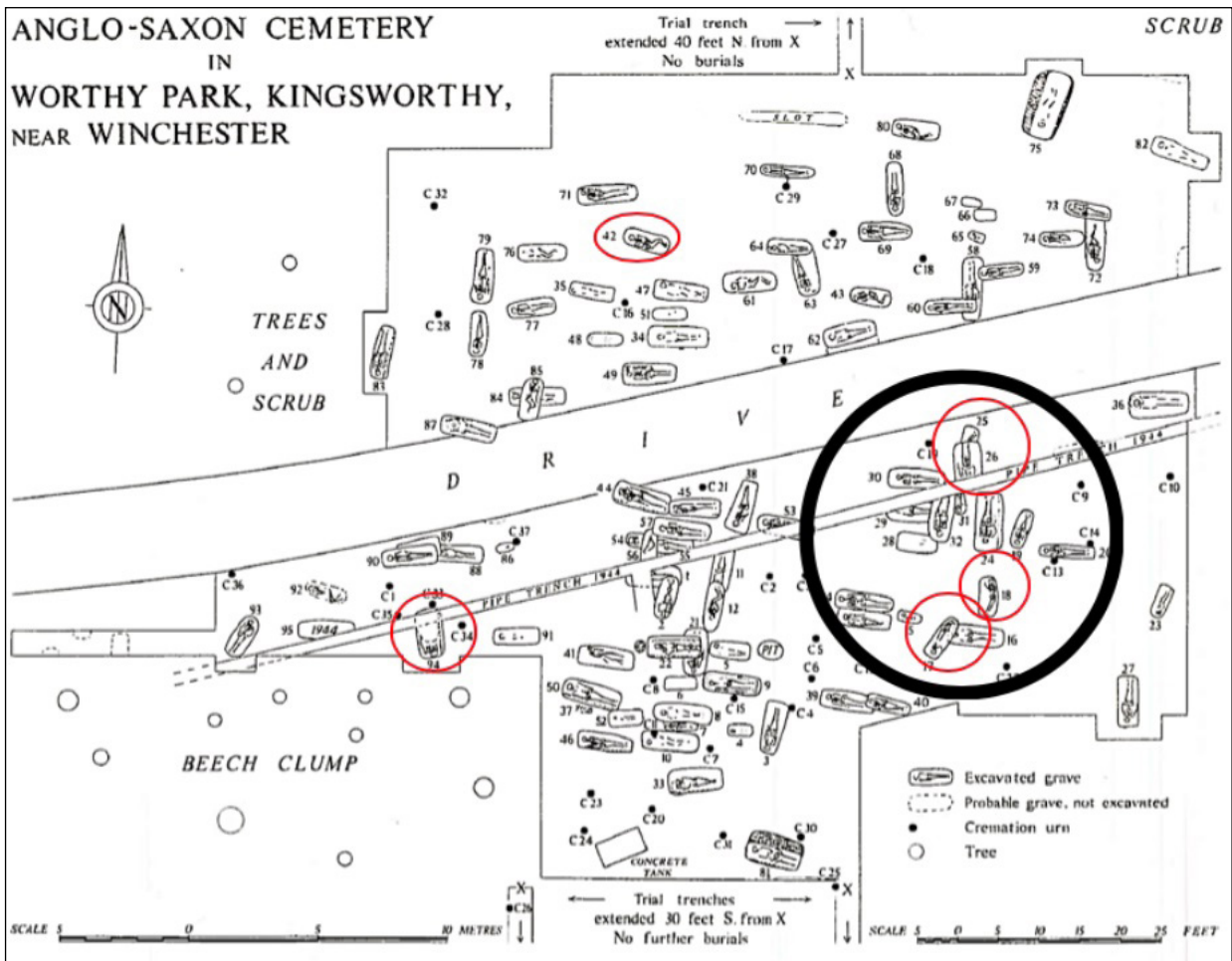


Figure 3. Worthy Park cemetery plan with multiple burials circled in red from Hawkes *et al.* 2003, 8 with personal annotations).

engaging with any statistical analysis. For Stoodley, the prevalence rates of female-child and male-adolescent combinations are essential to his arguments of the life cycle connections between children, adolescents and adults. He found that 20% of his multiple burials were female-child for contemporary multiple burials and 10% for consecutive; and 9.09% were male-adolescent for contemporary multiple burials and 12.5% for consecutive (Stoodley 2002, 113–114). As he states, generally ignoring his findings concerning consecutive multiple burials, “a clear tendency to pair a male with an older sub-adult and a female with a younger one is observed” (Stoodley 2002, 113).

Although it is indeed the case with his data that females are paired more often with younger individuals and males with older sub-adults, the trend is not as clear-cut as one might imagine. In the combined dataset presented in Table 4, contemporary multiple burial male-child and female-child combinations are equally represented at 17.52%. The same combinations in consecutive multiple burials show that male-child combinations have higher prevalence than female-child (10% and 8.33%, respectively), following Stoodley’s ignored original findings.

The case for high female-infant prevalence in both datasets can be reduced with the assumption that quite young infants and females died due to complications at birth or a disease contracted shortly

thereafter (Stoodley 2002, 113). If infants under the age of one are taken from the sample, the number is reduced to only a few female-infant combinations. Of the combined datasets found in Tables 1-2, male-infant combinations are very similar to >1 infant-female combinations.

These differences found above show that there is no real case for sex or gender preference pairings between adults and children. The opposing results of the two datasets appears to have evened disparities, showing that the comparatively large numbers of adult-child burials are less indicative of gender norms and more indicative of a general practice with children in multiple burials. Considering the expanded dataset Stoodley's assertions (2002, 118-119) can be considered to be too simplistic.

Stoodley's final argument of sexed and aged burials concerns the apparent difference between male-adolescent and female-adolescent burials, which he found to be an opposing trend to child-adult and infant-adult categories. In his sample, male-adolescent burials (9.09% for contemporary multiple burials, 7.5% for consecutive) and female-adolescent burials (1.01% for contemporary multiple burials, 10% for consecutive) are quite different (Stoodley 2002, 113-114). In the combined dataset, 7.3% of contemporary multiple burials and 5% of consecutive multiple burials were male-adolescent and 2.92% of contemporary multiple burials and 10% of consecutive multiple burials were female-adolescent, emphasising the trend in consecutive multiple burials. Stoodley (2002, 114) largely ignores his consecutive burial results by stating "choosing a pre-existing grave for burial was a seemingly random process. From the dearth of sub-adults, the only consideration taken into account was the size of grave-pit".

The addition of the post-2002 dataset shows that the choice of consecutive burial was not generally random, shown by prevalence rates, cemetery layout and personal comments from excavators concerning likely relationships evident between the consecutive and primary internments. There are no trends that evince relationships such as those suggested by Stoodley (2002, 112-113) concerning adult-sub-adult pairings. These results may not have supported his findings because of the addition of consecutive burials or because of sample size issues.

There are a few potential explanations for why the current results have not supported Stoodley's findings. The first explanation is that in the analysis of sexed and aged burials, this author has included consecutive burials in her considerations (something which Stoodley did not do). His findings therefore may be more indicative of what contemporary multiple burial practice is like, although with the results of the combined dataset this only holds for the male-adolescent combination discussed above.

A second explanation could be that Stoodley's dataset, largely taken from his PhD thesis with a few additions, is slightly more focused on 5-6<sup>th</sup> century burials than the post-2002 data (see Figure 1). There may be some trends that occur more often in the 5-6<sup>th</sup> centuries than in the 7<sup>th</sup> century. In theory, the additional sites gathered for the purpose of this survey should mitigate this issue, but could have still contributed a subtle bias, just as the post-2002 dataset may have contained a 7<sup>th</sup>-century bias (Stoodley 2002, 103). This is likely not the case, however, as both Stoodley and the current author attempted to gather as representative a dataset as possible, which included for Stoodley the addition of sites to ensure the 7<sup>th</sup> and early 8<sup>th</sup> centuries were represented (as mentioned previously). Thus, if there is a bias, it is probably subtle enough that the difference in results would be small.

The final possible explanation could be that the datasets in both situations are not large enough to produce consistently statically significant results. Although the combined datasets are not inclusive of every Anglo-Saxon site with a multiple interment burial nor is every multiple burial theoretically presented by Stoodley included in his analysis, it is representative of multiple burials in the early Anglo-Saxon period, with 137 contemporary multiple burials and 60 consecutive multiple burials. Regardless of these potential shortcomings and even with the exclusion of consecutive multiple burials, nothing is

as certain as Stoodley suggests in his discussion concerning the relationships of adults, sub-adults and sex.

The tendency to bury two adults together is the second most common multiple burial practice after adult-subadult combinations. The total prevalence of adult burials for the post-2002 sample is 45.28%. The total prevalence of adults (sexed only) for the combined dataset is 38.07%. Of this number, the largest group consists of the male-female group (17.52% in contemporary multiple burials and 30% in consecutive multiple burials). Male-male and female-female have the same rate of occurrence in contemporary multiple burials, or 6.57% each (15% of the consecutive multiple burials are male-male and 10% are female-female). This follows with Stoodley's (2002, 115) observation that male-female

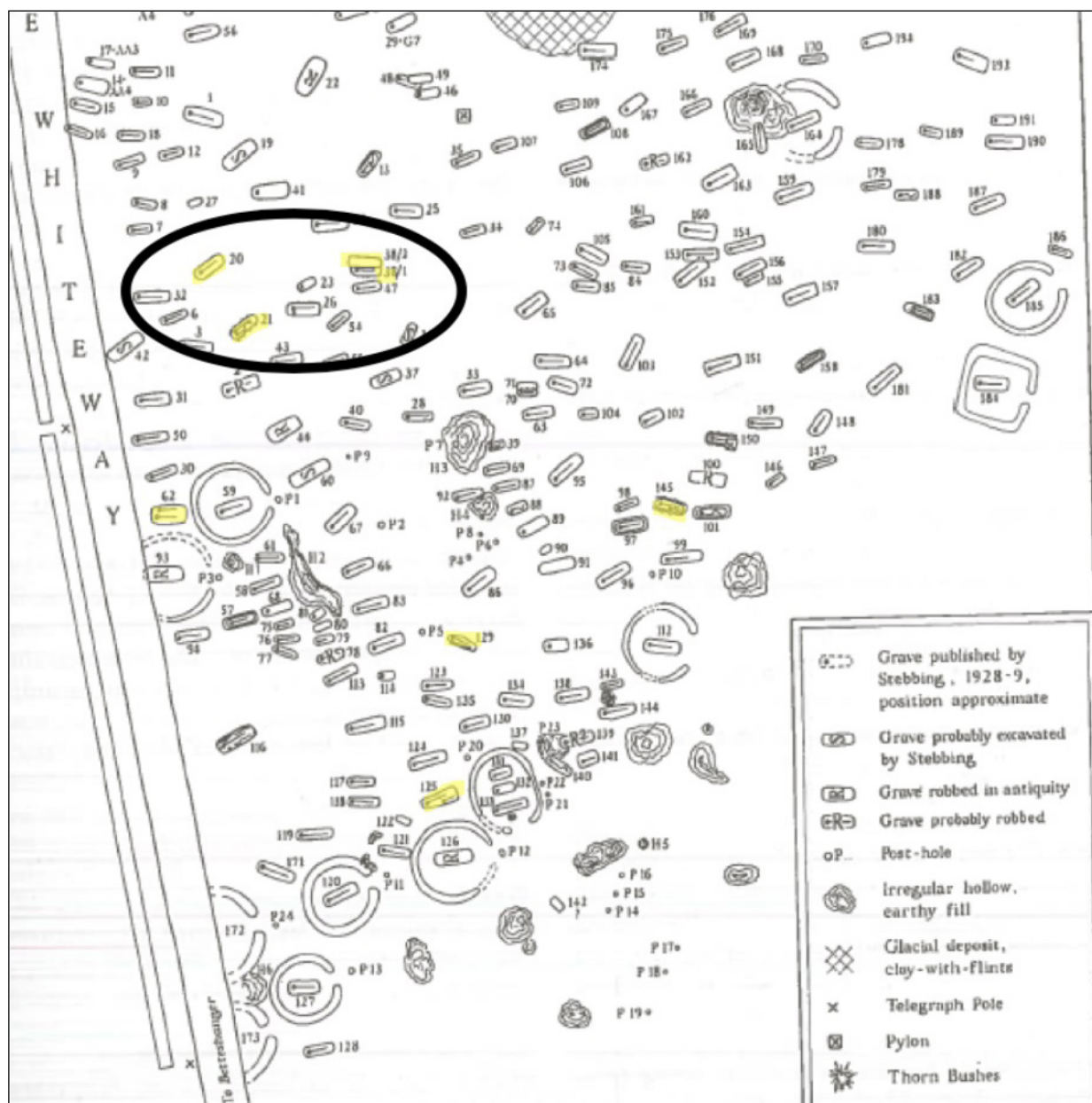


Figure 4. Finglesham cemetery plan, with multiple burials highlighted in yellow (Hawkes *et al.* 2006, 29 with personal annotation).

multiple burials are the most common.

Another important element to consider in relation to the multiple interment practice is the placement of multiple burials in cemeteries both spatially and chronologically. This is something that Stoodley did not consider in his analysis. The multiple burials across the sites were found in all parts of the cemeteries with no concentration respecting boundaries or liminal spaces. There are, however, examples of clustering within cemeteries, as previously mentioned and displayed here with examples from Worthy Park (Figure 3), Finglesham (Figure 4), Collingbourne Ducis (Figure 5) and Boss Hall (Figure 6). There may have been sufficient societal stress occurring around the time of death but they were likely not caused by deviant deaths as they do not share the unifying characteristics suggested by Andrew Reynolds (2013). Rather, likely it was the loss of multiple individuals simultaneously or that were socially related which caused the society stress, as suggested by Stoodley (2002, 121).

In consecutive multiple burials, such as the one in Melbourn with Graves SG 96-97 and SG 71-73, an

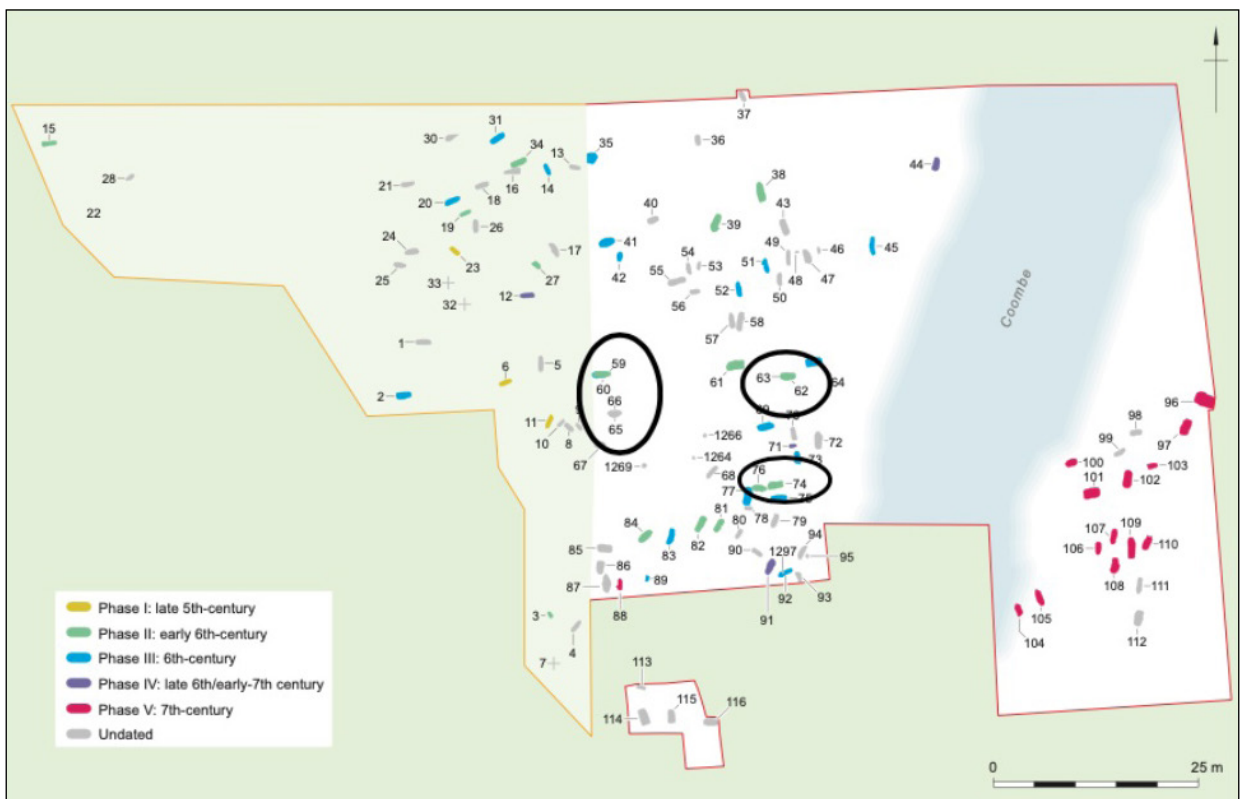


Figure 5. Cemetery plan for Collingbourne Ducis, colour coded by phase. Multiple burials circled in black (Dinwiddy and Stoodley 2016, 141 with personal annotation).

earlier skeleton in the chronology of the cemetery was superimposed by each newer grave, representing to a degree the history of the cemetery in one plot as it is successively reused. Consecutive multiple burials may be considered to be a different type of burial clustering, as some of the burials (such as the previously mentioned Quarrington II burial) were likely consecutive burials due to a desired association with the primary interment (Dickinson 2004, 34, 42). In the case of the Melbourn consecutive multiple burials, six of the graves were paired by sex, which might show a degree of intentionality between the placement of the second (or third) interment and the identity of the primary interment (Duncan *et al.* 2003, 94).

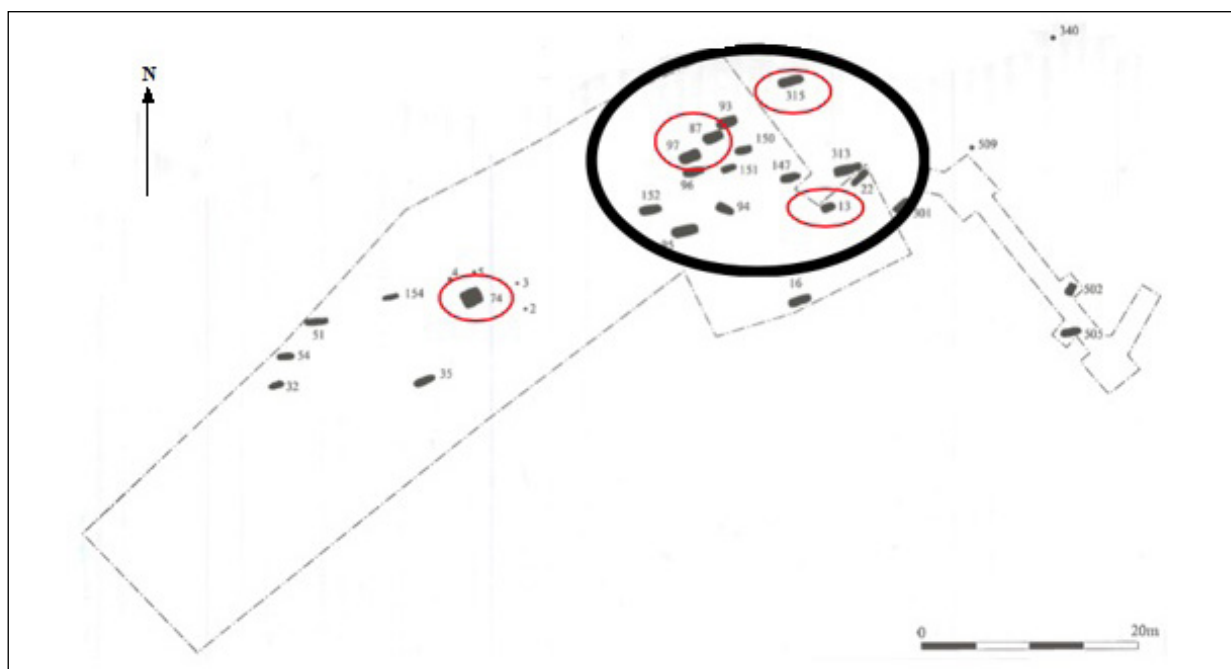


Figure 6. Boss Hall cemetery plan (illustration by Kate Morton from Scull 2010, 9 with personal annotation).

As mentioned previously, there were few instances of infection or trauma (especially unhealed trauma) in the combined dataset of multiple burials. The relative skeletal health of the individuals precludes them from being a result of intense physical illness (excepting a case of tuberculosis and paralysis from Quarrington II) and injury (Dickinson 2004, 28–29). This may have also been why the deaths were seen as more traumatic, as they may have been more sudden. Of the multiple burials in the post-2002 dataset, only a few interred individuals were 50 or older in age. Because of the apparently normal distribution of individuals in age and health, one of Stoodley's (2002, 121) conclusions that multiple burials were likely the reflection of social anxieties remains highly plausible.

## Discussion

The implications of this change in data is four-fold. Firstly, the most cited claim made by Stoodley, that female-sub-adult pairings are the most common type of multiple burial, to the point of being significant, is untenable under the light of new research. Secondly, it appears as though males had a more interactive role with sub-adults than previously thought. Thirdly, consecutive multiple burials tend to follow similar patterns to contemporary multiple burials, and were likely perceived similarly in terms of the creation of social identity. Finally, this social identity that was spoken of in the beginning is an integral motivator behind why these burials existed during the early Anglo-Saxon period.

Building upon Stoodley's (2002, 121) 'amulet' hypothesis, based on an examination of practice these multiple burials were a means to recreate in death social ties that existed in life. For example, apart from the infants buried with their mothers in this dataset (such as at Oakington), no analysed burial appears to have two related individuals (granted, not all of the skeletons have been tested due to the continued expense of aDNA testing so there is still a chance some are related). Additionally, most of the individuals in the male-female multiple burials were far apart in age, suggesting that these were not along marital lines. Of course, with a consecutive multiple burial there is a chance that one individual outlived the other by many years and was eventually laid to rest with their spouse. However, this would not explain the prevalence of such age disparity in contemporary multiple burials. The explanation that remains

is tied then to community roles. These roles could include division of labour (such as the five males buried with similar weaponry kits), and caretaker roles—hearkening back to the old adage that ‘it takes a village to raise a child’.

The reconstructing of social community relationships in death both serves to commemorate the dead and also to repair what was lost. For example, perhaps a family lost a fertile male or female and another family lost a young child. By burying them together both families may commemorate their dead, assuaging fears of repercussions in the afterlife and repairing the broken relationship. Thus, a young woman could become a proxy mother to another woman’s child. Another example, briefly postulated by Stoodley (2002, 117), is the continuation of adoptive relationships.

Another important theory concerning multiple burials goes back to Sally Crawford’s analysis, briefly mentioned earlier. The wider application of her analysis suggests a much less humanistic view of at least contemporary multiple burials. Crawford (2007, 87) questions in her discussion the roles of objects and subjects in relation to children in multiple burials. In her article she reveals the modernist ideas/notions archaeologists place on the past to distinctly define the difference between objects and subjects, and to give them special status associations as such (Crawford 2007, 87–88). For example, a child would be coincidentally interred with an adult in a multiple burial because the two happened to die around the same time.

Conversely, an animal would be deliberately interred with an individual as a food offering, and thus would not be considered a multiple burial (Crawford 2007, 88). Archaeologists often assume that children were given higher status than animals, but Crawford (2007, 90) argues that children may have been interred in multiple burials as objects rather than subjects. If this is so, then perhaps the logic may be able to extend beyond children to all secondary and tertiary interments in consecutive multiple burials and maybe even select adult individuals in contemporary multiple burials.

Crawford’s view on subjects and objects holds important implications in more than just the role of children in multiple interment graves. Crawford (2007, 90) brings up the black-and-white view that many archaeologists still hold today on the relationship between humans and non-human entities. An example of this type of thinking has already been expressed in the Spong Hill analysis concerning the use of animals in cremation burials citing them as accessories rather than additional subjects (Hills and Lucy 2013, 234). A reanalysis of the richly detailed data from Spong Hill under the lens of fluid object-subject relationships would prove to be fruitful in understanding the roles of animals as more than mere accessories.

Other work on the subject is already underway in archaeology. Claire Ratican, a recent PhD graduate (2019) from Cambridge University, studies the use of animals in Viking Age Scandinavian burials. By ascribing a state of personhood to animals and elevating them from ‘grave accessories,’ Ratican is able to focus on the interaction between animals and humans and the implications of what it means to be buried with a non-human entity in a non-traditional manner. Following Chris Fowler’s research (2004) in *The Archaeology of Personhood*, a particular animal or non-human entity interred with an individual in a grave could have been essential to that particular individual’s personhood, or sense of self (Fowler 2004, 23–24). As such, for that individual, there may have been a more fluid conception of when their self-identity stopped and the animal’s began (cf. Fowler 2004).

## Conclusion

As a result of the current author's initial desire to expand upon Stoodley's original dataset and test his theory with data excavated in the early 21<sup>st</sup> century, a wider understanding of one of his brief conclusions—that the practice of multiple internment burials was viewed with an eye of it being an 'amulet' for stress—is true inasmuch as it is focussed on the commemoration and repairing of relationships fundamental to social identity. Additionally, a correction was made concerning his treatment of original data, unfortunately causing many burials from the original dataset to be lost and therefore limiting somewhat the overall dataset and the available conclusions of such.

Looking forward, more work needs to be done on other types of multiple burials, including cremations and human-animal multiple burials in the early Anglo-Saxon period. These burials occur in both contexts, but due to a lack of research on these topics, it is unknown if they present similar expressions of social identity or if they are different completely from each other and multiple inhumation burials.

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# The Reuse of Archaeological Data: Grand Challenges and New Approaches to Southern Levantine Mortuary Archaeology

Sara Mura<sup>1</sup>

## Abstract

This article represents an effort to better understand the potential issues that archaeologists can face when trying to combine old datasets in order to answer new interdisciplinary research questions. By using my research on southern Levantine funerary practices between 1100 BCE and 100 CE as a case study, I intend to confront the common ‘grand challenges’ archaeologists generally encounter when reusing, and necessarily trusting, data other scholars have collected. These challenges are organised into: 1) publication and accessibility, 2) methodologies and multidisciplinary approaches and 3) frameworks and taxonomy. This article does not pretend to provide a definitive solution to the analysed issues, but rather to produce a provocative review on long-standing underestimated difficulties. I argue the necessity to document and address these issues in order to better support data reuse in archaeology.

**Keywords:** Data Reuse, Archaeology, Mortuary Archaeology, Southern Levant

## Introduction

Open access to a broad spectrum of archaeological studies have made it possible to reuse and reevaluate old datasets in order to answer new research questions. Furthermore, the extensive documentation produced by archaeological research and its different specialties, have allowed interdisciplinary collaborations all over the world (Faniel *et al.* 2013). At the same time, the reuse of old data has led to new questions on methodological procedures for collection and management of the archaeological record. By analysing how old data had been documented, attempts to provide a standardised ontology on the conduction and recording of archaeological research in the field has been produced (Faniel *et al.* 2013).

However, while the existing literature has focused on issues connected to fieldwork, it has not given enough attention to the ones related to the following ‘indoor phase’ of re-elaboration and interpretation, taking place off-site. This latter phase is crucial, as much as the previous one, to produce results and their publication. It is, in fact, during this stage that data is structured within a framework according to the research questions, academic traditions, specific taxonomy and, lastly, the intended journal for publication. Nonetheless, archaeologists have seldom produced articles on the matter, focussing the attention towards singular issues, such as the problems related to taxonomic puzzlement (Holland 1974), the chronological structure of datasets (Kotsonas 2016), or the tendency to focus on specific categories of data whilst neglecting others (Bennett, 1974). Regarding the inconveniences specifically connected to publication, the current literature is even scarcer. It mostly concerns the delay in publishing reports compared to the occurrence of the archaeological campaigns (Aviram and Shanks 1996).

I argue that the issues concerning the aforementioned ‘indoor phase’ are part of a complex and multidimensional phenomenon and therefore, they require to be analysed as interdependent challenges. Furthermore, I suggest that they are part of a broad process, starting with the collection of data in the field. Hence, it is from the field that the investigation should start. Through this research, I pose two research questions: 1) how can the collection, elaboration and publication structure of old datasets affect

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new and multidisciplinary research questions and 2) how can accuracy and approachability of data be, consciously or not, affected by both academic and personal background of the author? As a case study, I provide my personal experience related to my development of an innovative archaeological model for southern Levantine (e.g. Israelite, Palestinian and Transjordanian) funerary practices between 1100 BCE and 100 CE. Data, reliability and accessibility issues have accompanied each step of my research, from its collection, revaluation through new research questions and discussion. I present my research, then, as an illustrative means to address the ‘grand challenges’ which are common to the general archaeological field, despite geographical area, chronological period and topic.

## **Background**

The study of funerary customs in the southern Levantine region, and the mortuary beliefs they might conceal, is a complex matter. To use the words of the Biblical archaeologist Ron E. Tappy (2003, 159):

“There is, perhaps, no more challenging undertaking than the attempt to describe in detail the religion of ancient Israel. This situation results not only from the complexities inherent in that religion and its attendant cult but also from the myriad of methodologies and disciplines through which scholars have filtered the subject matter.”

Decades of numerous attempts carried out by archaeologists, historians and biblical scholars on funerary practices have produced an extraordinary amount of data (i.e. Bloch-Smith 1992a; 1992b; 2002; 2018; Fantalkin 2008; Faust 2004; Hays 2011; Ilan 2017; Lewis 1989; Pitard 2002; Spronk 1986; Stavrakopoulou 2011; Tappy 1995). This broad academic record allows the application of innovative methodologies in order to reassess old datasets and answer new research questions. Concurrently, the attempt of combining an extensive range of disciplines implies to deal with multiple potential challenges. However, only few authors have been writing about these challenges regarding both archaeology more generally and within the specific context of mortuary behaviour (Bennett 1974; Sheridan 2017). Furthermore, these challenges have not been analysed as singular problems rather than as concomitant factors which are part of a complex process. I argue that to better understand these issues, it is necessary to contextualise them within the archaeological environments in which research takes place: the field, the lab and the office.

## ***Issues in the Field***

It is in the field that the first recording of data occurs, and it is, indeed, in the field that the first issues might emerge. The territories of the southern Levant have been characterised by the highest density of archaeological excavations within the Near East, and indeed the Middle East in general (Yahya 2005, 66). The produced literature is therefore copious and rich in personal notes, which report events and the numerous difficulties archaeologists face in the field. The main issue is the loss of data and their potential inconsistencies. Cultural heritage is a non-renewable resource and it can be jeopardised by modern interventions and illegal acts such as looting and vandalism (Sayej 2010; Shanks 2015; Yahya 2010). However, the archaeologists themselves can be part of the data loss process. A first example is the poor recording of field notes, due to either imprecisions, rushed documentation or the lack of a standardised terminology (Bennett 1974; Fahler *et al.* 2013). A second issue is either the disappearance or possible destruction of both artefacts and human bones during excavations (Sheridan 2017, 117), such as the disappearance of several thousand skeletons at Byblos, Lebanon (Artin 2010).

Furthermore, the monotony of washing and drying materials can be perilous, as this is a moment in which materials can be mixed, bones can be washed and labels can be blown away (Bennett 1974, 212). A third kind of potential issue consists of the scale of excavations. Necropolises might be neither

extensively nor uniformly excavated, creating a disproportion in the extent of the investigated surfaces and the number of burials per area. Burials, in fact, can be “time consuming to excavate properly, and are often found in occupations not of primary interest to the investigators” (Sheridan 2017, 117). Another factor might be the impossibility of continuing excavations as a result of unstable political conditions, like in the well-known case of Syria (Sheridan 2017, 120).

### ***Issues in the Lab***

During both the field season and its aftermath, archaeologists often move into the sheltered environment of the lab. Here the study of materials can conceal grave problems. The change of work scenario is not an issue to underestimate; the loss of the direct contact with the field, the geographical disengagement of staff members and the incorrect shipment of materials can affect research in many ways (Bennett 1974, 210). Additionally, poor storage, mixed materials, missing records, lack of security and shortage of funds are other kinds of complications that might affect work in the laboratory (Kersel 2015; Sheridan 2017, 115-116). Other factors, such as personal academic interest and the period in which the study occurs, can influence analyses in the lab, leading to bias selection of the researched material (Bennett 1974).

### ***Issues Behind the Desk***

Ultimately, the final phase of research consists of the final assessment and publication of the data. Like the collection of the data can be problematic in both the field and the lab, its re-evaluation in the office can also produce inconsistencies; the potential issues encountered in the first two environments might irremediably influence this final stage. The aforementioned loss of data and the generation of inaccuracies and misinterpretations might be translated into unreliable publications. Concurrently, the structure of data can be unequally addressed by scholars, consciously or unconsciously, according to their research focus on either a specific topic, area of the site or chronological period, and as a result, neglect other aspects of the data. An example is the key role ceramic materials usually play in archaeological excavations and the subsequent amount of space given to them in publication over any other category (Bennett 1974, 209). By contrast, osteological studies are relegated to the appendices of publications, while numerous papers merely mention the recovery of bones (Sheridan 2017, 112-113).

Furthermore, a publication can be influenced by the publication form of a country. This is a matter well discussed by the bioarchaeologist S.G. Sheridan (2017) who reports the publication tradition of Israel/Palestine regarding her field. According to the publishing traditions of these countries, scholars are compelled to hold back “any publications about a site until release of the final site monograph(s)” (Sheridan 2017, 113). This was intended to increase the interval between excavations and their related publication which, as mentioned above, might implicate inaccuracy. Additionally, “the first project publication must appear in a regional journal” to “ensure that people in the country of origin have access to the information” and “regional publication requirements often mean that such works do not undergo peer review by a variety of bioarchaeologists exercising different paradigms” (Sheridan 2017, 113). This prescription also implicates the use of a specific publication language. This procedure might be considered convenient for local communities, however, it might limit access for those internationally. Sheridan (2017, 113) reports interesting results based on her analysis on the number of bioarchaeological publications between 2010 and 2016: “...Eighteen articles related to bioarchaeology in Israel and Palestine ... 12 for Jordan, none for Lebanon, 21 for Syria and 4 for the general designation Levant. The dearth of publications for Lebanon means we have a notable hole in a full understanding of the bioarchaeology of the southern Levant” (Sheridan 2017, 113).

## Methodology

My methodology in this article is connected to the way my research approach to southern Levantine funerary practices has developed over time. Throughout the entire time data was collected and evaluated—the establishment of a new approach, the selection of case studies and their structure—I found myself facing different kinds of issues and each one of them has affected my procedure. Therefore, in this section, I present a reconstruction of these phases as means to address the potential challenges that characterised the literature on southern Levantine mortuary archaeology. The aim of my research was to reevaluate old datasets by producing a diachronic study on the preservation and development of mortuary practices between 1100 BCE and 100 CE. The innovative aspect consisted of the application of the interdisciplinary concept of archaeoethnology. This approach involved the selection of case studies which included reliable data regarding this period, both archaeological and osteological. The search for such cases has not been effortless.

## Results

The encountered potential obstacles confirm the scenario already presented above: the issues that might take place in the field contribute to difficulties in every phase of a research. Furthermore, they show how these challenges create a cycle in the re-use of data, starting with the first difficulties encountered during the collection of old datasets due to where and how they have been published. The difficulties continue during the in-depth analysis of the data and the original methodologies of the studies which produced it; and finally, in the re-elaboration of them, which is influenced also by the ways data had been structured according to a certain framework. Therefore, the following results are grouped into three ‘potential issues’ categories as followed: 1) publication and accessibility, 2) methodologies and multidisciplinary approaches and 3) frameworks and taxonomy.

### *Publication and Accessibility*

The first issue I encountered during my research regarded the search and access to relevant literature. As the literature consisting on monographs would be too broad to analyse, I intend to focus on the accessibility phenomenon by exclusively considering journals related to southern Levantine archaeology (Table 1).

What does accessibility mean for a researcher? Accessibility can be considered in physical terms as being accessible for everybody. Table 1 shows a list of the most common journals I encountered in my research. Although most journals are available online through JSTOR or their respective publishers, only few provide open access. Students and faculty members might have institutional access through their affiliated university to a selection of the aforementioned journals. However, as in the case of JSTOR, access through a university account does not imply unlimited availability of the website’s repository. In the case of independent researchers, financial investment is necessary to obtain access to online data. Additionally, access to some of the more small-scale local archaeological journals is even more limited, as these tend to be only available in printed editions.

By contrast, accessibility can be also considered in terms of linguistic reachability. As few archaeologists have highlighted the increasing use of English as *lingua franca* within academia (Hempel 2013; Kristiansen 2001; Willem 2008), my own research indicates an establishment in the use of English language within Levantine archaeology. Despite the fact that southern Levantine literature is characterised by a multi-linguistic panorama—Hebrew, English, French and German—English is the main language used not only by American and English journals, but also Israeli and Palestinian ones. In some cases, such as ‘Atiqot and Qadmoniot, journals which exclusively publish articles in Hebrew, also provide an English summary.

Nonetheless, I argue that the use of English does not necessarily guarantee accessibility. Indeed, the construction of these summaries and the limited information they provide, imply a loss of data for an inexperienced reader. In fact, due to my own necessities of having access to multidisciplinary data, I discarded many articles which did not provide both archaeological and anthropological information in detail within summaries. This is a loss for not only the researcher, but also for the author and its aim of making its study readily available.

Table 1. Main archaeology journals on southern Levantine areas.

Journal	Publication Date	Open Access	Publisher/ Country	Language	Summary
'Atiqot – Hebrew series	1955–1990			Hebrew	English
Atiqot: Journal of the Israel Department of Antiquities – English series	1991–present	2004–2019	Israel Antiquities Authority (Israel)	English	–
Bulletin of the American Schools of Oriental Research (BASOR)	1919–present	1919–2018	American Schools of Oriental Research (USA)	English	–
Bulletin of the Anglo-Israel Archaeological Society	1982–2008				
STRATA: Bulletin of the Anglo-Israel Archaeological Society	2009–present	2000–2018	Anglo-Israel Archaeological Society	Mixed	–
Bulletin of the British School of Archaeology in Jerusalem	1922–1968	–			
Levant	1969–present	–	British School of Archaeology in Jerusalem	English	–
CBRL Newsletter	2001–2005	2001–2005			
Bulletin of the Council for British Research in the Levant	2006–present	2006–present			
Bulletin of the Jewish Palestine Exploration Society	1933–1951				
Bulletin of the Israel Exploration Society	1952–1961		Israel Exploration Society in Jerusalem (Israel)	Hebrew	English
Yediot Bahaqirat Eretz-Israel and Bible Lands	1962–1967				
Qadmoniot: A Journal for the Antiquities of Eretz-Israel and Bible Lands	1968–present				

Journal	Publication Date	Open Access	Publisher/ Country	Language	Summary
Eretz-Israel: archaeological, historical and geographical studies	1951–present	–	Israel Exploration Society in Jerusalem (Israel)	Mixed (mostly Hebrew)	English
Hadashot Arkheologiyot: Excavations and Surveys in Israel (print)	1961–2004	2004–2018	Israel Department of Antiquities and Museums (IDAM) (Israel)	Hebrew	English
Hadashot Arkheologiyot: Excavations and Surveys in Israel (on-line)	2005–present		Israel Antiquities Authority (IAA) (Israel)		
Israel Exploration Journal	1950–present	–	Israel Exploration Society (Israel)	English	–
Journal of Biblical Literature	1881–present	1890–1924	Society of Biblical Literature (USA)	English	–
Journal of Jewish Studies	1948–present	–	Oxford Centre for Hebrew and Jewish Studies (UK)	English	–
Liber Annuus	1951–present	2000 - 2018	Studium Biblicum Franciscanum (Israel)	Mixed	–
Palestine Exploration Fund Quarterly Statement	1865–1937		Palestine Exploration Fund Quarterly Statement (UK)		
Palestine Exploration Fund Quarterly	1938–1965	–	Palestine Exploration Fund Quarterly (UK)	English	–
Palestine Exploration Quarterly	1966–present		Palestine Exploration Quarterly (UK)		
Qedem: Monographs of the Institute of Archaeology	1975–2017	–	Hebrew University (Israel)	Mixed	–
Quarterly of the Department of Antiquities in Palestine	1931–1950	–	Government of Palestine	English	–
Revue biblique internationale	1892–1940		École Biblique et Archéologique Française de Jérusalem		
Vivre et Penser	1941–1943	–		Mixed	–
Revue Biblique	1944–present				

Journal	Publication Date	Open Access	Publisher/ Country	Language	Summary
Tel Aviv. Journal of the Institute of Archaeology of Tel Aviv University	1974–present	–	Tel Aviv University (Israel)	English	–
The Biblical Archaeologist	1938 – 1997	–	American Schools of Oriental Research (USA)	English	–
Near Eastern Archaeology	1998–present	–			
The Biblical Archaeological Review (BAR)	1975–present	–	Biblical Archaeological Society (USA)	English	–

Furthermore, I assert that the issue of accessibility should be considered also in a wider perspective: the combined choice of journal and language affects research at many levels. Each journal is addressed to a certain target audience; the topic and methodology of research need to conform to that audience. The relative article is therefore compelled to be written in an approachable and appealing way according to its future readers (Altbach 2013, 4–6). This is a phenomenon to document and consider when analysing old datasets: 1) at what level did this tendency influence the research and 2) was the author conscious of it? In order to better understand it, methodologies and frameworks of a study should be carefully examined, as explained in the next paragraphs.

### ***Methodologies and Multidisciplinary Approaches***

As previously mentioned, the methodology of research can be determined by several factors, such as personal research focus, the period in which research occurred, the diverse academic backgrounds and lastly the preservation status of the site. The concurrence of these elements might affect the choice of research areas and their excavations, as well as the collection of data, their study and publication. Data is therefore often highly fragmented and heterogeneous, creating difficulties in its reuse.

By searching for case studies which combine both archaeological, osteological and zoological studies, I reduced the selection of case studies to only four sites within the broad territories of the southern Levant: Tell es-Sa'idiyeh, Lachish, Tell el Mazar and Jerusalem. Although, according to my approach, they represented the best comparative case studies for the analysed period, their heterogeneity in terms of data has presented several difficulties. All the accessible literature on these four sites confirms that the origin of potential issues can be retraced to the field.

Firstly, as the Table 2 below shows, excavations have been conducted at each site in different periods and not always by the same team and areas. While Lachish and Tell el Mazar were investigated by the same team, Tell es-Sa'idiyeh was excavated by two different teams, not only working in diverse areas but also separated by 20 years between campaigns. Jerusalem, instead, has undergone numerous excavations conducted by a variety of teams and directors over the course of more than a century. Moreover, between 1100 BCE and 100 CE, the site was characterised by several necropolises spread all around the settlement. So far, considering the modern superimpositions, it has been impossible to extensively excavate them all. In Jerusalem rescue excavations occurred—under the supervision of the Israel Department of Antiquities in Israel (Bar-Yosef and Mazar 1982, 321) which, compared to the planned ones, imply similar issues to ones mentioned in the previous paragraphs (Einhorn 1997; Demoule 2012, 620–622; Faust and Safari 2005).

Secondly, I would like to address the difficulties that originate from the combination of contexts, preservation status (see Table 2 on the reported issues at the four sites on the matter) and archaeologists' research focus in the field. These three elements might direct excavations towards specific areas of a site, rather than others. My case studies confirm a tendency already stressed by Faust and Safrai (2005) regarding the tendency to focus archaeological investigations in ancient Israel towards the centres rather than the peripheries. My own choice of focusing on the funerary customs of urban centres was due by the fact that grave distribution tends to be strongly biased towards them.

Table 2. Information on researched case studies, the period archaeological campaigns occurred, the involved archaeological team and its director, excavated areas and issues encountered in the field and issues reported in the related published studies (Green 2006, 42–46; Kloner 2000; 2001; 2003; Tufnell 1953; Yassine 1984).

Site – Necropolis	Excavations Years	Archaeological Team	Director	Investigated Areas	Reported Issues
Lachish	1932–1938	The Wellcome-Marston Archaeological Research Expedition to the Near East	J-L. Starkey (substituted by Inge during 1938 campaign)	Multiple necropolises (Areas 100-200, 500, 1000, 4000, 6000, 7000)	Instable Political Condition, Collapse of tombs, Re-use
Tell el Mazar	1977–1979, 1981	University of Jordan and the former Department of Antiquities	K. Yassine	Area A	Erosion, Modern intervention, Looting
Tell es-Sa'idiyeh	1964–1965	University of Pennsylvania Museum	J. Pritchard	North Area (Partly)	Erosion and Looting
	1985–1996	British Museum	J. Tubb	Areas BB100–600, BB700–1000 and DD100–700 (completely); CC100, FF, BB1200–1400 and DD900-1250 (briefly investigated)	
Jerusalem	End 19 <sup>th</sup> century –present	American School of Oriental Research (Jerusalem)	Various	Multiple necropolises (north-eastern, north-western and southern sections)	Modern interventions and superimposition, Looting, Erosion, Re-use
		École Biblique (Jerusalem)			
		Israel Antiquities Authority (former Department of Antiquities and Museums)			
		Israel Exploration Society			

Furthermore, the same three mentioned elements often lead research towards rich and monumental contexts, rather than poor simple ones. An exemplificative case is Jerusalem. Whereas hundreds of tombs have been excavated (Kloner 2000; 2001; 2003), the focus of archaeological campaigns consisted of monumental chamber tombs, while almost no record has been published on pit burials. Their lack should not be, in my point of view, dismissed as a result of burial customs.

These aforementioned phenomena subsequently influence the following phase of the study of materials and publications. The available literature on the four case studies suggest a repetitive pattern: while artefacts, especially pottery, get more attention, human and animal remains are reduced to either *en passant* references or appendices. The main publication on Lachish by O. Tufnell (1953) is an example, with a brief appendix of six pages on bioarchaeological studies. Regarding Tell es-Sa'idiyeh, few mentions on the recovery of human bones are included in the reports of all archaeological campaigns (Pritchard 1985; Tubb 1988; 1990; Tubb and Dorrell 1991; 1993; 1994; Tubb *et al.* 1996; 1997). Only one publication on skeletal materials has been published so far (Leach and Rega 1996), while the other five, which are mentioned in the related literature, have never been published (Bekvalac and Wood 1987; Forbes 1998; Henderson 1985; Lange 1998; Leach 1999).

In the case of Jerusalem, tombs have largely been the object of modern reuse, vandalism and looting. Therefore, in many contexts, no human remains were found. Nonetheless, many articles have been published on those remains whose state of preservation has allowed some analyses since the 1970s (i.e. Arensburg and Rak 1975; 1985; Haas 1970; Smith and Zias 1980). Although, as mentioned above, many of these articles have been published in Hebrew, providing limited English summaries. In these latter, scholars tend to provide information mostly on archaeological remains, while the information on human remains is extremely exiguous.

By contrast, the publication of the campaigns at the necropolis of Tell el Mazar (Yassine 1984), dedicates an entire chapter to the human remains. This latter, written by A. Disi *et al.* (1984) provides great details on the samples recovered from the site. However, while providing a substantial amount of information, issues on sex determination only emerge when one actually studies it. The difficulties regarding the perception of sex seem to have started in the field as a result of there being no permanent anthropologist on staff during the excavations, as Yassine (1984) mentions several times. Therefore, once indoors, Yassine had to reconstruct the contexts based on the general field notes made by the archaeologists of his team who, in turn, based the sex on preliminary examinations of bones, the typologies of grave goods—such as weapons for male and earrings for female—and the positioning of the body—extended for male and crouched for female. A positive side of this study is that the human remains chapter provides tables which compare both anthropological and archaeological interpretation of human remains, showing possible archaeological misinterpretations. However, it appears that in his conclusions, Yassine (1984) favoured archaeological analyses, neglecting the divergences stressed by anthropological studies.

All these difficulties have led to the loss of an incredible amount of data, particularly on demographic variables, such as age and sex of the deceased. Hence, old datasets are often incomplete, and their reuse can be challenging. Nonetheless, their revaluation might lead to neglected data and to new interesting discoveries, as in the case of Tell el Mazar. These results show how research can be influenced by a myriad of factors, which might originate in the field and be perpetuated during the entire process of a research project. This process, therefore, is not fully dependent on the lead scholar, but it might be affected by other researchers' choices and unconscious acts. The researcher involved with the reuse of data, then, should be aware of this and be critical.

## **Frameworks and Taxonomy**

The framework of a published study reflects the way research has been previously structured throughout its various phases –from research questions through to methodology and then final conclusions. In the case of the literature on mortuary archaeology in the southern Levant, three main tendencies emerge (i.e. Bloch-Smith 1992a; 1992b; 2002; 2018; Fantalkin 2008; Faust 2004; Hays 2011; Ilan 2017; Lewis 1989; Pitard 2002; Spronk 1986; Stavrakopoulou 2011; Tappy 1995). Firstly, the literature tends to presume cultural individuality based on geographical ground: once it has been determined that the research was related to ancient Israel—also indicated as the kingdom of Judah, ancient Palestine or Biblical Land—it is then assumed that the recovered archaeological record is traceable to the early Israelite (or Judahite) culture. Secondly, cultural distinctiveness is stressed throughout comparative studies between ‘local’ and ‘foreign’ material cultures. Thirdly, biblical sources are used as primary sources to interpret archaeological data. All the evidence that does not suit the expected model is explained as ‘foreign’ and therefore overlooked. These tendencies produce oversimplified and fragmented studies, based on historical/geographical binary classifications, which reflect both conceptual and taxonomic division: Canaan vs. Israel, Israel vs. Judah, Judah vs. foreigners, pre-exilic vs. post-exilic, official vs. popular. The use of such categories or labels masks significant issues in the reuse of data, since they inevitably imply some form of cultural and historical baggage which, either deliberately or unintentionally, has a certain impact on the research itself.

There are two dimensions in which a study could be most affected by this type of categorisation, namely geographically and chronologically. Regarding the use of traditional geographical labels, they are contradictorily applied to chronological periods to which they do not belong. An example is the use of the terms ‘ancient Palestine’, which was firstly used by Greeks to indicate the coastal land between modern Tel Aviv and Gaza—occupied by the Philistines in the 12<sup>th</sup> century BCE—and then again in the 2<sup>nd</sup> century CE by the Romans to designate the Roman Syria-Palestinian province (Negev and Gibson 2001, 380). This term has been used in the current literature when describing the relationship between the chronology of the Neolithic and Roman periods, without any distinction of region (Abercrombie 1979; Loffreda 1968; Meyers 1970). The same pattern is evident in the use of conventional chronological labels and compartmental periods, such as Iron Age, pre-exilic and post-exilic and Roman period. As Kotsonas (2016) has tried to emphasise regarding the archaeology of Early Greece, scholars generally tend to divide long time spans into periods for practical reasons. However, chronological classifications are misleading and by “artificially dividing the continuous flow of live experience, we may obscure as much as we reveal” (Morris 1997, 96). Periodisation tends to focus on macro-changes within societies, distracting from micro-phenomena. Furthermore, it implicitly but inadvertently, produces chronological fragmentations of events and traditions, leading us to expect significant variations with the use of diverse periods’ nomenclatures.

These phenomena have influenced my research, leading me to put aside any classification, both geographical and chronological. I therefore focused on the geography of the analysed territories in terms of morphology and its impact on funerary architectures, rather than geopolitical boundaries. Regarding the chronology, I kept a periodisation based on absolute dates by excluding any kind of labels. This approach (theoretically) should provide a better and impartial overview of the continuity and variation of funerary customs over time.

## **Discussion**

The results expose several interrelated issues for data reuse. With the increase in open access of publications regarding a broad spectrum of old archaeological datasets, it becomes more and more compelling to acknowledge researcher needs and the potential challenges one might face.

Some of the results corroborate two of the main ‘grand challenges’ already addressed in the current literature: the loss of data due to poor documentation in the field, incorrect storage and/or management of materials; the conscious selection of data in the field, lab and in preparation for publication, which do not necessarily imply the loss of data but rather its neglect. The process of the reuse of data, requires both the awareness that old datasets might be incomplete, and a critical approach is key to reevaluate datasets and bring back to light the forgotten ones.

Concurrently, the results of this article bring out a more composite scenario than the one present in the modern literature on how the structure of old datasets can influence new research. A first approach to the literature leads to accessibility issues. Open access and multilingual studies are an incredible resource for archaeology, but there is more to consider on this matter. Whereas accessibility has become the object of numerous debates (Fahler *et al.* 2013; Hempel 2013; Kristiansen 2001; Willem 2008), archaeologists have neglected the possible repercussions the accessibility process can have on research. Being accessible means being reachable and appealing. Although this process is necessary in the publishing process, I argue that it is necessary to be critical while handling old datasets and understand how and why they have been structured in a certain way. The data should be separated from the frame.

The reuse of old datasets also requires being critical regarding the context of the data, namely: how they have been collected in the field, how they have been possibly processed subsequently in the lab and finally interpreted. The results of this article indicate a constant lack of contextual information. Without this information it becomes difficult to sustain the essence of data. Moreover, it becomes complicated to trust the researchers, not only in their work in the field, as already suggested by other scholars (Faniel *et al.* 2013), but in every phase of their research. As working with old datasets, it is impossible to repair to this shortage; however, this challenge should lead to a greater awareness when it comes to handling old data and to more caution while constructing new data.

Finally, the results bring us back to the way in which data is structured and published within fixed frameworks. From this perspective, language appears to be a potential barrier in terms of terminology. In order to reevaluate old data and preserve a critical approach, the separation of data from its related research framework might be necessary. By starting with the collection of raw data (instead of already processed and interpreted data), as well as their context, the researcher is capable to discern what is relevant and what is irrelevant in the perspective of his/her new research.

As access to heterogeneous datasets becomes easier, archaeologists progressively deal with it by trying to recombine them in order to answer new research questions. However, this article shows how the process of reusing data is potentially affected by the entire formation process of it, from excavation, to storage, additional analyses and publication. Each of these phases might mask various issues regarding management and/or regulation. Therefore, detailed descriptions on context and methodology of each phase by each staff member are required in order to secure both accuracy and reliability of data. As Hodder and Hutson (2003, 19) state, we, as archaeologists, should acknowledge that “there can be no ‘testing’ of theory against data, no independent measuring devices and no secure knowledge about the past”. This is particularly true in the case of students. While experienced academics would (or rather should) be aware of the issues presented, students may not be. Especially when beginning their studies, students tend to gather data from all sources available to them, being oblivious to the possible challenges the literature might mask. These potential challenges need to be documented and emphasised in order to better support data reuse in archaeology and, simultaneously, being generally more rigorous in our methodological approach.

## Conclusion

The interest of archaeologists in old data is exponentially increasing through the open access of broad multidisciplinary repositories. However, as the academics involved in the original collection of data faced numerous issues, so are the researchers involved with its reassessment and revaluation. In fact, those issues seem to follow the data and each phase of its life cycle all the way to its reuse. The way data is consciously or unconsciously collected, elaborated and published affects the new research in terms of accessibility, reliability, suitability of case studies and revaluation. Hence, the researcher finds him/herself in need the development of better and reliable data collection processes. On the positive side, the increase of archaeologists involved in data reuse opens the possibility of progressively documenting the potential challenges of this activity and improve academic knowledge on them. By educating academics, new discussions on data collection phenomena can be created and the elaboration of more rigorous methodologies can favour future research.

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# Past and Future-Lifestyle and Inequality

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The history of archaeological investigations into past lifestyles and social structures has long been dominated by analyses of elite groups, especially the male elite (Alberti 2006, 413-416; Skogstrand 2011, 65-68; 2017). Due to the relatively good preservation of remarkable contexts such as burial mounds, funerary chambers, palaces, acropoleis and other monumental constructions, these sites and the people related to them have been more extensively examined than other contexts (Borck 2018; González-Tenant 2018; Sánchez-Romero 2019). Monumental, prominent structures and individuals are certainly eye-catching and impressive, especially if we set analogues between them and our pre-existing notions of hierarchy and modern social conventions, justified by their ostensible 'fit' and apparent correlation with our current social models. However, if academic research predominantly focuses on such contexts and interpretations, this inevitably restricts our understanding of past societies to a minimal proportion of their population, leaving most of the individuals by the wayside, and perpetuating the predominance of upper-class spheres and a vertical scope of human social structure (Foucault 2008; Springer 2016). This further leads to a framework for archaeological interpretation that is biased towards the macro-scale, due to it being widespread practice to focus more on elites, outstanding sites and materials.

Studying inequality is key in archaeological research, but traditionally archaeologists have applied a neoliberal and expansionist perspective to the historical and archaeological processes of past societies, seeing their changes as an evolutionary progression caused by the emergence of centralised states, war expansion and economic inequality (Hernando 2005, 125-127). This sets down a metanarrative of power and competition that we as archaeologists have often applied to our sites and case studies, and the result of this dominant narrative is a simplified reading of the archaeological record that ignores the less impressive examples or cases that reveal any regional and specific variation (vander Linden 2006, 319). In juxtaposition to this, two of our papers (Hardman this volume; Rosell Garrido this volume) pay particular attention to material culture that has been overlooked in previous studies of their respective fields.

Although the literature does contain analyses of archaeological communities including individuals of lower social status, such as collective burials in the European Neolithic period (Bentley *et al.* 2012; Müller 2018) or bioarchaeological analyses of Medieval communities (Djukic *et al.* 2018; Havelková *et al.* 2011), the mainstream scopes of archaeological focus remain centred around political structures and state-based systems. Such types of scope include more profound studies of male identity and its relation to power and dominance, which is unsurprising considering that patriarchal societies are predominant in human history. However, it does not justify the (unconscious or deliberate) mutism on other minorities (Dommasnes *et al.* 2010; Hernando 2005; Sánchez-Romero 2019; Wylie 1992; 1993). Working with a partial framework only benefits the continuation of one-sided systems.

To help broaden the spectrum of research, new approaches integrating archaeology with sociology and anthropology have developed to challenge this elite-focused perspective, and to shift the lens onto the minorities and non-elites in wider society as well as forms of governance other than centralised state-based society. Anarchist archaeology (Borck 2018; González-Tenant 2018), decolonising or gender studies (Lewis and Mills 2003; de Sousa Santos *et al.* 2008; West and Zimmerman 1987), including queer theory (Butler 1999) and archaeological considerations of embodied identity (Joyce 2005; Geller 2008; Meskell 2017; Meskell and Joyce 2003; Sofaer 2006) are good examples of this development. These approaches

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delve into other ways of social organisation and identity, as well as disclose our unconscious biases during the archaeological interpretation process. We do not attempt to deny any past realities, but rather seek to challenge the duplication of our own social models into archaeological interpretations, including our modern conceptualisations of social inequality.

Social structures, lived experiences, and inequality can present itself in nuanced and myriad forms within the archaeological record (Smith *et al.* 2018, 6-7), and it is important to take a holistic perspective—involving contributions from multiple disciplines—in order to progress towards a deeper and more representative understanding of the past (Pauketat 2001). This pursuit of a fuller, more contextualised knowledge of archaeological societies led to the broad focus of our ‘Past and Future-Lifestyle and Inequality’ session. We aimed to bring together new pieces of research into past lives and highlight the investigatory power of interdisciplinary studies, questioning and re-evaluating the way we reconstruct the features of past societies based on our contemporary cultural conceptions (Conkey and Spector 1984; Wilkie and Hayes 2006; Wylie 1992; 1993).

By joining new methodologies with disruptive theoretical approaches, we seek to look beyond the Eurocentric, heteronormative and individualist ideas that have dominated the history of archaeological hypotheses. We encourage calling into question the false perception of objective knowledge, exposing it as a boundary that has consolidated the power dynamics in past and present—without self-reflection, growth becomes stagnant. We want to put the focus on collective work, on horizontal societies, on women, and other aspects of the past that archaeologists have unconsciously ignored or normalised, perpetuating our modern pyramidal and patriarchal organisation of power, our gender structures and even our ideas of masculinity. All those principles are based on power relationships and inequality between individuals, gender inequality being one of the most ancient social causes of discrimination. By introducing a plurality of opinions, we are not seeking to bring cognitive chaos into archaeology but rather point out the positivism in other fields that we have ignored. For years, feminist archaeologists have questioned the androcentrism in archaeology, and now other minorities are putting intersectionality, post-colonisation and queer theory on the table.

In this session, we wanted to help early-career researchers promote their work on different methodologies as a way to call into question how we have interpreted past societies. The following articles present new research that questions ideology, labour division, the dualism of gender and masculinity, using studies of material culture, and the re-examination of the archaeological record using new theoretical models. These articles disclose the binarism of gender, illustrating to us the fluidity of gender relations both past and present, especially with respect to the task division between individuals. Age, status and occupation are some of the identity factors that shape how we act using materials and how we take advantage of our environment, but the strategy of subsistence also plays an essential role in task division.

We open this section in the European Magdalenian period, with Molly Hardman’s paper on the lesser-analysed Magdalenian mobiliary (portable) art and the role of cognitive processes in this art type. Taking an object biography approach, Hardman presents a detailed case study analysing the life history of a *contour decoupé* from the Grotte du Mas-d’Azil, France, shaped into a horse head. At each stage of the object biography, specific material details are analysed which have implications for cognitive agency and our understanding of the socio-cultural environment influencing Magdalenian lifeways. Hardman notes that the field’s unclear criteria for ‘cognitive complexity’ limits the extent of archaeological engagement with Palaeolithic material culture and cognition. A more holistic perspective of Magdalenian mobiliary art requires direct engagement with the material culture and consideration of the interplay between society, culture and cognition.

Another case study situated in later prehistory, Erik Solfeldt's paper applies the theory of affordances (Gibson 1979; Sjöstrand 2011) to the hazelnut, the most common biofact discovered at Mesolithic sites in eastern central Sweden. Solfeldt analyses gathering practices and social organisation in Middle to Late Mesolithic Sweden, questioning the rigid division between hunter and gatherer. An alternative interpretation is proposed, of gathering practices being a highly shared task practiced by all the members in a community regardless of age, status or gender. Through analysing the ecology of and resources offered by the hazelnut, Solfeldt theorises that based on the hazelnut's functional advantages, the fluidity of 'hunter and gatherer' actions, and the nature of Mesolithic hunter-gatherer methods of subsistence, the role of 'gatherer' could logically encompass the entire community. This chapter proposes that Mesolithic hunter-gatherers of Sweden all held an understanding of and experience with gathering practices—gathering being common knowledge that was transmitted generation to generation as a community-wide tradition and lifeway.

This chapter both opens and closes with examinations of lesser-studied material culture. In the concluding paper, Patricia Rosell Garrido focuses on spindle whorls and loom weights (Latin: *pondera*), artefacts uncovered at the 6<sup>th</sup> century BCE site of Los Almadenes (Spain). These weaving-related objects appear in many different cultural contexts, yet were often overlooked due to their apparently straightforward connection to the feminine, domestic sphere and lack of pronounced aesthetic appeal. Using the methodologies of household archaeology and the archaeology of maintenance activities, informed by feminist and gender archaeology, Rosell Garrido discusses tools, textile activities and new perspectives on women and the domestic sphere. A wide range of case studies, written and iconographic sources from various cultures (ranging from Mycenaean texts to modern day Morocco) are used to contextualise these objects and illustrate a multitude of uses and significance beyond only functional weaving tasks.

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# Magdalenian Minds: Evaluating the Role of Cognition in Mobiliary Art of the Magdalenian

Molly Hardman<sup>1</sup>

## Abstract

This paper presents an evaluation of the role of cognition in Magdalenian mobiliary art. An assessment of previous approaches shows a lack of focus on cognitive implications for Magdalenian art. Analysis of one specific case study on a Magdalenian *contour découpé* finds that cognitive processes can be established using an object biography. In doing this it is argued that cognition plays a vital role in the life histories of mobiliary art, and indeed Magdalenian lifeways. Observing cognitive processes through material culture represents a valuable tool in providing new insight into the study of prehistoric art.

**Keywords:** Palaeolithic, Art, Cognition, Magdalenian, Mobile Art, *Contour Découpé*

## Introduction

The purpose of this paper is to deconstruct the nature of cognition within archaeological study, by using Magdalenian mobiliary (moveable) art. The theoretical concepts I present are intended as an overture to my wider research project which aims to re-establish material culture at the epicentre of cognitive archaeology. This research encourages a fresh perspective for the archaeology of prehistoric arts.

An understudied subject, the rich array of portable art from the Palaeolithic period (300,000–10,000 years BP) is often relegated in favour of their parietal (non-movable) counterparts (Abadía and Morales 2013). This bias steered the following investigation toward mobiliary art. Large-scale mass evaluations of mobiliary art combined with regard for cognition at only its most basic level, have resulted in the need for a focused analysis of the specific nature of cognition in art through a detailed examination of material culture. The Magdalenian period (17,000–11,000 years BP) presents the most variable range of mobiliary art from the Upper Palaeolithic, hence this period-specific focus.

Formal analyses of mobiliary art often establish a firm understanding of the physical attributes but negate the deeper implications. Art should not be relegated to aesthetics alone. An object biography approach examines the life history of an artefact without prioritising the final product. This methodology, when applied at a small-scale to individual case studies reveals idiosyncratic elements of cognition. This method of evaluating the role and nature of cognition has not been conducted in a study of Magdalenian mobiliary art prior to this paper. Previous research of mobiliary art has often under-appreciated the role of cognition. Authors have frequently drawn connections between the function and creation of art to society and culture (e.g. Dobres 2000, 102; Dobres and Hoffman 1994, 213; Fritz *et al.* 2015, 1308). However, the connection between material culture and cognition has rarely been made prior to the last few decades (e.g. Malafouris 2004; 2013a; Malafouris and Renfrew 2010) and never been defined in this manner. Grand narratives declaring Palaeolithic “cognitive complexity” (Beaune *et al.* 2009, 59; Muller *et al.* 2017; Toth and Schick 2018, 3) neglect to clarify the nature of this. Thus, the considerations outlined provide impetus for this research.

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## The Archaeological Landscape of Palaeolithic Art

Catalogues of the Palaeolithic period have placed emphasis on the division between parietal and portable art (e.g. Bray and Trump 1970, 51; Brezillon 1969, 35; Delporte 1981, 14; Ucko and Rosenfeld 1967, 8; Whitehouse 1983, 331–333). While this typological differentiation is convenient, it is unrepresentative of a Palaeolithic view of art (Sieveking 1979, 7–8). Perceptions of parietal and mobiliary art, which have not been firmly challenged until recent decades (e.g. Abadía and Morales 2004; Bahn 1995, 231), have encouraged asymmetrical emphases in favour of the hyper-realistic stylings of cave paintings (Abadía and Morales 2013, 269). Upper Palaeolithic parietal imagery has been analysed and categorised repeatedly (Conkey 1987, 418), while mobiliary art has fallen to the wayside. Studies examining art have often taken a collective approach, rather than focusing on isolated examples. These large-scale techniques have value; however, it is only through the detailed examination of individual artefacts that we can ascertain cognition.

The techniques and styles of art from the dawn of the European Upper Palaeolithic (40,000–10,000 years BP) become largely varied and more technically complex than those types which preceded them (Brantingham *et al.* 2004, 1). This development, measured by the increased frequency of discoveries in the archaeological record, is an indicator of composite groups that developed the need for ‘complex’ art. In respect to mobiliary art, status and social identity have been evaluated through beads (Trinkaus and Buzhilova 2018; White 1999), gender identity through anthropomorphic ‘Venuses’ (Marshack 1991), and the emergence of the ‘behavioural modernity’ through objects like the *Löwenmensch* figurine (Wynn *et al.* 2009, 79–80). Halverson (1992, 221) argues that the artistic ‘complexity’ of the Palaeolithic, reflecting a nuanced combination of influences, peaked during the Magdalenian. This ‘complexity’ is not strictly defined.

Similarly, the concept of an Upper Palaeolithic ‘revolution’ (Bar-Yosef 2002; Mellars 2005) has been adopted in reference to the increased quantity of finds in comparison to the Middle Palaeolithic. This theory argues that the Upper Palaeolithic presents a more ‘complex’ assemblage of artefacts and therefore represents more ‘complex’ societies, cultures and cognition than those which preceded them. While frequency of art does increase over time, this does not account for the effects of taphonomy. Early pioneers erected evolutionary boundaries using Palaeolithic art as a measure of sociocultural complexity (e.g. Breuil 1952; Jorda 1964). While this research is not without merit as a means of compartmentalising, this culture history perspective still affects contemporary attitudes.

One-dimensional measures of ‘complexity’ contribute little to the current archaeological landscape. It is mostly agreed that Palaeolithic *Homo sapiens* had the same cognitive faculties as modern humans (Hoffecker 2011, 111). Archaeologists must reject the desire to quantify scales of cognitive evolution as it cannot be done effectively. Chronological frameworks devising the development of portable art are simplistic (Bahn and Vertut 1988, 54) as they do not appreciate the mosaic of influences that gave rise to them. It is vital to explore Palaeolithic art without the adoption of a comparative-complexity analogue. We must give credence to the notion that a cognitive approach that recognises the character of ‘complexity’ is crucial to encouraging archaeological research that acknowledges the social, cultural and cognitive factors in equal measure. Without defined parameters for ‘cognitive complexity’, we are only engaging with cognition and the material culture at a superficial level. The *modus operandi* of this research, therefore, aims to readdress the scale and nature of cognitive investigations.

Additionally, the term ‘art’ is problematic as it conveys an array of implications (e.g. Conkey 1983; Ingold 2000, 111; Layton 1991, 1–6; Nowell 2006, 244; Soffer and Conkey 1997, 2–3). For example, many objects that do not have apparent aesthetic value can be considered ‘art’. Gosden (2004) distinguishes the intertwining of ‘aesthetics’ and ‘emotion’, making their importance subjective to the viewer as

they attach value to these objects. Farbstein (2011a, 403) notes that ‘aesthetics’ are mistaken for ‘style’. Moreover, investigations have historically focused on object function over form (Gosden and Marshall 1999, 169). However, I argue that both are relevant in the study of Palaeolithic art. As such, I adopt Davidson’s (2013, 42) definition of art as: “the making and marking of surfaces where the images have implicational meaning for the observer whether or not they know the full propositional meaning of the artist.”

The European Magdalenian is characterised by its elaborate artistic styles. This late Upper Palaeolithic period has a dense geographical range from Central and South-Western France to the Cantabrian coast of northern Spain (Lázníková-Gonyševová 2002, 526), with several other areas of activity littering Western and Central Europe (Djindjian 2016, 38). Figure 1 outlines how I define the spatial framework of the Magdalenian referenced in this paper.

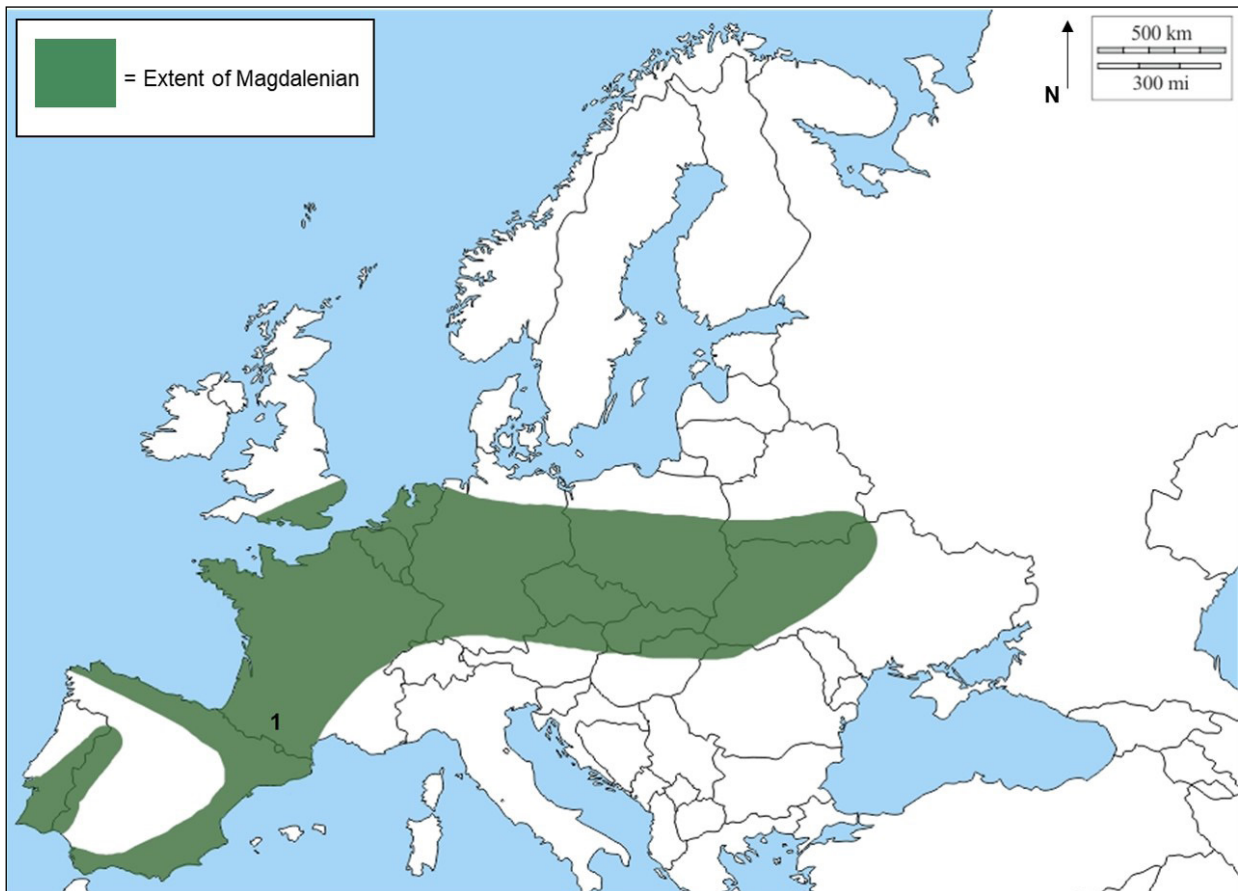


Figure 1. Map showing the extent of the European Magdalenian. Labelled is the find location of the *contour découpé* case study from Mas-d'Azil (1) (author).

Mobiliary art refers to the portable style of art that prevailed during the Magdalenian. Mobile art is the most abundant form of Upper Palaeolithic imagery (Bahn 2014). An inventory found that 100,000 Palaeolithic mobile art objects have been recovered in total, a third of which originate in France (Chirica 2013, 25). Around 80% of all known Western European mobiliary art objects are Magdalenian (Jochim 2002, 99). This densely concentrated culture of art within this temporal and regional range is evidence of the Magdalenian representing some of the most unique portable art in terms of style, composition and function, including items of personal ornamentation, figurines, beads and *plaquettes* (Figure 2).

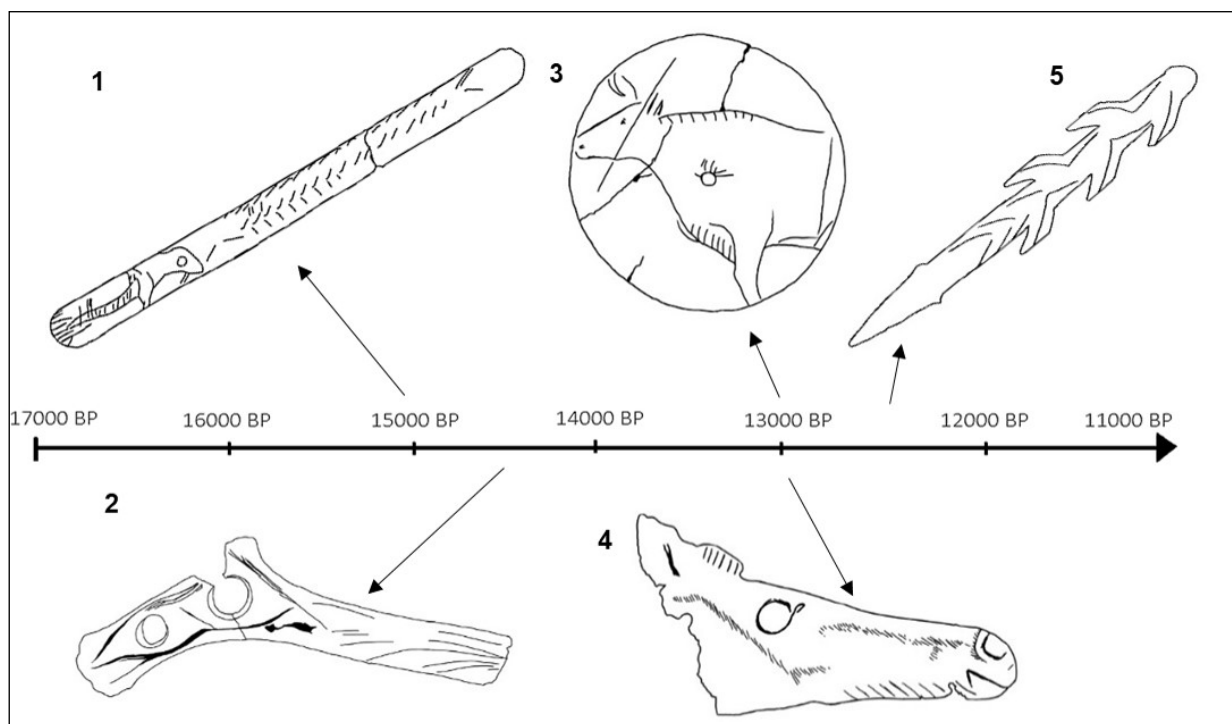


Figure 2. Timeline of range of Magdalenian mobiliary art examples. Illustrations marked are Baguette Demi-Ronde (1) after RMN-Grand Palais 2020a; Bâton Percé (2) after *Le Village de la Madeleine* 2017; Rondelle (3) after RMN-Grand Palais 2020b; *Contour Découpé* (4) after RMN-Grand Palais 2019; Barbed Point (5) after British Museum 2019 (author).

The vast majority of portable art objects recovered from the late Upper Palaeolithic period are made from bone, ivory or stone (Bednarik 2014, 267). The complicated life history of art objects made from organics fuelled the decision to centre on a case study primarily made from osseous (bone, antler, or ivory) materials. Most of this art consists of geometric patterns (Bednarik 2014, 267), but Jochim (2002, 99) recognises that animal motifs also represent a large proportion of designs. To better test the scope of this archaeological approach, the case study presented features of both of these design styles. Deposition has also been widely debated. Bednarik (2014, 267) states that many objects are deliberately placed inside cracks in caves, in hearths or as part of burials. Ritual destruction, particularly in the case of ‘Venus’ figurines, has been noted as a previously unrecognised terminal stage of the life history of these objects (Bahn 2011, 348; Needham 2010; Soffer *et al.* 1993). The complicated nuances of these objects’ life histories can only be adequately observed using the object biography method.

### Previous Approaches

To demonstrate the need for this research a review of the archaeological adaptations of social, cultural and cognitive approaches to studying art must be conducted. To focus the large corpus of literature surrounding these issues I examined each article based on four criteria. Each have been examined for whether it has successfully conducted research that:

1. Centres on the cognitive;
2. Defines the nature and parameters of ‘social’, ‘cultural’ or ‘cognitive’;
3. Focuses on small-scale analysis;
4. Considers a relationality of factors regarding the ‘social’, ‘cultural’ and ‘cognitive’.

Art is pivotal to understanding human behaviour (Hodgson and Verpooten 2015, 73), therefore researchers have applied many mechanisms to access social, cultural and cognitive narratives. Figure 3 demonstrates the interconnected relationship between culture, society and cognition in engagement with art. Cognition is an internal, individual negotiation between the social and cultural environments. It adapts to change whilst also exerting control over its environment (Malafouris 2013a). Recognising this cyclical relationship is paramount for understanding the framework of study in this research.

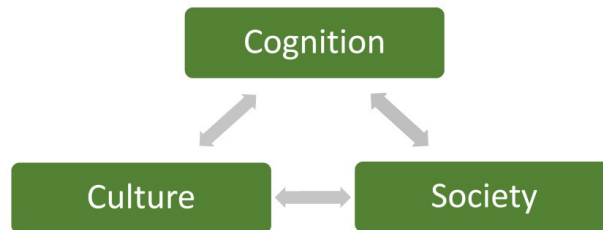


Figure 3. Diagram demonstrating the relationality of factors involved in the engagement with art (author).

### ***The Social Approach***

According to Farbstein (2011a, 403), social practices can be recovered by studying material production. Analysing life histories through an object biography method is an advantageous opportunity to investigate the socially significant elements of art. Conkey (1993, 114; 1995) argues for a material-based approach to recognise social behaviours in imagery, but have not acknowledged the value of a social approach to mobiliary art. Authors in favour of connecting material culture to social practice (e.g. DeMarrais *et al.* 2004; Miller 2005; White 1997) have not applied this to mobiliary art of the Magdalenian.

Beads have been argued to convey inter- and intra-group social communication (Hodder 1982; Marshack 1976) or individual or collective identity (Turner 1980; Vanhaeren 2005; Zilhão 2007). Regional stylistic patterns of portable art (Jochim 2002, 101) have encouraged notions of vast Palaeolithic social networks (Fritz *et al.* 2007; Fuentes 2013, 986; Rivero and Sauvet 2014; Schwendler 2012). Authors advocate for small-scale analyses in this approach (Dobres 1995, 29; Farbstein 2013). Langlais *et al.* (2012) make the connection between the revising technologies of the Magdalenian and the changing natural and social environments. Alternatively, Fritz *et al.* (2015) focus on the concept of social identity within art. It is through observing the life history of these objects that complex narratives emerge. Farbstein (2011b), among other scholars (Conkey 1995; Dobres 2000; 2001), quantify the relationship between technology and society in the production of art. In recent years, the exploration of the ways in which technical decisions affect art and how this infers social attributes, has flourished (Soffer 2000; Stiner 2003; Vanhaeren and d'Errico 2006). This range of applications of a social approach to materiality shows how variable this method can be and how crucial direct interaction with material culture is.

This paper reflects on the role cognition plays in material culture, in the same manner as the literature reviewed has done for society. Internal negotiations reflected in cognitive processes necessary for understanding Magdalenian lifeways have been side-lined. However, this still only presents the archaeology in part. It is the cyclical combination of society, culture and cognition that is required to gain a holistic understanding of Magdalenian mobiliary art.

### ***The Cultural Approach***

As Conkey and Hastorf (1990) note, artistic design and styles serve a multitude of purposes and, in the past, have been connected to culture. In the literature, there is a strong argument for stylistic features and motifs reflecting cultural associations (e.g. Rivero and Sauvet 2014; Sauvet *et al.* 2008), with specific focus on the Aquitaine, Cantabrian and Pyrenean regions of the Magdalenian. The cultural significance of art has been of outstanding importance in recent decades (D’Errico *et al.* 2003; Farbstein 2006; Nowell 2006; Taborin 2004; Vanhaeren and D’Errico 2006; White 1992; 1997; 2007). Sauvet *et al.* (2008) argue that art acts as cultural indicators of a society, group or community. Nowell (2017, 599) alternatively argues that “visual cultures” are the biological, cognitive and social foundations of how we visualise life. The latter theory allows the researcher to understand how art was created, experienced and decoded.

Langley (2018) draws the connection between specific aspects of culture such as childhood and the use of projectile points and mobile art as playthings, re-addressing the concept of what art may be and its implication for the particulars of Magdalenian culture. This focus on the specifics of culture, rather than abstract concepts, will be adapted for cognition in this research methodology. Although, it must be highlighted that a perspective solely focused on cultural aspects of Magdalenian lifeways cannot result in a comprehensive understanding of society. Recognising individual cognitive negotiations is a vital component for deconstructing Palaeolithic art. Material culture has been argued to present the most steadfast expression of culture (Miller 1987, 3). Alternatively, I argue that artefacts are the most resistant form of cognitive expression. This review illuminates the importance of studying the cognitive process to complement a multifaceted approach to understanding culture.

### ***The Cognitive Approach***

Since the resolute stance that archaeology should not concern itself with what occurs within the mind, otherwise referred to as “palaeo-psycholog[y]” (Binford 1965, 204), the field has only flourished. Academics have graduated from a perspective of processual cognitive archaeology (e.g. Renfrew 1998) to a post-processual cognitive archaeology (e.g. Hodder 1986). This is a progression from studying how people thought in the past, to what they thought. Abramiuk (2012) instead supports approaches that combine the two to act as a catalyst for a broader understanding of prehistoric cognition. Cognitive archaeology was established in the 1980s to tackle scientific queries of cognitive and neurological functioning (Renfrew 1998, 2). Art is the ideal measure of cognition (Malafouris 2007, 291), and scholars have used it to landmark the origins of modernity (Hodgson 2019; Renfrew 2007; 2008). This project rejects a timescale of cognitive evolution in favour of uncovering the nature of these mental processes.

Several scholars have adapted cognitive neurosciences in the study of art (Helvenston and Hodgson 2010; Hodgson 2006; 2008; Wynn *et al.* 2009; Wynn and Coolidge 2017). Two examples include, firstly, entoptic phenomena in parietal art (Lewis-Williams 2002; 2004; Lewis-Williams and Clottes 1998) and secondly, presence of atypical cognition (Spikins 2009; Spikins *et al.* 2016; Spikins *et al.* 2018). While there is much to be gained from these studies, this paper does not wish to apply neuroscientific methods in the analysis of Magdalenian art. Neither does cognition in this respect concern itself with cognitive evolution (e.g. Beaune *et al.* 2009; Klein and Edgar 2002; Mithen 1996; Noble and Davidson 1996). Rather, its goal is to ascertain the character of these internal cognitive processes involved in the life history of mobiliary art.

Specialists have argued the importance of deciphering social and cognitive codes by unravelling the *chaîne opératoire* of lithics (e.g. Cresswell 1983; Lemonnier 1983) but have not adapted this to art. Nowell (2017, 599) argues that archaeologists should instead decode art to access both the cognitive and social underpinnings. However, it is only by accepting the complex interaction of cognition, culture

and society that a true picture of Magdalenian art can be discerned. Conkey (2009) writes that images are socially engrained and Gell (1998, 3–4) notes that studies of art must acknowledge the context of its production. Therefore, studying the cognitive operations punctuating art is the next logical step. Creativity and innovation are as much due to individual cognitive processes as demographic and social dynamics (Kuhn 2012, 81). Art denotes cognition; and cognition is the key factor defining functions involved in creating art (Holl 2015, 299). As Hassan (1993, 271) states, art functions at the intersection of mind, body, society and nature. However, the cognitive approach to art so far has not been adapted to small-scale studies of material culture, nor has it been plugged into a combined social, cultural and cognitive framework. This research aims to address the former, so that the latter may be pursued in future study. Additionally, the nuances of cognitive processes are passed over for large-scale narratives. Malafouris provides key publications for this paper, noting that objects are permeated with cognition (2004; 2007; 2013a; 2013b; Malafouris and Renfrew 2010). It is only through direct analysis of material culture that we can access these preserved cognitive functions.

### **A Convergence of Philosophy and Art**

Fundamentally, the study of cognitive processes and of archaeology (e.g. Wylie 2002), is underpinned by philosophical and ontological subsystems. Since Descartes' substance "dualism" (Wilson 2003, 253), philosophers have considered the 'mind-body' problem (Ryle 1949, 22–23) to argue that the mind (and brain) and body are separate entities. While they remain separated, attempts to understand either mind or body fail (Malafouris 2004). This analysis has rejected the dichotomous perspective that the mind and brain function independently (e.g. Malafouris 2004; 2007; 2013a; 2013b; Malafouris and Renfrew 2010), and the neurocentric view that the mind operates only within the boundaries of the brain (Malafouris 2013a, 3). Malafouris (2004) favours an approach that explicates the intersection of cognition and materiality. Cognition is not a disembodied function (Malafouris 2004, 53), rather, material culture coexists with the mind (Clark 1997, 98). The theoretical framework underpinning the focus on material culture can be described as separate strands of cognition, society and culture interacting and intersecting at the material. Material culture is the tangible evidence of the conflation of these factors. Cognitivism is a theoretical approach that aims to detail the brain's capacity to represent and compute information (Gardner 1985, 36). Some researchers employ computational modelling (Malafouris 2004), but an object biography evades mechanistic impressions by actively engaging with materiality. A cognitive approach that disregards the material cannot result in adequate studies of material culture, nor of cognition. The method of analysis within this research is contextualised by this philosophy.

### **An Object Biography Methodology**

The detailed analysis required to ascertain cognition will be conducted using an object biography. 'Object biography' is a means of observing and analysing the life history of artefacts (Leroi-Gourhan 1964) with the process and mental patterns of the creator outlined. This demands active engagement with material culture. It has been applied to outline sequences of production for many different objects (e.g. Karlin *et al.* 1993; Knecht 1991; Pelegrin 1990; Soffer *et al.* 2000; Stiner 2003; White 1997). The final product will depend on how it was formed and therefore its aesthetic value relies on the worth of its creation (Seris 1994). However, it is tantamount to recognise that the finished product is not the vital factor to consider (Fuentes *et al.* 2017). Bar-Yosef *et al.* (1992, 511) write that in recreating operational sequences, we uncover choices, ergo cognition is revealed.

Notably Dobres (2000; 2001) marks the importance of agency within the process of creating. Each action taken, consciously or otherwise, is purposeful and meaningful. Therefore, it must be established prior to investigation that I believe art production and use to be a socially, culturally and cognitively mediated choice. While Dobres (2000; 2001) focuses on the social element, I will emphasise the processes that

are cognitively informed. It has been established that technology is both material and social (Dobres 1999; 2000, 127–130); I argue that technology is also material and cognitive. By examining one case study using an object biography in the manner defined, cognitive processes involved in the material collection, production, use and discard of art will be demonstrated. Malafouris (2013a, 1) asked: “What might constitute an archaeological trace of human thought?”. I answer: every action preserved within material culture.

An object biography is the medium used to gain cognitive insights into material culture. This will be employed by following Leroi-Gourhan’s (1965) definition demanding actions and objects arranged in order with syntax. Figure 4 depicts a schematic diagram used for the case study analysis adapted from Grace’s (1997) lithics flowchart. The four stages shown below will structure the analysis of life history stages and are Stage 1: Material Collection, Stage 2: Production, Stage 3: Use and Stage 4: Discard. This methodology will ensure active engagement with the materiality of the object.

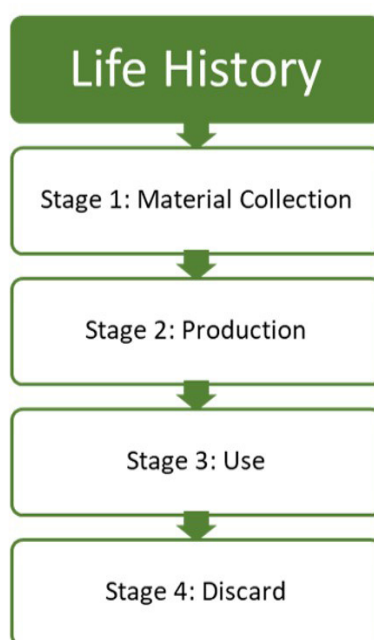


Figure 4. Diagram showing the stages of the life history of an object. This will form the structure of analyses for each case study (author after Grace 1997).

Individual object details are expressions that communicate cognitive, social and cultural meaning. The cognitive lies within the material culture as observable truth, however, it is only by peering through the lens of an object biography that we can define the nature of it. Each step taken in the construction and destruction of art is intentional and conducted for specific results. Therefore, art expresses a series of active choices. As we cannot act without thought, conscious or otherwise, I argue that every object is a cognitive object. Marx and Engels (1970, 42) wrote that individuals express their being by what they produce and how they produce it. Therefore, objects embody their creators. Dobres (2000, 97) believes that technological experiences are imbued with social and cultural significance. While this research centres on cognition, it aims to complement previous research on society and culture. I will also define the hallmarks of cognitive ‘complexity’ to accurately outline the nature and role of cognition. In response to Conneller (2011, 47–48), this approach acknowledges situationally specific considerations of the technical acts of making portable art of the Magdalenian.

According to Paillet (2015, 74), prehistoric arts are static oscillations between the physical and the mental world. An integral part of understanding art is recognising the processes of transformation and interaction, and so I argue that art is dynamic (e.g. Azéma and Rivere 2012). The implementation of the word 'art' does not involve the application of a modern Western perspective (Lorblanchet 1992, 116), rather it is simply a means of categorising. The aesthetics of art should be considered, but not eclipse the analysis. I acknowledge aesthetic interpretations are influenced by my own values. In my choice to define art in the way I have previously explained, I recognise that tools and weapons such as barbed points are also art artefacts. As a result, I argue that art is functional, and functional objects can be art. The physical properties of the object influence its function, and vice versa. There exists a dynamic relationship between form and function and as such, this research addresses both in tandem.

### **Case Study: *Contour Découpé***

*Contour découpé* represent a particular stylistic art form of the Magdalenian. *Contour découpé* are carved silhouettes of animals, usually heads, made from bone with some antler and stone examples (Pozzi 2004, 120). Often one or more perforations are present on the sculptures, commonly in the eyes or the back of the head. Many of these examples show remains of pigment (Pozzi 2004, 121). Bahn and Vertut (1998, 98) observe that many *contour découpé* from Pyrenean caves had been found intentionally broken. Some from Labastide and Enlène have impact marks suggesting deliberate breakage (Bahn 2011, 348). Additionally, perforations suggest they were worn as personal adornments or sewn onto clothing (Chirica 2013, 41).

Buisson *et al.* (1996) conclude that *contour découpé* have a Pyrenean origin and spread outward toward the Cantabrian and Aquitaine regions. Chirica (2013, 41) argues that they are limited to this geographic area because they are the artistic expression of an ethnic group. Bellier (1991) notes their close proximity, often found within individual sites, suggesting areas of object manufacture. By conducting refitting techniques and analysing the spaces in which these objects were recovered, and in turn identifying particular areas of manufacture, archaeologists have established the *chaîne opératoire* of *contour découpé* and have established their creation on site (Corchón *et al.* 2016, 103).

Despite formal analyses of horse art (e.g. Apellaniz and Calvo 1999; Pigeaud 2005) illuminating species and sex, few publications have centred on these objects. Those publications which have dealt with horse art, have either done so in passing or are mostly descriptive (e.g. Bellier 1982; 1984; Buisson *et al.* 1993; Buisson *et al.* 1996; Conneller 2011, 35–37; Fritz *et al.* 2007; Paillet and Man-Estier 2011; Rivero 2014; Sacchi 2003). Passive engagement with *contour découpé* is another reason for this case study. Just one informal experimental series has shown involvement with the production process of *contour découpé* (e.g. Arkéo Fabrik 2016). One example found in Las Caldas Cave, Spain was unfinished, granting a rare opportunity to observe a medial stage in the manufacture process (Corchón *et al.* 2012; Corchón *et al.* 2016, 102). The importance of documenting the production sequence of these objects is clear but no publication has adapted an object biography approach for *contour découpé* in respect of cognitive implications.

### **Stage 1: Material Collection**

This object is made from the stylohyoid bone of a horse, which is located within the mouth. These are taken from the hyoid apparatus and the distal ends are removed. The material procurement stage involves anatomical knowledge and skills to remove the bones while retaining the shape. Also, an understanding of horse migration within the region would be needed to acquire this material. The specific shape of the stylohyoid naturally mimics a horse head (Chirica 2013, 41), from this skeuomorphic form this we observe a cognitive capacity for visual, symbolic representation.

### Stage 2: Production

The outline of this object is crucial to its design, so the perimeters must first be carved and rounded to emphasise the shape of a horse head (Figure 5). The outermost tip of the bone, where the tympanohyoid cartilage attaches to the skull, is removed. Small modifications emphasise the mouth and mane. The object is shaped by notching, abrading and scraping (Musée National de Préhistoire 2019), to a length of 35 mm, a height of 68 mm and a thickness of 3 mm (RMN-Grand Palais 2019). Each action is informed by the curvature, width, length and angular dimensions of the bone. The specific positioning of the ears, eyes and muzzle are predetermined by inherent morphology. These steps aim to create a stylistically accurate representation of a horse by enhancing natural features. This exemplifies a sensitivity to form and a cognitive ability for representation.

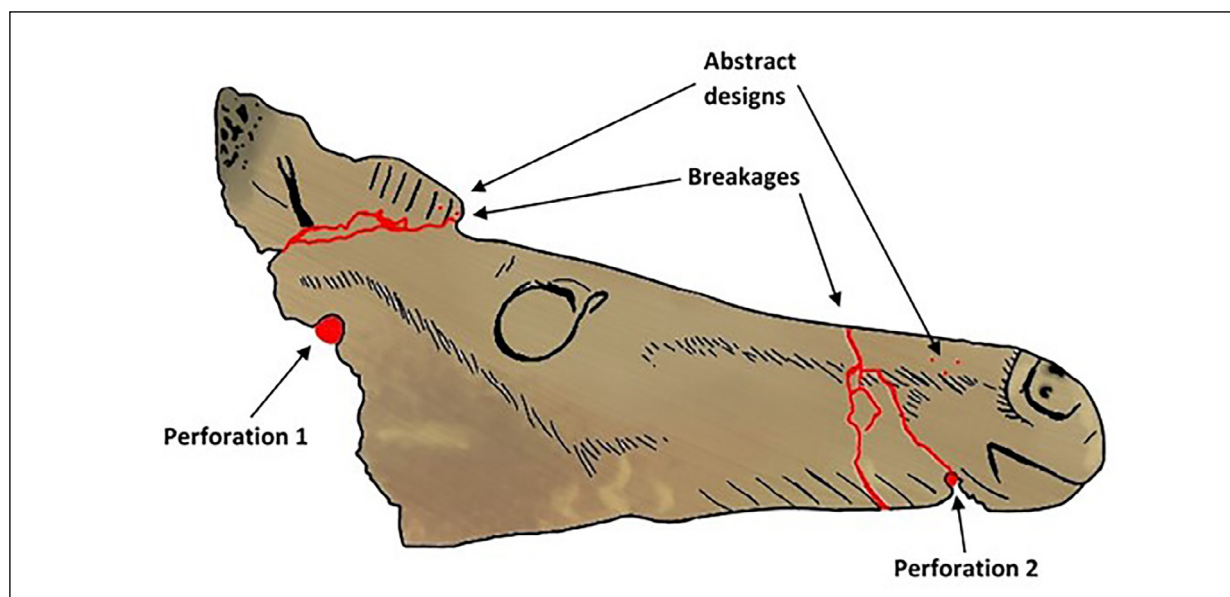


Figure 5. Illustration of *contour découpé* case study with notable elements labelled (author after RMN-Grand Palais 2019).

Cut marks are made to detail the horse's face. Deeper lines represent more obvious features such as the eyes, nose, mouth, ears and mane. These are the characteristics that determine its recognition as a horse. These are made first, denoting a cognitive choice that imbues importance on these features. After this, shallow striations are made to reflect fur and shadow. These infer aspect, texture and depth of the facial elements. These decisions are intentional and infer the consideration of alternative actions at each juncture. The lines also follow the natural striations found on the surface of the bone. Three circular dots forming a triangle on the muzzle and two on the mane are possible “distractors” associated with visual identification of patterns in abstract art (Figure 5; Hodgson 2014; Hodgson personal communication 14/10/2018). Next, the object is perforated. Two perforation holes are present on this artefact allowing it to be strung. The final transformative stage is the addition of red ochre pigment.

### Stage 3: Use

Once it has taken the desired form, some scholars argue that *contour découpé* were hung using string from pierced holes while others simply characterise them as pendants (Davidson 2014, 442; Fortea-Perez 1981, 14). This case study documents two distinct periods of possible use as a pendant or a clothing decoration. Rotations proposed are based on the location of the perforations.

The first use would have employed the larger of the two perforations present (Figure 5: Perforation 1) and possibly another below that is no longer observable due to damage. Having two perforations at the back of the head is common to *contour découpé*. This would have allowed the wearer to display the head with the muzzle facing down. The natural lines on the surface of the bone and the direction of carvings run parallel to the gaze of the wearer when worn in this position.

The next period of use is indicated by a secondary perforation found next to the mouth (Figure 5: Perforation 2) that is smaller than the other. This would have been used in conjunction with the remaining larger hole (Figure 5: Perforation 1) to display the head horizontally with the muzzle facing right. This position when strung allows for equal balance of the object and makes the outline of the top of its head straight. A faint line of wear directly above this perforation indicating the use of string to suspend the object can be observed when magnified. Alternatively, this object could have been sewn to material *appliqué* in a similar position. Either option demonstrates that the wearer has a cognitive capacity for social identity and understanding of the implications of personal ornamentation. The display of this artefact communicates information that has been carefully constructed and is an active choice by the wearer.

#### **Stage 4: Discard**

It is uncertain whether any of these breakages happened deliberately or accidentally. As perforation was vital to use, their loss would render the object without use. The second proposed perforation is no longer present. Breakages have occurred along remaining perforations, another common theme across *contour découpé*. This could be due to unintentional taphonomic processes. Alternatively, when broken along the perforations then the object ceases to be used as a pendant since string can no longer be threaded through. Intentional breakages have been recorded in other *contour découpés*. The latter breakage would be intentional in the aim of rendering the object without use. This destruction presents a ritual act that ends the use of the object as personal ornamentation.

#### **Results of Case Study**

The case study presents an object biography of one *contour découpé*. At every stage, intentionality is observable. We can determine cognitive agency throughout this case study that is influenced by social and cultural experiences. From each observation, cognitive implications are expressed. Table 1 displays the summary of the object biography for this *contour découpé*.

#### **Concluding Discussions**

The notable divergence between the Middle and Upper Palaeolithic is the exploitation of osseous raw materials (Tejero 2014, 72–73). Material collection required faunal, material and environmental knowledge through human-animal interactions (e.g. Pasarić and Warren 2019). However, this information is only evident for those who experience it (e.g. Conneller 2011, 36; Taborin 2004, 116), meaning Magdalenian populations had an essential understanding of material properties and the environment to make informed decisions. Much of the original shape of the hyoid bone remains, illustrating that form emerges from materiality (Conneller 2011, 45).

This sensitivity to form likely arose due to experience with routine butchery (Taborin 2004). The Lower and Middle Magdalenian experienced climatic fluctuations between the Dryas 1 and Dryas 2 stadials (Enloe 2001, 198–199). At 11,800 BP the Bølling-Allerød interstadial enacted a long temperate period (Enloe 2001, 198–199; Feyfant *et al.* 2015, 693) beneficial for the native fauna. Horses were abundant (Costamagno, 2003; Langlais *et al.* 2012, 142) and were hunted (Boyle 2017, 41) despite the contemporaneous increase

in the exploitation of small game at the dawn of the Upper Magdalenian (Pétillon 2008, 71). Ungulates operated as intrinsic and distinct parts of Magdalenian lifeways, regardless of this economic trend, indicating their unique importance. The case study presents a complex relationship between form and material. “Counterfactual thinking” (Baird and Fugelsang 2004, 1797) required for decision-making would have been crucial in the observance of migration and movement of horses. Representational symbolism and decision-making demonstrated in osseous art present potential for investigations of Palaeolithic mobiliary contemporaries.

Table 1. Table deconstructing the cognitive implications of actions taken at each stage of *contour découpé* object biography.

Life History	Action	Practical Reason	Creator’s Intention	Cognitive Implication
Stage 1: Material Collection	Removal of stylohyoid.	To select a specific bone that mimics a horse head.	To represent a horse.	Symbolic representation; Long-term memory skills.
Stage 2: Production	Ground, notched, abraded; Carved designs; Added pigment; Perforated.	To further emphasise features of a horse head.	To represent a horse and to demonstrate artistic expression.	Symbolic representation; Decision-making capabilities; Sensitivity to form.
Stage 3: Use	Worn.	To be displayed to others.	To communicate personal or group identity.	Understanding of personal identity and social recognition.
Stage 4: Discard	Destroyed.	To break it apart.	To end the use of the object.	Theory of mind.

The Upper Palaeolithic presents a layered, both temporally and regionally, set of world views that influence cognition. The deconstruction of visual stimuli is directed by enculturated traditions and practices (Holl 2015, 299). Mnemonic systems in abstract art attach value. Dots present on *contour découpé* could act as notational systems (Wolf *et al.* 2018, 199). Identity is engendered in this representation. Objects with small temporal and regional prevalence, like *contour découpé*, are of unique importance in elucidating cognition. The case study derives from a mass production site, as a result homogeneity in *contour découpé* in the region is expected. Personal and group identity is reflected in style. The choice to decorate with abstract designs reflects possible coded information that communicates something to the owner or the viewer. Red ochre is applied in the final stage of production. Various iron-rich clays were abundant in the region (Wolf *et al.* 2018, 197), exemplifying a knowledgeable understanding of the local environment and a willingness to display a connection to it. Re-use suggests a personal or group affiliation with the object. Perforating and wearing is the owner claiming the object. This negotiation of personal and social ownership is navigated within the mind but founded in the natural environment. The Palaeolithic constitutes a variety of cultures, societies, regions, and traditions each with distinct identities. The extensive quantity and diversity of art objects of this period require further study to unpack the true extent of cognitive identities.

The breaking of the *contour découpé* has been repeated in other examples of Palaeolithic art (e.g. Bahn 2011, 348; Needham 2010; Soffer *et al.* 1993), presenting a markedly different perspective of art as an involved interaction with materiality. Art that functions socially and culturally requires a cognitive theory of mind so that the individual may understand the thoughts and intentions of another by

recognising shared behaviour, such as intentional destruction. The cognitive implications of Palaeolithic social practices can be better negotiated by the analysis of different prehistoric arts. This approach is malleable and should be applied to several different art forms of the Palaeolithic to elucidate cognitive implications of different discard practices.

This research argues for a “material revolution” (Conneller 2011, 112) that portrays complex cognition, in the ways defined, situated within the terminal Upper Palaeolithic. Magdalenian mobiliary arts, demonstrated through analysis and confounded by this discussion, benefit from small-scale analyses of cognition. Principally, what kind of archaeology are we practising if we are not engaging with material culture? This case study presents an overture to analysis of mobiliary art but should not be limited to this. This research has elucidated just some archaeological implications for the divergences of cognition between materiality, abstract and representational designs, functionality, Magdalenian world views, and in discard practices. This paper presents an adaptable approach for a broad range of Palaeolithic art, ultimately evidencing a novel system of study.

I have provided an evaluation of the role of cognition in Magdalenian mobiliary art. The research has reviewed the frameworks of study for Magdalenian mobiliary art in the past and have provided a suitable method for analysis. An exploration of the importance of cognition in mobiliary art has been conducted through the examination of one case study. A discussion has presented the wider archaeological significance of this approach. Finally, this project found that small-scale studies that engage with materiality combined with a rigorously defined understanding of cognition, serve to enrich the current archaeological landscape when investigating Magdalenian mobiliary art. Prehistoric arts are an untapped resource in terms of cognition. In future, this novel method may serve to illuminate prehistoric lifeways through studies of art.

### **Future Research**

This research aims to introduce a new approach, as such, there is much scope for future study. Chiefly, this study must be plugged into the wider landscape of archaeological research into social (e.g. Dobres 1999; 2000; 2001; Farbstein 2011a; 2011b) and cultural (e.g. Nowell 2006; 2017) components of art. This will ensure the approach does not remove cognition from its context. Object biographies framed in this research would benefit from more detail-oriented methodologies such as microscopic analysis, CT scans and 3D-image production to identify traces of wear and use, and to observe the effect of perspective and light (e.g. Bello *et al.* 2012; Mélard *et al.* 2016). Any future study should increase the case study sample size to accommodate for the varied stylistic complexity of art (e.g. Rivero 2014), including those beyond the scope of the Magdalenian. Experimental projects (e.g. Elliott and Milner 2010; Pétilion *et al.* 2011) that aim to practically dissect the object biographies would note several additional or alternative results. In the future, I intend to conduct an experimental study to discern precisely this.

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# Gathering Practices in Eastern-Central Sweden During the Middle and Late Mesolithic

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## Abstract

This paper deals with the gathering practices in Eastern-Central Sweden during the middle and late Mesolithic. Following the post-processual paradigm, the idea of women as hunters has come to be accepted. However, men as gatherers seem to have gotten less attention. The aim of this paper is to understand who the Mesolithic gatherer was. By using James J. Gibson's (2015) theory of affordances on the region's most common biofact, the hazelnut (*Corylus avellana*), I argue that the social organisation of women as gatherers and men as hunters is an incorrect interpretation for the region. The affordances of the hazelnut rather speak for the gatherers collectively being the hunters, the fishers, the women, the men, the children, and the old—gathering is not a set of practices that belongs to a social group, but a set of practices performed by all members of the society.

Keywords: Hunter-gatherers, Hunter-fisher-gatherers, Mesolithic, Social Organisation, Eastern-Central Sweden, Theory of Affordances, Chain of Affordances, Hazelnut

## Introduction and Aim

The term hunter-gatherers or hunter-fisher-gatherers is often used in archaeology to describe an economy that predates the agricultural economy. A hunter-gatherer economy is a non-producing economy where humans live off what the environment offers. To define the term is problematic and this would be a definition in its narrowest sense. Another, perhaps better, definition of hunter-gatherers or hunter-fisher-gatherers is a group of people that only hunt and gather, or hunt, fish and gather, for all or most of their subsistence (Barnard 2014). If one uses Barnard's definition as a departure, hunting and gathering as verbs speak of human actions that are part of the economic system as well as the social organisation.

It is easy to divide the two parts which constitute the term into two social groups, hunters and gatherers. Early research on hunter-gatherers was highly androcentric and attributed hunting to men and gathering to women. Women were subordinated to men, and the gathering activities were subordinated to the hunting activities (Lane 2014). Such a perspective on gender is today considered biological determinism—a thought figure that makes biology (in this case sex) the determining factor for social, cultural and psychological behaviour. Biological determinism has been used, among other things, to legitimise heteronormativity, inequality and power differentials between men and women (Lykke 2010). However, later studies have shown that the labour division in hunter-gatherer societies is based on age, ability and experience rather than gender (Cummins 2013; Kent 1998). Furthermore, it has been argued that the perception of gender during both the Mesolithic and the Neolithic was different from what it is today (Robb and Harris 2018; Schmidt 2005). Studies that argue otherwise are based on direct ethnographical analogies of modern hunter-gatherer societies that have been informed by Western notions of gender (Schmidt 2005).

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During the post-processual paradigm and the development of the field of gender archaeology, Mesolithic archaeological exhibitions in Swedish museums came to accept the idea of women as hunters (Bünz 2015). This widening scope of perception might, among other similar examples, be the result of the Barum woman case—a Mesolithic human skeleton excavated in the 1930s with findings of a slotted bone point, some flint, and a bone chisel. These findings were interpreted as male artefacts based on these items' relation to hunting (Bünz 2015; Larsson 2017)—which was interpreted as a male activity based on binary and heteronormative gender roles prevalent in the 1930s. An osteological analysis done in the 1970s proved the first interpretations to be wrong, as the skeleton belonged to a female who had given birth to several children (Bünz 2015; Larsson 2017).

It seems that the idea of men as gatherers is harder to grasp (Bünz 2015), even though ethnographic studies show that men in most hunter-gatherer societies do a large part of the gathering (Ingold 1986). In the cases when the term hunter-fisher-gatherers is used, it is unclear if the fishers are a group of their own or belong to either of the other two groups (see detailed discussion in Ingold 1986). Both men and women can fish according to the archaeological exhibitions in Swedish museums (Bünz 2015).

The aim of this article could have been to study the social group gatherers in Eastern-Central Sweden during the middle (9000–8000 Cal BP) and late (8000–6000 Cal BP) Mesolithic, to understand its role in the Mesolithic society and to shed light on a social group which stands in the shadow of the hunter group. However, it is unclear if the gatherers are a group of their own. Therefore, I have instead chosen to study the gathering practices in Eastern-Central Sweden during the middle and late Mesolithic to understand if these practices are able to tell us who the gatherers were. This will be done with a focus on the hazelnut which is the most common biofact in the region. The aim can be broken down into the following questions: 1) what practices can be understood from the findings of burnt hazelnut shells?, 2) do these practices indicate a gender division of some kind? and 3) who is the gatherer—is the act of gathering common knowledge or a specialised trade?

### **The Affordances of the Environment**

To fulfil the aim and to answer the questions stated above I have used James J. Gibson's 'The Theory of Affordances' (2015), and Ylva Sjöstrand's (2011) development of Gibson's ideas—which makes the theory suitable for the archaeological material.

Gibson (2015) states that the affordances of the environment are what the environment offers the animal. This could be a flat horizontal surface which offers or affords a stable ground to the animal. The ground also affords the animal a place to walk—the surface or the ground is walk-able compared to water, which is not walk-able—water is instead swim-able. All organisms and abiotic materials existing within the environment afford the organism in question different affordances, i.e. choices of interactions. A chair for example is, among other things, sit-able. This is because humans in some cultures view a flat surface at knee height supported by four rods as something that affords sitting on. The affordance of a chair is relative though: the chair at knee height affords sitting on for an adult but not for a child (Gibson 2015). For the child, the chair could instead afford climbing on. In a different situation, the chair could afford throwing (throw-able). This affordance will then overshadow the obvious affordance of being, sit-able (Sjöstrand 2011). If the chair, as Sjöstrand points out, is full of papers that normally lie on the desk next to the chair, the chair has lost its affordance of being sit-able (2011). The objects and subjects of the environment must then be understood as fluid—there is no stable essence (Sjöstrand 2011).

An important critique of Gibson's theory is that it leaves out how the organism prioritises between an object's large number of affordances. This raises the question of whether the agency lies with the organism or the objects and subjects of the environment (Sjöstrand 2011). In this case I will follow

Sjöstrand's (2011) line that the organism, which in this case is human, chooses among the affordances. The way humans choose from the different affordances is a part of their creativity—to be creative is to see other affordances than the obvious. But how does one study the choice of affordances in the archaeological material? This is where Sjöstrand (2011) develops Gibson's idea and makes his theory applicable to the archaeological material. Sjöstrand (2011) argues that the choice of affordances is visible through practices—how an object was used provides an insight to the user's choice of affordances.

### **Chain of Affordances**

The method applied here is an analysis of affordances, or rather an analysis of a chain of affordances. In the archaeological material, it is possible to see some of an object's affordances (also known as practices according to Sjöstrand 2011), just by looking. For example, a burned hazelnut shell is roasted and opened. This indicates that the hazelnut is roast-able and crack-able—this is possible to see just by looking at the burned hazelnut shell. However, we cannot see that the hazelnut was gathered, but it must have been. Therefore, it is possible to identify an object's different affordances and to build a chain of affordances, i.e. affordances that happened before and after the affordances that are visible in the archaeological material. This chain will then expose the practices that were carried out by the gatherer and create a basis for interpretation of what happened before and after the moment that the object's affordances are visible in the archaeological material.

### **Hunter-fisher-gatherers of Eastern-Central Sweden**

Eastern-Central Sweden consists of the provinces Södermanland, Uppland, Östergötland, Närke, Västmanland, Gästrikland and Dalarna (Gustafsson Gillbrand 2018; Lindgren 2004). The geographical area is based on the similarities in artefacts, economy and raw material used within the provinces—namely the use of local raw material quartz, a maritime economy (fishing and seal hunting) and the use of green stone axes earlier than the other regions of Sweden (Lindgren 2004).

During the Mesolithic, Eastern-Central Sweden consisted of two ecological zones—an archipelago in the east surrounded by the mainland in the south, west and north (Lindgren 2004). Based on these two ecological zones, a settlement model was made during the 1970s (see Hulthén and Welinder 1981; Welinder 1977). Stig Welinder argues that movement is made between large base camps and small specialised hunting and fishing camps based on what resources are available for the season. The base camps are located on the mainland's coastal areas, and on the islands close to the coast, while the specialised hunting and fishing camps lie in the archipelago and further into the mainland compared to the base camps (Hulthén and Welinder 1981).

Christina Lindgren (2004) approaches the Mesolithic settlements in Eastern-Central Sweden from a different perspective, focusing on the social dimension of technology rather than the economy. Lindgren recognises the size differences of the settlements—however, she argues against the economic-based idea of base camps, and specialised hunting and fishing camps. Lindgren's main criticism of the economic model is that she observed a variation in the settlement sizes located in the archipelago, and that she did not see any indications of specialised activities at the small settlements, such as butchering. The variation could be interpreted as a nomadic way of life within the archipelago (Lindgren 2004). She further argues for social units consisting of a small number of people that resided at the small settlements, and that these small social units (or groups) gathered at the large settlements. If one speculates based on this interpretation, the large settlements could have been meeting places for economic activities, such as trade, as well as social activities, such as marriage, funeral practices and solving conflicts. According to her, hunting, fishing and gathering were done in the vicinities of both large and small settlements.

This raises the questions: what kind of society is visible in the settlement organisation of Eastern-Central Sweden, and why does it make a difference when studying gathering practices? I have chosen to use the already defined categories of *simple* and *complex* hunter-gatherer societies to reach an understanding of the relation between settlement organisation and society. It is worth mentioning that these categories were formed within the Spencerian evolutionary theory, which states that a simple hunter-gatherer society is less evolved than a complex hunter-gatherer society (Mesoudi 2011). I would like to stress that I do not agree with the Spencerian model. Rather, I see the categories of simple and complex hunter-gatherers as Cummings (2013) does, as a spectrum of diversity where simple and complex is at either end of the spectrum.

A simple hunter-gatherer society is recognised by its egalitarian political organisation, non-specialised labour division (except for elders), highly frequent mobility, small settlements, low population density, diffused ownership, hunting of terrestrial game and little to no dependence on stored resources. A complex hunter-gatherer society is recognised by social stratification (lineages), more specialised labour division than simple hunter-gatherer groups, less frequent mobility or a sedentary lifestyle, large settlements, high population density, controlled wealth, hunting and fishing in marine environments and in some cases horticulture practices, which make these societies dependent on stored resources (Cummings 2013; Kelly 1995).

If the hunter-fisher-gatherers of Eastern-Central Sweden can be recognised as leaning towards a complex hunter-gatherer society, it is more likely that a labour division between hunting, fishing and gathering could have occurred. This does not necessarily mean that men hunted while women gathered; the labour division is, as mentioned above, based on more factors than simply gender (Cummings 2013; Kent 1998). The settlements, as both Welinder (1977) and Lindgren (2004) have observed, consisted of large and small settlements. Welinder's model of base camps and specialised hunting camps show similarities with Binford's (1980) residential mobility and logistic mobility—which is a part of Binford's forager/collector model. The forager/collector model makes a distinction between the settlement systems' residential mobility and logistic mobility. Residential mobility is defined as movement made by an entire group from one residential settlement to another. Logistic mobility is the movement made by small task groups to resource extraction locations (Binford 1980; Lane 2014). Binford (1980) calls hunter-gatherer societies with a high residential mobility and low logistic mobility 'foragers', and hunter-gatherer societies with a low residential mobility and high logistic mobility 'collectors'. Based on residential mobility, the forager societies can be considered simple hunter-gatherer societies, while the collectors can be considered complex hunter-gatherer societies (Lane 2014).

Neither Welinder (1977) nor Lindgren (2004) go into detail on how often people moved between the settlements. However, Welinder argues for a movement in November from the coastal zone, consisting of base camps, to first the inland, and then the archipelago, which consists of specialised hunting and fishing camps (Hulthén and Welinder 1981)—but how often the movement occurs within the ecological zones is left out. The settlement organisation cannot alone tell if the hunter-fisher-gatherers of Eastern-Central Sweden are to be viewed as leaning towards simple/forager or complex/collector societies during the middle and late Mesolithic, but it can be used as a point of departure.

According to ethnographic studies, complex hunter-fisher-gatherer societies often reside in rich aquatic ecosystems (Cummings and Jordan 2014; Sutton and Anderson 2010). The maritime environment of Eastern-Central Sweden in combination with the settlement size and formation speaks for complex hunter-fisher-gatherers in the region. Furthermore, it seems that the production of green stone axes should be considered a specialised trade, perhaps even ritual, as the production area within settlements appears separated from the rest of the activity areas (Lindgren 2004)—these axes occur in such high numbers, sometimes over a hundred axes in one settlement (Carlsson 2015), that they cannot only be produced by elders of a simple hunter-gatherer society.

Pits are also common among the large settlements; these pits have been interpreted as storage constructions (Åkerlund 1996) which also indicates complex hunter-fisher-gatherers. Additionally, simple hunter-gatherer or egalitarian highly mobile societies are over-represented when it comes to interpretations in hunter-gatherer archaeology. This is because much of the early research and interpretations are based on only a handful of ethnographic cases (Lemke 2018). The Mesolithic period of Eastern-Central Sweden was not really discovered until the processual paradigm (see detailed research history in Lindgren 2004)—the golden days of ethnoarchaeology—which makes it likely that these few ethnographic cases also affected the interpretations of hunter-fisher-gatherers in Eastern-Central Sweden.

To conclude this discussion on whether the hunter-fisher-gatherers of Eastern-Central Sweden are leaning towards a simple or complex hunter-gatherer society—I argue, based on the combination of settlement formation, the ecological setting, the inner structure of the settlements and the critique of earlier interpretations based on ethnographic and ethnoarchaeological studies, that the hunter-fisher-gatherers of Eastern-Central Sweden can be categorised as leaning more towards a complex hunter-gatherer society.

### **The Environment and the Habitat of the Hazel**

The hazel shrub or tree (*Corylus avellana*) grows in various habitats in nutritious soils. It grows everywhere from open forest to groves, brook edges and hillsides. The shrub has several strains that reach between two to six metres off the ground, and sometimes up to eight metres—when it reaches six to eight metres it is often categorised as a tree (Mossberg and Stenberg 2003). The strains and branches are suitable for firewood and construction of different kinds (Svedberg *et al.* 2004). The hazel shrub blooms from February to April and produces its fruit, the hazelnut, from early summer to early autumn. During the Mesolithic period, the hazel shrub migrated from the south of present-day Sweden to the north together with the boreal forest succession. Eastern-Central Sweden was forested sometime between 9000 and 8500 Cal BP (Welinder 1977).

There are several hypotheses of how the hazel shrub spread from Europe to Scandinavia, which include nut or branch transportation on water, small mammals, birds and even by humans (Tallantire 2002). In local environments the hazel shrubs are naturally spread by small mammals, such as squirrels (Mossberg and Stenberg 2003). The hazel shrub's ability to exist in various environments in combination with the spread by water explains its existence in the archipelago of Eastern-Central Sweden during the middle and late Mesolithic.

The hazelnut, or rather the burned hazelnut shell, is the most common biofact at the Mesolithic sites in Eastern-Central Sweden (Lindgren 2004) and seems to have been the most important plant food resource during the Mesolithic, a resource which was more than just a food supplement to animal protein (Regnell 2011). Furthermore, the importance of the hazel as raw material should be stressed. In Eastern-Central Sweden, unburnt organic material is not preserved due to acidic soil conditions—however there are examples of fish traps made of hazel branches from the Ertebølle culture in the south of Scandinavia (Regnell 2011), where the preservation conditions are better. It is likely that the hunter-fisher-gatherers of Eastern-Central Sweden also used hazel for fish traps and other kinds of constructions.

## The Affordances of the Hazelnut

As mentioned above, the burnt hazelnut shell is the most common biofact at Mesolithic settlements both in Scandinavia (Regnell 2011) and in Eastern-Central Sweden (Lindgren 2004). There are a few other biofacts preserved as well, such as raspberry seeds (*Rubus idaeus*), juniper seeds (*Juniperus communis*), rose hip (*Rosa canina*) and acorn (*Quercus*) (Lindgren 2004; Regnell 2011). The hazelnut was chosen for the study of gathering practices, as it apparently holds greater importance for the Mesolithic people compared to the other biofacts, based on earlier research (Lindgren 2004; Regnell 2011), and the large number of findings compared to other biofacts in the region. Figure 1 visualises the hazel's chain of affordances.

The affordances that are visible in the archaeological material, more specifically in the burnt hazelnut shells, are the practices of roasting (roast-able) and opening or cracking the hazelnut (crack-able). From this the chain of affordances can be constructed both ways: before these practices and after. The chain begins with the hazel shrub. Based on earlier research that stresses the importance of the hazel (cf. Regnell 2011) it is likely that the hazel shrub was recognisable to the gatherers and seen as any other raw material, for example quartz. The right leg of the chain (Figure 1) focuses on what the hazel shrub affords from a constructible perspective.

The branches afford cutting and when the branches are cut, they have transformed into raw material. When the branches are cut, the shrub produces more sprouts the next year. It is likely that the gatherers were aware of this, based on the gatherer's own experience and that of earlier generations. Furthermore, when cutting branches or straws, the area in which the shrubs grow becomes more open—this, in

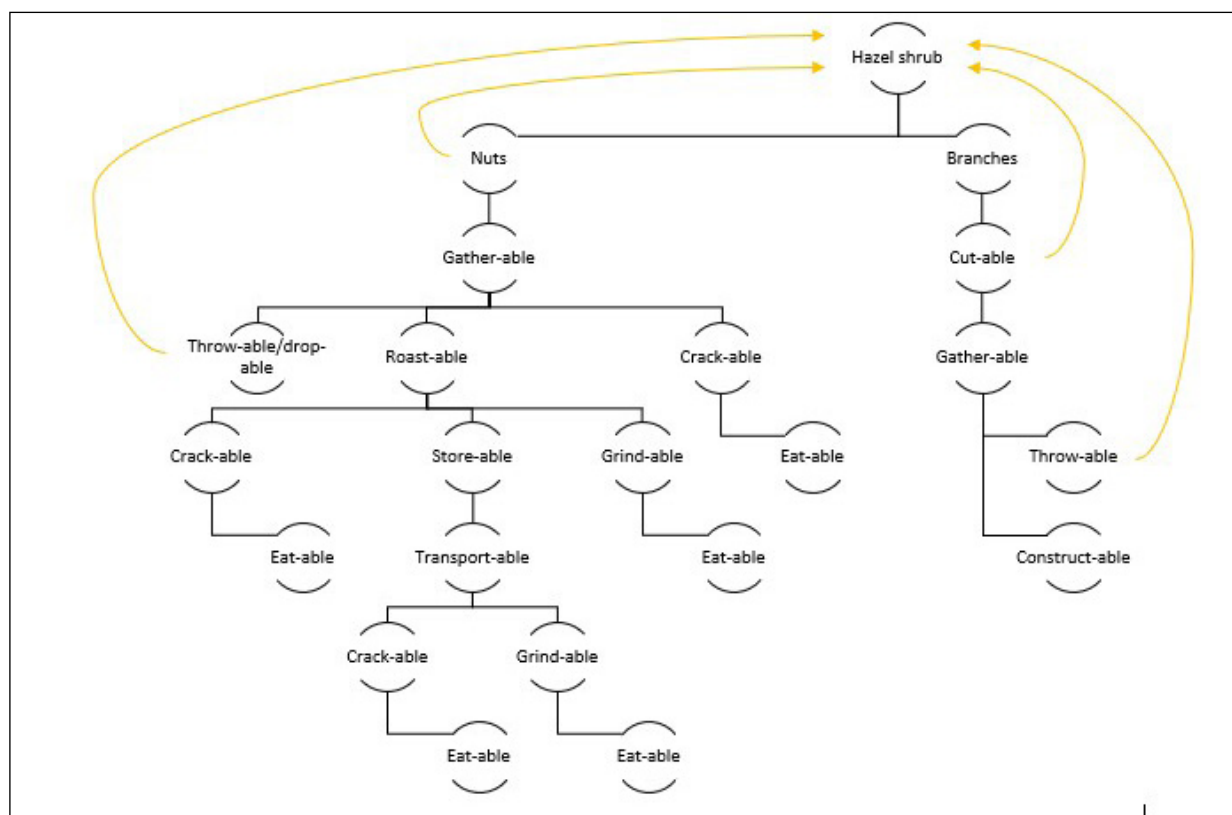


Figure 1. Chain of affordances. The yellow arrows mark the affordances that affect the spread of the hazel seed (author).

combination with the new generation of branches, attracts animals the following year (Cummings 2013; Sutton and Anderson 2010). This makes the gathering spot good for hunting the following year. It is also likely that both the gatherer and the hunter were aware of this. There is evidence from Norway, Britain and Ireland of Mesolithic hunter-gatherers who deliberately set forests on fire to clear areas (Selsing 2016; Zvelebil 1994). The ethnographic record also shows how modern hunter-gatherers use fire in order to create better hunting grounds and to enable regrowth (Cummings 2013). However, I have not included fire management in the chain, as there is no evidence for that in Eastern-Central Sweden so far. After cutting the branches, they become gather-able. The good ones are kept, and the bad ones are thrown away—they afford throwing. The branches that are kept as raw material can later be worked into various tools, weapons, traps, hut walls, etc.

The left leg of the chain begins with the hazel shrub and the production of its fruit, the hazelnut. As the hazelnut is edible both when unripe and ripe, it affords gathering from early summer to the early autumn. This means that the hazelnut affords gathering, cracking and eating during the gathering process itself—ethnographic studies shows that eating while gathering or hunting is common (Ingold 1986). In this process it is likely that what is considered a good nut is either gathered and stored in a basket or eaten right away. The bad nuts (that are not kept) therefore afford throwing or dropping on the ground. This in turn produces new trees the following year. Just like in the right leg of the chain and the affordances of the branches, it is likely that the gatherers were aware of this, based on the gatherers own experience and/or the experience of others handed down through the generations. If so, this further supports the argument that the gathering and the hunting took place in the same spots—as the young trees attract animals such as deer (Sutton and Anderson 2010).

A crucial point, when it comes to the actual gathering of the fruit, is that there is no need for gathering tools, such as rope or ladders, as the hazelnuts mainly grow on shrubs. This means that all members of the group—men, women, young and old—were able to gather the hazelnuts. The affordances of the hazelnut are the same for all individuals. To not gather the hazelnuts when able to, simply seems unlikely when living in a harsh maritime environment (for discussions on disabled hunter-gatherers see Ariotti 1999; Berkson 2004; Tilly and Oxenham 2011).

Once the hazelnuts are gathered, they afford roasting. There are many examples from Mesolithic settlements where burnt hazelnut shells were found within hearths, close by hearths and in coal-mixed layers (cf. Carlsson 2012; Carlsson and Hagberg 2014; Holst 2010). Experimental archaeological studies conducted by Lage (2004) has shown how these hearths or roasting pits worked. First, one lights a fire on sand and lets it burn out—to put the hazelnuts directly in the fire would destroy them. When the fire burns out and the coals are still warm, one mixes the coals with the surrounding sand. The hazelnuts are then put in the warm coal-mixed-sand and covered with more sand. After a few minutes the roasting process is done, and the hazelnuts can be raked from the coal-mixed-sand (Holst 2010).

Roasting the hazelnuts makes them easier to crack and grind (Mithen and Score 2000), which makes them crack-able and grind-able. Additionally, the roasted hazelnuts are also more likely to resist mould fungi than the unripe and unshelled hazelnuts (Holst 2010)—they now afford storing. Furthermore, the weight of the roasted hazelnut is 50% less than the weight of the unroasted hazelnut, which makes it easier to transport them in larger amounts (Mithen and Score 2000). The roasted hazelnuts then afford transportation, and roasting enables cracking and eating at a later occasion.

## Discussion and Conclusion

To summarise the analysis above, the hazel shrub's chain of affordances consists of two legs: the right leg which visualises the hazel shrub as raw material for construction—fish traps from the Ertebølle culture were highlighted as an example. The left leg visualises the affordances of the hazel shrub fruit, the hazelnut, and then divides into subordinated legs focusing on how to eat, store and transport the hazelnuts (Figure 1). During the middle and late Mesolithic in Eastern-Central Sweden, the gathering practices do not belong to a specific group of people and the labour of gathering does not seem to be divided by gender. Three arguments speak for this. First, regarding where the gathering took place: there were functional advantages both of gathering and hunting if these two activities were performed in the same place. The gathering practices contributed to new growth and opened the area—which attracted large and medium-large mammals, such as deer. It is likely that the Mesolithic people were aware of this and had a seasonal system to take advantage of this, returning to the same places for hunting and gathering depending on the latest harvest of the hazel shrub and its fruit. It is also likely that during the gathering process smaller mammals that live off the hazelnut, such as squirrels, were hunted too, based on ethnographic studies (Ingold 1986).

Even though this argument does not entirely speak for non-divided labour, these divisions between hunting and gathering may be too artificial. In some definitions of the term hunter-gatherers, the hunting of small mammals is counted as a part of the gathering practices (Ingold 1986). It is possible that a group of gatherers were harvesting hazelnuts and collecting branches in an area, to open it up, and then another group of hunters used the glade as a hunting ground a couple of months later—but while waiting for the animal to show, sometimes for hours, it is probable that the hunter ate of the green hazelnuts, as they are edible unripe. Arguably, this could categorise the hunter as a gatherer. Furthermore, if the fisher picked up a couple of branches which later were made into a fish trap—this could also be conceived as making the fisher a gatherer.

The second argument is the hazelnuts' affordance of gathering or collecting. As the hazelnut grows on shrubs, its fruit's affordances are the same for all members of the social group. In other words, the hazelnuts are reach-able for all members of the group, even the children. So why should only a certain part of the group collect the hazelnuts when all can? Especially when living in small groups, as Lindgren (2004) has argued, in an environment where many of the resources migrate and are an unreliable source of food.

The third and last argument is the hazelnut's affordance of storing and transportation. The roasting process makes hazelnuts store-able and reduces their weight by 50%, which makes them an important resource for mobile hunter-fisher-gatherers (Holst 2010). Regnell (2011) argues that the hazelnut is more than just a supplement to animal protein. I agree with Regnell, but in this case it is important to stress the hazelnut's role as a supplement. When hunting, one cannot predict the hunting process—it can take hours or days before the prey shows. For hunter-fisher-gatherers living in an archipelago and mainly hunting seals, it might be even harder as the seals can swim away from shore if hunted from land and dive under water if hunted from boats. The roasted, stored and easily transportable hazelnut is then a perfect food during the hunt and for the times when the hunters return empty-handed. As noted above, it is likely in times of bad hunting luck that the hunters turn to plant resources for food. Eating is common while hunting and gathering, as Ingold (1986) noted. It is not logical that hunters and gatherers only eat what they have respectively hunted and gathered—it seems more likely that they consumed the products from both activities while conducting those very same activities.

Based on the affordance of the hazel shrub and its fruit, the hazelnut, I argue that the gatherers who lived in Eastern-Central Sweden during the middle and late Mesolithic are the whole community: hunters, fishers, women, men, children, and elders – the gathering is not a set of practices that belong to a restricted social group but a set of practices performed by all members of the society, and these practices are to be considered as a common knowledge which is passed down through the generations.

Gibson's theory of affordances in combination with the method used in this article, chain of affordances, should in future research be applied on other biofacts, artefacts and raw material to further investigate the labour division in the Mesolithic societies of Eastern-Central Sweden—as other things in the archaeological material may speak for labour division. In doing so, one can reach a better understanding of the social organisation of the Mesolithic hunter-fisher-gatherers of Eastern-Central Sweden.

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# Missing Objects: New Perspectives to Tackle the Problem of Textile Activity

Patricia Rosell Garrido<sup>1</sup>

## Abstract

As a result of a research project at Los Almadenes (6<sup>th</sup> century BCE; Hellín, Spain), developed by a team of archaeologists from the University of Alicante, and the necessity to adapt earlier and current studies about the settlement, new theories and methods related to feminism and gender have been applied to site interpretation. This paper tackles the analytical issues of loom weights and spindle whorls, found in the archaeological record of Los Almadenes since the beginning of site excavations in the 1990s, in addition to the ongoing debate about their context and meaning for the female presence at this site. All in all, this research examines the appropriateness of using a direct reading of the archaeological record to link these tools and the female role. This paper presents several case studies from other cultures to explore this issue.

**Keywords:** Gender Archaeology, Feminist Archaeology, Ethnoarchaeology, Household, Maintenance Activities, Textile Tools, Female Role

## Which is the “Starting Point”?

Los Almadenes is an archaeological site dated from the 6<sup>th</sup> century BCE, built up *ex novo* and has a single occupation timeline (Cañavate *et al.* 2016; López and Sala 1999; Sala and López 2000). This small and fortified settlement (Cañavate *et al.* 2016, 518) is in the south-east inland region of the Iberian Peninsula (Spain), to the south of Albacete and north to Región de Murcia. A low percentage of the population belongs to the area of Los Almadenes (Hellín, Albacete; Figure 1).

This site is located at a strategic point in the landscape, which allowed it to control the trade networks and other traffic between the inland and the south-east coast, enabling it to exert total control over its surroundings. Thus, it was suggested that it was an important redistribution centre which explains the large number of amphorae remains on-site (Cañavate *et al.* 2016; Sala and López 2000). This type of settlement shows an organisation pattern fairly similar to the Roman *castellum* model, where men were supposedly the only people who inhabited and stayed at the site (Cañavate *et al.* 2016, 519), although the archaeological record revealed during the excavations during the 1990s suggests other possible life-models.

On this matter, the existence of spindle whorls and loom weights started a discussion about the presence or absence of women in this settlement, mainly when the analysis was focused on Building 1 (Figure 2), which is the largest on the entire site with a large number of ceramic sherds. Although the presence of women seems to be obvious, the debate began due to the context in which the spindle whorls and loom weights were found: that is, their location in rooms, their spatial distribution within the room, as well as their number and characteristics. All these distinctive features make the significance of these objects in Los Almadenes unclear. For that reason, it is necessary to address the connotation of these two archaeological elements in other cultural groups, such as the societies of the ancient Mediterranean and other currently existing communities with the objective of learning about their applications, who used them and why.

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Figure 1. Geographical location of the archaeological site of Los Almadenes (6<sup>th</sup> century BCE; Hellín, Albacete) in Spain (author).

### Towards a Feminist and Gender Archaeology Application

As the main issue is understanding if the presence of spindle whorls and loom weights always means the existence of the female figures on-site, the object of study is the ‘woman’s sphere’. Therefore, it is necessary to take an approach that integrates the female figure with the site, as gender and feminist archaeologies do. Through their epistemological basis, gender and feminist archaeologies created theoretical currents that pushed archaeology towards an objective and inclusive vision that better represents the realities of past societies. These principles arose from the social revolution of May 1968 that promoted the end of the great paradigms at the end of the 1970s, where changes in thinking involved the establishment of feminist studies and their definitive inclusion in archaeology (Montón-Subías and Lozano 2012).

Post-processualism and critical archaeology’s appearance modified traditional perspectives, to contemplate a new type of history. It is important to consider why we do archaeology and why we should change traditional perspectives. The answer for pioneering and current archaeologists is to find a reliable and contrasted interpretation of the reality of the past and, for this, there is an inclination to include minority groups that were excluded from the narrative—such as women. This means that the barrier imposed by heteronormative perspectives in the past must be broken. On the one hand, eliminating the artificial division between men and women and, on the other, showing the forgotten reality of the differences within the social classes themselves. Researchers must also further examine the masculine sphere, since the study of it has never been properly developed (Aixelà 2005, 23; Hernando 2007, 8; López-Bertran 2014, 34).

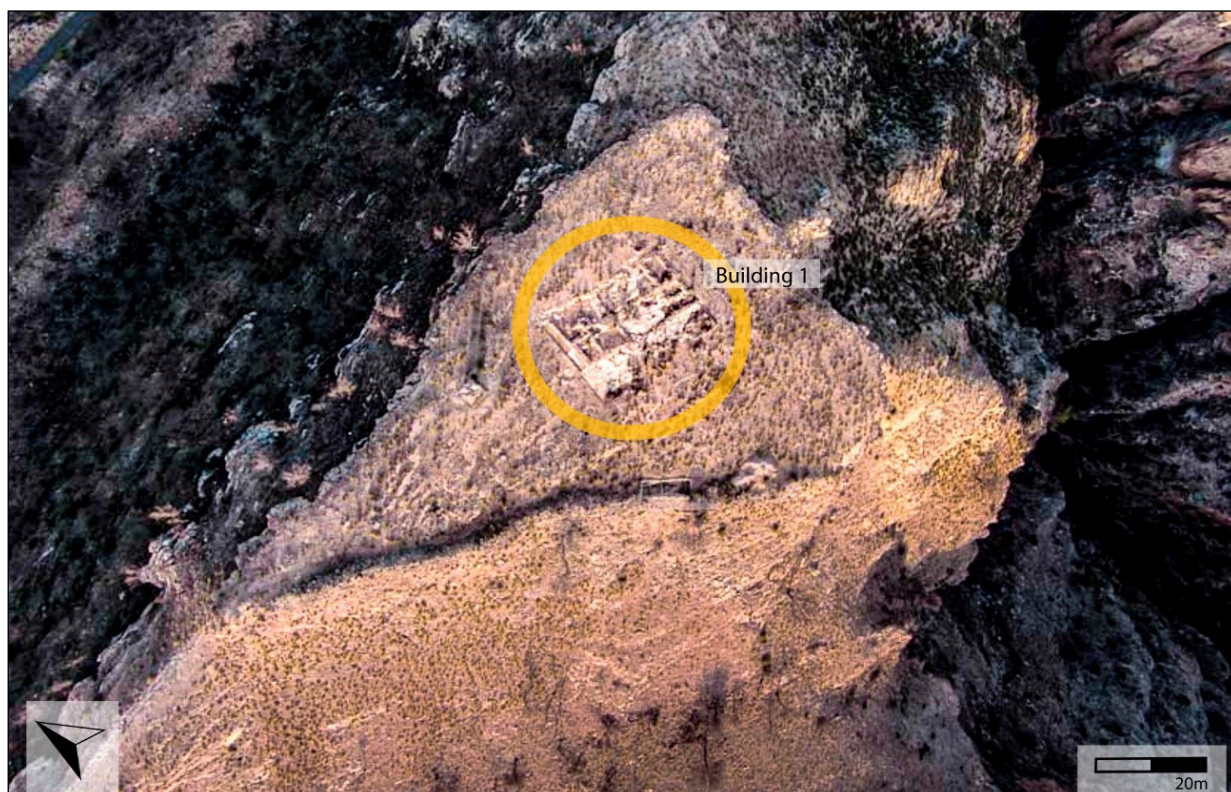


Figure 2. Aerial photograph of the settlement of Los Almadenes; the location of Building 1 is circled (author after Cañavate *et al.* 2016).

New discourses are essential to complement the feminist approach and to progress these theories. Thus, approaches including socio-biology, social construction theory, evolution, political economy, agency, and performance resulted in other archaeological methodologies, for instance: queer, agency, identity, household, maintenance activities, personhood, body, indigenous and post-colonial theories (Berrocal 2009; Montón-Subías and Lozano 2012; Montón-Subías and Meyer 2014). These various theories mean that different methods give archaeologists the opportunity to re-read archaeological remains resulting in new perspectives. Hence, past knowledge does not depend only on the amount preserved within the archaeological record, but also on the applied approach.

In this case, household archaeology and archaeology of maintenance activities are the methodologies used, due to the aim of the research. The spindle whorls and loom weights are used in tasks developed in everyday spaces, and analyses of these objects will help to reach an understanding of the daily activities of the group and to recognise the household spaces where each activity is carried out (Conkey and Spector 1984).

In short, applying both methodologies means focusing on the house, its structure, its objects and the group who lived there. It is these areas that will help to demonstrate the actual use of space and material culture within the household. Therefore, the household becomes the element that supports gender patterns and the one that best defines them. However, the complexity involved in its study also serves as a reminder of the difficulty of linking artefacts and spaces to women or men (López-Bertran 2014, 34).

### Spindle Whorls and Loom Weights... What They Are and Other Possibilities

The spindle whorl (Figure 3) and the loom weight (Figure 4) are two items traditionally related to textile production as different types of sources demonstrate, such as the examples from Greek iconography and the texts of classical authors. However, this conventional linkage and the particularities of the elements have meant that spindle whorls and loom weights previously collected in archaeological contexts have not been properly analysed and studied (Vílchez 2015, 282). Consequently, these objects were excluded from research studies until the 1980s and 1990s, due to their lack of aesthetic appeal, and the idea that they were exclusively related to an activity belonging to quotidian life and the feminine sphere.



Figure 3. Spindle whorl of Room B of Building 1 of Los Almadenes (6<sup>th</sup> century BCE; Hellín, Albacete, Spain; author).

As they began to be studied more, it was observed that their characteristics and spatial distribution show different possibilities of usage. Therefore, it is important to consider these tools to understand their relevance as objects within the material culture of the group to which they are attached. With this intention, it is more appropriate to use the Latin terms *pondus* (sing.) and *pondera* (pl.) to refer to the loom weight (Castro 1985, 232).



Figure 4. *Pondera* (dated at the end of 6<sup>th</sup> or in the 5<sup>th</sup> century BCE) of House C.2. at the Iron Age site of El Macalón (Nerpio, Albacete, Spain; author).

These artefacts are mainly made of clay or terracotta, but sometimes they are also made from other raw materials such as stone and bone. Their sizes, weights and shapes are multiple, in addition to some presenting varied decorations, and in the case of *pondera*, the number of their holes may vary. Certainly, they are the tools that represent the two tasks that could be conceived as the hallmarks of textile activity (Castro 1985; 1986). First, spindle whorls are used—together with the spindle—to spin the material, such as wool, into thread which it the weavers will use later. Later, *pondera* are used as a counterweight to tighten the warp of the vertical loom (Figure 5), to be able to weave the threads obtained in the previous process.



Figure 5. Replica of an Iberian vertical loom of the archaeological site of Kelin (Caudete de las Fuentes, Valencia, Spain; Dorieo 2011).

The fragility of the spindle whorls and *pondera* makes it difficult to document the possible use of vertical looms and as a result of textile production in general. Although they are quite simple artefacts, the written sources of different periods and cultures have repeatedly affirmed their relevance within the cultural group—multiple and varied texts attest that weaving is a task commonly carried out by women and is usually defined as a daily activity. On certain occasions and circumstances, both the tasks and the pieces obtained from it have symbolic characteristics for the group involved.

Among the written sources analysed, the Mycenaean texts of Pylos and Knossos provide more information, in addition to affirming the relationship between labour and women, describing the conditions, the social concept and those who participate in the work. These texts present textile production as a task developed in the palaces and performed exclusively by women, who had a high knowledge of the matter—which was a direct consequence of their servant situation with full working hours. Imprisoned women and/or enslaved women and children also participated in this task (Rafel 2007, 116).

Biblical sources also mention these tasks, particularly in the *Book of Proverbs* in the Old Testament and the Hebrew *Tanakh*. The chapter “Praise to the virtuous woman” (*Proverbs* 31: 10-31) describes how the women in Hebrew society of ancient Israel should be and behave, through describing the different steps of the task process (Alamar 1998, 43-44; Delgado 2016, 66):

“- [...] Looks for wool and linen / and works with her diligent hands. [...] Takes hold of the spinning wheel, [...] her palms take the spindle. [...] She makes mantles for herself, / and her dress is linen and purple. [...] She makes linen robes and sells them, / delivers them to the traders. [...] -”. (*Proverbs* 31:13, 31:19, 31:22, 31:24)

In Greek mythology, the link between women and weaving is observed again (Cardito 1996, 125-126; Gomes 2017, 56). Indeed, the feminine divine protector of arts and crafts is Athena, and those who spin and weave the lives of mortal people to control their destiny are the *Moirai*, a group of female divinities who were instructed by Zeus: Clotho spins the thread—birth, Láqueis measures it with the rod—life, and Atropos cuts it with the scissors—death. Furthermore, the myths tell that Athena gave her gift and virtuosity of knitting to the first woman, Pandora, according to Hesiod (Reboreda 2010, 169). At the same time, she unleashed her anger against Arachne after observing her skills in one of her woven cloths, in which illustrations appeared showing the Olympic affairs. Unable to object to the work done, Athena turned Arachne into a spider who, fearing her transformation, hung herself on a beam. Nonetheless, these fables also contained an indirect message beyond just the relationship between humans and gods. The myth of Arachne, it has been interpreted as the expression of the commercial rivalries between Athenians and Lidiocarians of Crete, while Miletus (whose emblem appears to have been a spider—Arachne) was the trading core of dyed woollen clothes at the beginning of the 2<sup>nd</sup> millennium BCE (Cardito 1996, 125).

Likewise, the Greek texts describe the daily life of society by repeating the previous scheme observed in mythology, that is, the female group carries out tasks related to textile activity (Reboreda 2010, 169-170), because when they were girls they were the ones who ended up training and learned the trade quickly. When these girls were seven years old they could already be called experts—known as *Arreforas*—because they had to start weaving the *peplos* offering to deliver to Athena at the Feast of *Panatenneas*. This event also brought together other mothers and older daughters to offer the goddess the jointly created fabrics, with whom they made the garments of the bridal dowry.

Finally, in the Roman world, the sphere of divinities and mythology had, once again, a group of women who handle the threads of mortal life—as in Greece—known as *Parcae* (Gomes 2017, 56). In the case of the texts that refer to society and everyday life, the example of the Vindolanda camp (near modern-day Bardon Mill, United Kingdom)—from 85 to 285 CE—stands out. One of the tablets found during the archaeological excavations mentions the purchase and sale between Gavvo, a textile merchant, and the wife of the prefect, who bought 38 pounds of washed wool (Wild 2011, 72). It is true that these spinning and weaving tasks were probably carried out by their slaves, although the document is a faithful reflection and testimony of the continuation of the *lanificum* tradition, one of the attributes typical of the idealised Roman matron linked to her virtuosity in textile tasks, intimately related to women and their daily-life environment.

Although these texts differ in time and space, they are testimonies that can be ratified in another source of information—the iconographic sources, which are even more expressive when analysing archaeological objects. It is true that both texts and images sometimes have a propaganda purpose, taking into account that not all the members of these societies could afford, develop and obtain these kinds of sources. However, the need to bring the community together to consolidate and maintain their shared culture is expressed through these iconographic sources, in which the origins of the group and

the prototype of the lifestyle are displayed. Through these iconographic representations the theory of the aforementioned texts is reflected, and we observe again the strong relationship between textile activity, women and everyday life. However, they simultaneously display a rich indirect reading of the group behaviour and the actual society, beyond the propaganda of the images.

For example, a detailed analysis of the decoration on a Hallstatt urn from tomb No. 27 of Sopron-Varhelyi (Ödenburg, Hungary), dated to the Low Bronze Age (Alfaro 1984, 73; Rafel 2007, 116) displays a common scene linked to the spinning and weaving process. The three figures are represented standing, wearing triangular clothing with different decorations that covers them down to their knees. The figure on the left, facing the right, works with a spindle and a spindle whorl to create the thread, while the remaining two figures weave as follows: the central figure, facing the right, works in front of a vertical loom whose hanging threads have small round pieces at their lower ends that are interpreted as the *pondera*; and the figure on the right is facing the left and the loom, holding a rectangular-shaped object with two hands, which is probably a basket, necessary to carry the threads and other tools used in the task.

Another interesting case is the scene depicted in the *tintinabulum* from tomb No. 5 (Degli Ori) of the necropolis dell'Arsenale (Bologna, Italy), dated to the 7<sup>th</sup> century BCE (Alfaro 1984, 76; Rafel 2007, 116). This image shows two separate scenes, in which the three figures have the same dress and/or tunic attire that covers them to the ankles, and a large veil revealing only their faces, hands and feet. The figure in the upper scene is depicted standing, facing to the right and holding a spindle, in which we



Figure 6. Gynaecion scene depicted in the Attic *lekytos* assigned to the painter of Amasis (dated in the 6<sup>th</sup> century BCE; author).

observe a spindle whorl with which the figure is spinning. The bottom scene has two figures sitting, each one in a seat similarly decorated and facing each other. In front of them there is a large container from which they are gradually extracting vegetable fibre to turn into threads, and both are working with their hands a spindle with a spindle whorl.

Furthermore, these textile scenes can also be observed in Greek iconography, therefore ratifying their various written sources. A distinctive example is the *gynaikion* scene depicted on the Attic *lekytos* (Figure 6) assigned to the painter of Amasis and dated to the 6<sup>th</sup> century BCE (Alfaro 1984, 89; Reboreda 2010, 169). This image, with more protagonists, tells the story of the most prominent parts of the textile process. The five figures are undoubtedly women who wear dresses with different decorations on the fabrics, but they leave their heads, arms and feet uncovered and girdle their waists. However, the leftmost figure also wears a robe over her dress, hiding more of her arms and waist. The hairstyle they wear leaves their hair loose and visible accompanied by a simple circular headdress that similarly to a ribbon is placed on their foreheads, surrounding the entire head down to the neck, except the fourth woman who has collected her hair inside a headdress as a turban of cloth.

In this case, the two women on the left are facing each other while treating the vegetable fibre, by stretching and separating it to make it easier to convert it into thread. To do this, the figure on the left is represented sitting—whose seat does not show a special decoration—and directly obtains the vegetable fibre from a rectangular container located in the floor, while her companion stands and works with her hands a skein of this vegetable fibre outside the basket that contains it. On the other side, the central figure is standing, facing to the right and carrying in her hands a pair of spindles, in which the spindle whorl is observed, to make the thread. This is then shown as skeins of previously worked and stretched vegetable fibres. The last two figures located to the right of the scene, are also standing and facing each other, working on either side of the loom, on which the *pondera* are drawn in a truncated pyramidal shape.

Lastly, in an incomplete scene known as ‘The Lady of the Loom’ (Figure 7) from the Iberian site of La Serreta (Alcoi, Spain) and dated to the 3<sup>rd</sup> century BCE, this iconographic pattern is repeated. Without disregarding the fact that the complete development of this representation is not known, a figure is observed wearing the recurring attire of the previous iconographic sources—i.e. a tunic or maybe two with different decorations on the fabrics, that covers the body, including part of the feet, and with a possible veil or headdress as a turban of fabric that collects all the hair and only exposes the face.

The figure represented is facing the right and some researchers suggest that it is a person sitting due to the position and bend of the legs, but a seat is not observed next to her. Her task seems to be linked to a large object of which only the upper-left corner can be seen, appearing to be a possible loom, in which case it would be vertical and would require *pondera*. The two artefacts that she carries in each of her hands and the supposed vertical loom are somewhat difficult to determine. However, some authors present it as a female figure with a spinning wheel, a spindle and a loom (Rafel 2007, 116).

Certainly, the character of the sources mentioned above tends to represent an ideal social scheme that, at the same time, is copied by individuals in the community. However, some people or groups in real life do not always strictly adhere to the type of behaviour associated with that community because they have to adapt to different circumstances. This problem is the one that hinders the interpretation of the archaeological sources, forcing researchers to meditate on an apparent link between textile tools located in specific spaces with exclusive use by women. On the one hand, the settlements have spaces of use containing material culture and structures that, in most cases, have been related to textile activity, because of the artefacts. However, an exhaustive study through the theoretical and methodological frameworks proposed above may offer different formulas to consider.



Figure 7. Incomplete Iberian iconographic representation of The Lady of the Loom on vessel (dated in the 3<sup>rd</sup> century BCE) of Iberian archaeological site of La Serreta (Alcoi, Alicante, Spain; author).

In the case of Bronze Age and Iron Age sites—due to the chronological starting point of this research—if the spindle whorls and *pondera* belong to the material culture related to maintenance activities, these items can appear in different places: inside rooms, in the courtyards of the houses or in the streets. This means that the tasks possibly changed their location on a seasonal basis and took advantage of the light and larger spaces. Some examples are the Bronze Age settlements of Peñalosa (Jaén, Spain) and Lloma del Betxí (Paterna, Spain; Berrocal-Rangel 2003, 279, 281) and the Iron Age settlements of El Oral (Alicante, Spain) and El Macalón (Albacete, Spain; Castro 1986, 174; López 2015, 127). In addition, the spinning process does not require a place designed for it and Lozano (2014, 88) claims that rarely do the findings indicate the precise location of the execution.

Furthermore, some rooms that accumulate a large amount of these objects, evidencing continuous work on a large scale, could be indicating a more specialised task whose resulting fabrics would probably be used for exchange and/or trade. Likewise, the location of these artefacts—especially the *pondera*—in unique rooms belonging to the whole community (*thesaurus*) would add a symbolic character to the accomplishment of the labour. These spaces, understood as ‘chapels’ or ‘lay deposits’, are where the faithful make personal offerings to the divinities through textile work. Some sites of the Bronze Age such as El Amarejo (Bonete, Spain; Blánquez 1996, 156; Castro 1986, 182), La Quéjola (Albacete, Spain; Blánquez 1996, 160–161) and the Iron Age site of Cancho Roano (Berrocal-Rangel 2003, 271, 279, 281) are examples of these contexts.

Additionally, the spindle whorls and *pondera* are also found in the necropolises of several archaeological sites. There are multiple examples in the same geographic area as the previous Iron Age settlements mentioned (Gomes 2017, 55), particularly Baza (Granada, Spain), El Cigarralejo, Cabecico del Tesoro

(both in Murcia, Spain), Cabezo Lucero (Alicante, Spain), Los Villares, La Hoya de Santa Ana and Pozo Moro (all in Albacete, Spain). In this type of archaeological context, these findings are part of the offerings to the deceased as well as grave goods, especially in the case of spindle whorls. The problems of sexing cremated bone remains makes it difficult to link the objects to groups of people, but in those cases where sexing has been possible it is observed that the remains linked to these artefacts include women, men and children. This fact could be the result of the practice of textile activity (in life) both in a quotidian form and in a more specialised way. At the same time, especially in the children's grave goods, it could also be interpreted as elements symbolising the rebirth of one's own deceased in the afterlife (Gomes 2017, 56–57; Rísquez and García 2007, 153–156).

Nevertheless, when the information of the deposits linked with offerings to the deceased can be studied, some researchers propose that they still primarily reflect the female presence, since women traditionally care for and maintain these spaces (Rísquez and García 2007, 168). However, it is a complicated relationship to demonstrate due to the lack of knowledge about this type of offerings and behaviours by the group to their deceased. These various sources of information demonstrate the undeniably close link between women and textile activity. However, archaeological sources are open to other perspectives and possibilities and ethnoarchaeological and anthropological perspectives are applicable to the reading of archaeological objects.

An interesting case can be found with some communities in northern Morocco, specifically in the northern part of Jbala. The ethnoarchaeological analysis of their societies has indicated that textile activity for them is an occasional and secondary task in the feminine sphere, while for men it is the main task, even pointing out that “[...] all good *fqi*h weaves his own wool *djellaba* and sews his clothing [...]” (Vicente 2014, 37). It is also true that in other areas of the Maghreb, the woman is again the protagonist of this task. However, in most of the Maghreb, it is the male figure who leads the work in urban craftsmanship—a clear example being the tailor shop (Vicente 2014, 38, 50), which even today in our society has the man—tailor—representing the activity.

When studying the narrative discourse of a photograph taken in an old carpet school in Chaouen (Morocco), it seems that this formula is fulfilled (Vicente 2014, 39): children sitting on the floor learn textile labour and work with some fabrics and carpets, the man standing by the door seems to direct or teach them, and the women—recognised by the veil—work with a vertical loom and a spinning wheel while a child located there is helping them. With this, it cannot be denied that women are also transmitting knowledge to the children present. However, there are other possibilities, and in many cases, the *pondera* found in the archaeological record (both individual and group pieces) could have had a different use other than for textiles. These other uses generally do not appear in archaeological investigations due to the difficulty of its preservation and verification.

Despite that difficulty, there are numerous examples in Romania, such as the Neolithic settlement of Căscioarele which has hundreds of clay *pondera* without any evidence tying them directly to textiles. This means we must think about other functions and reuse of the *pondera*, which Elizabeth J. W. Barber has carefully studied in one of the landmark books on this theme: *Prehistoric textiles: The development of cloth in the Neolithic and Bronze Ages* with special reference to the Aegean (1992). It mentions that different uses are equally possible to that of textile activity, for example being used as counterweights to support the roofs of houses; supports for roasters or bars for roasting food or heating other elements in the fire of a home or oven; possible handles located at the ends of the spindles or shafts to unwind or rotate an instrument; and ballast of fishing nets (Barber 1992, 97). These functions can be identified in the archaeological record if the *pondera* are in large pieces, or have burning marks indicative of use as supports for heating food in fires, and those that are ballasts must be fired so as not to disintegrate in the water (Barber 1992; Bernal 2008, 186).

## Conclusions

The problem of Los Almadenes is just a simple starting point in the present investigation. The questions initially raised could also occur in similar archaeological contexts in which the spindle whorls and *pondera* were prominent—a consequence due to the lack of research in these artefacts until recently. As a result, it was essential to study different sources of information and analyse various case studies that help shed light on the use of these objects, with whom they are linked, and if there are other possibilities of use displayed in other archaeological records. Likewise, characterising the pieces is the first step in any investigation to define what type of artefacts they are and then recognize the pros and cons of the artefacts.

With a more objective perspective and the application of appropriate methodologies such as the archaeology of maintenance activities and household archaeology from the frameworks of feminist and gender archaeologies, the exhaustive analysis of the data has provided new conceptions about the reality of spindle whorls and *pondera*. On the one hand, the link between the feminine sphere and textile activity is demonstrated and reaffirmed. The non-interference of some parts of the work process with the development of other tasks further affirms the existence of this relationship—an example would be the period of pregnancy and motherhood, stages in the woman's life in which the textile activity could continue to be carried out almost without difficulties (Alonso 2016, 29; Rivera 2013, 46). However, at the same time, this evidence should not mask or reject other possible data readings. The artefacts have locations in spaces and archaeological records in which the male figure could intervene, even if it was at a different level or scale than the female role. These facts and interpretations have probably been forgotten or neglected until not long ago, due to the existing concept of the character of these artefacts by a society with a hetero-patriarchal view of society.

Thus, by applying other frameworks, it is verified that multiple engendered findings could have been part of the community as a consequence of their contexts. While these people lived, textile activity could hold different purposes and demonstrates that the spindle whorls and *pondera* are essential pieces to use and reuse as necessary tools of everyday life. In the case of death, these objects go on to reach a symbolic character linked to a past textile production task or to a reinterpretation of the activity as an amulet for the deceased, including the group as a whole (women, men and children).

In short, the new investigation has helped to re-read objects and spaces, and consequently helped to review human activities and behaviours within the groups. It should be noted that the application of these hypotheses may not always be the most accurate interpretation, since each society has different codes of conduct and adaptation. This does not prevent them from being part of the initial assessments, but the analysis has to be carried out with consideration of the various corresponding factors. Furthermore, having only a few isolated elements would cause researchers to return to the initial problem of these studies, that is, bypassing the diversity of the importance of artefacts. In conclusion, the missing objects have come to light, obtaining the importance they deserve, pieces that seem simple but have allowed us to improve and advance in the knowledge of past societies, making them more visible and real.

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# Animal-Human Interactions: Becoming, Creating, Relating

Izzy Wisher<sup>1</sup> and Kevin Kay<sup>2</sup>

## Abstract

Archaeology has begun to challenge anthropocentric approaches, appreciating the way that relations cross-cut categories such as human/animal/object and individual/group/species. Relational thinking challenges the divide between active human agents and passive animal resources. Instead, relational archaeologies consider the possibility that this boundary was blurred in the past. This enables discussions of potential transformations between human and animal states; the process of becoming human or animal; past societies' dependency on, and orientation around, animals; animal sociality and agency; and action that defies categories like 'nature' or 'culture'. From this perspective, material culture can be understood as a medium to negotiate 'animal-ness' and 'human-ness'—or to transcend the binary altogether. What does an archaeology of animals that embraces these insights look like? This section explores the multifaceted ways animal-human relations have been explored in a breadth of different archaeological contexts, from Neanderthal hunting strategies to the conceptualisation of dogs in the Viking period.

**Keywords:** Relationality, Post-human, Non-human Agency, Animal Sociality

## Becoming with Animals: Relational Provocations in Archaeology

The recent turn to relational thinking in archaeological discourse has provoked a ground-up reappraisal of the way we discuss and conceive of past behaviours, encouraging more holistic, context-sensitive approaches (Fowler 2013; Lucas 2012; Shanks 2007). At the root of this movement is a shift in emphasis from *being*, in which people, animals, or things can be isolated as stable entities, to *becoming*, in which entities emerge through collaborative processes over time (Braidotti 2002; Deleuze and Guattari 1977). In this view, nothing simply *is*; the question is how humans and non-humans come into existence and take on forms, qualities and capacities by interacting with one another. In pursuing this question, a number of traditional dualisms in Western thinking stand out as suspiciously tidy: mind/body, nature/culture, human/non-human, male/female. If we are all *cyborgs*, grafted together out of organisms, objects and discourses (Haraway 1985; cf. "bodies without organs", Deleuze and Guattari 1977, 19), then partitioning human social life off from the 'natural' or 'material' world can only hobble our understanding. *Becoming* steadily cross-cuts these categories.

Archaeologists have generally welcomed the relational turn in the humanities and social sciences, correctly perceiving its potential to elevate our discipline's position in the mix (Boivin 2008; Jervis 2018; Olsen 2010). After all, we have spent almost two centuries studying human society through the lens of material things. In a relational view, we are no longer cast as a derivative discipline, working from the material dregs of past 'culture' to produce a dull approximation of what ethnographers and historians can more directly study. The potsherds and post holes we lay hands on are not indicators of "the person behind the artefact" or approximations of an historical text (Hodder 1986); they are surviving actors from the past in their own right (Fowler and Harris 2015; Lucas 2012). However, because of archaeology's traditional attempt to mimic the analytic terms of history and ethnography, our thing-oriented discipline carries its fair share of dualistic baggage.

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For many of us, our first instinct, inculcated deeply from our undergraduate days onward, is to think about a past that is first and foremost living, human and tacitly male. The pasts of animals, things, queer people, women and children are cast as secondary; they are insensate resources for (adult cis-male) human action, rather than collaborators in the mutual becoming of social worlds. Although the relational turn and different archaeologies (e.g. queer, feminist, indigenous) have sought to challenge this engrained perspective of the past (e.g. Arthur 2010; Atalay 2006; Blackmore 2011; Conkey 2003; Dowson 2000; 2009; Engelstad 1991; González-Ruibal 2016; Nicholas and Watkins 2014; Rutecki and Blackmore 2016; Weismantel 2013), it has yet to fully permeate into discussions of animal-human interactions. Animals are all too often ‘othered’; the passive, exploitable resource juxtaposed to, and often at the mercy of, active human agents. Yet animals, with their active and wilful movement, diverse personalities, often imposing behaviour and outsized role in stories, beliefs and understandings globally, have so much more to do with human life than a focus on calories or inert symbolism can capture. Animal-human interactions are thus fertile ground for relational provocations: deconstructing traditional conceptions of agency and developing non-dualistic interpretive tools for understanding ‘more-than-human’ becomings in the past (Armstrong Oma 2018; Brittain and Overton 2013, 136; Hill 2013; Whatmore 2006).

### **Animals in an Anthropocentric Past: Domesticating, Dominating and Depicting**

Animals and humans have shaped a shared world throughout the past 2.5 million years (Overton and Hamilakis 2013, 112). Today, our society is orientated around animal presences, and not only in the form of our ecologically-disastrous appetite for meat. Animals can be part of our families and cared for accordingly; their voices radiate throughout even the most urban settlements; they feature in our art; and our childhood stories are peppered with relatable animal characters. Yet, when it comes to discussing these familiar agents in the past, we are restrained by a desire for objective description and a narrow conception of animals’ ‘utility’. Within traditional zooarchaeological approaches, animals are characterised as percentages in faunal assemblages, MNI’s, represented parts, interpreted calorific values (Sykes 2014, 2); they become fragmented and stripped of agency. Discussions of past interaction with these disembodied remnants of animals become limited to presenting animals as controlled, managed, exploited and commodified by humans.

Archaeological discussions of animals outside of a zooarchaeological context are often equally confined. Animals are discussed as disembodied symbols, reflecting schematic qualities (e.g. ‘fertility’, ‘power’), deities, or magical ‘wish fulfilment’ all pinned to human sociality and meaning. They might be “good to think [with]” (Lévi-Strauss 1963, 89), but the thinking power remains fully human. The intimacy or depth of animal-human relationships, so often the daily concern for beings of all species in the past, are rarely seen to inform symbols in more than a superficial way (Armstrong Oma 2010; Lawrence 2019). The same is true of ‘ritual’ uses of animals: for example, an animal within a burial is a commodity gifted, sacrificed, or sent through to the afterlife alongside an already-formed person, rather than a participant in creating a commingled identity that relates to the world in a new way (Conneller 2004, 50). Although studies of art and ritual have thus come closer to recognising animals as meaningful *beings*, they too often stop short of giving animals agency in social *becoming*.

Traditional approaches to past animal-human interactions consequently paint the past as the work of human hands and minds exploiting non-human resources, perpetuating the Western nature/culture divide (Hill 2013, 117). This narrow perspective constrains us to a version of the past with weirdly motionless and emotionless animals, and moments of intersection between animal and human lives that are stripped of their complexity and consequence. Observations of animal-human relations in non-Western societies demonstrate just how W.E.I.R.D. (Western, Educated, Industrial, Rich and Democratic) (Henrich *et al.* 2010) this perspective of animals is. A breadth of contemporary societies have a

multifaceted understanding of the agents constructing their world; animals, ancestral spirits, landscape features, materials and objects can all be understood to be persons (Bird-David 1999; 2006; Hill 2013; Hornborg 2006; Ingold 2000; Pederson 2001). This is often nuanced and sensitive to the specific cultural context. For example, within Anishinaabe societies, a certain rock may necessitate one engaging in a dialogue with it as a non-human person, but another may not, and not all rocks are perceived as being sentient, only *some* (Anderson 2017, 135).

Animal-human interactions and relationships within these societies are frequently dialogical, and the boundary between traditional Western binary categories such as ‘human/animal’ and ‘nature/culture’ are actively blurred. Animals are intertwined with cultural identities and kinship relations: bears can be “grandfathers” (Willerslev 2013, 51); reindeer can be conceptually interchangeable with children (Willerslev and Ulturgasheva 2012, 53); and male identity may be aligned with birds (Mentore 1993). In some contexts, animal and human bodies can manifest the same being (Viveiros de Castro 2012); in others, different beings can converge and commingle in the same body (Mentore 1993; Pedersen 2001; Willerslev 2007). Appreciating this breadth of different ontological understandings of animal-human interactions highlights how an anthropocentric approach towards animals in the past not only constrain our interpretations, but may be fundamentally inaccurate in the way past societies related to animals within their world.

### **Moving Forward: Appreciating Animal-human Interactions in the Past Through Relational Thinking**

The sheer ethnographic diversity in the way interactions with animals are understood throws archaeological thinking into sharp relief. Although our working methods (excavation and object analysis) have always quietly cross-cut dualisms, over the course of interpretation we have tended to return to the same muted palette of conclusions: that animals are vehicles for human meaning and resources for making human ends meet, across so much time and space. We know that these are not the terms of engagement between human and animal lives in most parts of the present (including, very often, in our own homes). If, as the relational turn provokes us to do, we focus on the interactions through which humans and animals *became as they were*, rather than sorting them into ready-made categories of *being*, new interpretive possibilities emerge.

A number of archaeologists have embraced the possibilities that come with recognising animals’ diverse and active roles in past worlds. This movement began in the 1990s and early 2000s (e.g. Anderson 1997; Conneller 2004; Gardiner 1997) but intensified in the last 15 years as provocative ethnographies and geographies have expanded our imaginations (e.g. Bird-David 1999; Viveiros de Castro 2004; Whatmore and Hinchliffe 2006; Willerslev 2007). The emergence of *social zooarchaeology* re-evaluates the potential of long-available archaeological methods (and more recent additions like isotope studies) to shed light on the social systems in which both humans and animals participate. Overton and Hamilakis (2013, 116), in presenting a manifesto for social zooarchaeology, focus on the way past ontologies would have shaped human intervention in animal lives (and vice versa), ultimately forming the faunal record. Similarly, Sykes (2014) adapts traditional archaeological analyses of bones and material culture in order to answer new questions about the active role of animals in shaping society and, in turn, their own roles within it. Priestley (this volume) and Cousen (this volume) advance these concerns further. Priestley’s ethnographically-inspired reappraisal of Middle Palaeolithic human-animal relations, so often discussed as indicators of ‘cognitive modernity’ or the economics of hunting, raises questions about the kinds of formative interactions across species that defined Neanderthal ontology. Cousen’s robust zooarchaeological analysis of dog remains from Norse communities across the British Isles and Scandinavia suggests a vital role of dog ownership and relations of care in constructing different kinds of person—and different breeds of dog—in early Medieval settlements.

An alternative approach draws directly on the philosophical roots of relational thinking to explicitly challenge anthropocentric ideas, and indeed the conceptual division of human and animal beings itself. Rather than imagining social systems (or ontological ‘worlds’) in which humans and animals both take active roles, relational philosophy, especially that of Haraway (1985; 2008; 2016) and Braidotti (2002; 2006; 2013), invites us to explore collaborations and affects *passing between bodies of many sorts*, creating entities and phenomena greater than the sums of their parts. Armstrong Oma (2013; 2018) discusses this as *mutual becomings*; the fact that social worlds are so often made up, not of arrays of things and bodies, but of moments of touch, care (or harm), recognition (or fear), such that living creatures of all stripes become as they are in formative, affective moments. This is what Given (2018) calls ‘conviviality’: life that emerges as it passes through putative boundaries between one substance or body and another, undercutting our instinct to divide mineral, microbial, animal and human phenomena. Landscapes and places, soils and tissues, thoughts and reflexes are not strictly human at all: animals (and many others besides) help mould even our most ‘inner’ dynamics. In this vein, Nikolova (this volume) presents horses and humans as collaborators in creating ‘heroic’ identities within classical-era Thrace. She discusses humans and horses as frequently entwined within the performative display of heroism in art, burials and ritual, such that the Thracian world was shaped around this interspecific dynamic of *becoming*. Likewise, Ellis (this volume) explores Iron Age La Tène art through the interweaving of bodies, affects and agency. Ellis demonstrates how artefacts bearing schematic representations of animals and real animals (especially cattle) living in close collaboration with humans shaped one another, particularly with regard to perceived status identities of both animals and humans. Finally, Delia (this volume) traces the long-term intertwining of animal identities as animals and affects refract between lived experience and diverse artistic media, generating hybrid mythical beings like dragons along the way. Each of these studies thus explores the common terrain where art and ritual, daily life and myth and multiple species collaborate in the production of new, emergent phenomena.

### Summary

If the human past is the story of our becoming, then this past as it is conventionally told is altogether *too human*. As the studies in this section show, so much of being human in the past was about being *with* animals: making kin with them, as Haraway (2016) calls it, and engaging in participatory experiences that created hybrid phenomena that are so much more than ‘human’ or ‘animal’. From classical sanctuaries to Palaeolithic rock shelters and from dragons to lap dogs, the new, creative directions developed in this chapter present intimate insights into past places, minds and material culture by examining animals and humans relationally.

The results are transformative. Animals are now understood to be agents that participate in the forming of social worlds in the past. They spark engagement with the lines between human and non-human, reflecting on the way different kinds of living organisms have been bound up in one another’s becoming, challenging the boundary between ‘human’ and ‘animal’ and moving past the assumptions we are still far too quick to apply to these categories. As with the recent approaches to animal-human interactions mentioned throughout this introduction, they draw on the growing richness of evidence and interpret this through a new relational lens to understand animals’ active roles in past societies. In different measures, therefore, the papers in this section bring together a breadth of zooarchaeological evidence, relational and post-humanist philosophy and thought inspired by non-Western people to present past animal-human interactions in a new light.

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# Beating the Dead Horse? Using Ethnography for Middle Palaeolithic Zooarchaeological Contexts in North-West Europe

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## Abstract

Evidence for ontologies and ideologies in the Middle Palaeolithic (300,000 to 30,000 years BP) can be elucidated from zooarchaeological contexts, as hunting is rarely just utilitarian but is often informed by a culture's worldviews. Four open-air kill-sites presented by White *et al.* (2016) indicate that Neanderthals repeatedly engaged in large-scale, big-game hunting of gregarious species, resulting in 'overkill'. Speth (2019) suggested that at other sites, similar practices reinforced socio-cultural bonds; however, this concept of 'waste' is furthermore indicative of belief systems, which traditional zooarchaeology is unable to address in its own right.

This paper will re-examine the zooarchaeological evidence at these sites and argue that it is possible to compare them to ethnographic accounts, in this case the Yukaghir. In this animistic hunter-gatherer society, overhunting is not perceived as negative; instead, hunting encourages the regeneration of elks' souls, thereby satisfying a cosmological rite. This exercise underscores the power of pairing zooarchaeological and taphonomic data with ethnography in order to offer fresh insights into the uncharted territory of Neanderthal ideology.

**Keywords:** Middle Palaeolithic, Neanderthals, Hunting, Zooarchaeology, Ethnography

## Introduction

### *The Neanderthal Image Problem*

Shipman (2010) argued that *Homo*'s intensified interaction with animals over the past 2.6 million years had a direct impact on its evolution and shaped key traits, including symbolic behaviour. This faunal connection was no less crucial for Neanderthals, whose frequent interaction with animals would have likewise influenced their cultures and worldviews. However, since their discovery, Neanderthals have been portrayed as inferior to humans (Zilhão 2012, 35), lacking the capacity to possess integrated belief systems. This image problem was perpetuated by late 20<sup>th</sup> century archaeologists, most prominently Lewis Binford, who argued that Neanderthals were incapable of cooperative big-game hunting and were instead resigned to scavenging (Binford 1985). Although this idea was quickly overturned researchers were still hesitant to afford Neanderthals similar behavioural or intellectual capacities due to the perceived lack of symbolic or artistic evidence in Middle Palaeolithic contexts (Finlayson 2019, 6-10; see Stiner 1995, 5).

This has been called into question following the discovery of burials with deliberate animal bone inclusions, argued to be the manifestations of shared ideological beliefs (see Hovers *et al.* 2000, 258; Spikins *et al.* 2014, 118). Other evidence includes a suite of bird bones, raptor and corvid talons from various sites bearing signs of disarticulation, manipulation and wear, while elsewhere shell exhibits the application of colourants; all of these attest to the significance of faunal media for symbolic expression (see Finlayson 2019, 134-135; Finlayson *et al.* 2012; Fiore *et al.* 2016; Peresani *et al.* 2011; Peresani *et al.* 2013; Radovčić *et al.* 2015; Romandini *et al.* 2014; Zilhão *et al.* 2010). Additionally, parietal art at three different sites in Spain which predate the arrival of humans in this region suggest that Neanderthals

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also used this media for symbolic expression (Hoffman *et al.* 2018). This suite of evidence indicates that Neanderthals created meaningful objects which were mutually understood and validated their beliefs.

## A Critique of Zooarchaeology

### *Subsistence is More than Just an Economic Concern*

Zooarchaeology is crucial for the understanding of human-animal relationships however it restricts itself to economic concerns; the subfield often does not engage with philosophical discussions and interpretations are ultimately grounded in Cartesian concepts (Overton and Hamilakis 2013). This Western understanding of corporeal discreteness has biased research, as has the nature-culture duality (Bird-David 2018, 306; Boyd 2017; Descola 2014, 276–277) where faunal evidence is often interpreted as possessing only alimentary value (Hill 2013; Overton and Hamilakis 2013, 126). This holds true for Middle Palaeolithic research and, though perhaps as an unintended consequence, perpetuates the aforementioned image problem of Neanderthals as vacuous brutes driven only by their need to eat.

Recent work which encapsulates the economic focus of Neanderthal hunting is by White *et al.* (2016), who argued that Neanderthals engaged in the cooperative hunting of herds *en masse*, combining their knowledge of flight patterns and topography in order to trap and kill their prey, resulting in overkill. White *et al.*'s (2016) research praises Neanderthals for the intelligence and proficiency required to repeatedly engage in such tactics. However, it does not address the ideological implications of these practices or the meaningful relationships which could have existed between hunter and prey. This author is not being condemnatory of White *et al.*'s (2016) research; in fact, it is crucial groundwork for this author's overall argument. Rather, this author is highlighting the limitations of a traditional zooarchaeological approach in addressing ideological concerns.

### *Revoking Anthropocentrism and Turning to Other Ontologies for Inspiration*

Zooarchaeology thus reaches an impasse in Middle Palaeolithic research when it focuses solely on the quantitative, nutritive value of faunal remains. While hunting fulfils the need to eat, it is not always solely utilitarian. Hunting tactics, carcass management and distribution do not occur in a vacuum and are often informed by a society's cultural guidelines and ideological beliefs. This can be summarised by the following statement:

“Fundamentally, the study of man's relationship to the faunal world can be approached from two standpoints. First is the utilitarian...second, we can study man's relation to the animals of his environment as he himself views it... It is legitimate to assume the psychological phase grew up alongside the utilitarian...” (Hallowell 1926, 3–4)

It is therefore necessary to understand why Neanderthals engaged in high-risk hunting of big game only to utilise a fraction of their kill. Speth (2019, 290) suggested that it is likely these practices reinforced social bonds, similar to what is seen at Paleo-Indian jump sites. This paper will argue further that hunting practices were intertwined with the groups' worldviews and potentially satisfied cosmological rites.

As such, it is necessary to turn to hunter-gatherer societies for reference in order to reinterpret these contexts. Descola (2014, 272) stated that culture depends on shared understandings, or “worldings”; reality is a relative experience between beings engaging with their environments. For most of humanity, societies were composed mainly of hunter-gatherers which possessed very different worldings, or ontologies, from those of contemporary Western societies, and it is therefore necessary to explore

them for inspiration. One of the four main worldings described by Descola (2014) which appears in societies reliant on hunting is animism. Animism can be defined as an ontology in which humans and non-humans (including plants, animals and other ‘objects’) share ‘interiority’ and personhood is therefore not exclusive to humans but extends to other non-humans, as well (Descola 2014, 275). It has also been defined as a relational epistemology, where ways of knowing are achieved and defined by interconnectedness between persons sharing a niche (Bird-David 1999, S68–S69). Important to note is that in many animistic societies, corporeality is not always discrete (Descola 2014, 275) and that persons, not just humans, have agency and intentions (Hill 2011, 408).

Engagement with animistic societies, guided by zooarchaeological evidence, should help us comprehend the extra-alimentary significance of Neanderthal hunting contexts and initiate discussion of their ideologies. Rather than being portrayed as merely prey, the faunal assemblages are re-examined for their potential cultural and ontological value, where they played central roles in Neanderthal societies. One such society is that of the Yukaghir, which will be used as a reference for this particular study.

### **Genomic Similarity: A New Frontier**

In 2010, Green *et al.* published their research regarding a draft sequence of the Neanderthal genome, concluding that the two species are closely related, and that gene flow occurred after humans’ dispersal from Africa. While this genomic similarity does not account for physiological or potential cognitive differences between Neanderthals and humans (French 2019), it reinforces the phylogenetic relationship between our two species. This in turn bolsters the argument that certain behavioural characteristics have shared roots, and that Neanderthals’ capacity for ideology is likewise derived from the common ancestor with humans, attested by the range of material culture presented above. Research regarding Neanderthal ideology should therefore firmly shift from *if* to *how*. In order to begin answering this question, research should explore how Neanderthals’ engagement with the environment was informed by worldviews and vice versa, the clues of which can be identified in Middle Palaeolithic assemblages.

## **Methodology**

### ***The Problem***

Discussed briefly above, White *et al.* (2016)’s work represents a turning point in the study of Neanderthal subsistence. The authors combined landscape reconstruction, animal ethology and the zooarchaeological profiles from five kill sites in North-Western Europe, in order to identify Neanderthal hunting methods and strategies. At four of these sites (detailed below in ‘Sites’), White *et al.* (2016) proposed that Neanderthals were corralling and trapping herds, killing indiscriminately rather than pre-selecting individuals, only afterwards deciding which carcasses to process. A collateral effect was overkill: taphonomy and skeletal representation at these sites demonstrate selection against certain carcasses or elements for processing and subsequent transport off-site. White *et al.* (2016) conclude that the repeated use of these sites demonstrates that they were deliberate in their hunting tactics and possessed the forethought to orchestrate large-scale ambushes, using prey’s flight patterns to their advantage. This pattern is not restricted to the sites in White *et al.*’s (2016) study: it can be inferred at other open-air sites, such as La Quina (Delagnes and Rendu 2011; Rendu and Armande 2009; Rendu *et al.* 2012) and Coudoulous I (Jaubert *et al.* 2005) and can also be inferred at Les Pradelles, a rock shelter which was used for butchering activities (Costamagno 2006; Rendu *et al.* 2012).

This pattern is consistent with archaeological studies which demonstrate trade-off decisions between quality and quantity (see Metcalfe and Jones 1988). It is also consistent with studies that demonstrate an inverse relationship between the number of individuals killed during a single episode and the intensity

of subsequent butchering (see Costamagno 2006, 479; Rendu *et al.* 2012, 51). An example of this pattern is the Cooper Model (Bement 2003), in which Folsom-age Paleo-Indian bands would aggregate in the autumn for large-scale communal hunting of *Bison* sp. (bison) at various sites, resulting in light butchery, as opposed to smaller-scale episodes which yielded more intense carcass management. The painted bison skull left at Cooper emphasises the ritual significance of these large-scale events.

White *et al.*'s (2016) interpretations, though focused on economic implications, are highly indicative of ideological factors, and further examination of this is required. This author will first summarise these zooarchaeological interpretations below. The evidence will then be compared to the reference society to highlight how Neanderthal hunting strategies are evocative of intangible motivations and could have been informed by their worldviews.

### **A Necessary Partnership of Quantitative Data and Qualitative Narratives**

As stated previously, zooarchaeology cannot in its own right delve into discussions of ontology or ideology. Likewise, ethnographic comparison is by nature qualitative; the narratives are borderline anecdotal if they are not anchored down by comparative datasets. The two disciplines should therefore be merged to answer questions that cannot be understood without their mutual correspondence, particularly for prehistoric archaeologies in which interpretive tools are fundamentally either quantitative or analogous. The task here is difficult, as there is no direct linkage between modern societies and Neanderthals to validate interpretations. However, as more evidence is revealed which attests to our similarity, it is difficult to deny that ethnography is an undervalued resource for Middle Palaeolithic contexts.

In-depth analogies have been made for Upper Palaeolithic societies (see Gron 2005). While arguments have been proposed for extinct hominins with varying degrees of optimism (see Conard 1994; Finlayson *et al.* 2019; Spikins *et al.* 2017), comparison for pre-Upper Palaeolithic contexts is scant. Zutovski and Barkai (2016) argued that elephant bone bifaces in Acheulean contexts possessed cosmological value, while Lev and Barkai (2016) and Agam and Barkai (2018) utilised insight from African groups with complex beliefs concerning human-elephant relationships in order to illuminate these archaeological contexts. Finlayson *et al.* (2019) recently detailed a range of cross-cultural evidence to hypothesise the significance of eagle talons in the Middle Palaeolithic, as they appear at many sites dated from 130,000 years ago. This author respects the argument made by Finlayson *et al.* (2019) regarding Neanderthals' early exploitation of *Aquila chrysaetos* (golden eagle) for non-alimentary purposes. However, she believes more in-depth cross-cultural examination is required for guiding the understanding of Neanderthal cultural practices more so than explaining the gaps. Furthermore, most discussions of ideology for the Middle Palaeolithic are restricted to shell covered with ochre (mentioned previously) and mammoth bone covered with ochre (Demay *et al.* 2012) which rely on assumptions that these are potentially ritual items rather than utilising the ethnographic record to broaden these claims.

### **Ethnographic Comparison: Strengths and Weaknesses**

It has been argued that using ethnography to “fill in the gaps” is not best practice. Furthermore, due to the biological, cognitive and demographic differences between our species, ethnographic comparison should be viewed with caution (French 2019, 32). This author believes it is however important to make these analogies: by accepting the position that our knowledge of the Middle Palaeolithic has been restricted due to predisposed Antiquarian biases, comparison can be used to highlight possibilities, inspire new ideas and allow researchers to test new hypotheses. It is important to emphasise that this author is not imposing the values of the reference culture to the Middle Palaeolithic contexts. Rather, this is an exercise to demonstrate how powerful alternative realities can be for offering a fresh perspective on Middle Palaeolithic assemblages and invoke discussion of Neanderthal ideologies.

An ethnographic parallel is never true; it is an argument (Van Reybrouck 2012, 19, 21–22). The analogy compares two societies which are separated temporally, geographically and sometimes which lack a shared past. Middle Palaeolithic archaeology presents additional challenges as well. First is the issue of equifinality: while not unique to Neanderthal sites, it is especially true due to poor resolution during the Pleistocene which can cloud interpretation (Gaudzinski 2005). Societies are not static and ethnography is not a solution for poor synchronic visibility. Researchers are also forced to take for granted unknown norms which are not preserved archaeologically, such as kinship and gender-related roles, when making these analogies. Regardless of the aforementioned disadvantages, reasonable analogies can be achieved if the researcher is explicit of these biases. Once these biases have been addressed, it is important to demonstrate a critical engagement with the reference culture. There are two significant reasons for this. First is an ethical responsibility to share the contextual richness of the culture to readers and to avoid reducing them to one of their components. Ethnographic studies of small-scale societies have colonial roots and it is imperative to understand and appreciate a society's development rather than treating them as unchanged relics of the past or identical to one another. The second reason is to ensure that certain criteria are met in order to make an appropriate analogy, discussed below.

### The Process

White *et al.*'s (2016) five sites were reviewed; one site, Taubach, was removed from this study as the inferred hunting method was the ambush of rhinoceros mother/young pairs, rather than targeting gregarious herds. Original publications were then consulted in order to determine if the evidence supports White *et al.*'s (2016) conclusions; the taphonomic data was originally tabulated according to Orton's (2010) framework in Cleghorn (2017). Any deviation in White *et al.*'s (2016) interpretations are discussed according to each site, as are the taphonomic and preservation issues in order to highlight potential interpretive biases. While detailed analysis of butchery patterns at the majority of these sites was not undertaken or possible due to preservation, the overall zooarchaeological evidence supports wide-scale communal hunting of big game and preferential selection of carcasses.

Selecting a society for comparison was done through a process of elimination. They were originally compiled on the basis of four criteria: first is a similarity in subsistence pattern. The second is a similarity in procurement via communal hunting. The third criterion, similarity in carcass selection, processing and discard, was perhaps the most difficult due to the diversity of practices cross-culturally and the paucity of detailed information in readily available ethnographic resources. These criteria narrowed down the search to the Plains Cree, Blackfoot and Yukaghir. The final criterion was to establish if the potential analogues are egalitarian, due to the lack of robust evidence to suggest Neanderthals existed otherwise, and for the reason that social organisation and worldviews maintain a feedback loop. The Plains Cree were subsequently ruled out, due to the introduction of horse and the impact this had on their culture during the 18<sup>th</sup> century. The Blackfoot come close to being a suitable analogue—they are known to have been present in the regions where communal bison jumps took place (Oetelaar 2014, 16) and their words for 'bison' and 'respect' have etymologically similar roots (Barsh and Marlor 2003, 577), which suggests an important relationship between prey and their ancient beliefs. However, the Blackfoot were ruled out due to the paucity of resources discussing these relationships in detail during the 'dog days', though this author is not discounting them from future enquiries. Thus, the Yukaghir were selected for comparison. This author would like to stress that there is no such thing as a 'one ethnography fits all' and while the Yukaghir were selected, this author would like to highlight that their appropriateness as an analogue is still balanced by their differences, discussed later.

## The Sites

### Salzgitter-Lebenstedt (Germany)

Salzgitter-Lebenstedt is located on the Krahenriedebach River which abuts a glacial valley (Table 1; Gaudzinski and Roebroeks 2000, 498; Gaudzinski 2006, 142). The assemblage includes thousands of fragments from various species, the majority belonging to *Rangifer tarandus* (reindeer) (see Table 2 for Minimum Number of Individuals (MNI); Gaudzinski and Roebroeks 2000, 501). Of this species, the majority derive from individuals aged eight to nine years, though there is a high proportion of subadults younger than five years (Gaudzinski and Roebroeks 2000, 506). Age was established by hemimandibles and sex via antlers: a bimodal distribution of measurements taken from antler bases indicate the majority of specimens are male (Gaudzinski and Roebroeks 2000, 507).

Season of death was determined by the compactness of the antler, which suggests that the reindeer were killed between September and October during the autumn migrations (Gaudzinski and Roebroeks 2000, 507). The mortality profile of the assemblage attests to human predatory strategies: White *et al.* (2016, 16–17) agree with Gaudzinski and Roebroeks (2000), where this is the result of *en masse* predatory strategies rather than targeting individuals, where Neanderthals used the valley's topography to trap herds. The largest group was likely killed in a single event in September, due to a set of compact male antlers exhibiting similar cast lines (Gaudzinski and Roebroeks 2000, 511). White *et al.* (2016, 17) agree with Gaudzinski and Roebroeks' (2000) assessment that the fattiest adult males were preferentially butchered and transported off-site, whereas the remaining carcasses were collateral damage and ignored (White *et al.* 2016, 17).

Gaudzinski and Roebroeks (2000, 508–509) stated that detailed analysis of butchery marks was precluded due to the sedimentary film protecting the bones. Fracture patterns are common and indicate a standard, systematic marrow extraction process. Extraction was performed by detaching the anterior surface of the bone and removing it like a lid; subadults were mainly selected against for this process (Gaudzinski and Roebroeks 2000, 508–509).

### Mauran (France)

Mauran is situated next to the Garonne River, where Neanderthals used the natural limestone escarpments to trap their prey in a gully (Farizy *et al.* 1994, cited in White *et al.* 2016, 2). The site stratigraphy indicates that Mauran was used for millennia (Table 1; White *et al.* 2016, 3). The main species in the assemblage

Table 1. White *et al.*'s (2016) sites by location, age, topography and activity type.

Site	Site Age	Site Reconstruction	Type
Mauran (France)	MIS5a	Open Air; gully surrounded by limestone escarpment	Kill/Primary Butchery (Farizy <i>et al.</i> 1994, cited in White <i>et al.</i> 2016, 2).
Zwoleń (Poland)	MIS5a - MIS4	Open Air; valley on the bank of R. Zwolenka	Kill/Primary Butchery (Sulgostowska 2006, 19; White <i>et al.</i> 2016, 11).
La Borde (France)	MIS5	Open Air; plateau at the base of a hill	Kill/Primary Butchery (Jaubert <i>et al.</i> 1990, 10; White <i>et al.</i> 2016, 6).
Salzgitter-Lebenstedt (NW Germany)	MIS3	Open Air; narrow valley which meets R. Krehenriedebach	Kill/Primary Butchery (Gaudzinski 2005, 142; Gaudzinski and Roebroeks 2000, 498, 500).

is *Bison priscus* (bison), mainly represented by cows and young (Table 2). Sex and age were determined via tibiae and metatarsi comparisons to American Bison, following Wilson (David and Farizy 1994, 177; Wilson 1983). Tooth eruption analyses indicate that the season of death was late summer or early autumn (Farizy *et al.* 1994, 179–180). The mortality pattern represents a catastrophic profile, the largest age group being young up to three years of age (David and Farizy 1994, 178–179).

White *et al.* (2016, 4) disagreed with David and Farizy's (1994) interpretation that Neanderthals targeted solitary males and cow/young pairs. Instead they argued for *en masse* slaughter of nursery herds, where Neanderthals used the topography to drive and trap their prey (White *et al.* 2016, 4–6). The assemblage was partially processed: only the fattiest animals were chosen for gourmet-style selection: pieces such as hides, tongues, etc. were taken, leaving the rest to rot, given the jumbled nature of the bones at the site (White *et al.* 2016, 6).

There is a paucity of axial elements which suggests off-site transport; the remaining elements appear to be distal limbs, foot bones and teeth. Fracture of long bones appears to be limited to metacarpi, 60% of which were systematically cracked for marrow (David and Farizy 1994, 187). While not exhaustive, the fracture patterns are systematic where each type of element demonstrates a unique method for harvesting marrow (David and Farizy 1994, 182–187); this is similar to Salzgitter-Lebenstedt in that extraction was not random.

Table 2. White *et al.*'s (2016) sites by taxa with relevant MNI, age and sex profiles, season of death and a brief description of the hunting method and processing preferences.

Site	Predominant Species	MNI	Age and Sex Profiles	Season	Method
Mauran (France)	<i>Bison priscus</i>	137	Mostly juveniles and adult females	Late Autumn (After the rut)	<ul style="list-style-type: none"> <li>• Slaughter of mixed cow herds; juveniles most vulnerable</li> <li>• Selection against juveniles for butchery</li> <li>• Mostly teeth and distal limbs present; off-site transport of axial elements (David and Farizy 1994, 177–180).</li> </ul>
Zwoleń (Poland)	<i>Equus caballus germanicus</i>	38	Mostly mares and juveniles	Winter	<ul style="list-style-type: none"> <li>• Slaughter of harem herds</li> <li>• Mostly distal limbs and heads present; proximal limbs transported off-site (Gautier 2006, 98, 100; White <i>et al.</i> 2016, 12).</li> </ul>
La Borde (France)	<i>Bos primagenius</i>	40	Mostly juveniles, a presence of subadults and females	All year (February, April, November)	<ul style="list-style-type: none"> <li>• Slaughter of nursery herds; juveniles most vulnerable to injury (Jaubert <i>et al.</i> 1990, 135, 144; White <i>et al.</i> 2016, 6).</li> </ul>
Salzgitter-Lebenstedt (NW Germany)	<i>Rangifer tarandus</i>	86	Mostly adults, a steady presence of subadults	Autumn (During the rut and migration)	<ul style="list-style-type: none"> <li>• Slaughter of mixed herds</li> <li>• Selection against juveniles for marrow extraction (Gaudzinski and Roebroeks 2000, 501, 506–507).</li> </ul>

### **La Borde (France)**

La Borde is situated on a plateau next to the Célé River in the Aquitaine Basin (Table 1: Jaubert *et al.* 1990, 10). The site was excavated under salvage conditions in 1971 (Jaubert *et al.* 1990, 18). Most of the bones were recovered from a single level (Jaubert *et al.* 1990, 19–20) and were vertically distributed due to colluviation (White *et al.* 2016, 6). Due to the clay matrix, the faunal assemblage has a high degree of surface erosion and many of the bones are covered in concretions (Jaubert *et al.* 1990, 19, 24).

The majority of the faunal assemblage is *Bos primigenius* (aurochs) (Table 2; White *et al.* 2016, 6). Jaubert *et al.* (1990, 135) conclude it represents a catastrophic profile with the majority belonging to young and subadults. Age was determined based on tooth eruption and wear compared to modern samples from *Bos taurus* and *Bison bison* (Jaubert *et al.* 1990, 135). Jaubert *et al.* suggest that the pattern is similar to Paleo-Indian cooperative strategies of targeting herds with the majority of the killings occurring in February, November and April. White *et al.* (2016, 6) agree with Jaubert *et al.*'s interpretations that nursery herds were targeted, where Neanderthals used the terrain to trap them into a pit. This is an example of close-quarter hunting, where young are over-represented due to being more injury-prone (White *et al.* 2016, 8). White *et al.* (2016) do not specify the degree of wastage or selectivity of carcass processing due to the poor preservation but do conclude that this represents another example of indiscriminate killing consistent with the other sites.

### **Zwoleń (Poland)**

This site is located next to the Zwolenska River on a large plateau (Sulgostowska 2006, 19). The strata contained three cultural levels; the majority of the assemblage comes from the Lower Cultural Level and exhibits a high degree of desquamation and fragmentation, indicative of a slow burial and repeated wetting on the floodplain (Gautier 1988, 72). *Equus caballus germanicus* (horse) was the dominant species (Table 2) and the assemblage is mostly composed of individuals between two and six years of age (White *et al.* 2016, 12). Cementum analyses indicate that the majority of the horses were killed in winter (White *et al.* 2016, 13).

White *et al.* (2016, 13–14) concluded that the assemblage indicates the indiscriminate targeting of herds: horse herds are organised as harems and while a few males are present in the assemblage, the majority belong to females and their offspring. Gautier (2006, 100) originally posited that horses were an easy prey which were not exploited exhaustively, based on similar interpretations raised about Aurignacian hunting at Solutré. The Neanderthals at Zwoleń would have similarly trapped the herds, killing them indiscriminately. However, they were selective and mainly transported the meatiest proximal limbs afterwards, leaving behind the head and distal elements (White *et al.* 2016, 13). Gautier (2006, 100) concluded that only one percent of the original remains survived, based on the highly degraded nature of the assemblage, suggesting that Neanderthals used Zwoleń repeatedly over a lengthy time period.

## **The Yukaghirs**

### **Background**

The main reference for the Yukaghir is Willerslev (2007), which provides a detailed analysis regarding their history, diet and subsistence as well as their beliefs and cosmology. The Yukaghirs live along the Upper Kolyma River in North-Eastern Siberia. They are comprised of two main populations, the Upper and Lower Kolyma Groups, which have no political unity and have different subsistence patterns: the southern group mainly herd reindeer, whilst Willerslev's study focused on the northern groups of hunter-fishers (Willerslev 2007, 3–4). Both groups were traditionally nomadic hunter-gatherers but

both groups are now settled; the Upper group live in a village called Nelemnoye (Willerslev 2007, 4). The name *Yukaghir* is Evenki and possibly means 'icy' (Ivanov 1995, cited in Willerslev 2007, 3), but the Upper Kolyma group refers to themselves *Odul*, meaning 'strong' (Willerslev 2007, 3). Their population has dwindled over the centuries due to disease, Russian conquest and the changing of ethnic identities under Soviet rule (Willerslev 2007, 4-5). This has also been attributed to their concept of identity: ethnic registration has nothing to do with an individual's sense of belonging but is achieved through one's lifestyle and territory rather than being ascribed from birth (Willerslev 2007, 5-6). The main language in Nelemnoye is Russian due to the Soviet practice of boarding Yukaghir children during the 1960's; however, the language amongst the older population was still Yukaghir at the time of his study (Willerslev 2007, 7).

The Soviet Regime in the 1930's forced Yukaghirs into a collective farm called *Shining Life* at which point their lifestyle was incorporated into the State's economy; after the Soviet Union collapsed, they reverted back to a lifestyle of hunting, gathering and fishing (Willerslev 2007, 7). Men mostly hunt *Alces alces* (elk) whilst women and children make fish nets, set snares for small furbearers and gather berries (Willerslev 2007, 8). The Yukaghir are egalitarian and women are consulted in many decision-making processes (Willerslev 2007, 121-122). The Upper Kolyma environment is subarctic with continental climate: winters last from early October to late May, covering the taiga landscape in permafrost for most of the year (Ivanov 1995, cited in Willerslev 2007, 29). As stated above, elk is the staple of the Yukaghir diet and is hunted for ten months of the year, supplemented by fowl and berries (Willerslev 2007, 30). Once brought back to the village, elk is distributed equally amongst the village's families (Willerslev 2007, 29).

### ***Beliefs about Life, Rebirth and Animism***

The Yukaghirs believe in an endless cycle of reincarnation for humans, animals and certain objects (Willerslev 2007, 32). The body is a person's physical identity however the *ayibii*, or 'soul', is reborn and imbues the material body (Willerslev 2007, 59); a person is simultaneously a reincarnated dead relative but also has their own identity (Willerslev 2007, 50). This cycle is not restricted to gender (Willerslev 2007, 50) and the crucial tenet is that life can never be completely destroyed (Willerslev 2007, 32).

The status of personhood is ascribed to humans and certain species of prey, though for the latter it is ascribed in certain contexts and derives from the way in which hunters engage with prey through mimesis (Willerslev 2007, 73-75). Animate objects such as trees and rivers have personhood because they move and grow; they are different from inanimate objects which are alive but immobile (Willerslev 2007, 73).

The Yukaghirs believe the world is liminal, allowing hunters to take on the body of a different species during the hunt (Willerslev 2007, 11-12). This betwixt state is what Willerslev (2004, 648-649; 2007, 94-96) calls "not animal, not-not animal", where the hunter maintains his awareness while at the same time becomes an imperfect replication of his prey in order to trick it. Rather than being absolute, personhood is contextual and primarily defined by the interaction between beings and their surroundings (Willerslev 2007, 21-22).

### ***Hunting and Treatment of Carcasses***

Elk are the most important game animal to the Yukaghir and their importance is demonstrated by the variety of names given to them based on their age (Jochelson 1926, 378-379). However, wild reindeer were historically more abundant and were killed by the hundreds along rivers during their spring and autumn migrations (Jochelson 1926, 378-379), whereas in the winter, they were stalked using snowshoes

and arrows (Jochelson 1926, 379). Willerslev (2007, 34) details the contemporary methods in which the Yukaghir use guns to isolate and kill their prey.

As previously stated, animism is manifested in specific, relational contexts like hunting, where both the hunter and the prey can take on each other's form temporarily. It is dangerous to remain in the betwixt state due to complete transformation (Willerslev 2007, 89). The Yukaghir describe the hunt as a form of seduction, a concept which is not unique to them but is characteristic of other hunter-gatherer societies (Willerslev 2007, 101-102, 110-114). Willerslev (2007, 102) attributes the tradition of tailoring hunting clothes with beadwork and adornment to this concept, where prey willingly give themselves to the hunter if they are pleased with what they see.

The Yukaghir do not have taboos against impartial trimming or processing of carcasses for an animal to regenerate and they can be selective with the parts they bring back to the village (Willerslev 2007, 34-35); however what is brought home follows rules of obligate sharing and distribution (Willerslev 2007, 35-40). Willerslev details a hunting trip he took with a Yukaghir called Old Spiridon and his sons, where they eventually killed seven elk along the river but only harvested the hearts, tongues, noses, kidneys and meatiest thighs, leaving behind the rest to rot. This pattern of overkill is consistent with many circumpolar hunting practices, where the 'pointless' slaughter of herds occurs (Willerslev 2007, 32-33). For the Yukaghir, 'waste' is not linked to physicality and 'overkill' as a concept does not exist (Willerslev 2007, 34). As an example, Willerslev (2007, 30-31) provided a first-hand account of a public meeting in which the Yukaghir were asked by conservationists to cut back on their hunting due to the reduction in the elk population. The Yukaghirs were surprised by this request, for they understood that the elk had moved to the *Land of Shadows* and would return to the *Middle World* once they regenerated. As life cannot be destroyed, hunting is a cosmological rite which produces more herds (Willerslev 2007, 34-35).

## Discussion

The purpose of detailing these aspects was to demonstrate how hunting is inseparable from Yukaghir ontology and cosmology. Hunting cannot be understood separately from their animistic beliefs and to explain them in purely economic terms would condemn them for overhunting without seemingly legitimate reasons. Instead, hunting is more than just a means to an end: it is a relational, mimetic process which, in its culmination, ultimately results in reincarnation for the elk.

The practices and beliefs of the Yukaghir have thus been compared and contrasted to the archaeological evidence at the archaeological sites, as seen in Table 3. By doing so, it becomes apparent that the tangible zooarchaeological evidence suggests intangible motivators, thereby initiating discussion of ideology within Neanderthal societies. Salzgitter-Lebenstedt has been used as an example in Figure 3, however Zwoleń, Mauran and arguably La Borde, with their taphonomic and zooarchaeological analyses, could equally have been used for this comparison.

To recapitulate, White *et al.* (2016) concluded that Neanderthals ambushed and slaughtered their prey *en masse*. This practice appears to be superficially dangerous and costly, given the close-quarter nature of the hunting yet overall low population size of Neanderthal groups (Churchill 2014). White *et al.*'s (2016) conclusions regarding discriminate butchery are supported by the catastrophic age and sex profiles of each site's faunal assemblage, in addition to cut marks where possible. Conventional theory and zooarchaeological analyses fall short in explaining these activities in meaningful terms and following this line of thought, researchers could no doubt speculate that Neanderthal populations possibly contributed to their own demise through overhunting and stress to the environment.

Table 3. Comparison of the hunting tactics and processing techniques at Salzgitter-Lebenstedt and amongst the Yukaghirs. The third column lists Yukaghir beliefs and rationale for their hunting and butchering practices, allowing the reader to appreciate the existence of non-utilitarian rationales at Salzgitter-Lebenstedt.

Salzgitter-Lebenstedt	Archaeological Site Evidence	Ethnographic Comparison	Ethnographic Cosmological Worldviews
<b>Prey</b>	Mono-specific hunting of <i>Rangifer tarandus</i> (reindeer) herds, mostly males. The killings mostly occurred during August and October (for the rut).	The Yukaghir hunt mainly <i>Alces alces</i> (elk/moose) ten months out of the year foraging and trapping of other species occurs at specific times (Willerslev 2007, 30). No age or sex preferences are detailed in the sources.	In Yukaghir beliefs, elk have souls and are ascribed personhood (Willerslev 2007, 73).
<b>Hunting Style</b>	Most likely by corralling and trapping whole herds at the mouth of the river (White <i>et al.</i> 2016, 16).	Yukaghirs stalk and ambush elk along the river; they have guns and can single out their prey (Willerslev 2007, 34). Historically, they killed reindeer in large numbers at river crossings during the autumn and spring migrations (Jochelson 1926, 378–379).	The animal spirits give permission to the hunters but the prey also decides to give themselves to the hunter; they have equal agency (Willerslev 2007, 49, 75).
<b>Processing Techniques</b>	Skeletal distributions and element representation indicate that meaty adult forelimbs were taken off-site; likewise, unfused bones were selected against for marrow extraction, indicating that subadults were left to rot (White <i>et al.</i> 2016, 17).	The archaeological signature can be viewed as similar to the contemporary Yukaghirs who are selective rather than exhaustive in their processing and can leave carcasses to rot; they are not obligated to take the whole carcass back to the village for processing. (Willerslev 2007, 35)	The Yukaghirs believe that hunting itself helps to produce herds in an unbreakable cycle of regeneration (Willerslev 2007, 34). Overkill and material waste of prey do not exist as concepts (Willerslev 2007, 34).

However, as demonstrated by the example of the Yukaghir elders (Willerslev 2007, 30-31), archaeologists need to dig deeper than the superficial answers and recognise that profound meaning often lies beneath practical choices. The Yukaghir mainly hunt elk and have complex cosmological views where persons are locked in a cycle of reincarnation. This cycle is infinite and the Yukaghirs, grounded in this cosmological tenet, understand that hunting helps with the regenerative process (Willerslev 2007, 34). To this effect, Yukaghirs can be selective in their carcass management, as demonstrated by Willerslev's hunting episode with Old Spiridon, yet somewhat indiscriminate in their slaughter (Willerslev 2007, 32-33), similar to the evidence seen at White *et al.*'s (2016) sites.

This particular ethnography was not equipped to address three main points but presents potential for future research. The first point is the treatment of young in the archaeological assemblages, where they are ignored in favour of prime-age individuals with meatier proportions. This is most likely due to the contemporary use of guns, where corralling methods which injure vulnerable young are no longer required, however this was a potential phenomenon in the past when Yukaghirs hunted reindeer and elk *en masse*. The second is the absence of post-hunt processing descriptions in the ethnographic accounts, precluding a comparison of marrow extraction. The third is the repeated use of sites such as Mauran, La Borde and Zwoleń which indicate not just tactical importance, but attest to cosmological significance as well, where space had 'sacred' relevance to the hunt (for other archaeological examples, see Bement 2003; Lubinski 1999). This presents an opportunity to explore other ethnographies which reveal an emphasis on spatial relationships, for a phenomenological approach to Neanderthal livelihood.

This comparison has however highlighted a gap in current Middle Palaeolithic studies, where intangible but significant elements of livelihood are ignored, unintentionally perpetuating the notion that Neanderthals were vacuous brutes, devoid of belief and culture. This study underscores the importance of utilising alternative worldviews for understanding Neanderthal hunting practices, in order to explore the entanglement of ideology, ontology, cosmology and social life that Western understandings cannot reveal. This author is not claiming that Neanderthals possessed the same beliefs as the Yukaghir, nor is she saying that Neanderthal societies should be viewed as temporally stagnant or regionally homogenous. However, by incorporating additional sites in future research, it is possible to draw more detailed comparisons about Neanderthal hunting practices with respect to geography, time frame and treatment based on taxa, ultimately allowing for further reasonable comparisons with respect to social or ideological implications in the Middle Palaeolithic.

## Conclusion

The purpose of this paper was to highlight a problem in Neanderthal studies: focusing on the economic rationales for hunting practices precludes the discussion of ritual and beliefs. This focus has played a part in maintaining the depiction that Neanderthals were dim-witted beasts motivated by the acquisition of food, thereby treating animals solely as prey objects. If social zooarchaeology is relatively new to archaeology (see Hill 2013; Russell 2011), then the study of human-animal relationships in the Middle Palaeolithic is still in its infancy. However, it is essential. It is difficult to ignore the extra-alimentary value of hunting and prey, given the enormous risks Neanderthals took to engage in such strategies for millennia. We therefore need to address the impact that these well-established, relational experiences had on their beliefs and cultures.

This exercise was not meant to absolutely transpose Yukaghir beliefs or to downplay the importance of contextual development. Rather, the aim was to demonstrate that using an analogy of a non-Western narrative helps us understand Middle Palaeolithic data sets anew, as zooarchaeological studies cannot do this in their own right. The Yukaghir have thus been used to compliment White *et al.*'s (2016) interpretations of Neanderthal hunting strategies. By layering their zooarchaeological interpretations

with ethnographic comparison, this paper hopes to demonstrate that exploring ontology or ideology in the Middle Palaeolithic is not as impossible as previously thought. Shipman (2010) reminds us that the frequent interaction with animals would have had a profound impact on human beliefs; with the growing wealth of material evidence which attests to this, it is easy to imagine that Neanderthals were likewise capable of well-developed belief systems in which local fauna played focal roles. It would therefore be worthwhile for the Middle Palaeolithic arena to discuss this in future endeavours.

This approach is not without its limitations: among others, it assumes that our cousins are more human than they are Neanderthal. Neanderthals may never be fully understood in their own right, however this should not be a deterrent for studying Neanderthal beliefs. As more evidence attests to the similarity of our species, ethnography can be seen as a valuable interpretive tool for exploring the largely uncharted territory of Neanderthal ideology.

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# Hounds of Hel: How Did the Mythological Significance of Viking Age Dogs Affect their Social Position?

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## Abstract

This paper seeks to understand the relationship between the mundane and mythological representations of Viking Age dogs, and how this relates to their overall social role and significance. The question is examined by reviewing placement of dog remains in human burials and evidence for dogs in settlement deposits. Physical evidence is compared with representations of dogs in contemporary literature and mythology. The findings of this paper suggest that dogs occupied varied social roles and were thematically important; yet their mythological roles were often disconnected to their complex real-world treatment.

**Keywords:** Dogs, Viking Age, Social Relations

## Introduction

### *Previous Research*

Discussions of Viking Age dogs have examined their placement in graves, in everyday life and, separately, mythology. Most discussions have been restricted to broad overviews; such as Harcourt's 1974 paper which discussed dogs from Prehistory to the Medieval period, and McCormick's 1991 paper which once again talks about Prehistoric dogs, focusing only a brief section on the Viking Age with no in-depth analysis. Where specific analysis exists, it is considered from a one-dimensional angle, such as zooarchaeological reports of Viking sites, where dog remains are rightly considered in the context of the site as a whole. This has meant little examination of dogs specifically has taken place from a purely archaeological perspective. Discussion of the symbolic importance of dogs has taken place; Graslund's 2004 examination of dogs in burials considers mythological representations of dogs and how this informs their importance in graves. However, nowhere has the relationship between the importance of dogs in different social contexts been discussed.

## Approach

To discuss the significance of dogs in both settlements and burials I reviewed zooarchaeological reports of excavations from these contexts. Zooarchaeological reports provided the most detailed descriptions of dog remains, but some broader excavation reports, as well as published papers discussing symbolic attitudes to animals in the Viking era, and wider aspects of Viking life, were also evaluated. This review intentionally focused on obtaining literature on key settlements (e.g. Birka, Uppsala and Dublin) and cemeteries (e.g. Valsgarde) from the period, to enable a re-evaluation of the more traditional interpretations of dogs at these sites.

Within each case study, the presence, context and proportion of dog bones amongst the assemblage was recorded. Additionally, it was noted where dog bones were absent or a small proportion of the assemblage at significant sites in the Viking world; through exploring where dogs are absent, the importance of where they are present can be more thoroughly evaluated. Any pathologies and the articulation of the remains were noted and provided insight into treatment of dogs both before and after death, as did the

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contexts of disposal or burial and the associations of both. The size of the dogs was especially noted as there is a noteworthy disparity between the value and position of large and small dogs in this period.

Sites from the 8<sup>th</sup> to 11<sup>th</sup> centuries CE were analysed; earlier sites were mentioned to provide context to changing relationships with dogs throughout the Viking Age. Furthermore, a broad time period was utilised to open the widest discussion possible from a fairly limited pool of sources. The focus was on the mythological and symbolic conception of dogs within Northern European Viking Culture, and as such, exclusively evaluates sites from Scandinavia and Britain.

In cases where bones have been damaged or have been disturbed, it may be hard to distinguish between a deliberate burial and a naturally deposited skeleton. Additionally, it is difficult to identify whether a burial was meaningful where dogs have been buried alone with no grave goods. To ensure a clear analysis, only those remains which fell distinctly into either category were selected and discussed in the relevant sections.

To provide cultural context to the zooarchaeological evidence, contemporary literature where dogs both feature in a significant way, e.g. named and their deeds especially praised, or are mentioned in a more fleeting regard, were also evaluated. This approach allowed analysis of both places in the literary canon where dogs are especially significant and therefore reflected as important in society. Also considered are notably important works where dogs are absent: the lack of representation is equally important and relevant to this discussion in this paper. Through evaluating multiple strands of archaeological and historical evidence, this paper presents a more holistic understanding of the relationship with, and conception of, dogs in the Viking period.

### **Mundane Conceptualisations of Dogs**

The position occupied by dogs in day to day Viking life and society can most accurately be understood by examining settlement deposits. Evidence for the presence of dogs, whether fully articulated skeletons or gnaw-marks on bones in middens, are not uncommon in Viking period sites and are certainly far more common than in previous periods (McCormick 1991). However, dogs still do not make up a large proportion of the faunal assemblage at these sites. Of the settlement sites considered in this paper, dog remains contribute to ca. 5% of the complete assemblage, most frequently as partially or fully disarticulated remains, located in domestic middens or pits. Dog remains are more common in urban sites (Grieve 2012), though preservation bias and site bias must be considered.

McCormick (1991) examined dog remains from Dublin and recorded frequent injuries to their skulls in accordance with their snouts having been repeatedly injured with blunt force and then healed. Grieve (2012) identified similar injuries in dogs recovered from the British Isles, as well as numerous individuals under two years old with traumatic, unhealed fatal injuries to the skull. One of the most startling examples was excavated in West Stow; the dog is estimated to have died around 15 months old but had evidence of healed broken ribs and leg, additionally a depression fracture on the left side of its forehead: this head injury was its eventual cause of death. To break the bones of a large dog, even the snout, requires significant force. McCormick suggests that panic played a factor in these interactions. However, a dog that consistently instilled enough fear in people to have its snout broken in response multiple times would surely have had very little functional value and would probably have been put down. It is possible the dogs' snouts were broken to quiet barking or as punishment for other 'wrongdoing' such as stealing food or aggression. A prosaic relationship between dogs and humans is therefore implied by the archaeological record in this area; a relationship that was, by the standards of modern thinking, frequently cruel.

In contrast, however, Grieve (2012) identified the presence of dog remains in Viking era Britain and Ireland with osteological pathologies that would have rendered the functional value of the dog near non-existent, yet the injuries themselves had survived for significant periods of time. A dog found in London had suffered a 'greenstick fracture', common in young animals which would have reduced the dog's mobility as it healed. Similarly, a dog in Leicester had fractured both the radius and ulna which had healed out of alignment which Gidney (1999) stated would have required significant care whilst the fracture healed. It can be understood that at least some dogs in this time period were well cared for, suggesting a relationship that went beyond exploiting dogs for functional use.

In the Viking Age, zooarchaeological evidence for dog butchery is a predominantly urban phenomenon, and a rare feature of assemblages (Grieve 2012). In McCormick's 1991 discussion of dogs in Viking Age Britain and Ireland, he describes cut marks on the long bones of dogs consistent with butchery. However, his work does not provide details of where or when these cut marks were noted. McCormick suggests that dogs were eaten in times of extreme food shortage and hardship; this would provide an interpretation for the rarity of dog consumption occurring. Contemporary literature also supports this conclusion; *Liber Eliensis*, an English source from the 12<sup>th</sup> century, records a famine between 695-700 CE that necessitated eating horse, dog, cat and human flesh (Fairweather 2005, 209). Murphy's (2001) later medieval case study from Carrickfergus in Northern Ireland provides evidence for these ideas; dogs make up a significant proportion of the faunal assemblage at this site and a significant proportion display butchery marks. Murphy attributes this to the frequent war and sieges at Carrickfergus throughout the medieval period.

Determining skinning marks from meat butchery marks based purely on osteological evidence can prove challenging and therefore the two can be confused. Additionally, experimental archaeological studies have shown that dogs can be skinned without leaving any clear trace on their bones (Hufthammer 1994). Consequently, it is hard to determine whether the marks are due to butchery or skinning.

Dog skeletons in the Viking period are fairly homogeneous; there is little to distinguish between the skeletons of most breeds apart from size. For this reason, it is not possible to say with certainty that any remains are of a particular modern breed, only that size and typology of the skull, whether dolichocephalic (sighthound breeds) or brachycephalic (certain toy and -bull breeds) are similar to modern breeds.

There is a great variety of dog remains from the sites discussed. Lap dogs gained increasing popularity in the Viking Age and this is reflected in the archaeological record. The smallest dog considered (and the smallest dog recovered from the British Isles) was discovered at Lagore, a royal site in County Meath, Ireland. This specimen was 26 cm at the shoulder as an adult. The largest dogs from the period were not as large as the largest modern dogs; the very largest also originated from Lagore and was 72 cm at the shoulder as an adult (McCormick 1991).

Intriguingly, dogs in the British Isles in this period fall into two quite distinct populations of large dogs and small dogs; adult height is either between 26–40 cm or over 50 cm, with no remains occupying the intermediate space. The distinction between the two populations of dogs suggests that their breeding was tightly controlled in this period. The emergence of a medium sized mongrel group in the later period Waterford sample demonstrates the effects when this is not maintained. Large dogs (between 50 and 60 cm at the shoulder) were most common; this is likely due to larger dogs being used for work (such as livestock and property guarding, herding and hunting) by all social classes, thus outnumbering the higher status small dogs, that had little functional worth.

The real-world treatment of dogs varies drastically between large dogs and small dogs. Generally, large dogs were working dogs - in essence tools- and small dogs were companions. Most notably in Viking Age Ireland, lap dogs were associated with women, especially pregnant women and queens. One reason for this association is very practical: by having a dog sat on the lap, its body heat and slight weight can help to alleviate menstrual cramps. In terms of bounty that could be wrought for killing one, we know from Frostatings law that lap dogs could be worth double or triple the worth of larger dogs used for hunting, herding and guarding (Bernstrom 1962). This greater value is most likely due to the limited functional use of lap dogs in this era; larger dogs were valuable for the work that they could carry out, but small dogs were valuable and a luxury status symbol that only the rich could afford to keep.

The remains of dogs discussed above suggest a grim lot for larger dogs: the pathology of remains shows that they were frequently injured by humans with significant force. Of particular interest is the age of the dogs that display such pathologies; they are often young, some under two years of age and the majority were under five (Grieve 2012). Therefore, they would not have reached any great potential as working dogs at the time of their death. Raising puppies simply for the sake of beating them is nothing short of a waste of resources, and any dog intended for serious work would not have been subjected to such injuries. These dogs then were likely unwanted offspring and perhaps feral, in the manner of Pariah dogs commonly found in modern day India. This interpretation also accounts for their frequent injuries: street dogs in Viking cities would doubtless not have the training to avoid conflict with humans.

As well as skeletal remains of dogs, artefacts associated with keeping dogs can be revealing of their social importance. It can be inferred that hunting dogs were the most valuable of large dogs from the value of the artefacts associated with them. Excavations of late Viking Age Waterford, Ireland, found a 12<sup>th</sup> century dog collar (Hurley *et al.* 1997) The collar is copper alloy, a minimum of 120 mm in diameter, however, it is missing a section which may well extend it. The collar also has six holes, in pairs, which suggest it was backed by leather, as seen in similar post-medieval examples and in illustrations. The collar would have fitted a dog around the size of a modern Irish Wolfhound. However, Hurley *et al.* (1997) note that it was almost certainly imported and therefore, was perhaps worn by a greyhound or similar dog, as greyhounds were popular with the aristocracy, both in court and in hunting. The importance of greyhounds, and similar dogs, is revealed by the value of their collars. In early Welsh Law, a greyhound's collar is given equal value as a horse saddle (Hurley *et al.* 1997, 524).

A small carving of a dog playing with a ball, demonstrates a rather less pragmatic example of material culture relating to dogs. It was excavated from the Viking levels of Dublin, though its exact date is unknown. The carving is a toggle for fastening clothing (thread would have passed through the hole between the legs and throat) (Lang 1988, 85). Though of course care must always be taken not to impart modern sensibility onto archaeological finds, it is hard not to read meaning in the carving of a dog curved around a ball; indeed Jensen (2013) calls it 'charming'. Material culture relating to Viking Age dogs is emotive in many ways because it reminds us of our own dogs. When looking at this artefact one wonders whether it was carved in the likeness of a family pet playing with its toy, to be worn by its owner.

## **Mythological Conceptualisations of Dogs**

### ***Dogs in Contemporary Literature***

Previous studies have been carried out noting the importance of dogs and wolves in Viking literature. Jennbert states: "In the archaeological record we see a greater variety of uses for dogs than in Norse mythology. Dogs have a low profile in Eddic texts..." (2011, 65). Dogs are more easily, and more reliably, detected in the archaeological record; however, their presence in the sagas must not be dismissed.

Literature reflects the beliefs and practices carried out by Viking Age people so in a discussion of the importance of dogs in sagas, the importance of dogs in Viking belief is inherent.

The first appearance of small dogs in Ireland is recorded in *Sanas Cormac*, or *Cormac's glossary*, an early Irish glossary ascribed in its earliest form to Cormac mac Cuilennain (d. 13<sup>th</sup> September 908). Common law at this time stated that any damage done by a dog could be paid either in monetary value, or by the animal itself. In Britain especially, the general interpretation accepted that the victim was to choose which payment they desired (Ferguson 1871, 92). Cormac's glossary tells the story of how the first lap dog was brought to Ireland through exploitation of this law, despite assertion that forbade "[a lapdog] should be given to a Gael..." (Ferguson 1871, 91). The story recorded in *Cormac's glossary* is as follows:

"There was a beautiful lapdog in the possession of a friend of Coipre Musc's, in Britain, and Coipre got it from him thus: Once Coipre went to his house, and great welcome was made to him, except concerning the lapdog. Coipre Musc had a splendid dagger ...it was a marvellous treasure. Now, Coipre...rubbed fat on its hilt, and then left it before the lapdog. The lapdog took to gnawing the hilt till morning. It wounded the dagger then, so it was not lovely. Next day Coipre made a great complaint of this...and demanded justice for it from his friend. So then the lapdog was given to Coipre, and the name clove to it, namely, Mug-eime, 'slave of the hilt'. The lapdog, which was a bitch, was with young...in this way there descends every lapdog still in Ireland." (Ferguson 1871, 91)

The details of this story, and its exact date, are unknown. However, the idea that small dogs had such importance as to be restricted and require trickery to be first brought to Ireland, suggests great importance and a distinct social disparity between the position occupied by large dogs and small dogs.

"Now Garm howls loud | before Gniphellir,  
The fetters will burst, | and the wolf run free;  
Much do I know, | and more can see  
Of the fate of the gods, | the mighty in fight."  
(Voluspa, stanza 44 anon, nd.)

Thusly is Garm, one of the few dogs named in Eddic poems, introduced. The *Voluspa* can broadly be regarded as the best known poem of the Poetic Edda; as it tells the story of both the creation of the world and predicts its end, it is also widely regarded as one of the most important resources for understanding Norse mythology (Dronke 1997).

In *Voluspa*, Garm is mentioned as "howl[ing] loud" before *Gniphellir*, the entrance to Hel. The 'wolf' mentioned later on in this stanza is Fenrir, the monstrous wolf of Norse mythology who, during Ragnarok, kills Odin and swallows the sun. It is suggested that Fenrir is released by Garm's howl. This poem discusses Ragnarok; there is a sense of the domestic, ordered and familiar, represented by a dog, giving way in the chaos of Ragnarok to the other and frightening, represented by a wolf. Later in stanza 45, the oncoming chaos is referred to as 'wolf-time'. There is an evident connection between dogs and wolves; in Norse mythological literature symbolically representing, respectively, the domestic and the wild.

The veracity of any of the sources discussed above is at best questionable. Sagas such as those recorded by Snorri Sturluson, author of the *Heimskringla*, were after all written down hundreds of years after the events that they describe. However, the accuracy of these descriptions of dogs matters far less than the fact that they exist at all. Every instance of discussion in Norse literary canon is a piece of cultural significance afforded to dogs. The cleverness of Vige, strength of Samr and the value of Mug-eime all

suggest a background importance of dogs to Viking Age people, as creatures who can be valued and praised for multiple traits.

Graslund (2004) suggested that dogs and wolves are connected with warrior ideology across the globe; the name of a famous Irish hero, Cu Chulainn, translates to 'Chulainn's dog'. More frequently however, dogs are portrayed in relation to death. It can be argued that the presentation of dogs in Eddic poems as guardians and omens is related to the broader Indo-European idea of the dog of the realm of the dead (Graslund 2004). Other examples that might illustrate our understanding of the Nordic dog are Kerberos, the triple-headed guardian of Ancient Greek mythology, the Old English Church Grim and the Iranian four-eyed hellhound (Lincoln 1991). Linguistically, the words Garm, Kerberos and Gere (one of Odin's wolves) share the same proto Indo-European origin (Lincoln 1991).

When left to roam freely, dogs will naturally scavenge remains, putting them on the fringe of death very frequently. Yet, arguably their cultural association with death as it is represented in mythology is more related to their status as companions. It could be interpreted that dogs are placed at the gateway between life and death in so many cultures because throughout life they are our guardians and their familiar presence is a comfort in the unknown. The close relationship between dogs and wolves in Viking symbolism is related to this; where wolves represent the wild, chaotic and unknown, dogs are their opposite. In many senses then, dogs can be shown to represent the transition between life and death, thus their characterisation in Norse literature.

### ***Dogs in Graves***

Dogs are frequently seen in Viking funerary practice. Prummel (1992) published an overview of the presence of dogs in Germanic graves; her research catalogued 271 dog burials from 108 cemeteries from the 5<sup>th</sup> century to 8<sup>th</sup> century CE. Prummel's study concluded that, where dogs are grave inclusions, they were generally killed (i.e. they did not die a natural death), with the majority dying fairly young (over 60% died younger than five years old). Therefore, it can be understood that the dog burials represented grave goods. In Prummel's view, the dogs were symbols of the wealth and accomplishments which the deceased had attained in life. Although Prummel's work is focused on a slightly earlier time period than this research, it provides a useful background and comparison. Dogs are the most common animal in graves across the whole period, from the 5<sup>th</sup> to the 11<sup>th</sup> century (alongside horses, depending on the exact parameters of geography and time period), with no statistically significant difference between representation of male, female or child burials (Jennbert 2011, 67; Sigvallius 1994, 67).

Dogs occur in both high and low status graves, but are most common in high status graves, for example the high-status cremation grave in Rickeby, Vallentuna parish, Stockholm, dated to the 7<sup>th</sup> century CE. The burial, which is of a man between 40-50 years old, contains four dogs: one of average build ca. 40 cm at the shoulder, two slender built dogs ca. 55-65 cm at the shoulders and one large framed dog ca. 65-70 cm at the shoulder (Graslund 2004). Graslund (2004) suggests that the dogs had different purposes in life; the slender limbed dogs for example might have been sighthounds. Also located in this grave were fine weapons, dice, a horse, birds of prey and meat. It has been suggested that the man could have been a 'chieftain'; his exact status in life cannot be known but we can be certain this was not the grave of a poor man. Similar grave inclusions can be seen in other high-status cremations from the latter half of the first millennium CE.

One such grave, from Taby, Stockholm, contains eleven dogs (Graslund 2004). Skrede (2015) discussed the Oseberg ship, which included six dogs amongst other animals. Though Skrede's analysis focused on the exceptional preservation of the boat itself, the reference to this number of dogs is significant and worthy of analysis. The only animals better represented were horses, 15 of which were included in the

burial. Horses, of course, although also a high status and expensive animal, are not the same category of animal as dogs, being significantly more expensive, with status associations (McCormick 2017, 206).

Gräslund (2004) identified a large number of dog remains in excavations of Old Uppsala, Sweden, dated from ca. 500-1100 CE. Gräslund discussed in particular the placement of the remains of a dog in a boat grave. The dog, buried with a human female, is placed outside of the boat, face down “taken by its tail and slipped down between the boat and...pit” (Gräslund 2004, 57). In Gräslund’s view, this placement gives emphasis on the importance of dogs to Viking funerary practice. This importance, according to Gräslund, proposes symbolic meaning to the placement of canines in graves. As previously discussed, dogs and wolves represent, and are associated with, death and passage to the afterlife.

Given the discussed link between dogs and death, the interpretation of dogs provided by Prummel (1992) as simple grave goods or companions, is insufficient. Practically, dogs are the guardians of homesteads, and culturally they are also the guardians of the realm of the dead: what better guide could one take with them in death? In Prummel’s (1992) evaluation of dog burials among Germanic tribes, she observed that of all burials that included dogs, 21% were of dogs buried alone. Though dog inclusions in human graves can be interpreted as guides or companions, dogs buried alone raise further questions: were these dogs a sacrifice, or simply well-loved pets buried at the end of their lives? The line between the treatment of dogs in mundane and mythological contexts is blurred after death. Dogs placed in human graves tie into their role as mythological guardians, however, there are multiple examples of dogs being buried alone.

Instances where dogs have been buried individually could represent one of the clearest examples of dogs being cared for as individuals. Grave 29 at the Valsgarde cemetery in Uppland contains two adult dogs. Both were buried with elaborate bronze collars and showed signs of having received intensive and long-term care, evident in the dental health of their mandibles. Specimen 29a had lost two teeth on the left side of its jaw and the alveoli of these teeth had healed completely with no sign of infection. Significant wear on the teeth of both animals also suggests that they were elderly at the time of their death (Nichols 2018, 31). It should be noted however that preservation in grave 29 was exceptionally poor. The collars associated with these dogs were recovered only as piles of degraded bronze, the leather ties and/or other metal attachments having completely disappeared. The dog bones themselves were poorly preserved; only fragments of the skull, specifically snout bones, remained. Nichols (2018) therefore suggests that this grave could have included human remains that have entirely degraded. Yet, this grave does not contain any identifiable human grave goods. Together with the lack of human remains, the only thing suggesting that grave 29 was not solely an animal burial is the rarity of such burials at this site. The level of care observed where dogs have been buried alone leads to the interpretation that these dogs were indeed pets buried much in the way they might be in modern times.

## Discussion

Throughout this research, contradicting evidence has in turn suggested that dogs were tightly controlled, and given free reign. Two populations evidenced by the presence of large dog remains and small dog remains with no intermediary suggests strict control of breeding; laws pertaining specifically to small dogs further indicate as such (Bernstrom 1962; Harcourt 1974; McCormick and Murray 2017, 207).

Conversely, frequent evidence of dogs gnawing remains of other animals demonstrates that at least some animals were allowed to roam freely (Hatting 1990; McCarthy 1995; Wigh 2001, 119). Additionally, Wigh (2001) reports that medium-sized dogs were present in Birka. Although the assemblage of dog remains from this site was very small and not well preserved, Wigh declines to ascertain this claim or draw further conclusions from such little evidence.

Clearly dogs in the past led lives of varied experience; it would be an oversimplification to state that dogs were solely controlled or left to wander. Dogs that were kept solely as pets, or were especially valuable, either monetarily or in terms of skill, would have been strictly controlled and not allowed to wander. The dogs of the lower classes, working dogs owned by people who could not afford to raise or home every puppy born to their animals, nor strictly control their wandering, likely roamed, scavenged and bred as they liked. The lack of evidence for medium-sized dogs in certain areas could suggest that these places were occupied by higher social classes who controlled their dogs. Moreover, it should be considered that preservation and site bias must come into play. As medium-sized dogs were less common amongst the population, there are fewer of their remains to be uncovered.

In Jensen's (2013) discussion of animals in Viking Age culture, he argues that archaeological discussion of animals is too often split between purely symbolic interpretations and purely economic readings. To truly understand the complex social position occupied by Viking Age dogs, the importance of both must be considered.

There is not a complete disconnect between the treatment of dogs on an everyday basis, either as working animals, companions or feral, and their importance to mythology and daily symbolism. It is clear that dogs occupied a place of social importance in the Viking Age, for many of the same reasons that they are still important today: their presence in graves and the instances where they have been buried alone evidence this. Material culture associated with dogs, from their collars to the wooden toggle from Dublin, offer an insight into the ways dogs fit into everyday life in the Viking age, as do the surviving stories and poems.

The instances of dogs being buried without humans, such as at Valsgarde 29, are individuals who have been well cared for in life and, given their advanced age, can reasonably be assumed to have died of natural causes. In addition, artefacts associated with larger dogs, such as the bronze collars included in Valsgarde 29 and the bronze collar from Waterford have implications of valued animals whose owners wished to display and show off. A fine collar such as the Waterford collar would have been easily damaged by hunting, fighting or herding. Its owner likely either wore another collar, such as the Valsgarde collar for such tasks, or did not do such work. Either interpretation leads to an understanding that some of the larger population of dogs were more than simply working animals.

Small dogs seem to occupy a similar place in Viking society as they do in the modern era, as companion animals. However, large dogs are valued as companions too: most instances of dogs buried alone are large, slender dogs, similar to modern greyhounds or wolfhounds, which were most likely used as hunting dogs. Heavier boned dogs likely used for herding or guarding are not represented in the graves sampled. Therefore, it is likely that the purpose of a dog when it was alive was more important in its social status than its size, or its species.

Dogs buried with humans must be evaluated differently. The majority of these animals are healthy and show no signs of malnutrition or lack of care. In life, dogs in human graves have been well cared for even by modern standards of sentimentality. However, the inescapable fact is that where dogs are inclusions in human graves, especially multiple dogs in the same grave, they have almost doubtlessly been sacrificed for this purpose: and often at a young age. In this, an overlap between the mythological and symbolical importance of dogs occurs. The frequent appearance of dogs in burials over any other animal must link to their allegorical relationship with death.

The fact that dogs are frequently placed outside the boat when included in boat burials further cements their position as symbolically important. More than a pet or possession, they are therefore placed apart from other grave goods, as was the case with the boat burial described by Skrede (2015). Of particular

interest is boat grave 36 from Old Uppsala where the dog is placed at the prow of the boat facing outwards. If the boat takes a figurative journey into death, then the dog is placed in such a location as to literally lead the way. When considering the significance of where dogs are present, it is equally important to discuss where they are absent.

Of a set of 1350 Scandinavian amulets, 42 of which can be categorised without doubt as non-human animals, none are dogs. This collection is a personal one, owned by Jensen and discussed in his 2013 article about the symbolic importance of Viking Age animals; the collection is not, arguably, unrepresentative. Given the significance of dogs in everyday life, as companions as well as working animals, their lack of representation in personal amulets is curious. As only 42 of 1350 amulets depict animals at all however, it could be argued that animal amulets are simply not fashionable in the Viking period.

As previously discussed, evidence of butchering dogs is rare in this period. Further, where there is extensive evidence of animals being butchered or skinned, such as in Birka, which had an extensive fur trade, dogs are absent. There is extensive evidence in Birka for squirrels, foxes, pine-martens, hares and though rarer, cats, being processed for fur. There is no evidence of dog fur being used (Wigh 2001, 123).

Variations in dog breeds, even in the Viking Age, result in a wide range of coat types. Both practically and aesthetically, dogs would appear to be a desirable animal to utilise in fur production. It could be suggested they were not used for fur purely for sentimental reasons, although evidence of their being frequently mistreated, or sacrificed, suggests otherwise. Arguably, dogs were simply too valuable to be used for meat or fur when other animals could provide both: dogs were more useful and worth more to their owners alive.

## Conclusions

The primary aim of this study was to examine how the mythological and symbolical importance of dogs reflected on their real-world experiences and interactions with humans. In some respects, what we can learn of the lives of dogs is dependent on where they are excavated. It is unsurprising that dog remains from middens evidence less care than dog remains from graves. The limits of this paper do not allow for a comprehensive view of every dog in the Viking Age; nonetheless, a detailed understanding of the interplay between social, symbolic and mythic importance has been possible to achieve.

It is a useful practice in consideration of past dogs to consider the lives of dogs in the modern world. Where people can afford to keep dogs as pets and spend time and resources on keeping them occupied and contained, that is how they live. This experience is most familiar to modern, Western mindsets of keeping dogs as pets. However, many dogs in the modern world are stray, many are completely feral. Where dogs guard loosely grouped animals over a large area, or large properties, or live and work with humans only seasonally, they interact with humans and are also able to wander—and breed—as they will. It is likely that none of these situations would have been too different to the experiences of Viking dogs. Dogs in the past were real and our own experiences of modern dogs are a valid lens through which to view them, and the times in which they lived.

Without doubt, the mythological significance of dogs affected their day to day lives. Their symbolic relationship with death led to their sacrifice for inclusion in human burials. The association between small dogs and women, on the other hand, led to the popularity of lap dogs and their increase in value and status. These associations were not one-way: dogs scavenging around other dead animals as well as the role of guardian frequently occupied by dogs, arguably tied into their positions as guardians of the dead. Similarly, small dogs became associated with women because they were used to ease menstrual pain, however they were used to ease menstrual pain because they were frequently around women.

It cannot be said for certain how much people in the Viking Age associated these symbolic positions with the dogs they interacted with on a day to day basis. The dog toggle offers a delightful glimpse into the more common experience of dog and owner. It is difficult to imagine that the dog playing with its toy, who inspired the carving, was also considered a guide between life and death by whoever wore the toggle. As is the case throughout history however, layered experiences and views of animals are a cultural standard worldwide. Reality need not have much to do with the stories we tell. Thus, was the case with Viking Age dogs, and indeed, with dogs today.

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# Hold Your Horses – Animals in Ancient Thrace

Stella Nikolova<sup>1</sup>

## Abstract

The goal of this paper is to explore human-animal interactions in Thrace from the Hellenistic to the Roman period based on the available published data. The region dealt with in this paper covers the territory of present-day northern Greece, Bulgaria, a small fraction of northern Macedonia and southern Romania. The role of the horse is discussed in detail, since it was the animal that is linked with the Thracian elite. Horses were sacrificed and placed in rich burial complexes, making them the most represented animal in burials, but the least represented in settlements and rarely present in ritual sites. They are widely portrayed in art from Hellenistic frescoes and artefacts, to the Roman period votives of the so-called Thracian horseman.

**Keywords:** Horses, Ancient Thrace, Animals, Ancient Religion

## Introduction

The life and fate of many animals is intertwined with that of humans. They leave their mark in the archaeological record, which helps us reconstruct their diverse roles—as livestock, as a utility, as companions and as participants in certain religious rituals. While studies in social-zooarchaeology have been done for sites of the Western Roman empire, a gap in research is present for the Balkan Peninsula, where a comprehensive study of the material has yet to be done. For the region of Ancient Thrace, which is the territory of northern Greece, Bulgaria and southern Romania, pioneering research on the role of the horse was published in 2014 by K. Rabadgjev. The monograph summarises written sources, iconography and published archaeological data regarding horses for the late Iron Age, ending with the 1<sup>st</sup> century BCE. No such research exists for the Roman period (1<sup>st</sup>–3<sup>rd</sup> centuries CE) and the osteological material has never been the subject of a wider research. This paper aims to summarise published data from Bulgaria in a time frame from the Hellenistic (4<sup>th</sup>–1<sup>st</sup> centuries BCE) until the Roman period (1<sup>st</sup>–3<sup>rd</sup> centuries CE). A comparison between the different archaeological situations in which animals are involved is presented, starting with burials as the most explored, followed by settlements and ritual sites. Since very few written sources mention the local tribes inhabiting the land, details on their religion remain widely unknown. In order to get a better insight into the role animals played in the religious life in Ancient Thrace, a section has been dedicated to animal iconography in locally produced stone votives, which were deposited in sanctuaries.

The role of the horse is discussed in detail, since it is the animal that played the biggest part in the life of the elite. The earliest description of the Thracians is found in Homer's *Iliad*, there they are mentioned as “horse breeding” (ἵπποπόλων Θρηκῶν (Homer, *Iliad*, 13.3)). In this case we see the tribes living in this territory defined by an animal, in the eyes of the ancient Greeks. The horse in the ancient world was an animal representing status, that only the wealthy could afford to own. In this sense we must consider that the portrayal in the *Iliad* applies to the way the Greek viewed the Thracian elite.

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## Animals in Burials

During the early Hellenistic period (4<sup>th</sup>-3<sup>rd</sup> centuries BCE) Alexander the Great created one of the largest empires of the ancient world. After his death in 323 BCE multiple battles for the inheritance of the empire arose in the Mediterranean world. In this historical context a series of monumental tumulus tombs, influenced by the Hellenistic culture began to emerge in Thrace.

To start off it is worth noting that graves containing sacrificed horses are not a phenomenon unique to Thrace, as they are registered amongst various Bronze Age and Iron Age cultures. In Thrace these graves were a rare occurrence before the 4<sup>th</sup> century BCE (Georgieva 2016, 270). The mass placement of sacrificed horses in Iron Age tombs dates to the early Hellenistic period, with over 70 graves registered so far (Figure 1). An open debate exists on the origin of this ritual. Most scholars quote Herodotus' description of a Scythian king's chariot burial (Herodotus, *Histories* 4, 71), which archaeological data has confirmed (Ivantchik, 2011, 81). The Scythian origin seems logical from a historic point of view, since Herodotus also implies that some dynastic connections were made between Thracians and Scythians (Herodotus, *Histories* 4, 78-81). Whilst the sacrifice of a horse and a massive grave mound are present for both cultures, we see vast differences—unlike Scythia in Thrace, additional human sacrifices are not usually found; the only exception being the four person chariot burial of Zdanec, in present day North Macedonia (Figure 1:2; Rabadzhiev 2014, 51). Differences in the construction of the tombs in the two regions are also present.

The Thracian necropolises are bi-ritual (graves with inhumation and cremation are present) and are mostly grouped around Hellenistic centres. The buried were interpreted as being male aristocrats, who took part in the cavalry (Georgieva 2016, 274). Kouzmanov mentions that mares are rare and there are usually present with a stallion, which he links with the overall male dominated antique society (Kouzmanov 2005, 143). That is an interesting connection, since Xenophon mentions how King Seuthes persuaded two generals with the premise of giving one a horse and the other a woman (Xenophon, *Anabasis*, 7.2-2), ranking the two at an equal value. In art horses are always portrayed with male riders, which again is tied up with its function—the horse was valued since it provided an advantage in battle and faster transportation. But horses were expensive, and caring for them was difficult, since a horse requires regular mounting sessions and training. That is why only the wealthy could afford to own healthy, trained horses for the cavalry. Many of the horses fall in the categories of semi-slender to slender legged, with a size range from small to medium as measured by wither height (Spasov *et al.* 2018, 20; Ninov 1997). An exception are a few tall slender-legged horses from the necropolises of Shipka-Sheynovo, Sboryanovo and Kraleva, which resemble the Arabic breed, these are interpreted as elite riding horses (Spasov *et al.* 2018, 21-22).

The horses were usually placed at the entrance to the grave or in the antechamber and a discussion is open if they were placed during the burial or sometime after, marking the last use of the tomb (Rabadzhiev 2014, 225). In rare cases, they were placed inside one of the chambers. The animals were inhumed on one side, or in some cases as seen in Northern Thrace, placed in the pyre alongside the human remains (Theodossiev 2000, 65). In two tumuli from the necropolis of Sboryanovo (Figure 1:5), the animals were placed vertically with each leg positioned in a small pit, making them stand up, as if they were walking (Gergova 2014, 181; Gergova *et al.* 2013, 198). This placement can be linked to the idea that their owner would ride with the horse out of the grave and to the underworld (Rabadzhiev 2014, 239). The majority of horses were deposited intact, but a few cases of mutilations and dismemberment are present. In the Zimnica necropolis (Figure 1:3), a few partial deposits of horses are present, and it is not clear if the other parts of the carcass were consumed (Ganciu and Dumitrascu 2015, 66-67).

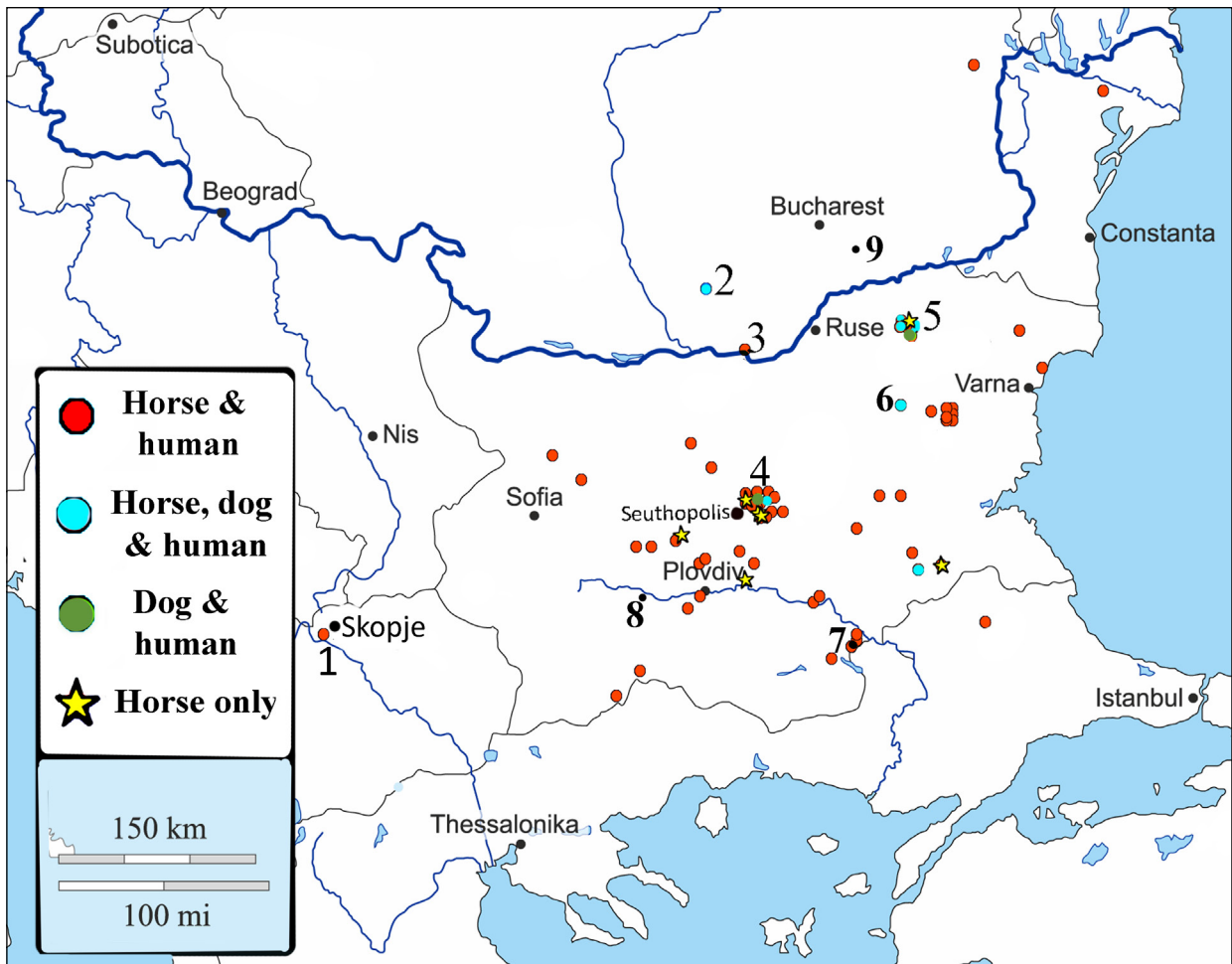


Figure 1. Map of Bulgaria showing the distribution of animal deposits in burial mounds in the Early Hellenistic Age (4<sup>th</sup>-3<sup>rd</sup> century BCE) mentioned in text: 1-Zdanec burial; 2-Peretu burial; 3-Zimnicea necropolis; 4-Shipka-Sheynovo necropolis (Kasabova mogila-green dot); 5-Sboryanovo necropolis; 6-Kralevo burial; 7- Mezek tomb; 8-Pistiros settlement; 9-Radovanu (Maps Balkans 2020a, modified by author).

In a few burial mounds, the horse was the central burial, with no human remains found. Rabadjiev (2014, 167) has questioned whether these mounds could be related to a religious practice, rather than directly linked to the burial rite. Some are interpreted as a cenotaph or a practice linked to a burial in a neighbouring mound (Tonkova and Karailiev 2007, 221). However, we cannot rule out the possibility of a burial specifically made for the animal, which passed before its owner. In Plutarch's description of the life of Alexander the Great, it is mentioned that Alexander mourned the death of his favourite horse Bucephalus and even named a city after him (Plutarch, *Life of Alexander*, 61), so it would be no wonder that a separate grave mound could be made for a horse.

The later Hellenistic period was marked by a series of Celtic conquests in Thrace. In the tomb of Mezek (Figure 1:7), along with horse remains in the antechamber, Celtic chariot elements were discovered, supposedly placed as a trophy (Domaradski 1984, 125–126). The number of graves with sacrificed horses seem to decline from the 2<sup>nd</sup> to 1<sup>st</sup> centuries BCE and there is no current explanation for this gap.

The tumuli Arnautito, near Stara Zagora is one of the few published burials from the period of the transition to the Roman rule (Figure 1:1). It was dated around the late 1<sup>st</sup> century BCE or the early 1<sup>st</sup> century CE (Vagalinski and Cholakov 2005, 247). The main grave of the tumuli contained the remains of

a forty-year-old woman. Along with the grave, a beheaded male horse and a female dog were placed in the south-eastern part of the mound (Ninov 2005, 253).

The establishment of Roman rule marked significant changes in the material culture and religious beliefs in Thrace. Grave tumuli containing carts (Figure 2) significantly increases over time and the number of carts is 219 at the time of publication (Ignatov 2018, 7). The majority of cart burials seem clustered south of the Stara Planina mountain chain (Figure 3). It could be presumed that they were situated in proximity to a provincial road. In most cases they do not overlap with the ones from the Hellenistic period. In the published cases, horses were placed alongside the cart. With current data it seems four-wheeled vehicles dominated the burials (Ignatov 2018, 34). They were placed in a pit and occupied the periphery of the tumuli, in rare cases they were placed near the centre (Ignatov 2007, 48). Before the placement of the horse certain rituals were performed; after a cleansing, the vessels used were shredded and gathered into a pile, along with animal bones, similar to the pre-Roman ritual (Ignatov 2018, 57). Unlike the Hellenistic period, the only burial rite used for human remains in these graves was cremation (Ignatov 2018, 55). The horses were usually inhumed and only a few cases of cremated horses were found (Agre 2008, 237-239; Stanchev 1996, 69-70). The mounds are smaller compared to the earlier ones and lack a monumental tomb. Burials with carts have also been found in Galia and Panonia but are fewer in comparison to Thrace (Ignatov 2018).



Figure 2. Roman age cart burial from Nova Zagora (Ignatov 2018, o6p. 19, c. 206).

Ignatov dates these burials to the middle of the 1<sup>st</sup> century CE, just around the time when Thrace became officially part of the Roman Empire (45 CE), and they seem to continue up until the 3<sup>rd</sup> century CE (Ignatov 2018). Ignatov's research concludes that the carts were used for transport and were not built specially for the burial. The idea behind the placements of horses in both periods seems similar—one's social status continued into the afterlife, hence the need for luxurious goods and a riding horse or horses. During the Roman period, the duty occupied by these individuals remains unclear. In pre-

Roman periods we see that these graves were linked to small aristocratic communities, but with the growing Roman army it seems plausible that more and more people gained wealth, which led to massive boom of the chariot burials.

Along with the chariot, containing two or more harnessed horses, a single horse was placed along with a hound in some cases (Figure 3; Ignatov 2018, 59; Pramatarov 2018, 17-18). Unfortunately, published data has focused mainly on the functional properties of the vehicles, while very few archaeozoological tests have been carried out. The exact number of horses placed with carts remains unknown, since most were destroyed by treasure hunters. The few results classified the animals as slender horses and not mules, although historic sources point to the use of mules for transportation (Ignatov 2007, 58). The role of the single horse and hound could be linked to hunting. Most scholars view these chariot burials as an inherited 'Thracian tradition' from the Hellenistic period. However, this is debatable; there is not enough concrete evidence to conclude whether the chariot burials were a direct continuation of a tradition or a newly formed practice.

Burials with sacrificed horses without a chariot are also present. One example is the Goliama Mogila burial near the town of Plovdiv, where three horses were placed in the north-east outskirts of the tumuli (Kis'ov 2015; Ninov 2015, 576). Horse sacrifice is also present in flat graves from the Roman period, according to Pramatarov (2018, 53); the full research has yet to be published.

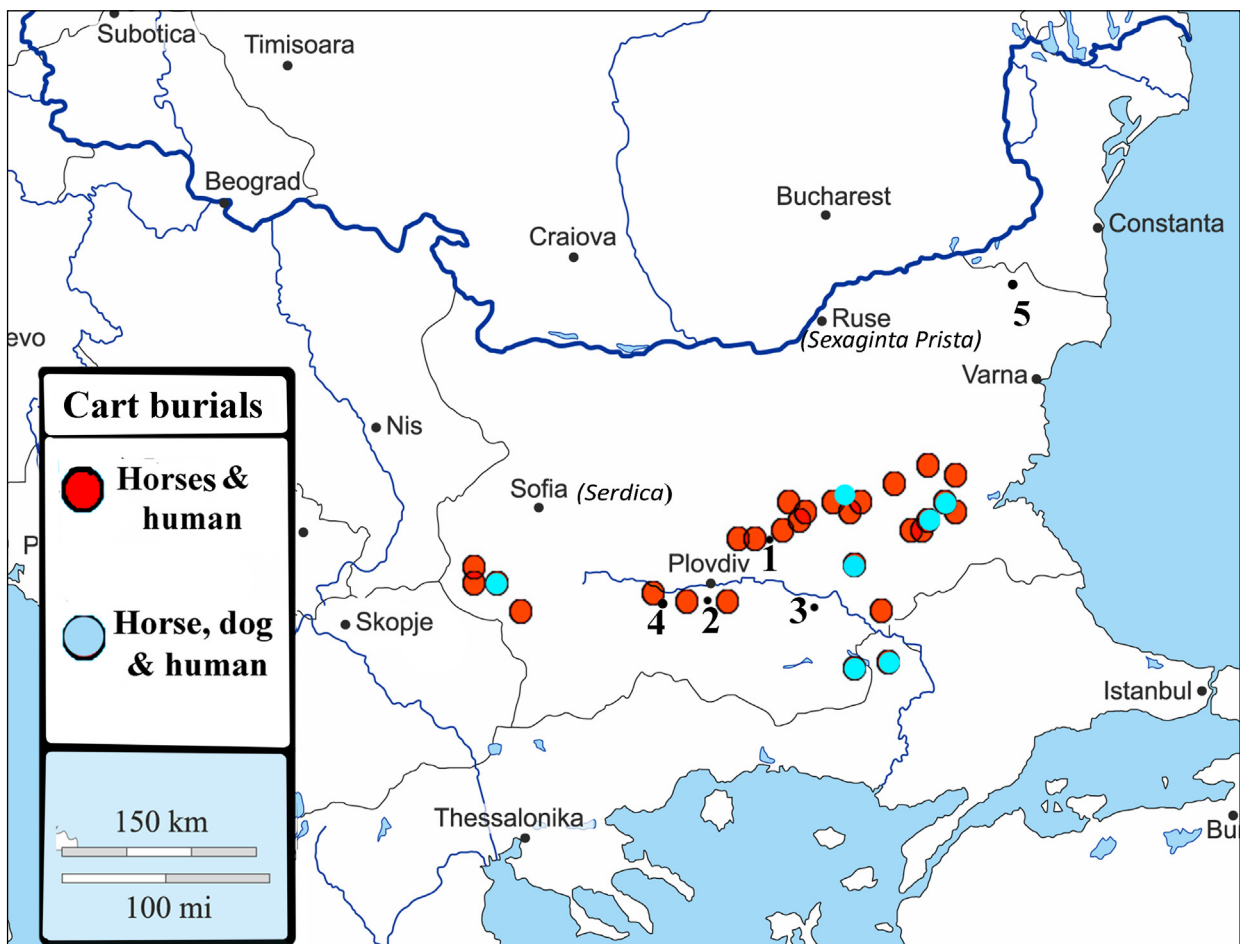


Figure 3. Map of Bulgaria, showing the distribution of sacrificed animals in cart burials, during the early Roman period of Thrace mentioned in text: 1-Arnautito burial; 2-Turnovica mound dog burial; 3-Krepost sanctuary; 4-Batkun sanctuary; 5-Telerig sanctuary (Maps Balkan 2020b, modified by author).

Apart from horses, dogs have also received ‘special’ treatment—in some graves articulated dog skeletons were also discovered. From art and written sources, it is known that dogs were used as hunting pets in Hellenistic times. However, unlike horses, we see a very small percentage of them present in grave complexes. Some authors link this to the overall negative symbol of the dog in Greek mythology, since it was associated mainly with Hecate and the sacrifice of dogs in her name was present (Kitov *et al.* 2007, 152; Mazzorin and Minniti 2006, 62). Due to this, many dog burials are hypothetically linked with purification rituals (deSandes-Moyer 2003, 20; Mazzorin and Minniti 2006, 63-64).

However, the relationship between humans and canines was more complex, seeing that some Greek and Roman sources do point out that dogs were also viewed as loving pets (Toynbee 1973, 109). Dogs are also shown accompanying gods, like Artemis and Asclepius (deSandes-Moyer 2003, 22). In Thrace we have no written sources on the relationship between dogs and humans. We see dogs portrayed as attacking boars in hunting scenes (Marazov 1975, 34-35), which can be linked to the dichotomy domestic-wild (Shalganova 2005, 174). Bearing in mind that most of these scenes follow a certain iconographical scheme, it is impossible to determine a certain breed of hound, based on art alone.

In the early Hellenistic period dogs in burials were discovered solo or alongside horse remains. In Peretu in an inhumed burial the head and legs of a horse were laid, along with three sacrificed dogs, one of which was beheaded (Sîrbu 2012, 87; Stefan 2019, 31). In tumuli No. 1 in Kralevo (Figure 1:6) along two whole horses a beheaded dog was deposited, this is interpreted as a post burial offering (Rabadzhiev 2014, 181). In Kasabova Mogila (Figure 1:4) along with two dog skeletons in anatomical order, the cranium of a third dog was also discovered placed on top of a small rock mound. Disarticulated bones of two other dogs are also present from the eastern part of the tumulus (Kitov 2007, 152). In a female burial in Sboryanovo tumuli No. 18, only the mandible of a canine was placed in a pit in the south-eastern part of the grave (Gergova *et al.* 2005, 22), while bones of a sheep and a bovine were present in the urn along the human remains (Gergova *et al.* 2005, 29). Dogs are underrepresented in burial practices and with the few present cases it seems dismemberment was a common treatment for dog remains. As mentioned earlier horse dismemberment are also present in rare cases.

The only case of a burial containing a dog as the central burial is the mound Turnovica, where no human remains have been found, similar to the horse only burials. The complex was dated to the 1<sup>st</sup> century BCE, based on artefacts (Kitov 1992, 55). Livestock animals remains are also discovered in burials, but unlike horses and dogs their role was that of a food resource. Their bones are found disarticulated and piled up and are interpreted as remains from a funerary feast (Rabadzhiev 2014, 173).

### **Data from Settlements**

In settlements we see different patterns compared to necropolises. Here articulated skeletons are a very rare find and the material is dominated by disarticulated bones scattered among the cultural layers or piled up in pits. The data is biased, since small villages are less researched than city centres and necropolises. The general faunal assemblage consists of livestock animals and although their bones could give valuable data on production and husbandry, very little attention has been paid to them.

Horses and dogs are again believed to have had a more special role, as only few could afford to breed them. From both Hellenistic and Roman settlements most horse bones lacked butcher marks and make up a very small percent of the faunal remains (Ninov 2012, 370). Due to this fact it is impossible to pinpoint the number of horses bred in settlements (Ninov 2002, 112; 2012, 370). In a few rare cases from pre-Roman settlements dog consumption was carried out. Bones with clear butcher marks and traces of cooking were found in the Late Iron age settlement of Pistiros (Figure 1:8; Gotsev and Angelov 2007, 113) and in the 2<sup>nd</sup>-1<sup>st</sup> centuries BCE settlement of Radovanu, southern Romania (Figure 1:9; Bălăşescu

and Morintz 2018). Overall horses and dogs compromise a very small percent of the faunal assemblage, which proves the statement that in most cases they weren't consumed, and their remains were treated differently.

### Animals and Religious Sites

Religious sites also accumulate a wide assemblage of animal remains, due to cult practices requiring animal sacrifice and religious community feasts. In pre-Roman Thrace, sites consisting of clustered pits with no surrounding structures around them, were interpreted as 'pit sanctuaries'. Some pits contain human remains with traces of a violent death (Hawthorne *et al.* 2011, 64; Tonkova 2010, 503–514), along with whole and partial animal deposits and objects (spindles, loom weights, pottery) interpreted as offerings. Similar pits have also been present in Western Europe (Herbin and Pierre 2000, 115–121; Johnstone 2004, 83–85) and Britain (Morris 2011). Clustered pits were discovered under Hellenistic burial mounds, which some researchers use as proof of their religious function (Georgieva 2015, 145; Kesyakova 1977, 51). The interpretation of pit deposits is problematic, and there are a lot of unanswered questions. It is not clear if all these deposits have a religious function, since written sources mention nothing on depositing whole animals in pits.

In the pits of Borisovo, three horses were deposited in pits and at two were found decapitated, which is treatment different compared to the ones in burials, where they were mostly laid intact (Borisova 2010, 182; Spassov *et al.* 2018, 16). Overall fewer cases of deposited articulated horses or horse bones have been found in religious sites, compared to burials. One explanation to this could be that horses were mainly linked with the cavalry. Lucius Florus mentions a horse was sacrificed before a battle with the Romans, because it was believed this would secure victory (Florus, *Epitome of Roman History*, 2.26). Apart from this military ritual, the role horses might portray in rituals is still debated. According to Ninov (2012, 370), horses were not consumed in the Hellenistic and Roman periods, making them unfit for a religious banquets. His conclusion is made upon the fact that none of the bones have butchery marks and the small amount in the general faunal assemblage (Ninov 2002, 112). This is also valid for other sites of the Rhine-Danube limes (Johnstone 2004, 82–83).

More complete deposited dogs have been found in pit sanctuaries, compared to horses. Dog sacrifices are not unfamiliar in the ancient world—for example, we have the description by Columella of dog sacrifice in agricultural rituals (Columella, *De Re Rustica*, 2.21), which is often quoted for Roman period dog burials (deSandes-Moyer 2003, 22; Morris 2011, 162). Overall it seems complete animal burials are more common in pit sanctuaries where human remains are also present (Ninov 2013b, 279–280; Tonkova 2010, 208, 503–514).

A few of these sites continued into the Roman period. The number of pits from the Roman period is significantly lower; human remains are no longer found and articulated animal burials are rare. The site at Sniagovo was interpreted as a pit sanctuary because of the presence of Thracian horseman votives (see following section; Hawthorne and Varbanov 2011, 66). In Sexaginta Prista, the pre-Roman pits stopped functioning and a sanctuary of Apollo and the Thracian Horseman was established during the Roman period (Hawthorne and Varbanov 2011, 67). Juvenile pigs dominate the faunal assemblage from this site (Ninov 2013b, 279).

Roman period sanctuaries emerge in Thrace, constructed in stone masonry and worshipping a romanised deity. In them, the main faunal assemblage is similar to that of the settlements. It is dominated by livestock animals, mainly cattle, followed by sheep/goat and young pigs, as well as a small number of remains from hunting trophies (Ninov 2013a, 235). Whole animal burials are rare.



Figure 4. Plan of Krepost (Valchev 2016, обр. 1, с. 294).

The site of Krepost (Figure 3:3 and Figure 4) is a sanctuary where the deposition of whole horses was recorded for the Roman period, which is uncommon. The site emerged in the Hellenistic period, where it began as a pit sanctuary with over 80 pits (Figure 4). In the late Hellenistic period, a grave mound was made, and an elderly individual's cremated remains were placed in it. Based on the grave goods the grave was dated to the late 2<sup>nd</sup>-early 1<sup>st</sup> centuries BCE (Khandzhiiska-Yankulova *et al.* 2011, 365). Data from the Roman period shows the site was used as a sanctuary. Two ditches with a half circular form were first made surrounding the Hellenistic grave and bones of over 400 animals were discovered in the ditches. Over the south-eastern ditch, during the Roman period, it seems a sanctuary was established, which in the late Antique period was made into a church (Khandzhiiska-Yankulova *et al.* 2011, 366). Interestingly, under the alter apsis of the church, the articulated skeletons of three sacrificed horses along with burned grain were discovered (Figure 4:1). The case of Krepost is unique since this is a sanctuary associated with a previously formed burial mound and has latter horse deposits. These might have been done in a remembrance ritual or have something to do with the cult of the Thracian horseman, as votives of him were found reused in the church.

### The Thracian Horseman

In this section I would like to briefly discuss the image of the previously mentioned Thracian horseman. In the Roman period, votives depicting a male rider were widely spread in sanctuaries in Thrace. Over 1000 votives have been found to date (Boteva 2016, 310-311) and according to Opperman's research these reliefs were spread during the reign of the Severan dynasty, with their peak being the first half of the 3<sup>rd</sup> century CE (Opperman 2006, 26). The rider became known as the Thracian horseman, or the Thracian

Heros, with “ἥρωας” (hero) being written on some of the votives. In a few cases a different epithet such as “κύριος” (ruler/ guardian) is used, followed by a name presumably of local designation (Boteva 2011, 86; Liapis 2011, 100; Opperman 2006, 97). Nothing is mentioned directly of the rider in written sources.



Figure 5. Thracian horseman votive dedicated to Asclepius (author).



Figure 6. Votive of Artemis riding a doe (author).

A number of these votives were dedicated to a Greek/Roman male deity, usually Apollo or Asclepius (Figure 5; Opperman 2006, 19). Syncretism between the Heros and other deities from the Greek-Roman pantheon are also present (Boteva 2011, 86). Such is the case in the sanctuary of Telerig (Figure 3:5), where some of the votives were dedicated to the god of blacksmithing, Hephaestus (Torbatov 2005, 80–87) and a few dedications to the god of the forest, Silvanus are present (Boteva 2011, 86).

The iconographical scheme of Figure 5 shows a horseman venturing into the woods. His body and that of the horse are shown in profile, while his head is turned. With one hand he is grasping the harness, while the other is holding a spear. He is shown wearing a short chiton and cape. The horse is depicted galloping or running with one foot lifted above ground. Sometimes additional figures in front of the horseman are present, including a woman, a tree with a snake, an altar and other wild animals (Opperman 2006, 305-309). The lifted hoof of the galloping horse is facing the altar, in some cases even placed on top of it (Opperman 2006, taf. 1:7). It is relatively common for a hound to be depicted by his side, chasing or fighting a wild animal, before the rider delivers a fatal blow. The wild animal is usually a boar or stag, and occasionally may be a bear or lion (Boteva 2003, 96; 2005, 209). This motive of animal against animal is widely spread in the so-called ‘Animal Style’, characteristic of Thracian and Celtic art and is regarded as an eastern influence (Doan 1983, 155).

The image of the horseman highlights the syncretism between man and horse. The horse makes him stand out; it completes his heroic image. If we agree on Opperman’s chronology, the horseman votives appear in the last century of the chariot burials. A comparison can be sought with Hellenistic-

period art, since horsemen were widely depicted in Thracian art—it appears on various metal vessels, bridle appliqué and jewellery (Kitov 2009; Venedikov and Gerasimov 1973, 147-358), making horses the most depicted domestic animal in art from the region. In the fresco of the Hellenistic tomb in Ginina Mogila, Sboryanovo necropolis (Figure 1:5) we see the deceased on horseback heading towards a goddess, crowning him. This scene is interpreted as showing the heroisation of the deceased, making his way to the afterlife on horseback (Chicikova *et al.* 2012, 47-48; Dimitrov 1988, 161-164). Although the iconography of the Roman period votives differs from the Hellenistic artefacts, they could be viewed as a continuation of the idea of “the divine rider-ruler” (Opperman 2006, 309-310). Noting that horses were widely deposited in graves, along with a hunting hound in rare cases, a link can be sought between the horseman and the Thracian aristocrats, who probably viewed themselves as a representation of an immortal rider. The animals were an integral element in order to complete this image.

This iconography of the horseman votives is similar to funerary reliefs (Gocheva 2007, 158). This has made scholars trace the origin of the cult to the Greek colonies of the Black Sea, since funerary stelae with a rider are well documented in the town of Odessos (present day Varna) and is believed they precede the mass spread of the horseman votives (Opperman 2006, 97).

In sanctuaries where the horseman was worshipped, bones of wild animals are present (Ninov 2013a, 229-245). Similarly, in a few Roman period cart burials bones of wild boar (Ignatov 2018, 100, 103) and stag (Ignatov 2018, 94) have also been discovered. Votives of the horseman come mostly from sanctuaries, however it is important to note that some were present also in grave tumuli (Boteva 2011, 99; Pramatarov 2018, 15). Many questions remain open regarding the function of the horseman and the animals he is linked with.

Other deities from the Graeco-Roman pantheon also had votives made for them. In discussing animal-human interactions, the votives dedicated to Artemis, the female hunter goddess, deserve some attention. They are fewer in number compared to the horseman and were mainly discovered south of the Stara Planina mountain chain (Deoudi 2009, 74). The huntress is portrayed hunting a doe or stag with a bow and the help dog companions. Similar to the horseman votive, an altar and a tree with a snake are also present. The dog is again a hound, but unlike the hunting scenes in the horseman reliefs, the Goddess isn't portrayed riding a horse. Interesting is one votive of Artemis stored in the National Archaeological Museum in Sofia (Figure 6), where she is portrayed riding a doe and hunting a boar with a hound. This scene displays a lot of similarities with the horseman votives, but the mount is shaped like a doe. The horse always seems to have a male rider.

## Conclusion

Animals played different roles in the ancient Thracian society. Domestic animals were bred for meat and production of various goods. However, horses and dogs had a more complex role in this period. Horses and large dogs were sacrificed and placed in the rich grave mounds of the elite. In the Hellenistic period the horses were usually placed at the entrance, while in the Roman period the placement of a whole chariot with harnessed horses along with a free riding one was common in the periphery of the tumuli.

Horses and dogs are rarely present in the general faunal assemblage in settlements and sanctuaries, since they were not consumed. Horses were a symbol of status, power and wealth. They were associated with male individuals due to their role in warfare and hunt. The horse was dependent on its master, but its role was complex. Owning a horse was an expense and a privilege, going beyond the animal's utilitarian function. Much like its owner, the horse had servants who attended to all its needs, and it led a life better than that of most human subjects. Regarded as an inseparable part of its master's image, the horse empowered him and that was the reason it accompanied him to the grave. In art from both

the Hellenistic and Roman period horses were the most often portrayed domestic animal. The widely spread image of the Thracian horseman, seen on votives placed in sanctuaries show the animal also played a vital role in the image of the mythological hero.

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# Seen but not *Herd*: Animals in La Tène Art in England and Wales

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## Abstract

This paper introduces the preliminary results of current PhD research, looking into the recognition and use of animals and humans in La Tène art in England and Wales. A key aim is to relate the art back to the society that produced it by taking a less theoretically driven approach and taking into account a larger corpus of finds, which include many recorded by the Portable Antiquities Scheme. This paper highlights the issues researchers face in studying La Tène art and will then present the preliminary results of the use of the representations of cattle. This paper illustrates the need to reconsider the balance between theory and data and opens a new window into the potential relationship between later Iron Age society and their animals.

**Keywords:** La Tène, Early Celtic Art, Animal-Human Relations, Cattle, Iron Age Britain

## Introduction

“Most Celtic art takes the form of abstract decoration...” (Stead 1985, 7). This quote from Stead sums up the traditional view of the character of Early Celtic art. The abstract and ambiguous nature has been independently echoed by authors over the years such as Aldhouse Green (1996, 11), Müller (2014, 30) and Garrow and Gosden (2012, 42). Megaw and Megaw (2001) also describe Early Celtic, or La Tène art, as ‘essentially aniconic’ (2001, 21). Yet clearly, as demonstrated by Jacobsthal’s lecture *Imagery in Celtic Art* (1941) and the publication of *Early Celtic Art* (1944), there is also a genuinely figurative—if stylised—aspect of the style. Examples of this can be seen from the ‘Early Style’ neck rings for Ertsfield, Switzerland through to the cattle depictions of fire-dogs in 1<sup>st</sup> century BCE Britain. However, these figurative forms have been largely ignored over the years, in favour of continual theoretical forays into the potential symbolism in the more common abstract designs (see Foster 2014). If we are to ever successfully relate the art style back to the society that produced it—a recognised criticism of the research area (e.g. Sharples 2008, 212)—then recognisable animal and human figurative forms are an essential target of research. In this instance, a possible approach is to re-evaluate the role of animals in La Tène art by making comparisons with faunal remains from excavations on Iron Age sites. This paper considers how figurative forms of La Tène art can be recognised, classified and can contribute to Iron Age archaeology within their own right. It also uses a different approach: treating La Tène art as artefact-based data. As an example of the potential of this methodology, this paper will then outline the preliminary results from the study of cattle representations in the art, before comparing them to a synthesis of interpretations of cattle in Iron Age society via interpretations of their faunal remains.

## Previous Studies

The identification of La Tène art originates in the mid-19<sup>th</sup> century, particularly with the publication of Augustus Franks’ *Horae Ferales* (1863), which included the plates from the lecture of the then recently deceased John Kemble (Collis 2014, 21; Harding 2007, 2). This publication was the first to recognise the characteristics of the art, but the sequences and styles were not defined until 1944 with Paul Jacobsthal’s *Early Celtic Art*; this is still highly regarded as an essential reference volume today (Frey 2004, 5). Since the late 20<sup>th</sup> century, research has been dominated by the publications of the Megaws (e.g. Megaw 1970;

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Megaw and Megaw 1994; 2001), who recognised the need to look at La Tène art in wider societal context, and to whom the subject area owes much (Garrow and Gosden 2012, 55; Harding 2007, 15). The most recent contributions in the 21<sup>st</sup> century include the publications of Jope's (2000) almost encyclopaedic volume *Early Celtic Art in the British Isles*, in addition to the *Technology of Enchantment* database and dating programme which set out to place La Tène art in Britain into its wider social context (which will be discussed in detail later; see Garrow and Gosden 2012). Discussion volumes such as *Rethinking Celtic Art* (Garrow *et al.* 2008) and *Celtic Art: Making Connections* (Gosden *et al.* 2014) have widened conversations relating to the definition, objects, motifs and theoretical underpinnings of the subject area, the former based in Britain and the latter Europe wide. At the time of writing this paper we anticipate the monograph publication of the 'European Celtic Art in Context' project (for now see Nimura *et al.* 2020, 23-36), a database of over 38,000 objects from 47 countries, which also aims to place La Tène art objects into their wider archaeological context throughout Europe (Nimura *et al.* 2020, 23). This varied history of research has produced key themes and debates which will be discussed herein.

### **Name and Origin**

Firstly, it is important to recognise the appropriateness, or lack thereof, of the art style's name. Christened after the type site in Switzerland, which also gave its name to the second half of the European Iron Age (Fitzpatrick 2018, 43), La Tène art does not originate from here. The name 'Early Celtic art' could also be considered equally misleading, whether or not the 'Celts' were a genuinely recognised ethnic identity of a group of people during this period, that were also responsible for the art styles development, use and deposition (Koch 2014, 13). Additionally, describing the art as 'early' could be seen to reference just the pieces of the 5<sup>th</sup> to 3<sup>rd</sup> centuries BCE. Celtic art can also refer to later medieval knot-work. In consideration, La Tène here is used in favour of 'Celtic' with its specific association to the later Iron Age period, in recognition of its failings but without better alternative.

It was written famously by Jacobsthal that La Tène art is "an art without a genesis" (Jacobsthal 1944, 158), although it is now somewhat clearer that there are elements from both the Hallstatt and Hellenistic styles in some motifs and in the arrangement of some repeating pattern design (Megaw and Megaw 1993, 223; Müller 2014, 30; Guštin 2014, Fig. 7.3). However, the origin story is far from clear. Recent research presents its origin as part of a Eurasian wide phenomena of change during the 6<sup>th</sup> and 5<sup>th</sup> centuries BCE, where archaeological and textual evidence suggest large movements of people over vast distances, who introduced and obtained different artistic influences (see Wells 2020). Additionally, as mentioned before, it could be argued that the 'Early Style' of La Tène should be considered as a separate entity to that which is produced from the 3<sup>rd</sup> century BCE onwards, as exemplified in Megaw's (1994) summary paper.

However, the ending of La Tène style is as complicated as the beginning; in Britain it is not only through the *Technology of Enchantment* project that we can prove that the Roman Conquest does not automatically mean the art style ceases to be used (see Garrow and Gosden 2012). For example, several brooches dating to the 1<sup>st</sup> and 2<sup>nd</sup> centuries CE that are considered 'Roman' in design are decorated with La Tène motifs (see Hattatt 2007, 344). Similar to its earliest forms, it may also be considered that the last phase of La Tène art (from ca. 100 BCE onwards) should also be assessed separately from the general corpus, something this paper will discuss further.

Megaw and Megaw (2001, 19) define art as decoration which is not "necessary for functional utility" of the object (see also Green 1992, 29), or as Gosden (2020, 13) does, that the objects are the art and not just the decoration—the two are not seen as separate. The problem with both of these definitions is that they generalise a highly varying corpus of work over potentially 800 years of local and continental cultural change, and where both definitions can be argued to apply. For example, 1<sup>st</sup> century BCE

fire-dogs in Britain are only decorated with cattle, and so the object type and the decorative element—the bovine head—cannot be separated from the object type. This is very different to torcs, of which the earliest Iron Age examples can be seen in Hallstatt contexts in Europe (e.g. the burial at Vix), but are included under the La Tène umbrella due to the applied decoration, such as the Grotesque Torc in the ‘plastic’ style (Machling and Williams 2020). This paper stresses the highly varying nature of art and object, which means that objects and what decorates them needs to be considered in their local contexts first. This data can then be built up to create regional and international frameworks to observe object types, patterns and motifs. This will build up a far more accurate picture of how ‘art’ was perceived in the mid to late Iron Age.

### ***What is ‘Art’ and What Does it Mean?***

This leads us into discussion as to what La Tène art ‘means’. Writers such as Green (1992, 4) and Megaw and Megaw (2001, 7) agree with a broad “religious” and “aniconic” interpretation (Fitzpatrick 2007, 340). Gosden (2020, 15) declares: “I am not inclined to search for the meanings of Celtic Art, partly because ambiguity is crucial to many decorations, making the question ‘what is it?’ one of the least productive we can ask”. These statements, however, are based on the abstract element of the art, another example of generalisation that reflects the lack of research into the figurative forms and their context, as well as their research potential.

Where there has been investigation into the inclusion of animals and humans in the art, there has been a predominance of investigating the highly abstract forms, the existence of which is not guaranteed (e.g. Foster 2014). A classic example of this issue from Britain is the decoration from the crescent mount of Llyn Cerrig Bach, which has been interpreted as a bird (Green 1992, 130), puffin (Jope 2000, 115) or even a quadruped (Spratling 2008, 195) over the years. MacDonald (2007, 125), following Fox (1958), in his assessment of the assemblage demonstrates that a smaller version of the same motif can be seen on at least four other items, to which can be added two torcs from Ipswich (British Museum acc. nos. 1969, 0103.3 and 1969, 0103.4). Yet, these further examples have never been recognised as an intended figurative form, and therefore pose an issue of consistency in identification as well as illustrating difficulties in attempts to define ‘meaning’ or identity when focusing on the highly abstract.

Where we do have recognisable figurative forms, we have further issues to consider. A simple example is the recognition of the ‘dragon’ swords (for a review of the use of this decoration see Fitzpatrick 2007). ‘Dragon’ is a misleading and inaccurate label for these consistently portrayed serpentine-like figures, because we have no way of knowing what they were actually meant to portray. They are too stylised for researchers to reach a reliable conclusion as to their identity. We have to understand that we will not be able to accurately label every animal that we may come across in the menagerie of La Tène art, and that this should not necessitate the use of theoretical constructs to label without consideration of the effects of doing so.

### ***Previous Methodological Approaches – The Technology of Enchantment Database***

The majority of previous approaches to La Tène art have been mostly theoretical, concentrating on the morphology of stylistic elements, the meaning of the objects and their decoration, and the debate as to whether the relative homogeneity of style across Europe represented a ‘Celtic’ race (Megaw and Megaw 1994). In their 50-year review of the research area, the Megaws specifically noted the general lack of methodological change since Jacobsthal (1994, 291). This changed, however, with the advent of the Technology of Enchantment Database, which presented new theoretical foundations, particularly in highlighting the work of Alfred Gell (see Garrow and Gosden 2012, 44). It also introduced the welcomed concept of treating art as data.

The idea of an open access database for this otherwise scattered dataset is to be welcomed, and this had the potential to create a far more balanced approach to the research area.

However, there are limitations to this database. Firstly, despite its attempt to be all inclusive, the sampling method only focused on those object types “that had featured in previous catalogues of Celtic art” (Garrow and Gosden 2012, 61). A clear example as to why this should not happen can be seen in the use of the ‘Early Bird Style’ which is first introduced ca. 3<sup>rd</sup> century BCE, and is used to decorate cosmetic mortars, a late British Iron Age innovation of the 1<sup>st</sup> century BCE to 1<sup>st</sup> century CE (see Ellis 2020). Yet, cosmetic mortars are entirely excluded from this dataset, which naturally challenges the reliability of some of the conclusions reached by the study. Secondly, there is a lack of data entry standardisation and consistency in regard to the analysis of the inclusion of ‘abstract/swirly’ decoration, and the research question designed around this could be argued to deny the subtleties of the construction of decoration. Despite its “object-centred” claim (Garrow and Gosden 2012, 6), in its overly theoretical stance and data design it never challenged or reviewed the conclusions reached about La Tène art formed in the last 50 years—apart from in dating and deposition—despite having the technology and tools to do so. Though the intention of the study is a positive act to follow, the result is less so. All these points have directly impacted on the data-based methodology of this paper, as discussed further in.

### ***Animal-Human Relationships in the Iron Age***

Given the nature of complex animal-human relationships which are interpreted via faunal remains, it is unclear as to why an investigation of the animals in the art has not taken place before. In Britain both animal and human remains were not just deposited as waste during the later Iron Age, but often show evidence of structure and meaning, as can be seen in Pudney’s (2019, 146-147) summary of structured horse burials from sites across southern England. It is equally clear too, from famous examples such as the Aylesford Bucket (British Museum acc. no. 1886,1112.5), fire-dogs in burials such as Welwyn (no. 1911,1208.2) and numerous bird fittings such as those from Buntings Pasture in Norfolk (nos. 1999,0201.1 and 1999,0201.2) that although we might not be able to fully understand the intention of the object, clear representations of animals were used. An example of other European figurative representations can also be seen from Manching, Germany (Sievers 2017).

### ***Summary***

This discussion, therefore, raises a multitude of fundamental questions about not just the nature of the art, but how we can approach it differently. Can art be successfully treated as data? On what type of objects are animals used and are there patterns within functional and geographical distributions? Can any relationships be drawn between the use of animals in the art and the species from evidence derived from faunal remains? Asking these questions challenges fundamental elements of the theoretical basis of the study of La Tène art, as well as long held beliefs. To test them, this paper will look at the initial results of the use of cattle in the later La Tène art of England and Wales.

### ***Methodology***

It must be stated that the overall aim of this paper is to balance theory and data, whereby the former can be tested against the latter and new hypotheses are proposed on demonstrable data-based evidence. The methodology developed for this project has a number of key principles. Coinage was excluded from this study due to the abstract and sometimes difficult nature and origin of the unique symbolism and artistic forms used, which requires its own dedicated study. To avoid the potential mistakes of previous studies, every other example of figurative decoration from England and Wales has been included in the sample regardless of the object type. Data collated for the research derived from published catalogues

(e.g. Jope 2000), the Technology of Enchantment Database, over 50 museums within England and Wales as well as an in-depth search on the Portable Antiquities Scheme. In the latter case, it is important to note that both 'Roman' and 'Iron Age' items were searched for, as figuratively there is a lack of clarity on what makes an 'Iron Age' animal or human figure compared to a 'Roman' one (where there is a clear lack of Classical influence). These were stylistically checked against accepted examples from elsewhere in Britain and Europe to ensure they were fairly considered as part of the La Tène art school. The breadth of the dataset is intended to enable any regional and local patterns to be identified. This is designed to re-assess what we think we already know, in the hope of achieving absolute accuracy in any conclusions reached by this research.

Data were added to Microsoft Access, which is currently used as a 'data-bank' but which will eventually be transformed into a fully relational database. This was designed using three principle groups of variables. The first group—primary variables—are information points shared by all objects, no matter what species. These include data such as object type, find-spot location, approximate dating and, should a piece have been written about before, how other researchers have recognised an animal form. The second group of variables are the recording variables and are also shared by all items; these were designed to record all known research about these objects within the specific object entry, as well as record the object's current location (if known). The third set of variables were the species-specific variables and included data options so that individual species characteristics could be investigated. For instance, is it possible to tell apart different bird species? Why are cattle sometimes portrayed with horn caps? Is there evidence to suggest domestic pigs and wild boars portrayed differently? It is accepted that some of these questions may not have sufficient data to be answered, but that should not prevent the questions from being posed.

The faunal remains investigation is based on a synthesis of recently published animal remains data and interpretations, including isotope studies. Main themes were identified for each species which helped formulate further research questions. Only remains with secure dates were used to observe any potential chronological patterns between animals and their representations in the art, if they exist.

### **Animals in La Tène Art in England and Wales – Initial Results**

Initial results have produced a database of 765 figurative forms of La Tène art style in England and Wales (Table 1). The results clearly demonstrate the over-representation of cattle during this period, contributing to nearly a third of the representations evaluated in the database. Birds, humans and boars/pigs<sup>2</sup> soon follow in popularity. However, despite assumptions that horses are popular in art due to their recognition on coinage (Foster 2014, 64), there are only 13 examples of non-coinage horses in England and Wales thus far, for reasons yet to be understood.

However, what is most interesting is that far more species can be recognised and categorised (66% of overall sample) than those which cannot. Those items within 'Unidentifiable' were based there for one of the following reasons: that they were either unrecognisable as species through abstract style; damaged beyond recognition; or in the vast majority of cases, they could not be securely identified as part of the La Tène school due to lack of comparative examples, but also lack of Classical Roman influence. Ultimately, the sheer numbers of late Iron Age figurative forms could be seen to challenge the recognition of the potential animal and human forms so far identified within the abstract element of La Tène art, and suggests that these abstractions may not represent real life forms (Foster 2014, 64; Gosden 2020, 15). Alternatively, it could also indicate two schools of figurative elements within the art style.

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2 Boar/Pig – The distinction in the art between a wild and domestic porcine is generally blurred at best, with no obvious pattern to the portrayal of tusks or spines.

Table 1. Species represented in La Tène art of England and Wales.

Species	Number of items from England and Wales	Percentage of overall sample
Cattle	219	29%
Birds	94	12%
Humans	77	10%
Boar/Pig	47	6%
Multiple animals/humans	33	4%
Other species (including canine and aquatic)	24	3%
Horse	13	2%
Unidentifiable	258	34%

It must also be noted that the vast majority of items recorded were metalwork in nature. Examples of La Tène art on organic materials can be illustrated both in Britain and on the continent, such as on the antler handle of the saw from Fiskerton (Field and Parker Pearson 2003, Fig. 4.16) and bone trial pieces in Ireland (Megaw and Megaw 2001, 207), but they are rare. This is probably a reflection of the better survivability of metalwork over other organic remains such as wood or leather. Consequently, we cannot rule out the possibility that some animals were represented on particular materials, such as wood, more commonly than on metal. Either way, in Britain at least, we are only ever seeing a small portion of representations that were originally created.

Despite this issue of preservation, cattle are clearly the most popular animal represented in metal in England and Wales. Consequently, they are an important case study in which to examine what their representation may reflect in Iron Age societies in England and Wales.

### Cattle in La Tène Art in England and Wales

Cattle representations in La Tène art in England and Wales are distinctive, as they were in Hallstatt art on the continent (see Megaw and Megaw 2001, 28, Fig. 12), with some element of stylisation in their overall anatomical accuracy. These include elongated, often square ended, muzzle and almond eyes such as the bovine figure from Ham Hill (Jope 2000, 166i). Cattle are almost always portrayed with horns, the exception being on some cosmetic mortars, namely Jackson's Type J (Figure 1), where the points at either side of the head could be either horns or ears and there is no secure way to know which the artist intended. Due to the fact we do not know the genetic dimorphisms of the cattle of this period, there is no attempt here to determine gender by presence of horns. It should also be noted that 97% of the 219 items represented cattle by portraying the head only, with only four examples portraying the whole animal. Two items were too fragmentary to assign anatomical representation. In the dataset 95% of examples had been identified as bovine by previous researchers and find specialists. Currently there are no clear geographical patterns to the overall dispersal of cattle decorated objects, except for a general absence in Central Wales and the south-western peninsular. Objects that cattle were used to decorate fall into 11 categories, as seen in Table 2.

Table 2. Categories of objects decorated with cattle in La Tène art in England and Wales.

Object Group Number	Object Group Name	Number of Objects in Group (Percentage of cattle sample)
1	Fire-dogs and Associated Furniture	9 (5%)
2	'Drinking Horn Fittings'	2 (1%)
3	Small Vessel Handles	5 (3%)
4	Figurines	4 (1%)
5	Vessel Spouts	4 (1%)
6	Cosmetic Mortars	70 (31%)
7	Tubular Fittings	4 (1%)
8	Unique Vessel Related Items	14 (7%)
9	Presumed Vessel Fittings	27 (13%)
10	Swing-Bucket Vessel Fittings	53 (24%)
11	Other Items	27 (13%)

The most represented object type decorated with cattle in England and Wales are cosmetic mortars, with particular reference to Jacksons Type J (Figure 1). However, this is closely followed by cattle decorating swing handle bucket type vessels (Figure 2) and presumed vessel fittings in 'other items' (Group 11), the purpose of which cannot be defined either due to uniqueness or damage. It is clear that cattle are used to decorate objects that may have been shared or certainly, to an extent, displayed, such as fire-dogs and swing bucket vessels. Cosmetic mortars may too have fallen into this category, but we cannot be certain since we still cannot define their function. Only very rarely, such as the knife from Birdlip (see Jope 2000, 163e) and the mirror from Ingleton (British Museum acc. no. 1945,1103.1) are cattle used to decorate more personal objects.



Figure 1. BV49 A Type J Cosmetic Mortar; Burgate, Suffolk; PAS ID: SF-E508C7.



Figure 2. BV61 Swing Handle Bucket Vessel Fitting, Allerdale, Cumbria; PAS ID: LANLUM-E2C388.

Context may potentially be able to help define the purpose of items decorated with cattle, but unfortunately 58% of items are metal detector finds, 22% are of unknown origins and 6% are either chance finds by the public or antiquarian finds with little to no stratigraphic information. There is no consistency in context or deposition to the 11% of items found during excavation. The only exception to this is the inclusion of fire-dogs within high status burials, apart from the fire-dog from Capel Garmon which was found in a bog and is stylistically unique in the object class.

As expected, given the general survivability of metalwork compared to other materials, 94% of items were made from copper alloy, whereas 4% were made from iron. The latter were represented entirely by Object Group 1, fire-dogs and associated furniture. Within cattle finds, 84% included no secondary decorative material. Of those that did, enamel was the most popular secondary material used (23, 10%), and the majority of these examples decorated the cosmetic mortars (78% of the 23 items which used enamel). Of those cosmetic mortars to use enamel, 17 of the 19 (89%) of the cosmetic mortars were specifically Jackson's Type J (Figure 1). Therefore, the use of secondary materials appears to be associated with decorating the object type rather than decorating the bovine form.

A feature previously recognised in past studies of La Tène art in relation to the depiction of cattle is the phenomena of 'horn-capping': the inclusion of spherical ends of the horns for currently unknown purposes (Figure 3). Previously this has been linked to the idea of cattle safety (Fox 1958, 73) but has also been theorised to denote a sacredness to the cattle image (Green 1992, 146). In the cattle representations of England and Wales, 13% (29) of items are depicted with horn capping (Table 3). When broken down to object type, it is clear that in the case of fire-dogs (Group 1 with exception of Capel Garmon), small vessel handles (Group 3; Figure 4) and other items (Group 11; Figure 5), there is a higher proportion of capping. This correlates with the fact that all objects within these three groups are either associated directly with high-status contexts or are high-status, rarer objects. This suggests a potential correlation between the status of a person who commissions or owns an object and the use of horn capped cattle as decoration on these object types. This further suggests that, though we currently have no direct evidence for horn capping in Britain such as the caps themselves (Green 1992, 146), the illustration of it relates not just to both potential husbandry practice or religious status, but may suggest high status of the owner.



Figure 3. BV134 Tubular fitting of unknown purpose illustrating horn capping, Needham, Norfolk; PAS ID: SF-882904. Length: 78.28mm.

It is also important to point out that horn capping is not a unique phenomenon to Britain, as can be seen from examples from Manching (Sievers 2017, Figs. 7-9). However, how far this phenomenon spreads in the Iron Age, and whether it reflects genuine practice, is far from clear.



Figure 4. BV72 Small Vessel Handle, Breckland, Norfolk; PAS ID: NMS-E51D37.

Due to the lack of context for most items, there is a lack of secure dates for the majority of the sample (just 20 datable items). However, there are enough to illustrate a general pattern (Table 4). The earliest depiction of cattle in England and Wales is the plastic style tubular fitting from Norfolk (PAS ID NMS-178AE0), dated via its artistic sub-style rather than context (Ellis and Lamb 2019). Currently there are no artistic examples of cattle which can be dated to the 2<sup>nd</sup> century BCE. During the 1<sup>st</sup> century BCE the first consistent depictions of cattle appear. They are used to decorate high status and rarer items such as the fire-dogs from Welwyn and Baldock and the vessel spout from Lincolnshire (dated by association by May 1971, 258).



Figure 5. An unknown type fitting from Welton, Lincolnshire; PAS ID: PUBLIC-288AA7.

The introduction of these new object types also features the first artistic uses of horn capping, in addition to animation or expression in the animal faces (e.g. fire-dogs from Baldock). These features are continued to be used in those pieces that date to the early 1<sup>st</sup> century CE, where swing bucket type and small vessel handles are first introduced. Later in that century, cosmetic mortars and proposed

Table 3. Percentage of item groups with capped horns.

Object Group Number	Object Group Name	Total number of objects in Object Group (Percentage of total sample)	Number of objects in group with capped horns (Percentage of group)
1	Fire-dogs and Associated Furniture	9 (5%)	8 (88%)
2	'Drinking Horn Fittings'	2 (1%)	1 (50%)
3	Small Vessel Handles	5 (3%)	3 (60%)
4	Figurines	4 (1%)	0 (0%)
5	Vessel Spouts	4 (1%)	1 (25%)
6	Cosmetic Mortars	70 (31%)	1 (1%)
7	Tubular Fittings	4 (1%)	0 (0%)
8	Unique Vessel Related Items	14 (7%)	3 (21%)
9	Presumed Vessel Fittings	27 (13%)	2 (7%)
10	Swing-Bucket Vessel Fittings	53 (24%)	4 (7%)
11	Other Items	27 (13%)	6 (22%)

vessel fittings first appear, with the continuance of some animation in face and horn capping. There is a marked change, however, from late 1<sup>st</sup> to 2<sup>nd</sup> century CE, where there is less use of animation and horn capping ceases to be used. From the 2<sup>nd</sup> to the 4<sup>th</sup> centuries CE, where the datable objects are dominated by cosmetic mortars, there are no clear instances of animated faces. Apart from Jackson's Type J cosmetic mortars, there are no other stylistic consistencies in how cattle are portrayed, apart from the preference of only portraying the head with horns.

Cattle depictions in La Tène art in England and Wales are therefore an artistic phenomenon that begins in popularity in the 1<sup>st</sup> century BCE, but appears to reach greatest popularity and range in the late 1<sup>st</sup> to 2<sup>nd</sup> centuries CE, which parallels the increase in dated object deposition patterns noted by the Technology of Enchantment dating programme (Garrow and Gosden 2012, 79). So far it appears as though a majority of objects that cattle were chosen to decorate are primarily for display, such as fire-dogs and vessel related items that may have been used in communal feasting. Few examples are from

Table 4. Artefacts decorated with cattle dated by association or style.

Chronology	Examples	Object Types	Summary of features
300-200 BC	PAS ID NMS-178AE0 – plastic style fitting.	N/A	N/A
1 <sup>st</sup> century BC	<ul style="list-style-type: none"> <li>• Fire-dogs – Welwyn and Baldock burials</li> <li>• Vessel spout, Lincolnshire (May 1971, 258).</li> </ul>	Fire-dogs; Vessel Spouts	<ul style="list-style-type: none"> <li>• Horn capping</li> <li>• Some animation in depictions</li> <li>• New object types</li> </ul>
Late 1 <sup>st</sup> century BC – early 1 <sup>st</sup> century BCE	<ul style="list-style-type: none"> <li>• Felmersham burial swing bucket</li> <li>• Small vessel handle from Hertfordshire (British Museum no. 1994,0303.34)</li> </ul>	Swing Bucket Vessel Fittings; Vessel Handles	<ul style="list-style-type: none"> <li>• New object types</li> <li>• Some animation in depictions</li> <li>• Use of horn capping continues</li> </ul>
1 <sup>st</sup> century BCE	<ul style="list-style-type: none"> <li>• Cosmetic Mortar from Blossoms Inn, London (Jackson 2010, 319)</li> <li>• Cosmetic Mortar from Fenchurch Street, London (Jackson 2010, 325)</li> <li>• Bovine-horned (capped) human fitting from Richborough, Kent (Jope 2000, 173f)</li> <li>• Proposed vessel fitting from Lydney, Gloucestershire (Hawkes 1951)</li> </ul>	Cosmetic Mortars; Proposed Vessel Fittings; Swing Bucket Vessel Fittings	<ul style="list-style-type: none"> <li>• New object types</li> <li>• Some animation in depiction</li> <li>• Horn capping</li> </ul>
1 <sup>st</sup> century BCE- 2 <sup>nd</sup> century BCE	<ul style="list-style-type: none"> <li>• Fitting from Roman Fort at Manchester (Hawkes 1951)</li> <li>• Proposed vessel fitting from Kirkby Lonsdale (Hawkes 1951)</li> </ul>	Fittings of unknown type; Proposed vessel fittings	<ul style="list-style-type: none"> <li>• Some animation in depiction</li> <li>• No horn capping</li> </ul>

datable or associated contexts, thus there are no clear patterns as to deposition apart from Object Group 1 in high-status burials. The use of horn capping on only a few items, often again high status, suggests a purpose beyond merely depicting a potential animal husbandry practice. Thus far there are no clear geographical or secondary material use patterns.

### Comparison with Faunal Remains

There are two chronologically recorded changes which take place regarding cattle stock in the Late Iron Age and early Romano-British economies in Britain. The first, as outlined by Albarella (2007), is an increase in sheep numbers from a number of sites including the Wessex landscape, East Anglia and the Midlands, with a decrease in cattle numbers during the latter stages of the Iron Age. This is not a completely universal trend, however, with exceptions such as Silchester Oppidum where cattle dominate (Paris 2018) and at Danebury where change is observed ca. 100 BCE and cattle bone assemblage rates begin to rise with the addition of new crops (Stevens *et al.* 2013). Hambleton (1991) also recognises that Iron Age sites in eastern Britain tend to produce larger numbers of cattle bone.

The second change is a general increase in cattle size, resulting from influences of new genetic stock, thought to take place in the mid-1<sup>st</sup> century CE (Albarella *et al.* 2008; Minniti *et al.* 2014). This is in addition to the general acceptance that it is during the conquest period that cattle eventually become the predominate domesticated animal, as a source of meat, dairy, leather and traction (Hurley 2018; Minniti *et al.* 2014; Redfern *et al.* 2010). A third consideration, though less chronologically secure, is that based on the evidence from Owslebury Farm, there is an increase in movement of cattle during the pre-conquest period (Minniti *et al.* 2014).

This paints a complex picture for the pre-Roman period of ca. 50 BCE-50 CE, a period which potentially correlates with the start of the increase in cattle being portrayed in the art in England and Wales. There is also a correlation between the domination of cattle as the main economic stock animal and the high frequency of depictions on presumed vessel fittings such as Object Group 9, which takes place during the 1<sup>st</sup> and 2<sup>nd</sup> centuries CE. Not only has this pattern between art and society never before been observed, but neither has the use of a decorative element of La Tène art been related back to events ongoing in wider Iron Age society. It is highly unlikely that the apparent correlation between these two events, which have been discovered through entirely independent research means, could be pure coincidence.

However, due to the complexity of the faunal remains, it is unclear what this correlation means. It is highly unlikely that this is the result of a desire to represent the most common economic animal in art. If this was the case, we would expect more depictions of sheep. Currently there is only a single instance of sheep in the art, recorded from Harpenden (see Jope 2000, 170d). Regionally there does not appear to be a direct correlation between locations where changes in pre-conquest cattle management occur, such as Danebury or Silchester, and the earliest dated cattle depictions (found at sites such as Felmersham, Welwyn and Baldock). It should be noted that there is a general easterly trend to the earliest finds which may correlate to Hambleton's (1991) recognition of greater popularity of cattle in the region. The majority of these early cattle depictions in the east portray horn capping (e.g. Kirmington), a potential sign of status due to their frequency on high-status objects. Additionally, horn capping only occurs during this transitional period of cattle becoming the dominate stock.

Therefore, do these earlier depictions of cattle on higher status objects correlate to the high status of individuals who were involved in the handling, physically or monetarily, of these animals? Does this status, and therefore the use of horn capping, then diminish post-conquest where cattle are more widely available, but still seen as economically valued, hence their higher frequency portrayal across a range of object groups?

## Concluding Remarks

Preliminary results of this PhD thesis illuminate new insights into La Tène art and animal human relations of the later Iron Age in England and Wales. They also illustrate some hard truths in relation to recent research of the art, and how a genuine object centred approach can reveal new evidence of the role of cattle and their symbolism in later Iron Age society. It also illustrates potential links to the role and status of individuals who may have been associated in the handling—financially or physically—of cattle, and how that status may have changed during the conquest period. It is during this period where cattle continued to be the dominant economic animal, that their depictions reached their height in popularity. It also demonstrates interpretation of the art that is not just theoretical in basis.

The varying stylisation and realism of the cattle depictions from 1<sup>st</sup> century CE onwards raise questions as to whether or not they truly belong to the school of La Tène art. Cosmetic mortar bovines, for instance, are rather different to those depicted on vessel fittings. Again, however, it should be noted that realism is not new in La Tène art or its predecessor Hallstatt style. If cattle representations here are to be regarded as truly part of the La Tène corpus, it would clearly demonstrate that the art style is far more varied than curvilinear abstract decoration and that description of it should not be generalised to ‘abstract’ or ‘ambiguous’.

Furthermore, this approach has proven how it is possible to relate the depiction of animals back to the society which produced it, and therefore opens a brand new data-supported window onto interpretations of animal-human relationships in later Iron Age Europe.

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# Wolf vs. Dragon. What if Medieval Dragons Were Wolf-Headed Snakes from Antiquity?

Giuseppe Delia<sup>1</sup>

## Abstract

In this paper, I would like to discuss a hypothesis regarding the mythological origins of dragons, as imagined in Medieval Europe. This concept potentially comes from Egypt. The impact of Egyptian religion and practices spread throughout the Mediterranean after being collected, interpreted and adapted by the Greeks. In both Egyptian and Greek myths, there are many kinds of threats to mankind, but wolves and snakes played a particular role because they may have represented the most immediate dangers of the untamed nature surrounding villages and cities. This leads to countless ways for these people to deal with them. The major diffusion of Egyptian traditions was via the Roman Empire. When Christianity became the official religion of the Roman Empire, paganism was gradually and systematically rooted out, but some of its features, mainly the iconography of dragons and the philosophy behind them were assimilated by Christians. However, when the knowledge of classical culture became elitist, people lost the references in some tales and images, so they found new ways to explain them, usually distorting their meanings. The transmission of stories is usually affected by word-of-mouth, which tends to enrich and shape the original narrative in a multitude of ways and add or delete things to meet the audiences' tastes. I argue that is also the case with wolves-snakes and dragons in Medieval times.

**Keywords:** Dragon, Middle Ages, Visual Culture

## Introduction

When the word 'Dragon' appears in a discussion or in a written text, virtually everyone, at least those who were raised in Western civilisation, thinks of the traditional image of a mythical reptile with four legs, bat-like wings, a forked tongue and that possibly breathes fire (Elice 2004, 19). This depiction of a dragon was first attested in the 13<sup>th</sup> century CE (Merriam-Webster 2020). It seems to be the embodiment of Evil that the heroic figure must fight against and slay (Benvenuti 2016, 6-9), whether it is found in a medieval manuscript, a Renaissance painting, or a fairy tale. There is a long tradition of stories related to this Good/Evil archetypal battle that seems to date back to the dawn of time, but it is only during the Middle Ages that the dragon, as depicted in Western traditions, has taken shape (Ogden 2013b, 1-4).

The aim of this paper is to follow the changes in imagery that dragons underwent from their origins in ancient Egypt to medieval Europe. It will show how features and body parts have been added over the centuries beginning with a simple snake, which became the fearful dragon that represents one of the most recognisable monsters of contemporary imagination (Del Duca 2003, 5-9). My hypothesis is that artists and authors throughout time have relied on the imagery related to wolves, both practically and psychologically, when depicting dragons. Wolves were a more vivid threat to people than snakes, which, especially in Europe, do not reach an enormous size and of which only a few are venomous.

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After realising how much the behaviour and aspects of the wolf may have affected the concept and image of the dragon, I started looking at all the images of dragons, from antiquity to the Middle Ages, and I discovered that it is rare not to see the heads of wolves/dogs. In addition, probably due to the influence of movies and TV series, I found myself unable to think about a dragon and immediately imagining its roar which is something that clearly belongs more to wolves/lions than to snakes.

Wolves and snakes evoke a common human response of fear, they represent immediate danger, especially for farmers and shepherds, and they embody the untamed nature that people can either fight or befriend. The latter was easier with wolves, so they were accepted into human communities in ancient times and evolved into our pets. Regarding snakes, they were usually tolerated, although avoided, since they hunt rodents which would otherwise feed on crops/damage crops (Djurslev and Ogden 2018, 11-21; Ogden 2013b, 366, 375).

The paper will address the similarities and points of contact that may have connected snakes and wolves in antiquity (Sîrbu 1997, 87), and how their roles in polytheistic civilisations across the Mediterranean Sea have mixed, crossed and later been reinterpreted by Christians to represent the Devil (Ogden 2013b, 383-426).

### **The Idea of Dragons in Antiquity**

I am not currently aware of any piece of literature or scholarship dealing with the hypothesis of wolves and snakes being predecessors of dragons. I therefore used Greek, Latin and modern texts about either wolves or dragons and snakes. I also looked at the reception of myths and religious practices in the material culture that may have been linked to wolves and dragons/snakes' imagery. The result, as outlined throughout this paper, although still in an early stage of research, shows that through several adjustments in storytelling and shifts of meaning, the atavistic fear of wolves and dragons/snakes has been addressed in such a way that it has continuously remained relevant and present in peoples' common imagery, even with the advent of Christianity (Marchetti 2017, 128-133).

In order to cast some light on the logic behind the wolf/dragon theory, it is important to bear in mind the mythological background and, hence, the purposes of dragons for the Greeks and Romans. In antiquity, the word 'dragon' simply meant snake, more specifically big snakes related to temples and religious practices (Servius II, 204, in Hagen and Thilo 1881, 254). *Drakones*, i.e. snakes, in Greek mythology had many functions and had been used from the beginning of Greek history until the Hellenistic period and beyond as:

1. Antagonists of gods and heroes (i.e. Zeus vs. Typhon (Figure 1), Apollo vs. Python in Delphi, Jason vs. the Colchis' dragon, Herakles vs. Ladon in Hesperides' Gardens, Perseus vs. Medusa and the Cetus in Libya and Ethiopia; Ogden 2013b, 3, note 1);
2. Pivotal characters in the foundations of cities (Alexander the Great and Agathodaimon in Alexandria, Cadmus and the Ares' dragon in Thebes (Figure 2; Barbantani 2014, 209-245; Ogden 2013b, 3, note 1; Viccei 2015, 11-22));
3. Attributes of gods (Hermes' Caduceus, Asclepius' snake; Ogden 2013b, *ibidem*).

If we replace dragons with wolves the myths listed above are not affected, as shown in the following paragraphs.



Figure 1. Zeus darting its lightning on Typhon. Chalcidian black-figured hydria Chalcidian black-figured hydria (540-530 BCE; Bibi Saint-Pol 2007a).

### Battles Against Gods/Heroes

The battle of wolves instead of dragons, against gods and heroes still describes the eternal struggle between order and chaos, civilisation and wild nature. The difference between wolves and the medieval dragons is related, in my opinion, to the gender of the monsters and the characteristics they inherited from their mythological parents, Typhon and Echidna. In antiquity, dragons had more nuanced roles, as highlighted in the following paragraphs, which were mixed and blended with the advent of Christianity into the enemy of humankind: The Devil.

Typhon (Marchetti 2017, 126–127) is described as having multiple snake heads all over his body, snakes for legs, and a mighty bark or roar like a wolf or lion (which doesn't fit well with any snake). He is also the father of several non-snake creatures (Ogden 2013a, 18–38) for example: Cerberus, the three-headed dog guarding the entrance to Hades, originally depicted with snakes coming out of its body (Ogden 2013a, 63, fig. 7); Orthus, the two-headed dog watching Geryon's Cattle (Ogden 2013a, 14–15); the Colchis' *drakon* (Ogden 2013a, 125–133), who protected the Golden Fleece from thieves; and Ladon (Ogden 2013a, 57–62), the dragon given by Hera as a guardian of the Hesperides' garden, whose "cries were of every variety" (Apollodorus, *Bibliotheca*, 2.5.11, in Ogden 2013a, 58). They have some common traits that link them more to wolves than to snakes: they all have a mighty bark/roar, they have been placed by gods to protect something valuable, and they may represent the territorial/property-related (i.e. masculine) sort of threat that the hero has to annihilate along his journey to become immortal.

Echidna (i.e. Viper; cf. Marchetti 2017, 127–128) a half-maiden, half-snake monster, was the mother of the monsters described above (who had Typhon as father). Traditionally, she lived in a cave where she attracted men to kill them with her venom, devour them and drink their blood in order to maintain her ageless aspect. The chthonic (=subterranean, related to the underworld) features, the venom, the

craving of human flesh, the general destructive behaviour and the predominantly snake-related aspects of Echidna seem to have been passed on to her (female) offspring. The Chimaera (Ogden 2013a, 75-82), the monster who had lion, goat (breathing fire) and snake heads was destroying Lycia until Bellerophon slew her throwing a spear capped in lead at her fire-breathing mouth. The Lernaean Hydra (Ogden 2013a, 50-57) was the many-headed snake who was plaguing the surroundings of her lair with her poisonous breath until Herakles was sent to kill her, cutting her re-growing heads (possible reference to the mutation of skin of snakes) and burning her necks to cauterise the wounds. Medusa (Ogden 2013a, 82-96), although she is only recognised as daughter of Echidna and Typhon at a later moment, lived in an almost inaccessible place where she petrified everyone she looked in the eyes (like the medieval Basilisk in Aldrovandi 1640, 361-376) and after Perseus slew her blood from her severed head became venomous snakes (Apollonius Rhodius, *Argonautica* 4, 1502-1531, in Barbantani 2014, 217).



Figure 2. Cadmus fighting the dragon. Side A of a red-figured calix-krater found in Sant'Agata de' Goti (Campania), ca. 350-340 BCE. From Paestum. Louvre N3157 (K33; Bibi Saint-Pol 2007b).

### Foundation of Cities

The snakes/dragons involved in the foundation of cities have a slightly different *raison d'être* than the monsters listed above. In some cases, they are seen as positive and benevolent creatures, as in the case of the Agathodaimon in Alexandria, who at a first glance does not look like a medieval dragon at all. However, its mere existence and the fusion with Anubis, which created the syncretic god Hermanubis, may have made him a threat to Christianity. He did not represent evil, instead, he was invoked for centuries by people seeking good fortune and hope. This is in contrast with the Ares' dragon killed by Cadmus, at the place where he later founded Thebes.

Most of the images and sources related to the Agathodaimon (a spirit with the body of a serpent) date back to the Ptolemaic and Roman periods (4<sup>th</sup> century BCE–4<sup>th</sup> century CE), and in Greece he was known as Zeus Meilichios, as reported in the *Orphic Hymn* 73 (l. 4., in Lalonde 2006, 63), who was a serpentine variant of Zeus connected with good fortune. He was deified during the foundation of the Ptolemaic Dynasty, between the reigns of Ptolemy I Soter (305–282 BCE) and Ptolemy II Philadelphus (284–246 BCE) when they were building the city of Alexandria, while trying to solidify their kingship by developing a mythology surrounding Alexander (Ogden 2014, 129–132). During the foundation of Alexandria (by Alexander the Great) in 331 BCE, the footprint of the city extended from the river Drakon to the Agathodaimon (Alexander, *Romance*, I, 31,7, in Wolohojian 1969, 49, § 81) identified with the Canopic branch of the Nile by Claudius Ptolemy (*Geography* IV, 5, in Nobbe 1843, 249–265). In a few lines, Ptolemy synthesises the birth of the city's protective god (Agathodaimon), the building of a *heroon* to worship him, and the beginning of an annual feast to honour the god and the founder (Alexander, *Romance* I, 32, 5–13, in Wolohojian 1969, 50–52, § 85–87). Alexander the Great decreed that the 25<sup>th</sup> of Tybi (7<sup>th</sup> of April) would be the Agathodaimon's feast day, on which people would feed non-venomous snakes in their houses with bread, milk and honey and sacrifice to the serpent-born hero. The story of the Agathodaimon shows that people in Antiquity would treat snakes as pets in recognition of their protective role against rodents in the house, hence the epithet οἰκουρῶν ὄφις= house snakes (Djurslev and Ogden 2018, 11–21; Ogden 2013b, 366, 375).

Cadmus' myth (Figure 2; Ogden 2013a, 108–118) represents the battle between a hero and a snake/dragon, but its significance goes further. Cadmus, after looking for his sister Europe who was kidnapped by Zeus, was advised by Apollo to follow a cow until it fell and found a city there: Thebes. He then sent his soldiers to get water to make a sacrifice, but they were all killed by the Ares' *drakon* that guarded the spring. Cadmus killed the *drakon*, planted its teeth in the ground and soldiers jumped out (they were called *Spartoi* i.e. the Sowed Ones) and started fighting among each other until only five were left. Cadmus made them his trusted companions and generals. Later, Zeus gave him Harmonia (daughter of Aphrodite and Ares) to marry and when they became old, they were transformed in snakes. Cadmus had constantly been burdened by the slaying of the dragon. He therefore asked the gods if they valued the life of a monster more than his, he would like to try that life to better appreciate it. Hence, they turned him into a snake. This particular snake/dragon had features of both Typhon-like and Echidna-like dragons: he had a golden crest, was venomous, had a plaguing breath, thick and almost impenetrable scales and he ate Cadmus's companions alive. He attacked Cadmus and his companions because they entered a sacred place (i.e. the spring of Dirce). Therefore, the dragon had the right to protect the sanctuary from foreign invaders, as would a watchdog. Slaying him brought misfortune to Cadmus, because the *drakon* was a positive being and he should, at least, have honoured the dragon's death with a sacrifice like Alexander did with the Agathodaimon.

### **Attributes of Greek and Roman Gods**

The snakes/dragons, when manifesting as attributes of Greek and Roman gods, have characteristics of the benevolent snake, which is usually connected to good fortune, health and a good transition to the afterlife. The *Caduceus* or Κηρὺκειον is the staff that is usually connected with heralds and Hermes in myth since he is the gods' messenger (Tyson 1932, 493-494). It is thought to be a development of the shepherd's crook (Farnell 1909, 20) with the addition of two entwined snakes and wings, which would fit well with what is written in the Homeric Hymn to Hermes (IV, 1-60). In fact, after his birth, Hermes snuck out from the cave in which he was born to steal Apollo's herds. When the young god was discovered he pretended to be innocent, but then Apollo decided to give Hermes the cows in exchange for the lyre his brother had just invented. From that moment Hermes had the epithet *epimelios* (guardian of flocks) (Pausanias IX, 34.3, in Miller and Strauss Clay 2019, 249, note 22).

Hermes is also the god of merchants and thieves and was the patron of people that persuade others with their silver tongue or use their 'sneaky' abilities to steal. The *Caduceus* concentrates Hermes abilities into a powerful symbol: it can force people to fall asleep, promotes fertility on earth and peace among the dead (snakes were seen as the souls of the dead and were worshipped in Roman *Lararia*; Marciniak 2018, 316). Hermes's abilities were connected to the two snakes, one male and one female, who were divided by Hermes's staff while they were fighting or coupling. They then coiled up on the staff and fell asleep (Tyson 1932, 495). The wings on top of the staff represent the speed of Hermes. In short, the *Caduceus* can be seen as a trusted companion for a shepherd-god, which could be the role of a shepherd dog that protects the flock and ensures the lambs are protected. Hence Hermes, and by proxy the *Caduceus*, is seen as being fast and intimidating at times, but also protective and clever.

Asclepius' snake, similar to the Agathodaimon, was closely related to the preservation of human life, in this case, through healthcare. Like other big snakes of antiquity, it has some relationships with Asclepius' cult, and it was treated and respected like the god itself. The snakes wandered around the temples at night where sick people were sleeping, to whisper or to send them dreams about their diagnosis, which they would then report to the priests in order to get the appropriate medical attention (Wilton 1894, 66). It is interesting to note that Asclepius, in life, was always assisted by dogs. When he was exposed after his mother was killed for adultery, a dog took care of him (Pausanias II, 26: 3-10, in Jones and Ormerod 1918). A dog also guarded him while he was educated by the centaur Chiron (Pindar, *Pythian Ode*, 3.5ff in Race 1997, 248-263; Apollodorus 3, X:3, in Fraser 1921, 12-17). Dogs were also allowed in the temple where people seeking to cure their diseases slept, so that the dogs could lick their wounds and heal them (Wilton 1894, 65-66). Furthermore, dogs served as guards against thieves in the temples. Pausanias (II, 27: 2) recorded that the chryselephantine statue of Asclepius in Epidaurus represented the god with a snake on one side and a dog lying on the other. Again, the snake and the dog fulfil similar and complementary roles in curing and protecting the sick as manifestations of Asclepius' will.

### **The Role of Egypt in the Birth of the Dragon**

The influence from Egypt during the Ptolemaic period introduced the division between the good snake (healer) and the fearful snake (breathing fire like the goddess Wadjet; cf. Wilkinson 2003, 227). These fearful snakes were usually cobra-like, and there was a connection with Isis, the mistress of snakes and magic, as well as Serapis (Harari 2011, 389-390). The common representation of the Agathodaimon is a snake, usually viper-like, but sometimes more like a cobra, coiled and rampant with a beard and sometimes a crest (Figure 3). The assimilation of the snake with Serapis and Isis led to the artists depicting the gods with snake-tails showing good fortune, and they became Serapis Agathodaimon and Isis Agathe Tyche (Ogden 2014, 137).

To fit the Agathodaimon into the Egyptian pantheon, the Ptolemies created a hybrid god unifying the characteristics of Hermes and Anubis: Hermanubis (Modonesi 2010, 2). His religious centre was Alexandria, where tunnels have been discovered known as “Hermanubis’s galleries” near Pompey’s (or Diocletian’s) Pillar and decorated tombs in the necropolis of Kom el-Choqafa (1<sup>st</sup>/2<sup>nd</sup> to 4<sup>th</sup> centuries CE) (Modonesi 2010, 8-9; Riad *et al.* 1969, 42-49). At both sites the intention was to merge the two psychopomps (=guides of souls) gods, while trying to adapt both gods to please Greeks and the Egyptians alike, in order to facilitate their coexistence in Ptolemaic Egypt (Modonesi 2010, 4-5).

The image of Hermanubis in the necropolis of Kom el-Choqafa illustrates this hypothesis. The bas-relief in the tombs can be divided into two main groups: the traditional Greco-Egyptian fusion of funerary scenes and the Roman-Egyptian innovations. The former is represented mostly by wall paintings showing the traditional Egyptian rituals connected with the preparation of the dead, before going to the underworld to be judged. However, there is a recognisable influx of Greek style that sometimes mixes and confuses the scenes by adding Greek characters or *topoi*. The latter is the one which interests us more in this context, due to their position and narrative programme.

The main room of this catacomb at Kom el-Choqafa, a *triclinium*, whose main function was to let the living feast with the dead, shows a different approach to the decoration of burial monuments. It appears as an Egyptian temple with small Greco-Roman details, mostly in the rendering of the reliefs (Figure 3). The quality and accuracy of the carvings and the consistency of the attributes of the characters represented suggest an attentive, learned and wealthy family was behind the design of the room. What I would like to highlight about the reliefs is the space reserved for full-size bas-reliefs on both sides of the pillars that lead to the chapel.



Figure 3. Agathodaimons necropolis of Kom El-Choqafa (1<sup>st</sup>-4<sup>th</sup> century CE Alexandria, Egypt; author).

On the façade (Figure 3), the pillars show two big-bearded snakes (*δρακόντες* = *drakontes*) with the double crown on their heads and a *caduceus* and a *thyrsus* (Dionysus' staff) each among their coils. Above them, are two round shields with the *Aegis* (Medusa's severed head) at the centre. The snakes clearly represent the Agathodaimon (good spirit, or probably the Agathodaimon and his female counterpart Agathe Tyche-good fortune). The coexistence of Egyptian features (double crown) and Greek attributes of Hermes (*caduceus*) expresses the intention of the high ranks of the Ptolemaic society to merge with local Egyptian traditions.

On the inner side of the chapel, the same two pillars are decorated with two human-sized reliefs of Hermanubis (Figure 4). They are not identical like the two snakes on the façade, but they show two different aspects of Hermanubis. On the left, he is a dog-headed Roman soldier, with a staff (or spear) in his right hand, holding a mantle with his left hand and wearing a horned *Atef* crown (Modonesi 2010, 10-11). In place of his legs, he is shown with a long snake tail identifying him as Hermanubis/Agathodaimon. On the right, Hermanubis is represented in the Doryphoros (spear-bearer) pose with a spear in his left hand and a round shield, that he holds vertically, next to his right leg. He wears a disk on his head that could be either the sun or the moon.



Figure 4. Hermanubis Agathodaimon-Doriphoros Kom el-Choqafa (1<sup>st</sup>-4<sup>th</sup> century CE. Alexandria, Egypt; author).

Why is this tomb so important for the development of the dragon as imagined in the Western civilisation? The necropolis of Kom el-Choqafa remained in use until the 4<sup>th</sup> century CE and contained burials of both pagans and Christians (Modonesi 2010, 10–11). This means that the necropolis would have been visited by Christians who may not have had the cultural background to interpret the images in the tomb. In Alexandria, between the 4<sup>th</sup> and 3<sup>rd</sup> century BCE to the 1<sup>st</sup> century CE, the Old Testament was translated into Greek (Marchetti 2017, 113–114). Therefore, it is the same place where the ideas of the Leviathan, Behemoth and Tan (Angelini 2018; *Job*, 40–41, The King James Bible), which were identified respectively as the crocodile, the hippo and the jackal (Fox 2012, 261–267), were all translated in Greek as *drakontes* (Angelini 2018, 60–63; Marchetti 2017, 116–117). These three animals were also used for millennia by Egyptians to represent the evil god Set who had repeatedly been slain by the Pharaohs on behalf of the Egyptian gods (Modonesi 2012, 37–52). Therefore, it is possible that, when Christianity became the official religion of the empire with Constantine's Edict of Milan in 313 CE, that was the basis for the creation of the dragon as currently imagined.

### The Roman Empire: When the Dragon Spread its Wings

The Romans spread information and various religions across their empire, so the snakes/dragons, that populated the Greek and Egyptian imagination, arrived in every corner of the Roman Empire and mixed with other cultures, such as Dacians, Sarmatians and Persians. The word δράκων (*draco* in Latin) was known in the Roman Greek-speaking elite from at least the 1<sup>st</sup> century BCE (Titus Livius, *Ab urbe condita*, in Spillan and Edmonds XVIII, XVI–XVI). After Trajan conquered Dacia (106 CE), Romans started using the Dacians' heavy cavalry in their legions and made their standard, representing a wolf's head (Daoi=Daci means 'wolves'; cf. Strabo 304, VII, 3, 12, in Eliade 1970, 10; Dennis 1982, 52), as the signa for the cavalry (called the draco standard, it is represented on the Trajan's Column as the standards of the Dacians; Figure 5; cf. Chicorius 1896, pl. LVII tav. LXXVIII, pl. XIX tav. XXIV, pl. XXIX tav. XXXVIII) during the reign of Hadrian (D'amato 2018, 46).

The *draco* standard was placed on a pole with a silk sleeve that looked like a snake's body, and it was held by the *Draconari*. Later, towards the end of the 4<sup>th</sup> century CE, it became the standard for every cohort in the Roman army (Vegetius 2001, 1.20, 2.7, 1.2; Coulston 1991, 101–114). The *Draconari* were part of *Hyppika Gymnasia*, where cavalry showed their fighting skills, and part of these ceremonies involved windsocks with *draco* heads beginning in the 2<sup>nd</sup> century CE (Arrian XXXV, in D'amato 2018, 46; Marciniak 2018, 314–321). The *Draconari* wore animal furs on their heads, which could be from wolves, bears, lions or panthers. Like the other *signiferi* (standard-bearers), they were chosen from the strongest and most skilled warriors, since they were the 'frontmen' of their military division and had sworn to protect the standards from the enemies (Dennis 1982, 55).

The design of the *draco* standard has been the subject of various articles whose aim was to identify the origin and the meaning of this peculiar object (for a literature review on this subject cf. Eliade 1970, 17). In most of the representations (e.g. Trajan's Column; cf. Chicorius *ibidem* and Portonaccio's sarcophagus; cf. D'Amato 2018, 46, both from the 2<sup>nd</sup>-3<sup>rd</sup> century CE) the animal's head has canine ears and teeth (cf. panel from the *Hadrianeum* preserved in Palazzo dei Conservatori in Capitoline Museum in Rome in Marciniak 2018, 314, Fig. 1), which makes it look more like a wolf's head than a snake's one.

Some have argued that the head is covered in what appear to be snake scales, but they may give this idea only because they were usually made from bronze or copper (cf. Niederbieber *draco* preserved in the Landesmuseum in Koblenz, Germany; in Marciniak 2018, 316, fig. 4 after Coulston 1991, 109, fig. 12). There are several bronze statues of mammals from antiquity whose furs have been made with a similar scale-base pattern (e.g. Capitoline Wolf or the Chimaera of Arezzo), the difference being that in the case of the standards, it was probably too expensive and difficult to use the lost-wax casting technique.

The Chester Stele (2<sup>nd</sup>-3<sup>rd</sup> century CE) shows the deal struck between Marcus Aurelius and the Sarmatians after their defeat in 175 CE, in which a part of the Sarmatian heavy cavalry was assigned to Britain and became the *Cuneus Sarmatarum* (Marciniak 2018, 318). This gives consistency to the Arthurian legends and their connections with dragons (i.e. Uther Pendragon may mean “Chief of warriors” following the Welsh etymology, as in Curley 1990, 156; or “dragon’s head”, i.e. a *draco* standard in Marciniak 2019, 319). It is thus possible to explain the diffusion across the Roman Empire of the *Draconari* also due to the origins of the Emperors of the late 3<sup>rd</sup>-4<sup>th</sup> century (i.e. Dacia and Illyricum), who made the standard a really powerful symbol of the Roman Empire (*Scriptores Historiae Augustae Gallieni* ii 8.6; Aurelianus 31.7, both in Magie 1932).



Figure 5. Dacian Draco standard. Relief on the Trajan's Column (2<sup>nd</sup> century CE. Rome, Italy; Oltean 2008).

The *draconari* had a close relationship with the Roman Emperors. The evidence for this can be found on the Arch of Galerius (298–305 CE in Thessaloniki; Marciniak 2018, 316–317, Fig. 5), where four *draco* standards fly next to Galerius' head, while the *draconari* act like his bodyguards with their round shields and scaled armour. Constantine I gave the *draconari* the *Labarum* (a military standard) with Christ's cross. This was later used as a religious expression of Jesus Christ's victory over 'the ancient snake', i.e. the Devil, in Christian parades up to the present day (Benvenuti 2004, 1–11). The *draconari* also stood close to Julian in 357 CE and crowned him with one of their golden torques. (Ammianus Marcellinus, 20.4.18, 15.5.16, 16.10.7, 16.12.39, in Rolfe 1950; Speidel 1985, 283–287). During the triumph of Theodosius I and his son Honorius in Rome in 389 CE, Claudian described the event and distinguished the *ensigna* (i.e. standards) separating the *dracones* from the *serpentes*, showing a distinct separation (Claudian I, 146–147).

### The 'Devilisation' of the Dragon or the 'Dragonisation' of the Devil

As has been described above, the closeness and importance of the *draco* standard in relation to the Roman Emperors created a connection between dragons and the concept of power. From Constantine I on, the high recognisability of the *draco* standard, modified to represent the dragon stabbed by the Holy Cross (i.e. the victory of Christ on the Devil), has made it a crucial feature of the imagery regarding the Empire. The standard soon became, as with the *draconari*, a symbol of power, probably because of its exotic and colourful appearance. In almost all the descriptions of the *draco* standard cited above, it is said to be multicoloured, especially with purple—the colour associated with emperors—and with strings attached to the body so it would appear alive in the wind.

The idea of the *draco* was so powerful that it was assimilated into Christian rituals, such as the institution of Rogation days that were divided in 'Major', held on 25<sup>th</sup> of April and 'Minor', held from the Monday to Wednesday before Ascension Thursday (Reff 2005, 100). They consisted of a procession in which the position of a *draco* standard in the crowd changed from the front, to the middle, then to the back, representing the time before Christ (when the Devil ruled unchallenged), the advent of Christ and the battle against the Devil and the defeat of the Devil by Christ. The reference to this procession may come from Revelation 12:3–9 where the red dragon, "the ancient snake" is defeated by the Archangel Michael, who acts as Christ, while he is depicted with a scale to judge the souls like Anubis (Benvenuti 2004, 1–11).

The Rogation days have been attributed to St Mamertus of Vienne (463–475 CE), who supposedly thought that this ritual could save the region from wolves. As such, he decided to bring in procession both *draco* standards and standards with wolves' images (both heads and entire bodies) to exorcise the evil creatures ("dracones et lupi super perticas"; Richard 1839, 251). This ritual seems to have been 'borrowed' from a pagan feast that was held on the 25<sup>th</sup> of April, called *Robigalia*, which prescribed the sacrifice of a red dog in order to prevent the *canicula* (the terrible heat wave that was connected with rising of the Dog Star, i.e. Sirius (Ovid IV, 941 ff., in Burriss 1928, 117–118) and rust on the crops.

Despite the Devil's connection with the dragon, the role and the name of *Draconarius* persisted in the Byzantine period (*Codex Justinianus* I.27.1:35, in Kruger 1887, 130), as can be seen in the mosaic of San Vitale in Ravenna with Justinian and his escort of *draconari* with round shields and golden torques (6<sup>th</sup> century CE; Speidel 1985, 287). It is possible that in the 7<sup>th</sup> century CE the role of *draconarius* became an honorific title, as attested in Maurice's *Strategikon* (12.7, in Dennis 1984, 127–165). So, the image of the *draco* may have entered the common imagery of the people at that time. Dennis (1982, 51–60) states that until the 10<sup>th</sup> century CE, Byzantine may have kept using flags and banners with dragon images, either in metal or painted on fabric, before switching to the use of crosses on the flags. In Europe, the use of *draco* standards remained popular at least until the First Crusade (Pelerin 1848, 198) under the influence of the French (Figure 5; Notker 833–900, 140).



Figure 6. Joab leading the Hebrew cavalry against the Syrians (Carolingian-era Frankish cavalry with Draco standard, 9<sup>th</sup> century CE; Notker 833–900, 140).

### The Birth of the Dragon: St George, the Dragon-Slayer

At this point, the dragon as conceptualised in modern Europe is complete with all its characteristics. What it is still missing is where, when and why the dragon was born. My hypothesis is that the medieval dragon is a result of the aftermath of the First Crusade and the success of the story of St George and the dragon in Europe. There are small clues in the events connected to the First Crusade, in particular, the siege, conquest and battle of Antioch between 1097 and 1098 CE.

The development of the image/meaning of the dragon, specifically its relationship with St George, is connected with the events which happened in Antioch between the siege and the battle. These have been divided into: the battle of the Lake of Antioch; the vision and discovery of the Holy Lance; the appearance of St George, St Demetrius and St Mercurius during the battle, and the victory of the Christians; the battlefields and the Turks; and the figure of Bohemond Prince of Taranto and Antioch.

While Antioch was besieged by the Crusaders, in November 1097 a fleet from Genoa (Asbridge 2000, 26–27) arrived and joined Tancred, Bohemond's nephew. In February 1098, Fakhr al-Mulk Radwan, the Turkish Sultan of Aleppo, arrived at Harim near Antioch. Bohemond, elected commander of the Crusaders, launched a surprise attack against the Turkish army between the Orontes River and the Lake Amik where he attained a resounding victory (Asbridge 2004, 181-184; Krey 1921, 132-134; Runciman 1951, 225-226). Thanks to Bohemond, in March 1078, an English fleet, led by King Edgard Aetheling, joined the Crusaders with siege engines. They faced an ambush from the Turks, who were defeated, thanks to the Genoese's help, which was inspired by a vision of St George, whose banner they were carrying (Krey 1921, 136-139; Roger 1997, 35–36). In recognition for their help, the English may have adopted the Genoese banner (i.e. St George's flag) as their own. It is still the flag of England, the city of London and part of the Union Jack, even though traditionally it was first used by Richard I (Seymour 1898, 387, note 2) when he went on the Third Crusade in 1190.

In June 1078, a few days after the Crusaders conquered Antioch, the monk Peter Bartholomew had a vision from St. Andrew who asked him to look for the Holy Lance in the city. The lance was later found in the church of St Peter (Krey 1921, 151–153; Runciman 1951, 141-145). This discovery gave hope to the Crusaders, who brought the relic with them into battle a few days later. However, despite this, when they seemed to have almost lost the battle, St George, St Demetrius and St Mercurius appeared riding next to the Crusaders to help them secure a victory (Krey 1921, 182–185). Both the battlefields and the Turkish forces have connections with the dragon. The battlefields happened to be along the Orontes river that was called by three other names (Strabo, *Geography*, XVI:2,7, in Jones 1930, 246-247; cf. Pausanias VIII:29, in Jones 1918; John Malalas VIII: 252, in Dindorfi 1831, 197-198): *Drakon* (snake), Typhon and Ophites (river snake). The Turkish forces were called dragons, as well as dogs and wolves, in order to connect them with ideas of evil, ferocity and heresy (Sorace 2008, 173-198). Finally, Bohemond has all the characteristics of the perfect Christian soldier: courage, strength, cleverness and charm. He has been portrayed in this way by Anna Komnene, daughter of the Byzantine Emperor Alexios I Komnenos in her *Alexiad* (Dawes 1928, Book XIII, Cap. X, 245-246). In addition, his nephew and successor as Prince of Antioch, Roger of Salerno is known as the first to have minted coins with the image of St George slaying the dragon (it is represented as a snake; Bryun 2013, 33-48).

If we combine all these pieces of information, it is possible to find similarities with the life of St George:

- St George is known for slaying the dragon with a spear, sometimes with a banner on top (St George flag, i.e. Genoa's flag) or the Holy Cross (Jacobus de Voragine in Stace 2016, 116-120). Bohemond, as a Crusader, had the Holy Cross on his banner, on his shield and/or on his clothes and he carried the Holy Lance in the battle of Antioch;
- St George and Bohemond fought their battles on horse-back and they both save someone from evil (Antioch used to be represented as a woman in a statue, the so-called 'Tyche of Antioch', by Eutyichides, a pupil of Lysippus; cf. Chisholm 1911, 958);
- The dragon represents the Turkish forces since they are the enemy of Christianity. Hence, they are linked with the Devil, whose image is the dragon, as seen in regard to the connection dragon=Devil in the Bible.



Figure 7. St George slays the dragon. Cod. Sal. IXe, Livre d'heures, Paris, 1420-30, p. 232r (Heidelberg University Library).

These may be just small similarities between St George (Figure 7) and Behemond, but it is during the 11<sup>th</sup>-12<sup>th</sup> century that both the role of St George (Walter 1995, 295-326) and the image of the dragon in the Western imagery (one of the first images of a complete dragon in Harley MS 3244, 1246 CE) have taken shape.

What is relevant to point out is that, even in this case, the leitmotiv is the celebration of the victory of good against evil, possible because a knight has bravely fought and won over a fierce and evil creature otherwise doomed to create disruption and death. The result of the conquest of Antioch and the claim of it by Behemond may also be seen as taming the beast represented by the Turkish forces and put in on a leash, just like St George did with the dragon and the princess' girdle (Jacobus de Voragine, in Stace 2016, 116-120).

## Conclusion

The features of the dragon as analysed above have shown that it is possible to link people's beliefs about wolves into the stories of dragons. If we remove the reptilian components of dragons, we are left with the stories of people surrounded by wilderness and in a world of unknown dangers. Stories as the ones analysed in this paper would have been less frightening and memorable if the enemy would have been a wolf, instead the mistrust in snakes sparks the humans' deepest fear of things we do not fully understand. It is also important to consider that there is a practical component regarding the rendering of the dragon that may link it to the wolf. In order to depict a creature that does not exist in nature, artists and craftsmen had to rely on their imagination. Hence, I argue they just used what was real and terrifying and they found the wolf, that in ancient times threatened farmers or travellers putting them and their properties in danger.

As explained above, the reptilian features given to the dragon may just be a desire for storytellers to make their stories more incredible, have religious connections with the chthonic world, relate to the shift of meaning between δράκον and draco, come from the powerful role of the draco standard, or from the demonisation of paganism by Christianity. It is difficult to figure out where the dragon comes from, but it is certain the concepts related to it have given it long-lasting success.

The story of the dragon-slayer originates from before medieval times and, as described in the paper, has been told continuously for millennia. In fact, it was the battle between Horus/Ra/Pharaohs against Set in Egypt, in Greece the myth of immortal heroes, in Rome as a symbol of the conquest over the fierce Dacians and then as an expression of the might of the Emperors and finally by Christians as the supremacy of God (who manifests himself as Christ, the Archangel Michael or St George) over the Devil.

Challenging the traditional idea of the European dragon demonstrates that its behaviour, aspect, sound and its relationship with human beings have more to do with those of a wolf/dog than the ones of a snake. There is enough evidence to assert that considering the assimilation wolf/dragon, as a way to explain the origin of this fantastic creature, may lead to a better understanding how our ancestors dealt with the unknown.

Finally, it is evident that there is still much to discover. Therefore, I believe that the topic of this paper could be a subject of a multidisciplinary project, with the aim of rethinking what seem to be traditional and untouchable founding stones of the European identity and history, in order to discover where this part of Western civilisation comes from.

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# Public Archaeology in the Light of Global Politics: New Challenges and Opportunities

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## Introduction

Archaeology brings us closer to the cultures of the past. However, throughout its history, it has changed the way of studying the history of people and different cultures. Archaeology has gone through various theoretical paradigms including historical-cultural archaeology, processualism and post-processualism, each marked by larger social shifts in culture at the time. For example, post-processualism arose out of the societal shifts towards a more inclusive society, with protests over things like feminism, minority rights and postmodern thinking coming out of the 1970s and 1980s. In the last two centuries, it has developed various theories aiming to undertake the new challenges for archaeology such as political landscapes, repatriation of remains and objects, globalisation, diplomatic and cultural identity, collaborative archaeology, archaeological tourism and the antiquities market.

For example, Classical Archaeology, in the early 19<sup>th</sup> century, built the idea of antiquity as an idealised and admirable model, one that was to be emulated. In the first decades of the 20<sup>th</sup> century, tyrannical governments used this idealised model of antiquity to endorse their intended superior identity, as promoted by the German National Socialist Party or the adoption of Roman *faccio litorio* by Italian fascists, as symbols of their parties (Andren 1998). Nowadays, the study of ancient Mediterranean cultures has a different approach, including aspects of anthropological, economic and social contexts, including studies about groups without political or economic representation, and studies about women in ancient Greece and Rome.

## Session structure and Papers

In CASA 3, Cambridge Annual Student Archaeology Conference–New frontiers in Archaeology, the proposal for the session ‘Public Archaeology in the Light of Global Politics: New Challenges and Opportunities’ was submitted to instigate researchers to think about the new paradigms and methodologies for archaeology in the 21<sup>st</sup> century.

In this section, we have two diverse texts. The first one: ‘Rights of Cultural Objects: Gypsy Girl Reuniting with Her Company’, is by Elvin Akbulut Dağlier and is about the repatriation of cultural objects. In past years, several archaeological objects from collections of western museums have been returned to their original countries. Repatriation involves a complex set of issues from diplomatic politics and cultural identity politics to museum collections and tourist business. Many of the objects have been looted from their source nations due to a variety of factors and appear in collections in market nations. The source nation then has to prove the object was looted, or removed from the country illegally, and both nations have to be party to international laws, before any sort of repatriation is discussed. Many more issues are also discussed, including the role of museums as places where culture is preserved and protected, the role of state and local governments and the role of scholars. The case of the Maenad mosaic shows that one single solution does not work in order to solve the complex problem of repatriation and Dağlier suggests other solutions to the problem.

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The second paper ‘*Papa he’e nalu: Two Surfboards from the Bernice Pauahi Bishop Museum*’, is by Joanna Tonge. The article discusses the contexts of surfing in Hawaiian culture and their relationship with the Europeans colonisers in the 19<sup>th</sup> century. She expands this to discuss the experience of colonisation, cultural appropriation and the geography of social change that took place during the 19<sup>th</sup> century. The Hawaiian identity is linked with surfing, but when the European colonisers arrived, they attempted to stop the practice of surfing. This then makes surfing an act of cultural rebellion, and the boards themselves as aspects of their owner’s identity. By analysing two surfboards, Tonge discusses Hawaiian identity in times of rapid change.

Both these papers are examples of how 21<sup>st</sup> century archaeology can update its approach, according to the demands of previously neglected groups, with a broader and embracing point of view, reflecting the richness of cultures and societies. In understanding the rights of local communities in protecting their heritage, archaeologists can help to make policies, include local communities, and educate the public on their research to help stop illicit trafficking in antiquities, as well as illicit excavation. By looking at surfing as a microcosm of colonisation in Hawai’i, we can see the rich narratives that archaeology may miss due to artefacts degrading quickly overtime, and as such, can offer deeper narratives of past life ways if we take into consideration these artefacts.

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# Rights of Cultural Objects: Gypsy Girl Reuniting with Her Company

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## Abstract

The repatriation of the illicitly traded Maenad mosaic (so-called Gypsy Girl of Zeugma) has staged a big drama between Turkey and the United States but the case involves several issues such as: 1) claims over ownership and protection, 2) criminological aspect, 3) ethical issues and 4) power of open dialogue and the instruments available to aggrieved parties. Building upon the scholarship on the antiquities trade debate, this paper aims to discuss the issues outlined above, focusing on the discrepancies between discourse and actions based on the actual case(s). The conclusion will address possible available routes that can help secure the rights of cultural objects.

**Keywords:** Global Politics, Rights of Cultural Objects, Repatriation, Zeugma, Maenad Mosaic, Turkey

## Introduction

This paper focuses on the rights of cultural objects in the light of global politics while narrating in excepts the repatriation of the illicitly traded Maenad mosaic in Turkey (Figure 1).

With a wild look in her eyes, the Gypsy Girl of Zeugma meets you on the wall of a dark room reached through a labyrinthine path at the Zeugma Mosaic Museum of Gaziantep in Turkey. She was hidden under a fallen pillar as the members of her company were roughly cut out from the floor back in 1960s. She lost track of them until 2012. After long negotiations with their safe-keepers in the Bowling Green State University of the US, she is about to reunite with her company and enjoy her true-self: the maenad of Dionysus.<sup>2</sup>

The above story may sound like a melodrama on who is the true mother of the mosaic: the one who gives birth or the one who raises it; but it means more than that: 1) it stages the claims over ownership and protection, 2) there is a criminological aspect with regards to the illicit trade of antiquities across borders and destruction of cultural heritage (and thus violation of human rights), 3) there are ethical issues (i.e. acquisition policies of the auction houses and museums/universities and failure to protect/neglect by the source countries) and 4) it shows the power of open dialogue and the instruments available to aggrieved parties. Focusing on these issues, this study is biased in favour of the rights of the cultural object, arguing against de-contextualisation and disintegration but also against hegemonic ownership of cultural objects that denies any cooperation with external counterparts (e.g. inter-museum loans, joint exhibits) and ill-treatment (or inability of preservation).

In this regard, the paper explores the motives of major players that claim to act in the name of the cultural objects and pinpoint the contradictions between the discourse and actions with reference to the Zeugma case. Drawing from the terminology of legal scholar John Henry Merryman (1986) on the antiquities trade debate (duality of nationalists vs. internationalists), this paper aims to build upon the classification of archaeologist Alexander A. Bauer (2007) of major players and their motives in

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2 This narrative story of Zeugma and the Gypsy Girl has been written by the author and relied on the following sources: the Bowling Green State University 2012; 2018; Dupont 2018; Ergec 2000; Hizlan 2001; Hurriyet 2000; 2011; Langin-Hooper *et al.* 2013; Madry 2018; the Ministry of Culture and Tourism of Turkey 2018; NTV 2000; 2018; Pinkowsky 2015; Tanaka 2007; 2013. This story has been indented throughout the paper.

cultural heritage management. In this context, the policies of Turkey and the United States regarding repatriation and trade of antiquities are discussed. Finally, the conclusion shows some possible routes to secure the rights of cultural objects in the light of suggestions by Brodie (2014), with Renfrew (2005), Proulx (2014), in addition to Bauer (2007) and Banta (2015).



Figure 1. Gaziantep Archaeological Museum. The Gypsy Girl mosaic of Zeugma (Izzet Baran 2020).

### **Rights of Antiquities as Cultural Objects**

In response to the growing concern for the damage caused by looting and illicit trade of cultural objects, the 1970 UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property was concluded. This treaty promotes preventive measures (e.g. inventories, export certificates, sanctions, etc.), sets the restitution provisions and outlines the international cooperation framework for cultural objects. The subject matter “cultural property” implies a reference to ownership, which seems to be the major source of contention between internationalists and nationalists who tend to emphasise the importance of ‘the object’ but forget about it during the fight over its ownership. Therefore, a more neutral tone is adopted by treating antiquities as ‘cultural objects’ in this study.

The following rights for the cultural objects can be driven from this convention (in order of appearance -not of importance):

- **Right of mobility:** “interchange of cultural property among nations for scientific, cultural and educational purposes increases the knowledge of the civilization of Man, enriches the cultural life of all peoples and inspires mutual respect and appreciation among nations” (UNESCO 1970, Paragraph 2);
- **Entitled to glocalization:** (i.e. one should respect co-presence of both universalization: hence be global, and particularizing tendencies: hence be local): “cultural property constitutes one of the basic elements of civilization and national culture” (UNESCO 1970, Paragraph 3);
- **Right to preserve its context and integrity:** (i.e. correct provenance and no damage): “its true value can be appreciated only in relation to the fullest possible information regarding its origin, history and traditional setting” (UNESCO 1970, Paragraph 3);
- **Right of security:** “it is incumbent upon every State to protect the cultural property existing within its territory against the dangers of theft, clandestine excavation, and illicit export,” (UNESCO 1970, Paragraph 4) and “to avert these dangers, it is essential for every State to become increasingly alive to the moral obligations to respect its own cultural heritage and that of all nations” (UNESCO 1970, Paragraph 5).

Ideally, these rights do not and should not override each other, and they should be fully bestowed. However, there is a polarisation between ‘source nations’ (i.e. the biological mother in our melodrama) and ‘market nations’ (i.e. the adoptive mother) in how to protect these rights since demand-supply imbalances between these two poles lead to export of cultural objects despite trade constraints, especially when the source country lacks financial resources or simply neglects the cultural objects. Legal scholar Merryman (1986) calls the proponents of source nations, who oppose the export of antiquities and seek repatriation from the market country ‘cultural nationalists’ and the advocates of market nations, who support free trade ‘cultural internationalists’. As Banta (2015, 1115–1116) has pinpointed, the debate might be more complex than this duality, yet Merryman’s terminology seems useful in understanding the competing interests of many parties involved and possible reconciliation for the sake of the cultural objects (and fulfilment of their rights).

### **Turkey’s Protective Cultural Heritage Policy at Times in Conflict with its Developmental Goals**

The Ottoman Empire and succeeding Republic of Turkey developed its own concept of cultural heritage as part of political sovereignty and nation building process (Pulhan 2009). As a source-rich nation, the emphasis is on the preservation of cultural heritage objects, the fight against their illicit trade and the repatriation of those objects which have been smuggled abroad. Lately, Turkey has even expanded its focus to the preservation/resurrection of Ottoman and Islamic Cultural Heritage. For this paper, the scope is limited to Turkey’s policies with regards to illicit trading.

The Ottoman Empire enacted the first laws on antiquity back in 1869 to limit the export of antiquities and gradually tightened the legislation. This nationalist approach was widely criticised by the internationalists on the following grounds: 1) less developed countries with these artefacts are unable to protect them (or simply they do not care) while Western powers see themselves as the heir of such civilisations or ‘civilised’ enough to appreciate, 2) these artefacts should be easily accessible to the academic world (preferably through public museums) and 3) funding of the archaeological work requires a payback in the form of a tangible historical object (Butler 1919). How to deal with the antiquities in what is left from the Ottoman Empire at the end of the World War I was given a separate section under the obsolete Treaty of Sèvres (1920) between the Empire and victorious Western powers. Accordingly, Article 421 of the peace treaty stipulated export permits and partage of antiquities in Turkey.

Turkey continued the Ottoman policies with a cultural nationalist overtone (in Merryman 1986's sense) that export of antiquities is forbidden and repatriation of illegally traded antiquities from the country is requested. Meanwhile, the criticisms such as the inability to preserve cultural heritage have some truth due to lack of funding, the requirement for large infrastructure projects needed in a developing country which may be detrimental to cultural objects (for example the Birecik Dam which flooded the ancient city of Zeugma), or the prioritisation of certain types of cultural objects over others. Yet, Turkey's will to preserve the cultural objects within its borders is strongly felt in its quest for repatriation of illicitly acquired cultural objects abroad. In this respect, the Turkish Parliament recently set up a Parliamentary Investigation Commission to ensure repatriation and to determine protective measures of cultural objects.

### ***The Parliamentary Investigation Commission's Works***

The above-mentioned investigation commission was established on October 16, 2017 in response to the motion by the parliamentary heads of all parties present in the Turkish Parliament at the time, the Justice and Development Party (AKP), the Republican People's Party (CHP), the Peoples' Democratic Party (HDP) and the Nationalist Movement Party (MHP). Considering the polarisation in Turkish politics and the concern among these parties to dissociate from each other, the presence of all parties in this proposal is a testament of the importance that Turkey as a nation places on cultural heritage issues, regardless of political standing. A second issue is the emphasis on raising awareness on the international arena by underlying Turkey's determination to fight against the illicit trafficking of cultural heritage at the highest level possible, the Turkish Parliament.

Listening to the high level officials from the related public and private institutions, dealers, scholars, writers, NGOs (e.g. the Association of Collectors of Turkey) and visiting museums both in Turkey and abroad which possess antiquities that were allegedly smuggled from Turkey (in Germany, Denmark, France and the UK), the Parliamentary Commission came up with a comprehensive report on the repatriation and protection of cultural heritage in April 2018. The next step, how these suggestions will be implemented, is surely the major question. Yet, the scope of this paper is confined to Turkey's foreign policy tools for repatriation.

### ***Foreign Policy Tools at Turkey's Disposal***

There are three major points of intervention to prevent the illicit trade: 1) *at the source*: by preventing the illicit excavation or theft by increasing the safety of the cultural properties and/or punishment through legal (imprisonment), economic (high penalties) or social (damaging the prestige) instruments, 2) *in transit*: by breaking the networks of illicit trade via middlemen, dealers and auction houses through continuous monitoring and punishment as above and 3) *at the destination*: by inhibiting collectors/museums from acquiring antiquities (Karaduman 2007).

Turkey seems to focus on fighting illicit trade at the destination more than the other points as Lawrence Kaye states: "There is a willingness on the part of Turkey to commit substantial resources in the fight to recover stolen antiquities" (Rose and Acar 1995, 45). This approach is also in line with the suggestion of market reduction which foresees discouraging the demand in destination countries rather than by protecting the archaeological sites and institutions at source.

In this context, there is a pyramid of enforcement strategies, starting from persuasion and negotiation (as in the Gypsy Girl Case) to punitive sanction (e.g. revoking excavation permits, litigation) when all things have failed, as suggested by Brodie and Proulx (2014, 413). Considering the intertwined relationships among the stake holders on a global level and weak enforcement power of international

treaties, cultural diplomacy takes the central stage as in the Gypsy Girl case. The market nation also has several tools to respond to the source nation. Goodwill to stop illicit trafficking stipulates pursuing good acquisition policies (i.e. avoiding objects with questionable or limited provenance). The conventions adopted by the market nation might be non-retroactive; meaning the source nation (Turkey) should prove that illicit trafficking took place after the market nation (the United States) adopted the related legislation for repatriation. However, concrete evidence of provenance or illicit trade is at many times unavailable. The market nation may impose a statute of limitations (i.e. expiration date) so that if one holds an object for certain period of time, they become the owner regardless of its source, or may ask for compensation in case of repatriation if it proves its acquisition was done with due diligence.

According to the Parliamentary Investigation Committee's report of April 2018, Turkey retrieved 4314 cultural objects during 2003-2017 from Germany, Austria, Australia, the United States, the United Arab Emirates, Bulgaria, Croatia, France, Switzerland, the UK and Serbia. Apart from lobbying, Turkey also benefits from such methods cited above. However, of all these methods, bilateral negotiation is the preferred one because it is less costly and more constructive. A few cases might illustrate these instruments in action:

- *Lydian Hoard*: Turkey faced a 6-year litigation case with New York Metropolitan Museum over the Lydian hoard, which reportedly cost US \$25mn (Letsch 2012). It was resolved with settlement as it was clear that the Museum was to lose the case since it turned out that its officials knew all about the illicit trade (Rose and Acar 1995, 46–48);
- *Sphinx from Hattusa*: Turkey issued an ultimatum that either the Sphinx from Hattusa in Berlin's Pergamon Museum was returned, or the German permit for excavation at this site would be revoked. Eventually, the Sphinx was returned after almost a century since its loan to Germany for restoration (Luke 2013, 44–46);
- *Weary Heracles*: This statue was broken into two halves, possibly to facilitate illicit trafficking and the upper part was smuggled abroad before the other half was excavated. The parts were sold to two collectors. Later, the Boston Museum of Fine Arts (MFA) bought 50% of ownership of the object. When Turkey requested its return, the Museum first refused on the grounds of the statute of limitations, but after obtaining full ownership with the death of the donor, the MFA returned it to Turkey. (Rose and Acar 1995, 48–49; Özüşen and Kösekahyaoğlu 2018, 746–747);
- *Pergamon Altar*: Resembling the Elgin Marbles story, both Turkey and Germany have their own account of the story. There is the Ottoman permit for excavation but no proof of partage and there are also reports of some attempts by Ottoman officials to block the export of this altar as a whole. Turkey is in the lobbying phase for the return of the altar on the grounds that the altar was not fully legally acquired. (Özüşen and Kösekahyaoğlu 2018, 748–750);
- *And 12 mosaics from Zeugma (Gypsy Girl)*: Bilateral negotiations have been undertaken in the Zeugma case because it was not under the jurisdiction of international law.

Thus, it is time to discern the parties to this debate.

### **Parties to the Trade Debate and their Motives**

Based on Bauer's (2007, 701–714) classification of major parties of the antiquities trade debate (archaeologists, museums, collectors/dealers, source nations and local communities) and literature on human rights and criminology, there are diverse interests ranging from political (nation-building or identity-building), academic (knowledge building), economic (tourism, entertainment, trade, easy money/subsistence economy) and psychological (pride, superiority, obsession) goals. The players and motives can be mixed and matched (e.g. a dealer might also be a collector, might be greedy and/or simply knowledge building or may even be saving(?) the object).

Yet, before discussing the parties to the trade debate in detail, let us first return to the Gypsy Girl's story.

### ***Back to the Gypsy Girl: Characters and Motives***

It was 1998 in Turkey (a source-rich country). As Professor Rifat Ergec (the archaeologist) was conducting a salvage excavation in the ancient city of Zeugma in Gaziantep, a landowner (a member of local community) came up to show them location of a mosaic, where his father and himself (subsistence looters based on his account) dug mosaics and sold them to raise money for getting married.

There, the archaeologist found pieces of mosaics plundered from the squares on an area of 12-15 metres. There were other people with him including some members of the press and a museum officer. When fallen pillars were removed and water was poured on, a small but intact motif, of a face smiled at them. Who was that? There was no inscription on the mosaic, just a face with a headscarf and hoop earrings and it was thus named "Gypsy Girl" on the spot. There were several attributions to the figure: from Gaia to Alexander the Great, but more plausible was that she was a maenad of Dionysian rituals based on the vine scrolls. Yet, the archaeological context was damaged and there was no documentation of the other possible motifs. With the wild look and mystery around her, the figure became the symbol of Zeugma.

Back in 1965 in the United States (the market nation), Peter Marks (the antiquities dealer) of the gallery Peter Marks Works of Art in New York City sold 12 mosaic fragments with a provenance of Antioch (false documentation) to the Bowling Green State University (BGSU) for US\$35,000, with an additional fee of conservation (ca. US\$2,500). The purchase was approved by then President William Jerome with the assistance of art professor Hugh Broadley, who might have known Peter Marks from university. There is no documentation that explains how Peter Marks acquired these fragments.

The university kept them in storage until 1979 when the then curator of the McFall Gallery on campus, Mary Wolfe, advocated their display outside the gallery. They were removed in 2008 from there for restoration and then displayed in BGSU's Wolfe Centre in 2010-2011. Prof. Langin-Hooper (then professor of ancient art history at BGSU) was asked to organise an academic symposium to celebrate the new display of the mosaics and Prof. Molholt (a specialist in Roman mosaics at Brown University) was invited to give the keynote speech. As they were preparing their papers, they realised the provenance of the mosaics was almost certainly Zeugma and contacted Prof. Mehmet Önal (an archaeologist who undertook excavations at Zeugma together with his then director Prof. Rifat Ergec), who provided the plan of Maenad villa from Zeugma and related pictures from the excavation site.

Prof. Langin-Hooper alerted the university administration in late January and on February 7, 2012, BGSU issued a statement on the revelation and subsequently cancelled the symposium. The University also initiated talks with the Turkish government and informed FBI.

What happens next is a matter of diplomacy. First let us go over the key characters in the story.

### ***Cultural Objects***

Although a cultural object is the subject (key actor) of this story, it is treated as a secondary object, or worse, property with no agency or rights.

### ***Source-Rich Nations and/vs. Local Communities***

Characterised by more supply than demand for the cultural objects, source nations aim to preserve them and seek repatriation if they are illegally acquired by market nations. Accordingly, they adopt cultural property laws whereby ownership of archaeological and cultural resources resides with the state and thus occasionally the trade of antiquities is restricted both domestically and internationally. Thus, they are in the camp of cultural nationalists.

The cultural objects have symbolic and economic value for these nations as they are the source of pride, part of nation-building and generation of tourist revenues. Thus, possession of antiquities by foreigners without their consent is a symbolic violence, an echo of the colonialist/imperialist legacy and a breach of their sovereign rights. Although their claims are perceived as legitimate, a full ban on trade inevitably leads to an illicit one as long as there is demand and an increase in the attractiveness of the antiquities (and thus price). Moreover, these countries of origin often do not have the resources to monitor the sites and deter theft. Thus, looting becomes easy and lucrative. The development goals, e.g. infrastructure investments, are likely to be prioritised over cultural heritage, leading to the destruction of the sites by construction, flooding, or simply by neglect. This weakness of the source country leads to the counterargument of the internationalists that the cultural objects should be where they will be best taken care of, i.e. in wealthier, more developed countries with well-preserved museums acting as safekeepers. Thus, source nations blame illicit trade on the market nation, who in return blame the source nations for neglect and failure to protect.

Cultural objects can also hold symbolic and economic value for the local communities where these objects are essentially found and help identity-building. However, there is a clash of interests with the national state in terms of what is considered as significant when it comes to expropriation of the land of the local people for excavation purposes or where and how these objects will be displayed and even how they will be protected. Especially during times of war as in Syria or Iraq, looting can become part of the subsistence economy for the local people due to lack of proper means to earn a living. In the above case, for example, the landowner at Gaziantep stated that his father and then he himself sold the mosaics to raise money to get married.

### ***Archaeologists vs. Illegal Excavators***

Archaeologists, mostly those who undertake fieldwork, side with source nations (i.e. they are mostly cultural nationalists in this sense) in order to protect the archaeological context (information potential of the object) as well as their excavation permits in the countries where they operate. Illegal excavators, who can be differentiated from subsistence looters by their greed, can be locals or foreigners. They usually leave the sites in ruin and may damage artefacts other than their targeted rare and valuable antiquities. Contextual information is lost due to lack of documentation, which can also be purposefully done to minimise the evidence of crime. They are the adversaries of both cultural nationalists and internationalists, but some collectors (private or museums) may still depend on them to acquire objects, which are not allowed for market exchange, and thus these illegal and detrimental activities are facilitated by those who claim to be the safe-guards.

### ***Dealers and Auction Houses vs. Transnational Crime Organisations***

These players are mostly economically oriented in the antiquities trade, since they are the sellers in most cases, while dealers may also be collectors and vice versa as stated by Bauer (2007, 708). Accordingly, dealers and auction houses are in the internationalist camp. In addition, the attractiveness of illicit trade as a low risk but high return business (due to limited focus by security forces and lower penalty compared to drug or human trafficking) has caught (or attracted) the attention of transnational crime organisations, well-illustrated by the DAESH operations in Syria and Iraq.

Authenticity and integrity of the objects, ability to own, and relatively unfettered access to objects for acquisition are the primary concerns of dealers and auction houses. Thus, they are in favour of the preservation of the object but are not particularly interested in the archaeological context. According to Brodie (2014, 63) provenance is often not supplied in auction catalogues or they offer only very limited information. For some dealers and auction houses driven by passion to beat their competitors and earn more, it is easier to trespass to the darker side and even facilitate the illicit trade as exemplified by cases of large auction houses such as Sotheby's, Christie's and Bonhams in Brodie's study (2014) as well as the indictment of Italian antiquities dealers Giacomo Medici and Gianfranco Becchina.

Pinpointing the weak internal due diligence of auction houses, Brodie (2014, 70–71) also highlights that the auction houses do not reveal the identity of the consignor when an illicit material is identified at auction, seemingly protecting the interests of their consignors. They do not want to alienate the source of their auction materials. Moreover, consignors are charged while auction houses do not face criminal charges. Since the publicity is not enough to damage profitability or confidence, there is not much incentive for them to update their policies and practices accordingly.

In the Gypsy Girl case, Peter Marks, the dealer, was either knowingly committing a crime, falsifying the provenance to limit evidence, or simply did not care for the origins of the mosaics. Trying to follow up the traces of this deal, Langin-Hooper (2013) could not find any documentation on how he acquired the mosaics.

### ***Private Collectors and/vs. Museums/Universities***

These actors strive to possess cultural objects. Collecting is seen as a harmless recreational activity, but can be sometimes driven by compulsion to collect, which may escalate to an addiction and personal and social damage (Brodie and Proulx 2013, 410). Compulsive collecting may lead to risk-taking and malpractice, which Brodie and Proulx (2013, 409) call a criminogenic psychology. There is also the moral hazard created by weak threat of damage and the fear that if they turn down an offer of illicitly traded material, the object might end up in the rival institution or private collector.

Museum/universities also see themselves as safeguards of antiquities and providers of public access (as opposed to private collectors and source nations). For example, James Cuno argues fervently against repatriating museum artefacts especially from encyclopaedic museums on grounds that they "encourage curiosity and promote a cosmopolitan worldview" by "preserving and presenting examples of the world's cultures" (Cuno 2014, 120, 122). Preservation, however, involves mostly the object itself rather than its context or the culture that made it and public access is confined to those who can go to these museums, the largest of which are mostly located in the market nations.

Many university museums were the first to declare a moratorium on collecting unprovenanced antiquities (Bauer 2007, 42f) In this respect, it is notable that it was BGSU who notified the Turkish authorities when scholars grew suspicious of the provenance of the mosaics and agreed to repatriate them after negotiations, even though it took about six years to finalise the agreement.

### ***International Organisations and Treaties***

Since the antiquities trade usually crosses international borders, source nations need to refer to international politics for legitimisation or aid and apply to the International Organisations and related International Treaties.

The major International/Regional Organisations active in such issues are the United Nations (UN est. 1945), United Nations Educational, Scientific and Cultural Organization (UNESCO est. 1946), International Council of Museums (ICOM est. 1946), the Council of Europe (est. 1949), the European Union (EU est. 1957), International Institute for the Unification of Private Law (UNIDROIT est. 1926), World Customs Organization (WCO est. 1952) and International Criminal Police Organization (INTERPOL est. 1923). In addition to other responsibilities, they have concluded several international treaties on cultural objects. The major ones (in order of appearance) are the 1948 Universal Declaration of Human Rights, the 1954 Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict, the 1970 UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property and the 1995 UNIDROIT Convention on Stolen or Illegally Exported Cultural Objects.

The 1954 Hague Convention seems to be more in favour of cultural internationalists with emphasis on global heritage while we see a shift of balance to the cultural nationalists later. The 1970 UNESCO Convention references national culture and the importance of preservation of context in addition to the object. The convention is not retroactive, meaning that in order to secure repatriation the source nation should prove that illicit trafficking took place after the market nation adopted the related legislation. The 1995 UNIDROIT convention aims to complement the 1970 UNESCO Convention, which has diplomacy as its basis, in legal terms with procedures and methods of retention of stolen or illegally exported cultural objects. It foresees compensation of the private or corporate entity which holds the cultural object in question, provided that the due diligence principle is pursued by the entity. It is a self-implementing convention and Turkey has not yet adopted it due to non-retroactivity and statute of limitation (expiration date).

Excluding UNIDROIT 1995, all the other treaties are not self-implementing and the State Parties can adjust the implementation of the convention in their own legislation as they wish. Adopting the 1970 UNESCO convention in 1981, Turkey has taken an active role in preparation of the convention guide. Turkey's patrimonial laws incorporate the nationalist perspective, yet Turkey does not accept non-retroactivity or expiration for repatriation. The United States, meanwhile, ratified the convention in 1972 with a reservation of its obligations until the implementing legislations were in place. Thus, this country adopted the convention in 1983 with the enactment of the Cultural Property Implementation Act (CPIA), which allows import restrictions on antiquities based on requests from other states party to the UNESCO convention.

There is also the National Stolen Properties Act (NSPA) which applies to criminal activities including prosecution of individuals who engaged in illicit trade of antiquities. The CPIA emphasises the protection of material with a known context. If the context of material in question is already lost, the country who seeks repatriation through litigation needs a bilateral agreement with the United States (Turkey does not have one possibly because of non-retroactivity and restrictions on expiry). The NSPA applies when

the context is unknown but the source country should have a patrimony law that makes clear that the ownership is vested with the state and also proof that the material in question was originally located there and removed after the effective date of the vesting law (Banta 2015, 1120–1137).

The Gypsy Girl case did not conform to the either of these United States laws under these conditions.

### ***Story of Zeugma***

The story of Zeugma complements the Gypsy Girl case as a good example of the clash of interests between these players, specifically Turkey, the Gaziantep people and international interests as can be seen below.

Zeugma was known as an important Roman ancient city for a long time from Tabula Peutingeriana but its exact location was officially identified as Belkis town in Gaziantep back in the 1970s after licit and illicit excavations (including that attended by Lawrence of Arabia in early 20<sup>th</sup> century and those undertaken by local unauthorised excavators). Around the same time, the Southeast Anatolia Project (GAP) that involved building 22 dams and 19 hydropower plants in the underdeveloped region was initiated. It was back in 1986 that the Turkish government announced the plans for construction of Birecik Dam that would flood the area and a field survey to identify the archaeological sites to be affected was conducted under the auspices of the Turkish Ministry of Culture and various institutions in 1988. The Gaziantep Museum could start the rescue excavations only in 1992, competing against both the impending flooding and looting. One of their findings was the mosaic depicting the wedding of Dionysus and Ariadne, which became famous through media coverage. Villagers living near Zeugma started visiting the site and the mosaic motifs were even adopted for handicrafts like carpets. (As a side note, a large piece of the mosaic was stolen in 1998, and so far, it has not been as fortunate as the Gypsy Girl to find its companions.)

In 1994, the Museum appealed to all archaeologists and it was only the French team that responded to the international call. However, it was only after start of the dam construction in 1996 and especially in early 2000, just before the flooding, that the fate of Zeugma attracted national, regional and international attraction: more media coverage, politicians, bureaucrats, businessmen and philanthropists, each with their own agenda. In his research notes, Rifat Ergec (2000) likened some of the participants in the Zeugma initiative to distant relatives who come for the funeral and possibly to ask for their share from the inheritance rights. Packard Humanities Institute (PHI) was one of the funds providing financial support (ca. US \$3 million) for the rescue excavations and expressed its willingness to contribute to the Zeugma Museum.

The archaeologists and non-government organisations petitioned to then President of Turkey Ahmet Necdet Sezer to delay the inundation and received ten extra days to continue with the excavations in 2000. The artefacts were temporarily taken to Gaziantep Museum. Because of the increased public awareness and avowed significance of the site by national and international circles, images of the mosaics proliferated in the city.

Subsequently, in the spring of 2004, authorities of the Turkish government, Gaziantep Museum and the PHI planned a temporary exhibition of the Zeugma mosaics in Istanbul during the NATO summit to increase media attention, which would hopefully attract tourists to the region. However, there was a strong opposition to the exhibition from

local people of Gaziantep who organised themselves in the Gaziantep Zeugma Platform (GZP), on grounds that mosaics could be destroyed in transit and fearing that mosaics would never return to Gaziantep (alleging the PHI with such intentions). The litigation concluded in favour of the ministry, who had nevertheless cancelled the exhibition before the court verdict.

In the Zeugma case, there was a problem in planning: almost ten years were lost before a full-fledged rescue operation started and Turkey, who claimed ownership and protection of its cultural heritage, could only afford ten additional days. Thus, Turkey largely failed in its responsibility to protect the cultural objects. The locals adopted Zeugma as their own heritage but some among them were also the looters. As for the exhibition, we see the clash of national and local claims over ownership of the objects. It seems destruction of the objects was of secondary importance for the parties concerned in all these cases, rather the ownership and related claims over its management came to the fore.

### ***Happy End for the Gypsy Girl***

As a reminder, BGSU had notified the Turkish officials about these mosaic fragments. In November 2012, archaeologists from Turkey's Ministry of Culture and Tourism visited the museum and confirmed the findings and then formally requested the mosaics to be returned. Despite the goodwill of the museum and ferocious efforts of Turkey, negotiations faced several deadlocks. There was the compensation issue: the museum asked to be refunded by US\$260,000 (2012 equivalent of US\$35,000 paid for the acquisition of the fragments) or creation of a scholarship fund for 20 students to attend BGSU. Then, BGSU asked for a proof of ownership from Turkey on grounds of fiduciary obligations in 2014 (AlJazeera America 2015). Based on the international treaties discussed above, all these requests are in line with the international practice. Turkey refused these requests as unethical, (but possibly more on the concern that this will provide a precedent for other repatriation cases).

Then there was a halt in negotiations for three years. Following the change in the university management, Turkey renewed its request and BGSU agreed to return the mosaics to Turkey. In return Gaziantep University will provide the replicas to the university and Turkey will pay the cost of the mosaics' removal. The 12 mosaics have arrived in Gaziantep Zeugma Mosaic Museum and are now at a special display. Following a full restoration, the Maenad, Alias: Gypsy Girl, is expected to reunite with Dionysus and the members of the rite in Gaziantep Zeugma Museum.

### **Conclusion**

Both nationalists and internationalists argue that their aim is to protect the cultural objects, yet we see 'conflicting truths', 'contradictions and inconsistencies' and other complicating factors as Bauer (2007) identified. In the Gypsy Girl case, BGSU was not diligent in the acquisition process to detect the looting and asked for money/scholarship fund from Turkey in return for repatriation. Turkey, on the other hand, could not protect the site from looting and there was the paradox of the development goals – the dam vs. Zeugma. Turkey deliberately allowed Zeugma to be flooded; the Gypsy Girl and Dionysus might have been lost and forgotten altogether.

More importantly, there was not any comprehensive planning that coordinated the dam construction and salvage excavations until the very last minute. As in the case of exhibition, Turkey as the national state acted like an internationalist and underestimated the bond between the local people and Zeugma

that emerged, thus in a way contradicting with its stance for keeping the cultural object at its original location and was about to breach cultural rights of the local people. Thus, all sides which claimed that they acted for the sake of the cultural objects, in fact, had breached the ethical boundaries.

Yet, there were happy endings as well: in 2014 BGSU agreed to return the mosaic fragments without any legal enforcement (litigation under the United States laws would not work for this case) and Turkey cancelled the Zeugma exhibition in Istanbul due to local protests in Gaziantep.

The progress seems to have come through a carrot-stick approach as seen above. Yet, these are isolated cases. Looting and destruction of archaeological sites have increased rather than decreased since 1970 UNESCO Convention given the examples in Brodie and Renfrew (2005) and culminated with DAESH operations. Considering the rights of cultural objects, there is still a significant need to reconcile the demands of the cultural nationalist and internationalists and eliminate the unqualified/criminal parties in the process.

Synthesising suggestions by Brodie and Renfrew (2005), Bauer (2007), Brodie and Proulx (2014) and Banta (2015), I believe establishing a licit market under strict government control and with deterring punitive measures in case of violations of regulations might help to deter the demand side and reduce monetary value. Use of exchange programs rather than old-style partage system is desirable. We see power of negotiations, especially when the rights of cultural objects are recognised and exercised. The object should stay with the mother who respects these rights whether be it biological or foster.

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Yurt Dışına Kaçırılan Kültür Varlıklarımızın Belirlenerek İadelerinin Sağlanması ve Mevcut Kültür Varlıklarımızın Korunması İçin Alınması Gereken Tedbirlerin Belirlenmesi Maksudıyla Kurulan Meclis Araştırması Komisyonu Raporu. April 2018. The Parliamentary Commission of the Republic of Turkey, Legislation Period: 26, Legislation Year: 3, Serial Number: 555. Retrieved on January 13 2020, <https://www.tbmm.gov.tr/sirasayi/donem26/yil01/ss555.pdf>.

# *Papa He'e Nalu: Two Surfboards from Bernice Pauahi Bishop Museum*

Joanna Tonge<sup>1</sup>

## **Abstract**

This case study of two surfboards from the Bernice Pauahi Bishop Museum, one associated with the Hawaiian Princess Ka'iulani and one from the J.S. Emerson Collection, explores the experience of colonisation, appropriation and the geography of social change that took place in the Hawaiian Islands during the 19<sup>th</sup> century. Tied to Hawaiian cultural, individual and national identity, the political and spiritual microcosm of surfing mirrors the complexity of social changes during this time. Historically missionaries and colonial hierarchies have been unable to dominate the ocean and surf zone, or *po'ina kai*, thus it represents something of a cultural sanctuary for indigenous Hawaiians continuing to surf. The necessity of evolution in their use is directly related to the changing nature and meaning of water spaces in 19<sup>th</sup> century Hawai'i. Considering their materiality and affectivity, the surfboard can be seen as an extended body of an individual significant in the creation and maintenance of an 'emotional geography'. A mode of political protest, a conduit of love and desire, of genealogy and ancestral pride; Hawaiian surfboards are agents of great cultural import.

**Keywords:** Polynesia, Modern Era, Colonisation, Object Biography

## **Introduction**

This paper considers two surfboards from the Bernice Pauahi Bishop Museum collections, their construction, use and associated practice. These two objects are considered with the influence of a biographical approach, championed by Joy 2009 and Gosden and Marshall 1999, as they are potent personal objects wrapped up in individual's assertion of self and wider community. Surfboards, before the introduction of plastics and fibreglass, were made of organic materials limiting the chances of their discovery in the archaeological record. Hawai'i is a state comprised of a group of tropical islands and if not preserved in collections, surfboards are likely to have been destroyed in the surf zone once abandoned, or to have rotted away without proper care. Boards donated to museums are therefore our best material source of information on these artefacts and the practice of their use during the peak moments of their lives.

Stand-up surfing, where a rider can surf across a breaking wave, began around 500 BCE in Hawai'i, Tahiti, Samoa, Tonga and likely other Pacific communities (Warren and Guild 2014, 57). Surfing was a very common past time for native Hawaiians, as well as other Islands in Polynesia (Warren and Guild 2014, 57). The sport was observed several times by European explorers during a period of increasing cultural contact in the 18<sup>th</sup> and 19<sup>th</sup> centuries. William Ellis, Surgeons Mate on board Captain Cook's third voyage, described Hawaiian "surfriders" as "almost amphibious" in stark opposition to the European mariners' fearful perception of the ocean (Moser 2008, 2). An often-paradoxical antagonism developed from initial European encounters with the popular pastime.

The political and spiritual microcosm of surfing is as complicated as the narratives of colonisation, appropriation and wider social change that took place in the Hawaiian Islands during the 19<sup>th</sup> century. Even the New England Protestant missionaries, arriving in the early 1800s, while damning surfing as an evil sin degrading moral values, could not help but note the beauty and ingenuity of the boards. Hiram Bingham, a member of the first missionary expedition, admirably described the boards as "wrought

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exceedingly smooth, and ingeniously adapted to the purpose of gliding rapidly in the water” (Moser 2008, 2). Driven nearly to extinction, the pastime continued only in select locations on the Islands (Bishop Museum 2018b).



Figure 1. Bishop Museum, Surfboard associated with Princess Ka’iulani (Bishop Museum 2018a) .

### Object Descriptions

This surfboard, or *papa he’e nalu*, made of Acacia koa from and also used in Hawai’i, is 224.8x44.5x34.3 cm or just over seven feet long (Figure 1). Curved at its nose, the board is very thin and is squared off at its bottom end with a base width of 34.3 cm and with one corner broken. The maroon grained wood has been sealed or varnished with a glossy sheen, yet there are few dents and scratches from use, in addition to two *pewa* or ‘butterfly’ repair patches (Figure 3). This board is associated with Princess Ka’iulani and is part of her collection gifted to the Bernice Pauahi Bishop Museum.

The second *papa he’e nalu* considered in this study is also made from koa wood (Figure 2), its origin is on Hawai’i (Big Island), and was bought from Piimauna in Kailua, Hawai’i on June 11, 1885. It is registered within the Bishop Museum Ethnology Database as ‘00294’ (Bishop Museum 2018b) and its dimensions are; 175x37.5x1.8 cm, making it slightly smaller than board one by just over a foot, although both boards a quite similar in shape. The board has also been varnished, the maroon red grain and beauty of the wood is emphasised. It is part of the J.S. Emerson Collection. Emerson, a collector who took a great care in recording many aspects of Hawaiian culture in the 1800s states: “playing on the surfboard though formerly a national sport is now seldom seen. Hookena, S. Kona is the only place where Emerson has witnessed it” (Bishop Museum 2018b).

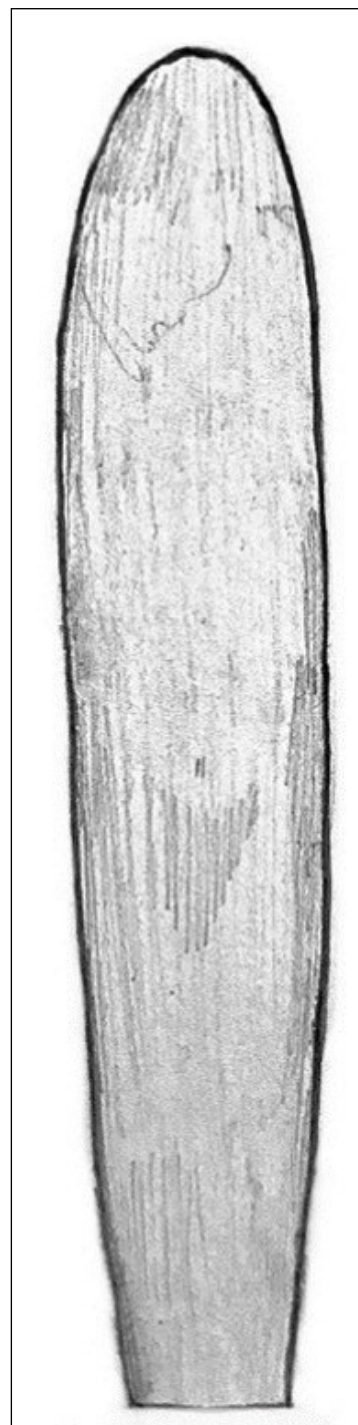


Figure 2. Surfboard from J.S. Emerson Collection (L. Tonge 2020 after Bishop Museum 2018b).



Figure 3. Surfboard (detail) (Bishop Museum 2018a).

### Hawaiian Context

Hawai'i is made up of eight major islands, (Kirch 1984, 243). By the time European contact with the Islands became increasingly regular from the late 18<sup>th</sup> century, Hawai'i was a largely united kingdom, a civilisation under Kamehameha (Kirch 1997, 306). Hawai'i in the 1800s underwent a great deal of political turmoil; in 1819 the death of Kamehameha and the abolishment of the Hawaiian spiritual or sanction system, *kapu* (Kirch 1997, 7, 309) and increasing missionary influence from 1820 (Moser 2008, 3). Thousands of Hawaiians saw their social and economic worlds change rapidly over the course of a few generations (Kirch 1997, 314).

It is possible to understand Hawaiian history through a combination of descriptions and records from foreign visitors, missionaries and the rich indigenous oral tradition (Kirch 1997, 8). Thus, historical archaeology in Hawai'i has great potential. As a period of total restructuring of Hawaiian way of life began to culminate during the early to middle 19<sup>th</sup> century (Kirch 1997, 309–310). Material culture offers a unique perspective in this instance as missionaries and converts were concerned with preservation of cultural material, even as they attempted to eradicate it. Thus, material analyses can offer a more individual perspective of Hawaiian cultural and social life. Literary accounts were formed in a very different setting to the material culture of indigenous Hawaiians, although the effects of the cultural setting of political upheaval and change will have impacted on objects in different ways.

### Surfing: Hawaiian Context

The variety of board types and participation of all class levels and genders found in Hawai'i is unrivalled anywhere else in Polynesia; in no other places are people known to have surfed standing in the way Hawaiians did (Finney and Houston 1996, 24). The largest surfboards could reach up to more than 18 feet long, two feet wide, six inches thick and weighed more than 150 pounds (Finney and Houston 1996, 24). However, boards varied a great deal in shape, dimensions, type of timber and weight (Warren and Guild 2014, 58).

The historical practice of surfing is mostly understood via textual sources which depict a Polynesian culture that was “communal, hierarchical, animistic” and while this information is recorded either through the perspective or language of “Westerners” (Moser 2008, 5) much of it stems from older practices, such as *Mele inoa* or name chants, which are traditional songs that most commonly include references to surfing (Moser 2008, 18). While evoking the “beauty and drama of the waves themselves”, they also honour the skill of chiefs and kings (Moser 2008, 18). However, commoners, chiefs, men and women also took part in the sport (Moser 2008, 18) as well as divinities who, depending on their moods, could protect or lure surfers away (Moser 2008, 17). The many repetitions of specific locales and generational ancestors in *Mele inoa*, emphasise the vastly important status of place and parentage in much of Polynesian culture, including Hawai’i (Moser 2008, 18). In many traditional Hawaiian stories centred on surfing, desire for the opposite sex competes with equally strong desire to ride the waves (Moser 2008, 18).

Surfing’s most pervasive role in Polynesian mythology is as a conduit for love and desire (Moser 2008, 17) which supports its position in relating stories of genealogy and ancestral pride. However, the promiscuous nature of the pastime made it an immediate target for Christianising missionaries who declared that surfing was sinful (Sahlins and Kirch 1992, 73). Missionaries hoped to both banish surfing and other aspects of Hawaiian indigenous culture but also to preserve it for posterity (Moser 2008, 4). Bingham boasted in 1829, after nine years of work in Hawai’i: “the slate, the pen, and the needle, have, in many instances, been substituted for the surf-board, the bottle, and the hula” (Moser 2008, 3). Surfing however experienced a revival during the “commotion” in 1834 (Sahlins and Kirch 1992, 73) during which time, similar to playing games and hula dancing, surfing became a significant mode of protesting political oppression, particularly during the period of the year associated with the old *Makahiki* ceremonies (Sahlins and Kirch 1992, 73). *Makahiki* was tied to contact era concepts of chiefly land ownership, *ahupua’a* (Kirch 1997, 306), as a religious harvest festival related to the god Lono (Kirch 1997, 216). In this way surfing became something of an essentialism of “Hawaiianess” (Sahlins and Kirch 1992, 73), but during this period it became a powerful reclamation of an identity and associated practices prematurely declared extinct.

### Process of Making

Several weeks of labour was necessary to create a board (Warren and Guild 2014, 63) which was created by a *kahuna* meaning “priest, sorcerer expert in any profession (male or female)” (Kawena Pukui 1986, 114) skilled at crafting wooden boards (Warren and Guild 2014, 58). Wood was carefully selected to be the correct size and shape and without structural faults, the presence of certain bird species around trees was important to note as their search for grubs within the timber could make it too porous for a board (Warren and Guild 2014, 58). A chosen tree would be felled with some ceremony, a *kumu*, a spiritually significant species of red fish, usually 9–12 inches or 23–30.5 cm in length was placed at the trunk, which was cut down with stone axes (Titcomb 1972, 92). A hole was dug into the roots where the fish was then placed with a prayer as an offering (Warren and Guild 2014, 62). A *kumu* was one of several ‘sea pigs’ which meant that it was an offering with similar importance to pigs, a concept across many Polynesian cultures (Titcomb 1972, 45). A *kumu* was also an appropriate offering for the launching of a canoe, sometimes for hula and the atonement of sin. It was also offered by those who had been through a course in teaching and were now a “master” of an art, in fact *kumu* can be used as a noun to describe such a person (Titcomb 1972, 92). It seems plausible that a *kumu* was an appropriate offering to assure that the *kahuna* might master the creation and shaping of the board.

## Material

Acacia Koa was used to make calabashes, canoe paddles, spears and surfboards. It is used today in a flourishing crafts industry and is also the material of which boards one and two are fashioned. Koa is the largest tree native to the Hawaiian Islands, exceeding heights of 35 m and is found in every major Hawaiian Island (Elvitch 2006, 1-2). Traditionally used to make canoes (*wa'a*), the leaves and ashes of the tree were used medicinally and tannin from koa was used in making red dye for traditional barkcloth or *kapa* (Elvitch 2006, 16-17). *Kahuna kālai papa he'e nalu*, craftsmen or women who made surfboards, are commonly understood to have used timber from wili-wili, 'ulu and koa trees to make boards. However, *kukui* (candlenut or *Aleurites molucanna*) and *o'he makai* (*Reynoldsia sandwicensis*) were also used (Warren and Guild 2014, 62). Most *alaia* boards were made from koa (Finney and Houston 1996, 42), priced according to aesthetic qualities of the timber and often very beautiful (Elvitch 2006, 17). Interestingly, the name koa meaning 'warrior' in Hawaiian (Elvitch 2006, 17) and canoes were sometimes referred to as the koa grove at sea (Elvitch 2006, 18). *E ola koa* or to 'live like a koa tree' is a Hawaiian saying and the tree has retained great cultural and symbolic significance (Elvitch 2006, 17). Koa is likely a favourite timber for surfboards due to its strength and aesthetic qualities, however, its cultural significance also relates to the concept of the demonstration of prowess in the surf via one's board (Moser 2008, 18).

## Shape/Form

Kahuna are understood to traditionally have made four main board types: *olo*, *kiko'o*, *alaia* and *paipo* (Warren and Guild 2014, 58). In practice they varied a great deal; to some extent dictated by *kapu*, the Hawaiian concept of sacredness, which would place restrictions on the appropriate manufacture of boards. However, designs vary immensely as would the social or spiritual restrictions on their creation (Warren and Guild 2014, 58). One example of this can be seen in the association of *olo* boards with royalty and high ranking figures, as depicted in the 1825 painting by Alphonse Pellion of a French expedition (Figure 4).

To bring out the shape of a board, lobe coral (*pōhaku puna*), which washed up on beaches after a storm (Warren and Guild 2014, 62) was used to reduce the length and width of the board (Warren and Guild 2014, 63). Afterwards pumice (*oahi*) was used for finishing, a finer grained tool, it could remove the roughness left over from the shaping and cutting (Warren and Guild 2014, 63). Finally, the rough skin of sharks and other fish was used as a kind of sandpaper (Warren and Guild 2014, 64). In lenticular cross-section both *olo* and *alaia* are convex on both sides of the board (Finney and Houston 1996, 42). However *alaia* was the board shape most suitable for the rugged coasts of Hawai'i, with ten in the Bishop Museum collection, most ancient boards remaining are *alaia* (Finney and Houston 1996, 46) and this design is the one from which most mainstream boards now originate (Warren and Guild 2014, 57).

Surfboards and canoes were often built in the same workshop, *heiau*, where they were sometimes left to dry for up to a year (Warren and Guild 2014, 62). It is likely that a cross-over of methods and techniques has influenced both canoes and boards, particularly as both were often built from the same material; koa (Elvitch 2006, 17). Canoes were also used to surf in on the swell of a wave, although they did not have the same dexterity of motion to follow through a breaking wave with the same speed (Warren and Guild 2014, 57).



Figure 4. The household of Kalanimoku, Prime Minister of the King, with an *olo* in the foreground, reserved for royalty, these could be as large as 8 m (26 ft). Likelike, Kalanimoku's wife, strikes barkcloth (*kapa*) nearby (Bishop Museum 2018c).

### Sealing and Wrapping

In 1892, N. Emerson observed the burning of the nuts of a kukui tree, a process creating soot which was the same substance used in Hawaiian tattooing. The kukui leaves were ground to make a thick, dark paste when mixed with the ash. The paste, when used on the surf boards, brought out the grain of the wood and waterproofed them (Warren and Guild 2014, 63). The boards were wrapped in *kapa* or barkcloth when not in use to protect their finish (Warren and Guild 2014, 64). Aesthetic qualities were and are often considered as important as performance in the creation of a board (Warren and Guild 2014, 64). It is interesting that the substance used to varnish the board is the same as used in tattooing, a practice known to be related to Hawaiian genealogy and aesthetics (Gell 1993). The “Name Chant for Naihe” is a six-part *mele inoa* that glorifies a surfer and the surf breaks he visits, and honours Wākea and Papa from whom “all Hawaiians trace their lineage” (Moser 2008, 18). With the use of the same substance for tattoos and barkcloth coverings, which seem uncannily similar to the activities associated with human bodies, the surfboard can almost be seen as an extended body of an individual. In creating a board the kahuna “strove for perfect balance and sought to make the board [for] the individual [for] whom it was intended. Each board was veritably custom-built and tailored to suit the ‘wearer’” (Warren and Guild 2014, 64).

## Repair on Board One

The repairs on board one are *pewa* patches, also called a ‘Flying Dutchman’, ‘butterfly’, or ‘bow-tie’ patches, and they are traditionally used to repair food or storage bowls, but can also be used on joints and planks of timber (Figure 5; Stevens 2005, 19). *Pewa* is a Hawaiian word meaning ‘tail of a fish, shrimp or lobster’ but it can also describe the ‘patch or wedge used for mending bowls’. This is perhaps due to their “resemblance to a fishtail” (Hawaiian Dictionary 2003). A *pewa* patch used traditionally by Hawaiians provides great strength (Stevens 2005, 19) and the more the bowl was mended the more *pewa* were added, creating an increasingly complicated design (Figure 6). The meaning of the bowl would become more complicated, with its history of survival becoming integral to its importance and outward appearance (Keawe Manalo-Camp 2018) as would be the skill of the person repairing the bowl. The choice to incorporate this traditional repair, both *pewa* inlay and wood-type, is a conscious one to adhere to tradition and cultural identity. It is likely that Princess Ka’iulani could have had another board made once hers had suffered a crack, however the significance of the board itself has been deliberately maintained.



Figure 5. *Umeke Poi* (Poi Bowl or Calabash), *Pewa* inlay bowl, Hawaiian Islands, 18<sup>th</sup> century (Honolulu Academy of Arts 2009a).



Figure 6. Detail of *Pewa* inlay (Honolulu Academy of Arts 2009b).

*Pewa* repairs on board one can be compared to Japanese *kintsugi*, a practice of mending broken ceramics with metallic lacquer to fill in the cracks and restore the object (Figure 7; Keulemans 2016). While *pewa* inlay is often less of a visual contrast than *kintsugi* which can more greatly disrupt the appearance of an object, in both practices, the damage and subsequent repair is brought to attention rather than any attempt made to hide it. *Kintsugi*, “shows the deliberate and conspicuous care” given to a broken ceramic, this is referred to as the “beauty of imperfection” or *wabisabi* (Keulemans 2016, 19). Restoration of function is important in this practice as is the restoration of visual appeal. Aesthetic qualities were as important as performance (Warren and Guild 2014, 64) and evidently in the *pewa* repairs of board one, this importance is maintained. A *kahuna* with great skill and experience would likely have repaired the board, modulating and accentuating the affect, preventing the crack from worsening and returning the board to a comfortable and aesthetically pleasing finish.



Figure 7. Kintsugi in 17<sup>th</sup> century Japanese Ceramics (Daderot 2014).

## Use

In Hawai'i the ocean and surf zone, known as *po'ina kai*, is a cultural sanctuary for Hawaiian natives continuing to surf, historically, missionaries and colonial hierarchies were unable to dominate it (Gibson and Frost 2018, 4). In the late 18<sup>th</sup> century, islands and parts of islands were divided into independent chiefdoms (*moku*) then further divided into radial sections (*ahupua'a*), controlled by lesser chiefs, which ran from forested uplands to agricultural lands to the coast and into the sea (Kirch 1997, 2). The resources of both land and sea would be encompassed in *ahupua'a* (Kirch 1997, 2) and due to a dependence on oceanic resources most Hawaiians lived close to the coast (Finney and Houston 1996, 27). The location of ancient surf spots in particular coincides with coastal settlements with higher population density (Finney and Houston 1996, 27). It is likely that these spots were chosen for their good waves but also so that more people could take part-in and watch the displays of prowess. Unlike many other aspects of traditional Hawaiian society where the *kapu* spiritual system dictated a separation between the sexes and their roles (Kirch 1997, 246) surfing was enjoyed by all (Moser 2008, 17). However due to missionary presence and the different roles of men and women in Western society, most surfers were men, although Princess Ka'iulani, the Scottish-Hawaiian heir to the throne and the owner of board one, is an exception (O'Rourke 2006). At 7 feet long her board was likely used for stand-up surfing (Finney and Houston 1996, 24).

With the change to a more Western system of land ownership by the mid-19<sup>th</sup> century an entire restricting of Hawaiian life ways; political, social and economic followed (Kirch 1997, 309). It seems fitting that J.S. Emerson, collector of board two, was a Protestant missionary who advocated for the rights of indigenous Hawaiians and in 1848, when natives were permitted to make claims on occupied land, Emerson helped to document these claims (Kirch 1997, 311). Surfing would then be positioned within a very different social fabric. *Alaia* boards were the most popular as they were most versatile; shorter and more manoeuvrable, suited to steeper, fast-breaking surf and thus could be used in variety of surf spots (Finney and Houston 1996, 44). It seems likely that these became increasingly popular the more that surfing areas were limited and a more versatile board may have become a necessity for those who wished to continue to pursue the sport. The Western concepts which separated land from sea would likely have reinforced the surfzone as a liminal space for identity-making and remaking. Positioned from this perspective, indigenous surfing experience could subvert both Western and traditional modes of life; while rejecting elements of missionary and other Western influence, also rejecting ‘old ways’, it certainly became a mode of political assertion against Western authority (Sahlins and Kirch 1992, 73).

Surfboards were personal objects designed for individuals and often prized in households, as demonstrated in Figure 4 with an *olo* board featuring prominently outside the household of Kalanimoku. The ownership of a “neat floatboard well-kept, and dried to a Sandwich Islander” was likened to the ownership of “whatever light carriage might be in fashion” by an Englishman, cousin of Lord Byron, who landed on the Islands in 1820 aboard *Blonde* (Finney and Houston 1996, 27). Boards were recorded as valuable parts of estates owned by members of the royal family, alongside objects such as beaver furs, Spanish saddles, Chinese saws, fish hooks and whale jaws, treated in these cases as almost a curiosity for collection (Sahlins and Kirch 1992, 220–221). This and the donation of boards to museum collections for posterity changed their meaning within Hawai‘i and alongside missionary pressure would have changed their use. As native Hawaiians began to preserve culture and the meaning of surfing changed alongside the social life of people in Hawai‘i.

## Discussion

Surfboards were very personal objects and designed for an individual or a “wearer[‘s]” body (Warren and Guild 2014, 64). Boards were not given away permanently they were loaned, *ha‘awi papa he‘e nalu* means to “give with the understanding that the object will be returned” (Finney and Houston 1996, 96). Thus, these were objects of great personal significance and were wrapped up in concepts of personal identity. This is best highlighted by an event called a ‘Paddle-out’, in which the board belonging to the deceased is a key object, with the ocean and the beach constituting significant memories and a “grief geography” (Gibson and Frost 2018, 2). The deceased’s surfboard is sometimes placed in the centre of a circle of the communities’ surfboards being a “significant totemic object” itself and representing the deceased symbolically surrounded by the group (Gibson and Frost 2018, 3–4). There is some evidence that the Paddle-out ceremony has its origins in indigenous Hawaiian surfing culture (Gibson and Frost 2018, 5) and aids in forming an “emotional geography” with the land and sea-scape (Gibson and Frost 2018, 2).

## Pewa and Tradition

In exploring the Japanese practice of *kintsugi* Keulemans (2016) makes use of Deleuze and Guattari 1994 and their concept of affect, in which a repaired crack can trigger “perceptions of threat, urgency, catastrophe, risk, but also care, amelioration and hope” (Keulemans 2016, 18). In *kintsugi*, perceiving, feeling or “being affected by” these mended cracks is metaphorically linked to significant seismic, hydraulic, or electrostatic forces such as lightning or the cracks caused by earthquakes (Keulemans 2016, 24). In *kintsugi* or *pewa* repairs the cracks may have been caused by an accident or an earthquake

(Keulemans 2016, 22); both Japan and Hawai'i suffer from frequent earthquakes due to their geography near the Pacific Rim (Kirch 1997, 33). In these cases, "affects are mediated by materiality", thus the jarring crack of an earthquake resonates with the mended crack, having both micro- and macro-political effects (Keulemans 2016, 18).

"The capacity for cracks to jolt can be considered as a micro-political affect" with potential to be an agent of change at larger macro-political level (Keulemans 2016, 24). For Deleuze and Guattari the micro is at the level of the body and the macro at the level of wider society (Keulemans 2016, 24). Board one may have cracked due to an accident or mishap while surfing. The repair can be both seen and felt, in the case of the surfboard, it is likely that while riding it can be noticed. As *pewa* are used traditionally to repair food bowls (Stevens 2005, 19), it is unclear what meaning these repairs are ascribed when transferred as a technique used on other objects, whether this was a frequent practice used on boards is unclear. This is not a particularly well-documented Hawaiian tradition, explored only in addition to Western techniques making it hard to find indigenous Hawaiian ethnographic or archaeological examples, although the practice does continue in woodworking communities today (Manaloa 2020).

These *pewa* repairs are part of an object very conceptually bound with native 'Hawaiianess' thus it is likely that its use is significant, if not deliberately chosen to signify tradition. Princess Ka'iulani, who owned and likely rode board one, (O'Rourke 2006) would have had more reason than most to wish to venerate traditional Hawaiian practices. Writing to her aunt she described her return to Hawai'i after being away for many years in pursuit of education in Britain: "it made me sad to see so many Hawaiians looking so poor - in the old days I am sure there were not so many people almost destitute" (Stassen-Mclaughlin 1999, 51) hearkening back to 'old days' or traditional ways of life hints at the loss Ka'iulani suffered. The significance for Ka'iulani of Hawaiian identity and tradition is tied to her loss of sovereignty and *ali'i* or royal status as heir to a kingdom. In 1893 the Hawaiian monarchy was overthrown, replaced with a provisional government and in 1898 Hawai'i was annexed and became a state in the United States of America (Stassen-Mclaughlin 1999). It is difficult not to view these repairs as related to macro-political forces in light of wider political turmoil in 19<sup>th</sup> century Hawai'i, with the changing politics and the rate of change experienced between generations of many indigenous people, including the changing role of the *ali'i* in context of the previous universal and inclusive nature of Hawaiian surfing. Forces of the same magnitude as many earthquakes were shaping Hawaiian lives with unprecedented abruptness. In perceiving the repair while paddling out to catch a wave, the division of past and present Hawai'i, and the spiritual and political juxtaposition stemming therefrom find a meeting place.

## Conclusion

Surfboards in the 19<sup>th</sup> century and earlier are significant objects, tied to individuals, their lives and a wider group expression. These boards and others like them represent a period of great change in Hawai'i which at their peak offered a mode of expression that could begin to bridge the gap for Hawaiians caught between generations passed and an uncertain future. These two objects in particular, represent an important and understudied segment of Hawaiian archaeology. They draw attention to the separate ideologies of two cultures and the ways in which the nuance of a pastime can assert a political dialogue and (re)form emergent identities.

People of European heritage historically viewed the ocean as something to fear, sailors such as William Ellis commenting on the "daring" and "sometimes alarming" Hawaiian comfortability and enjoyment of the ocean waves and their practice of a sport that "would be fatal to a European" (Moser 2008, 86–87). Hawaiian engagement with the power of ocean processes meant this power could become social, displays of ability and daring ultimately offering assertion of identity and, later, indigenous autonomy. It is likely due to this stark opposition in ideology where interaction with the ocean was concerned, and

the associated cultural history of each belief system, that surfing became a mode of political expression. Additionally, as the Pacific became more cosmopolitan and individuals had increasingly complex cultural backgrounds and experiences, such as Princess Ka'iulani herself, the surf zone would take on a more liminal position, perhaps a place to exist comfortably in both worlds. Tied to Hawaiian cultural, individual and national identity the use of surfboards at this time related to an entire social system of spiritual and political places and actions. In the early 1900s, the intensity of interest in surfing began reviving in Hawai'i as missionary influence declined (O'Rourke 2006) however, it was again a changing practice in a very different social context.

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# New Frontiers in the Archaeology of Buildings

Xosé L. Hermoso-Buxán<sup>1</sup>

**Keywords:** Archaeology of Architecture, Buildings, Household Archaeology, Human Use of Space

## Introduction

Buildings, together with pottery, are one of the most ubiquitous types of evidence encountered by archaeologists, found both in urban and rural contexts and ranging from the monumental (palaces, temples, military complexes, etc.) to the domestic and utilitarian (residences and households, storage buildings, etc.). Archaeological research on buildings has the potential to give us insight on a wide variety of topics. Urbanism, households and kinship, social stratification and class, cultural identity, political and power strategies, economy or religion, are all subject areas that place the study of buildings at their core.

From a methodological point of view, in recent years, traditional art historical, typological and formal approaches to architecture have been supplemented with new methods applied to the study of buildings of many different periods and geographical areas. Indeed, although studies are still limited, digital and spatial analysis, 3D modelling (Remondino and Campana 2014), laser scanning and photogrammetry (Gonizzi Barsanti *et al.* 2012), space syntax (Paliou *et al.* 2014), micromorphology and activity area analysis (Parker and Forster 2012), among others, are methods that are helping to change the way we study buildings, the research questions that can be asked and the type of information that can be obtained from them.

## Conference Structure and Papers

A trait that defines the archaeology of buildings is, therefore, its multiplicity. This conference session aimed precisely to tackle this variety by means of a combination of papers which focused both on state-of-the-art approaches, including techniques such as geochemical analysis (Nebu George's presentation on the geochemical analysis of floors in a roundhouse in Wales) or 3D documentation methods (Lan Shi's poster on the advantages of 3D laser scanning for the archaeological study of buildings), and the formal and chronological diversity of these structures, such as British Neolithic structures (Jessica Domiczew), prehistoric desert kites in the Near East (Mariam Shakhmuradyan, this volume), pre-Islamic Christian architecture of Arabia (Valentina A. Grasso), medieval rural settlements in Hesse, Germany (Roman Zabolotnîi, this volume) and Medieval fort towers in La Rioja, Central-Northern Spain (Isaac Martínez-Espinosa, this volume).

Any investigation of the relationship between the built environment and society is based on the tenet that physical space has intrinsic sociality and society has intrinsic spatiality. This is the "social logic of space": human societies exist in space and, at the same time, they create spatial order by locating people in relation to one another and by establishing boundaries (Hillier and Hanson 1984, 26–27; Kent 1990, 2). Architecture is, therefore, a multidimensional form of non-verbal communication which flows in two directions and creates a social landscape (Ayán-Vila *et al.* 2003, 4-6). It encodes social information that originates in society itself and, at the same time, these meanings determine, to some extent, human behaviour (Rapoport 1982, 60–62). This behaviour is materialised and routinised by means of a series of architectural elements or "cues" (Rapoport 1982, 87–101) which show humans how to pursue their everyday lives according to what is expected from them (Sanders 1990, 71). Failure to comply with them

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may result in social change (Fisher 2009). The relevance of this approach for archaeology is clear: if behavioural conventions are reflected in the built environment, then it is possible to reconstruct past patterns of rationality by studying ancient architecture (Sanders 1990, 43).

Along this line, Shakhmuradyan (this volume) opens new avenues of research for the understanding of the use and purpose of the prehistoric Near Eastern structures known as desert kites. Desert kites have traditionally been interpreted as hunting traps for wild ungulates, although the lack of associated archaeological finds makes it difficult to confirm this. Shakhmuradyan, basing her arguments on a comparative study of the shapes of kites, existing petroglyphs with kite depictions and the iconography of the ancient Near East, hypothesises, in turn, that kites might have been ritual structures representing objects and animals.

Similarly, Zabolotnîi (this volume), using a combination of primary and documentary evidence, highlights the uniqueness of the archaeological remains found at the medieval village of Wetzlar-Dalheim (Hesse, Germany), spanning over 800 years, which have the potential to inform us on the development of strategies of social differentiation over an extended period of time and on a local economy focused on iron ore extraction and iron smelting.

On the other hand, Martínez-Espinosa (this volume) presents an article focused on the conservation and restoration of cultural heritage in La Rioja, in particular on the fort towers that fulfilled a defensive role in the centuries-long conflict between the medieval Muslim and Christian kingdoms of the Iberian Peninsula. By analysing the materials and techniques used in the restoration of these buildings, as well as the new uses given to them, the author shows the importance of the preservation of our heritage for future generations and its potential to contribute to the social and economic development of a given area.

It is my hope that, by bringing together researchers from diverse backgrounds with a common interest in buildings, the potential of these structures not only as research subjects but also as tools to think with and look at wider methodological, social and theoretical issues was stressed.

**Acknowledgements:** I would like to thank the participants in this session for their contributions, as well as the CASA 3 Conference Committee and the Department of Archaeology of the University of Cambridge for having granted me the opportunity to propose, introduce and lead this session about New Frontiers in the Archaeology of Buildings.

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# Desert Kites: A New Frontier in Near Eastern Archaeology

Mariam Shakhmuradyan<sup>1</sup>

## Abstract

This paper aims to discuss the issue of the function of desert kites. Although the research of these structures has a century-long history, neither the function nor the place and time of their origin have yet been determined. The most widespread hypothesis is that they served as hunting traps for herds of wild ungulates. However, no direct evidence confirming it has been found to date. In this paper new strategies are suggested, which have the potential to reveal the function of the kites. Among these are the investigation of the petroglyphs with depictions of kites, as well as the forms of kites. A new hypothesis is put forward according to which the forms of the kites represent the images of various objects and animals.

**Keywords:** Near East, Desert Kites, New Hypothesis, Large-scale Signs, Ritual

## Introduction

Desert kites are large-scale stone structures, composed of two or more converging stone rows, an enclosure and towers (Figure 1). Enclosures can have various forms, some of which are geometric, while others represent more complex shapes (Echallier and Braemer 1995; Helms and Betts 1987; Kennedy *et al.* 2015; Shakhmuradyan 2019). These structures were first discovered at the beginning of the 20<sup>th</sup> century in the deserts of Syria and Jordan by World War I pilots (Crawford 1929; Dussaud 1929; Holt 1923; Maitland 1927; Poidebard 1928; Rees 1929 ) who named them because they looked like toy kites (Rees 1929).

Currently approximately 6000 kites are identified in the Near East and Central Asia. They have been found in Armenia (Barge *et al.* 2015a; Brochier *et al.* 2014; Malkinson *et al.* 2017; Nadel *et al.* 2015), Turkey (Çelik and Tolon 2018), Iraq (<http://www.globalkites.fr/Interactive-Map>), Syria (Castel *et al.* 2005; Échallier and Braemer 1995; Kennedy 2012; Kennedy and Freeman 1995; Morandi Bonacossi and Iamoni 2012; van Berg *et al.* 2004 ), Jordan (Abu-Azizeh and Tarawneh 2015; Barge *et al.* 2015b; Betts 1998; Betts and Burke 2015; Helms and Betts 1987; Kempe and Al-Malabeh 2010; 2012; 2013; Kennedy 2011), Saudi Arabia (Kempe and Al-Malabeh 2013; Kennedy 2011; Kennedy and Bishop 2011; Kennedy *et al.* 2014; 2015; Ryckmans 1976), Uzbekistan and Kazakhstan (Amirov *et al.* 2015; Barge *et al.* 2016; Betts and Yagodin 2000; Bull and Esipov 2013; Deom and Sala 2009; Plakhov 1994; Yagodin 1991; Yagodin and Amirov 2014; Yagodin *et al.* 2007).

It is often written in the literature that kites have also been found in the Negev and Sinai deserts (Bar-Oz and Nadel 2013; Holzer *et al.* 2010; Nadel *et al.* 2010; 2013). However, structures from these regions differ from kites in their morphology, with converging stone rows and a tower but lacking any enclosure, which is the central structural element of kites (Barge *et al.* 2015c, 164; Shakhmuradyan 2019, 28–30). These structures are known as ‘V-shaped kites’ or ‘V-shaped’ structures. They have also been found in Armenia (Malkinson *et al.* 2017; Nadel *et al.* 2015).

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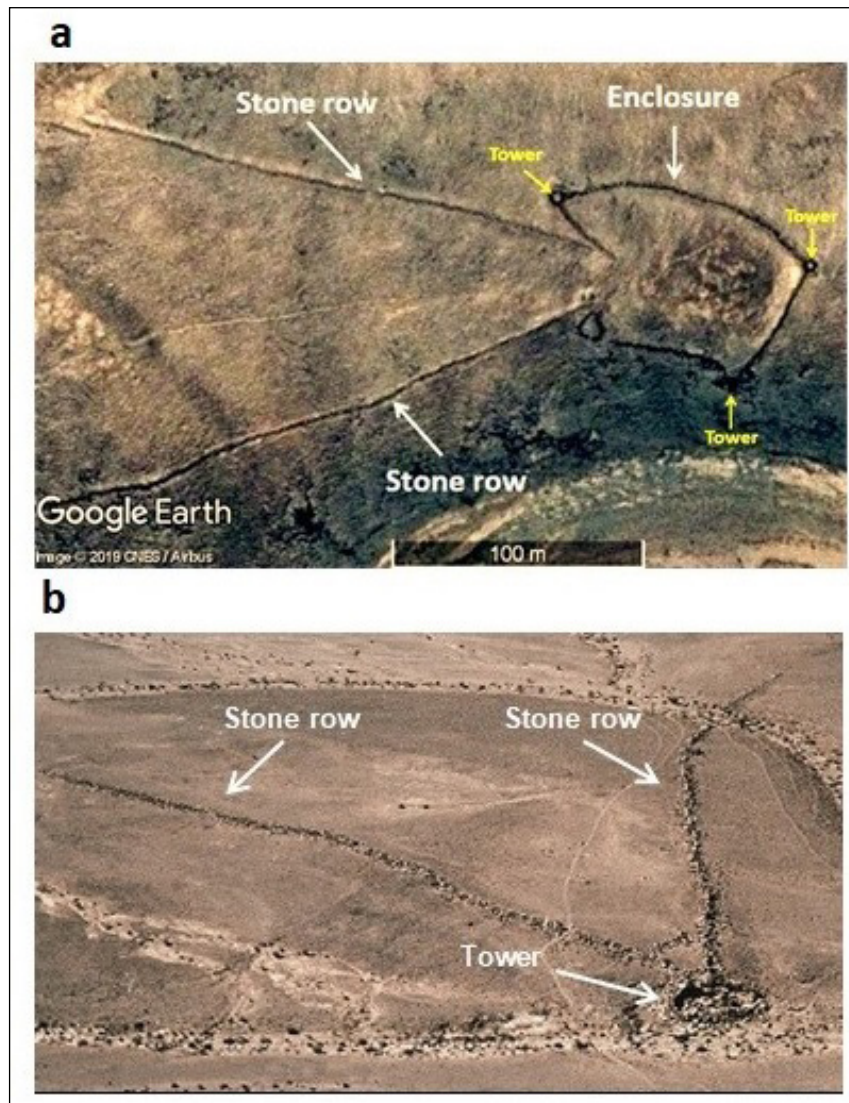


Figure 1. a) Desert kite. Black Desert, Jordan; b) 'V-shaped' structure. Jebel Hamra, Sinai (modified after Holzer *et al.* 2010).

The function of kites remains open to debate. The most widespread view is that they served as hunting traps for herds of wild ungulates, especially gazelles (Bar-Oz and Nadel 2013; Helms and Betts 1987; Kempe and Al-Malabeh 2013; Rosen and Perevolotsky 1998; Zeder *et al.* 2013). According to other hypotheses, they could have been used for pastoral or ritual activities (Échallier and Braemer 1995; Kirkbride 1946; Kobusiewicz 1999; Maitland 1927; Rees 1929).

The existing data on dating is poor. The absolute age of the kites is hard to determine, as they are usually void of stratified and *in situ* artefacts and thus provide no opportunity for dating. In situations where there are other structures built on the kites, or where a kite is built on other structures, it is possible to determine their *terminus ante/post quem*. Using this method, as well as some radiometric data, the *terminus ante quem* and dating of several kites in Syria and Jordan was determined to be during the Neolithic period (12<sup>th</sup>-6<sup>th</sup> millennium BCE). This is considered to be the earliest phase of kite construction (Akkermans *et al.* 2014; Al Khasawneh *et al.* 2019; Helms and Betts 1987; Morandi Bonacossi 2014). Based on the investigation of the archaeological context of the kites (nearby structures, surface findings, petroglyphs), the kites of the Near East have also been dated to the Bronze and Iron Ages

(4<sup>th</sup>-1<sup>st</sup> millennium BCE; Brochier *et al.* 2014; Echallier and Braemer 1995; Nadel *et al.* 2015; van Berg *et al.* 2004). The earliest kites of the Central Asia have been dated to the Iron Age (1<sup>st</sup> millennium BCE). Their use probably extends until a recent period (Amirov *et al.* 2015; Barge *et al.* 2016).

### History of Research: Main Results

The first publications on kites appeared in the 1920–30s, written by the pilots who discovered them (Dussaud 1929; Maitland 1927; Rees 1929). They initiated the debate on the function of these structures. Rees suggested that kites were used for the protection of herders and their livestock, while Crawford and Dussaud claimed that they were hunting traps (Crawford 1929; Dussaud 1929; Rees 1929). Between 1940 and 1970 new papers were published on the kites of Syria, Jordan and Saudi Arabia, together with hypotheses of their function, with the pastoral theory being dominant (Eissfeldt 1966; Kirkbride 1946; Ward 1969; Yadin 1955). In the same decades their existence was recorded in the Aralo-Caspian region (Tolstov 1958) and Saudi Arabia (Parr *et al.* 1968; Ryckmans 1976).

Between 1970 and 1990 systematic investigations were conducted in the deserts of Syria, Jordan, Saudi Arabia and the Aralo-Caspian region, during which many kites and their surrounding structures were surveyed and mapped and data on the dating was obtained (Adams *et al.* 1977; Betts 1982; 1983; 1984; Betts *et al.* 1998; Echallier and Braemer 1995; Garrard *et al.* 1985; 1986; 1987; Helms 1981; Helms and Betts 1987; Yagodin 1991; 1998). During this period the first attempts at classifying the forms of the kites were made (Echallier and Braemer 1995, Fig. 13; Helms and Betts 1987, Fig. 14) and new theories on their function were suggested (Helms 1975; Kobusiewicz 1999).

Since the 2000s, the study of kites entered a new phase. In 2012, the Globalkites Project was launched to record which kites of different regions (Kazakhstan, Armenia, Jordan) were surveyed, mapped and excavated. As a result of these investigations substantial amounts of data for the morphological, environmental and chronological characterisation of kites in different regions and their comparative analysis were obtained. Also a regularly updated interactive distribution map of the kites was created by the project (<http://www.globalkites.fr>). In the framework of the APAAME (Aerial Photographic Archive for Archaeology in the Middle East) project thousands of aerial photographs of kites and their surrounding structures were taken, which are accessible online (<http://www.apaame.org>).

During the last decades, intensive survey work and excavations have been conducted in nearly all the regions (except Iraq) as a result of which numerous fieldwork reports, analytical and methodological papers on kites have been published (see summary in: Shakhmuradyan 2017, Shakhmuradyan in press b).

### The Issue of Function

The inter-regional and systematic investigations, carried out over a century, have broadened our knowledge on desert kites. However, the key issue, their function, still remains unsolved. Kites are huge structures, in which people invested enormous effort and time to create, which means that they played a very important role in society, but nothing is known about their purpose. One of the main reasons for this situation is that in contrast to the majority of ancient structures, kites usually do not yield artefacts that can be directly linked to them and serve as a diagnostic material to understand the function.

Currently, the most widespread view on their function is that kites served as hunting traps for herds of wild ungulates. It is assumed that the herd of wild animals was guided through the long stone rows and then pushed towards the enclosure of the kite, after which they were killed by the hunters hidden in the towers (Figure 2). According to another view, the towers did not serve as hiding places for hunters, but

were the actual traps into which the animals would fall (Bar-Oz and Nadel 2013; Betts and Burke 2015; Helms and Betts 1987; Kempe and Al-Malabeh 2013; Rosen and Perevolotsky 1998; van Berg *et al.* 2004; Zeder *et al.* 2013).

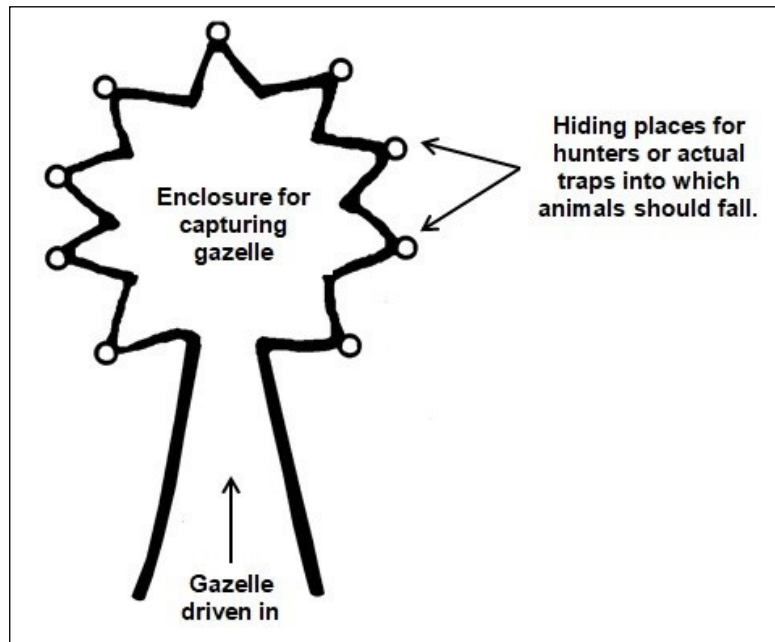


Figure 2. The suggested model for the use of desert kites (author).

It is noteworthy that, although the hunting theory is the most accepted, no direct evidence confirming this theory has yet been found. In contrast to the hunting traps of other regions, where accumulations of weapons and bones have been found (Borresen 2002; Brumley 1984; Cassels 1995; 2000; Hutchinson 1990), no such evidence exists in the case of kites. However, other arguments have been put forward in support of the theory, which can be grouped into three main categories:

1. Ethnographic evidence that describes gazelle hunting with the use of large-scale traps (Aharoni 1946; Barker 1876; Burckhardt 1831; Musil 1928; Wright 1895). The traps described in those accounts are assumed to be kites (Bar-Oz and Nadel 2013, 5-6; Betts and Burke 2015, 87);
2. The morphology of kites and their structural similarity with the game drives of Scandinavia, Tibet and North America (Amirov *et al.* 2015; Bar-Oz and Nadel 2013; Betts and Burke 2015; Helms and Betts 1987);
3. The archaeological context of kites:
  - Petroglyphs with depictions of kites and animals inside of them (Bar-Oz and Nadel 2013; van Berg *et al.* 2004);
  - Accumulations of gazelle bones in settlements in the vicinity of kites (Bar-Oz *et al.* 2011; Betts 1998a; Zeder *et al.* 2013);
  - Projectile points found inside and in the vicinity of kites (Betts 1998b; Helms and Betts 1987).

However, these arguments have never been properly analysed in order to figure out whether they confirm the theory. Only recently, a detailed analysis of the hunting theory was conducted, in which all the arguments presented so far were assessed, in order to understand how strong and reliable they are (Shakhmuradyan in press a). The results of the analysis do not provide evidence to prove the theory. The hunting traps, described in the ethnographic accounts, cannot be identified with kites, because they have structural features that are missing in kites and vice versa, therefore, they do not have features

that are inherent to kites (Aharoni 1946, 31–33; Burckhardt 1831, 220–221; Musil 1928, 26–27). The widespread view that kites have structural similarities with the game drives of Tibet, North America and Scandinavia is not supported by systematic comparative study. The only clear similarity between them is the presence of long stone rows. On the other hand, while similarities have been repeatedly mentioned in literature, the dissimilarities have never been discussed. This is especially true in the case of the enclosure, which is the key element of kites. In contrast to kites, which have a great diversity of forms that reappear in all the regions, the game drives do not have enclosures at all, or have very simple ones (Figure 3). In the *dzaekha* traps in Tibet, instead of enclosures, there are foot traps, known as *khogtse*, the animals falling in them being killed by hunters (Fox and Dorji 2009; Huber 2005). The hunting traps of Scandinavia are usually composed of narrow pitfalls, which appear both in small groups or large systems (Andersen *et al.* 2006, 21–26; Barth 1996, 6; Jordhøy *et al.* 2005). The hunting traps of North America are also usually composed of scattered arranged stone rows and blinds and do not have an enclosure (LaBelle and Pelton 2013; Whittenburg 2017).

Apart from structural differences, kites and the hunting traps of the aforementioned regions also differ in their archaeological signature. In the drives, accumulations of weapons and bones have been documented, which directly confirm the hunting function. By comparison, kites have yielded very few, if any, weapons or bones (Barge *et al.* 2015b; Chahoud *et al.* 2015, 235). The hypothesis that accumulations of gazelle bones in the settlements in the vicinity of kites (Tell Kuran, Dhuweila) originated as a result of mass-slaughter with the use of kites is not supported by proper chronological, statistical or faunal evidence (Martin 1998; Shakhmuradyan *in press a*). The arrow-heads found inside and around kites are surface findings (Betts 1998b, 200) and there is no reason to ascribe them to kites. They also appear in negligible quantity (1 or 2 at maximum). If kites were intended to hunt herds of animals, dozens of broken arrow-heads should have been found, as in the game drives of other regions (LaBelle and Pelton 2013).

There is thus no reason for interpreting kites as hunting sites. As a result of a long-time research of these structures, there is a wealth of overlooked data which could enhance our understanding of kites. However, because the hunting hypothesis has remained unquestioned, this data have rarely been properly observed and considered. In the framework of this paper two types of such data have been selected in order to discuss their potential to reveal the function of the kites.

### ***Petroglyphs of the Hemma Plateau, Syria***

One of the potential methods to understand the function of the kites is the thorough investigation of the petroglyphs of the Hemma Plateau, Syria (van Berg *et al.* 2004). These petroglyphs are located in the vicinity of kites and are preliminarily dated to the 4<sup>th</sup>–3<sup>rd</sup> millennia BCE. They depict the kites and various scenes in them (humans, animals, objects; Figure 4). The interpretation of these scenes can provide information on the possible function of the kites.

Based on the repertoire and features of the depicted elements (animals and humans inside the kites) a majority of the rocks with kite depictions have been previously interpreted as hunting scenes (Bar-Oz and Nadel 2013; van Berg *et al.* 2004). However, some important circumstances should be considered. In the petroglyphs of Hemma and other regions as well (Jebel Qurma, Azraq), kites are depicted in a realistic way. Both their enclosure, towers and stone rows are reproduced in an accurate way and even the peculiarities of the location of the kites in the landscape are often reproduced (Figure 4a). This means that if kites were intended to trap herds of animals, one would expect the same realistic depictions of hunting scenes, but these are absent. The presence of animals and humans inside the kites does not necessarily prove hunting and could have other interpretation (Figure 4c). The depicted scenes in the petroglyphs of Hemma have parallels in Mesopotamian iconography, where they have mythological

meaning (van Berg *et al.* 2004: 96). These include human figures holding objects resembling maces, riding on the backs of bulls or holding bulls. In Mesopotamian iconography, the Adad deity was depicted in this way (Figure 4f, g). In other petroglyphs, a bird-headed and other animal-headed creatures are depicted inside the kites (Figure 4h, i), which could represent a deity or priests with animal masks (van Berg and Medici 2009).

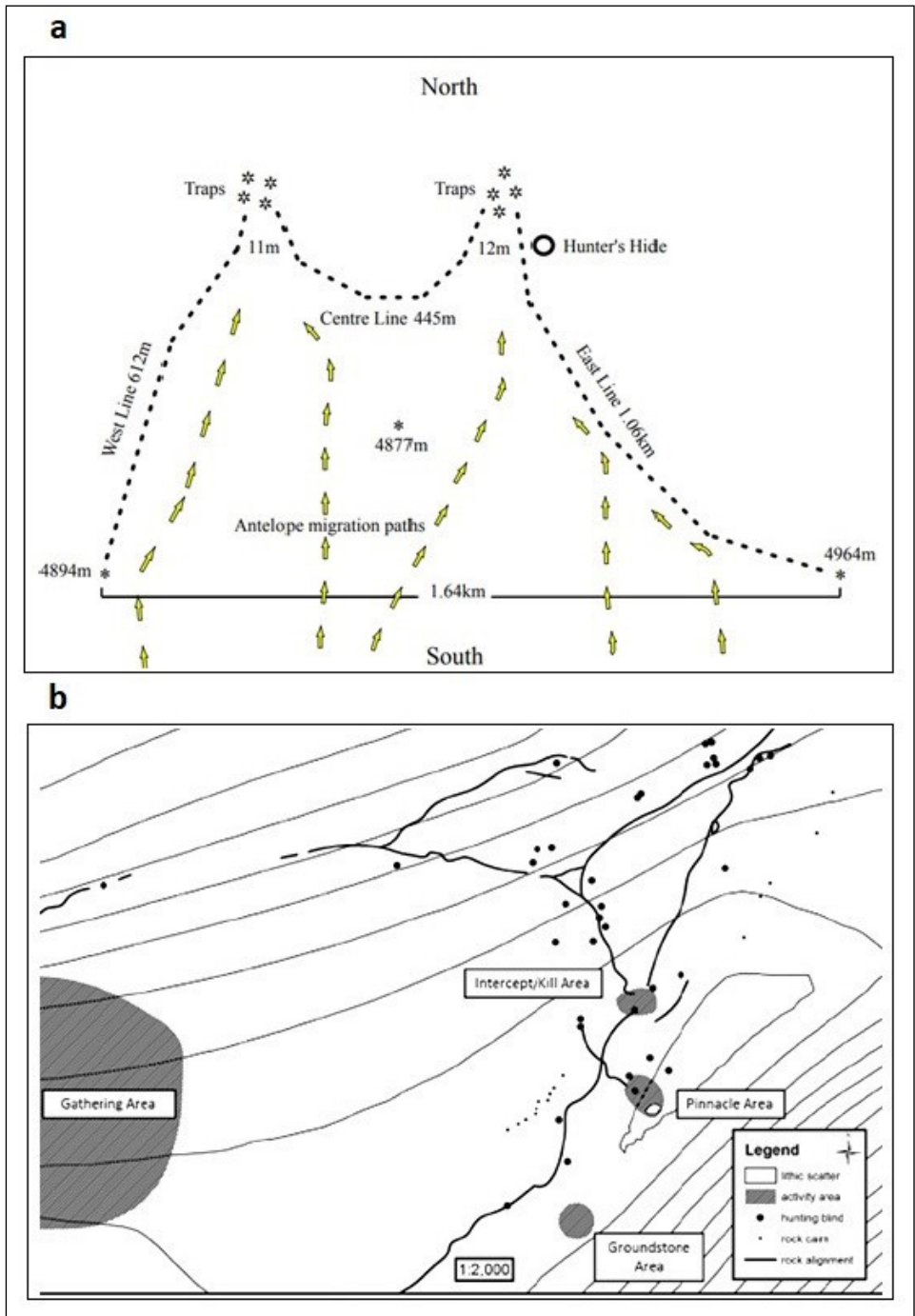


Figure 3. a) Plan view of the *dzaekha* trap in Bodo Gunga, Northern Tibet (Huber 2005: Fig. 1); b) Plan view of the Olson game drive in Colorado, North America (LaBelle and Pelton 2013: Fig. 4).

Whilst the parallels between the petroglyphs of Hemma and early Mesopotamian iconography have been discussed from a chronological point of view (van Berg *et al.* 2004; Zeder *et al.* 2013), they have not been discussed from the point of view of their function. The presence of mythological scenes inside of the kite depictions suggests that kites could have a cultic significance.

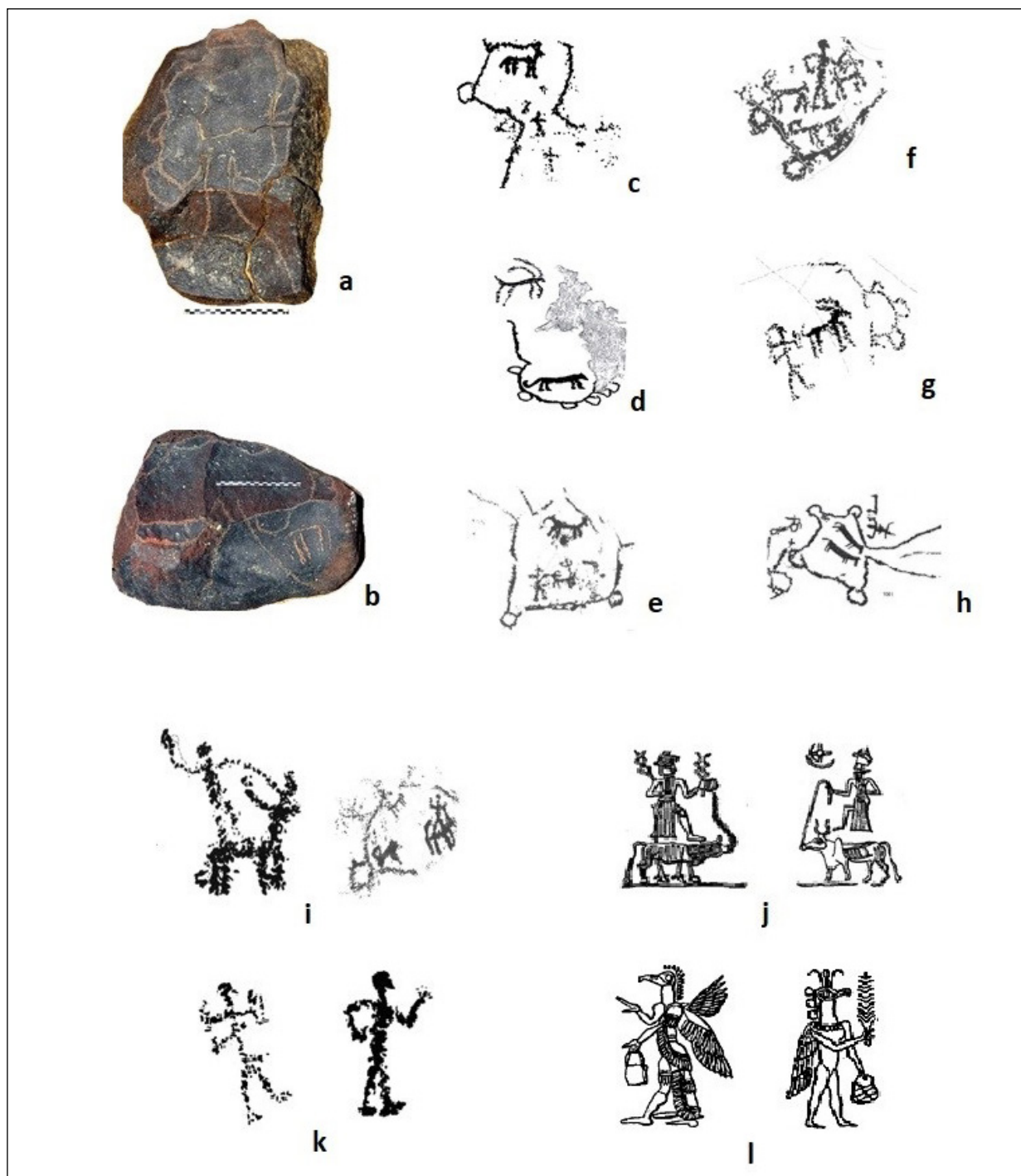


Figure 4. Petroglyphs with depictions of desert kites. a, b) Qurma, Jordan; c-g) Hemma Plateau, Syria; h) Wādi Derham, Jordan; i) Petroglyphs depicting a man riding bull at Hemma; j) Mesopotamian seals depicting Adad riding bull; k) Petroglyphs depicting a bird-headed creatures at Hemma; l) Mesopotamian seals depicting bird-headed deities (after Ababneh 2005; Akkermans *et al.* 2014; van Berg *et al.* 2004; Ward 1910).

### The Forms of Desert Kites

Another potential method for understanding the function of kites is the investigation of their forms. These structures have various forms which reoccur in different regions. The first attempts at their classification were made at the end of the 20<sup>th</sup> century by Helms and Betts, who distinguished nine types (Figure 5a; Helms and Betts 1987), while Echallier and Braemer distinguished five main types with different subtypes (Figure 5b; Echallier and Braemer 1999). The typology of kites in Saudi Arabia has been made by Kennedy and others (Kennedy *et al.* 2015). Many researchers have mentioned the diversity of kite forms, however the most important questions—why these various forms emerged and why they are recurring in different regions—have not been addressed. The fact that the builders of kites precisely reproduced those forms in areas that are dozens of hectares large and thousands of kilometres apart from each other, indicates that form played an important role, stemming from the function of the kites. Therefore, the investigation of the forms and identification of their meaning is a direct way to unveil the function of kites.

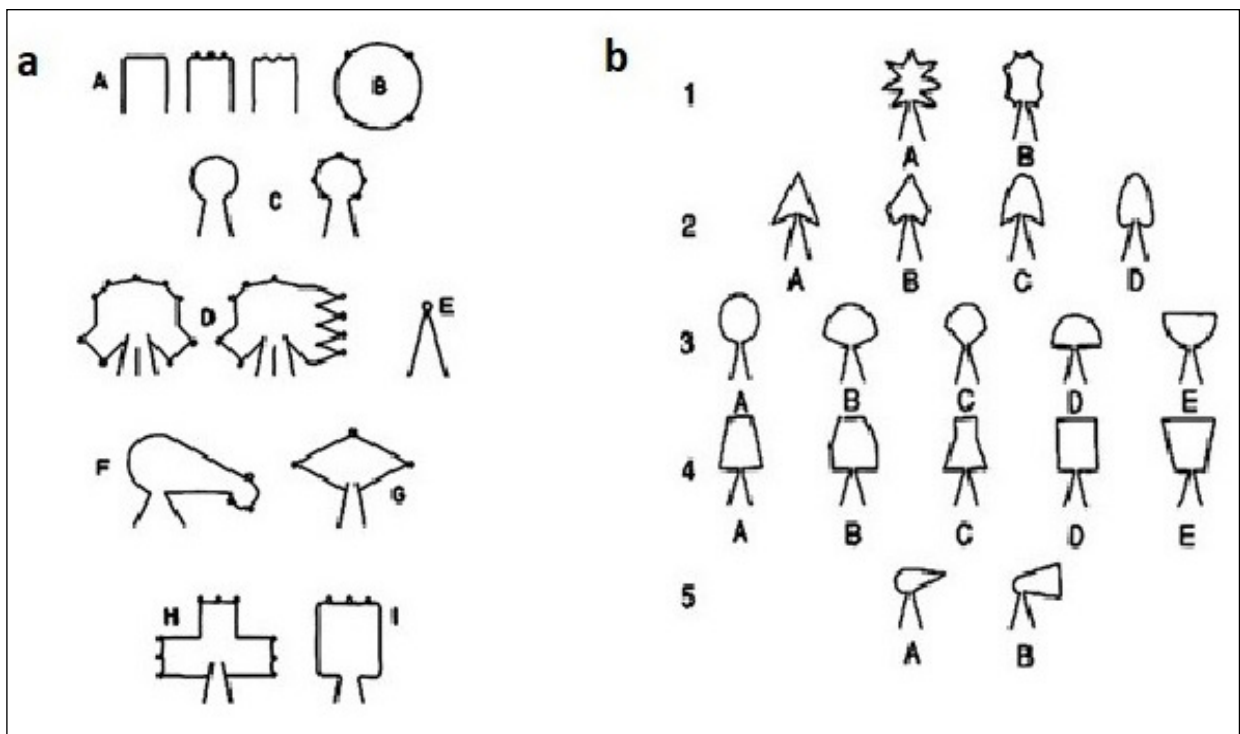


Figure 5. a) Typology of kites by Helms and Betts (1987); b) Typology of kites by Echallier and Braemer (1995).

One of the major gaps in the investigation of the kite forms is that no attempts have been made to search for these forms in contemporaneous Near Eastern imagery in order to reveal their possible meanings. The preliminary observations indicate that some of the kite forms are similar to the forms of the Neolithic stamp seals (Figure 6). The scenes depicted in the petroglyphs with kite depictions and the scenes on the seals are also identical, which suggests that some relation could have existed between them, which is yet to be understood. The forms of kites also have parallels in the Sumerian logograms which affords an opportunity to conduct investigations towards their interpretation (Figure 6).

Until recently, the forms of the kites were mostly regarded to be geometric (rectangle, circle, triangle, etc.), but new typologies indicate that they are much more varied. Some researchers have already mentioned that several forms of kites resemble certain objects, based on which kites were named: “arrow-shaped structures” (Yagodin 1991, 1998), “axe-shaped kites” (Echallier and Braemer 1995), “star-shaped kites” (Echallier and Braemer 1995; Helms and Betts 1987) and “sock” kites (Kennedy 2012). These resemblances, however, have only been mentioned in a mechanical way for the description of the kites, and no suggestions have been made as to the kite forms really representing certain objects or even animals.

The form of kites has always only been observed from one angle, but when they are turned and observed from different angles many of them became understandable and resemble the heads of various animals (calf, donkey, fox and lion) as well as other objects (Figure 7). In this regard, kites could be observed within the context of geoglyphs—large-scale representations of various animals and objects (Valenzuela and Clarkson 2018). The geoglyphs had a cultic significance, where images represented the worshipped deities or other ritual concepts, and kites could have the same function. This view is supported by the presence of mythological scenes and depictions of deities inside of the kites in the petroglyphs of Hemma, as well as the fact that, from prehistoric times, statues and depictions of certain animals and objects were used for the representation of deities. This is especially well expressed in the cultures of Ancient Egypt and Mesopotamia, where from written resources is known which animals and objects represented which deity (Budge 1904; Black and Green 1992).
















Forms of Kites	Forms of Stamp Seals	Sumerian Logograms
		 LAGAR
		 LAGAR
		 GA <sub>2</sub>
		 LAGAR
		 HI

Figure 6. Comparative table of the forms of kites, stamp seals and Sumerian logograms (after Denham 2018; Green and Nissen 1987).

## Summary

Kites are enigmatic structures, the function and origin of which are not well understood. This is due to the fact that despite their enormous size, these structures are usually devoid of *in situ* archaeological artefacts, which does not allow us to make judgments about their function.

For nearly a century, kites have been regarded as hunting traps for herds of wild ungulates. However, no direct evidence confirming this theory has yet been found. Archaeological excavations in game drives have uncovered large accumulations of weapons and bones inside of hunting traps, while in the kites

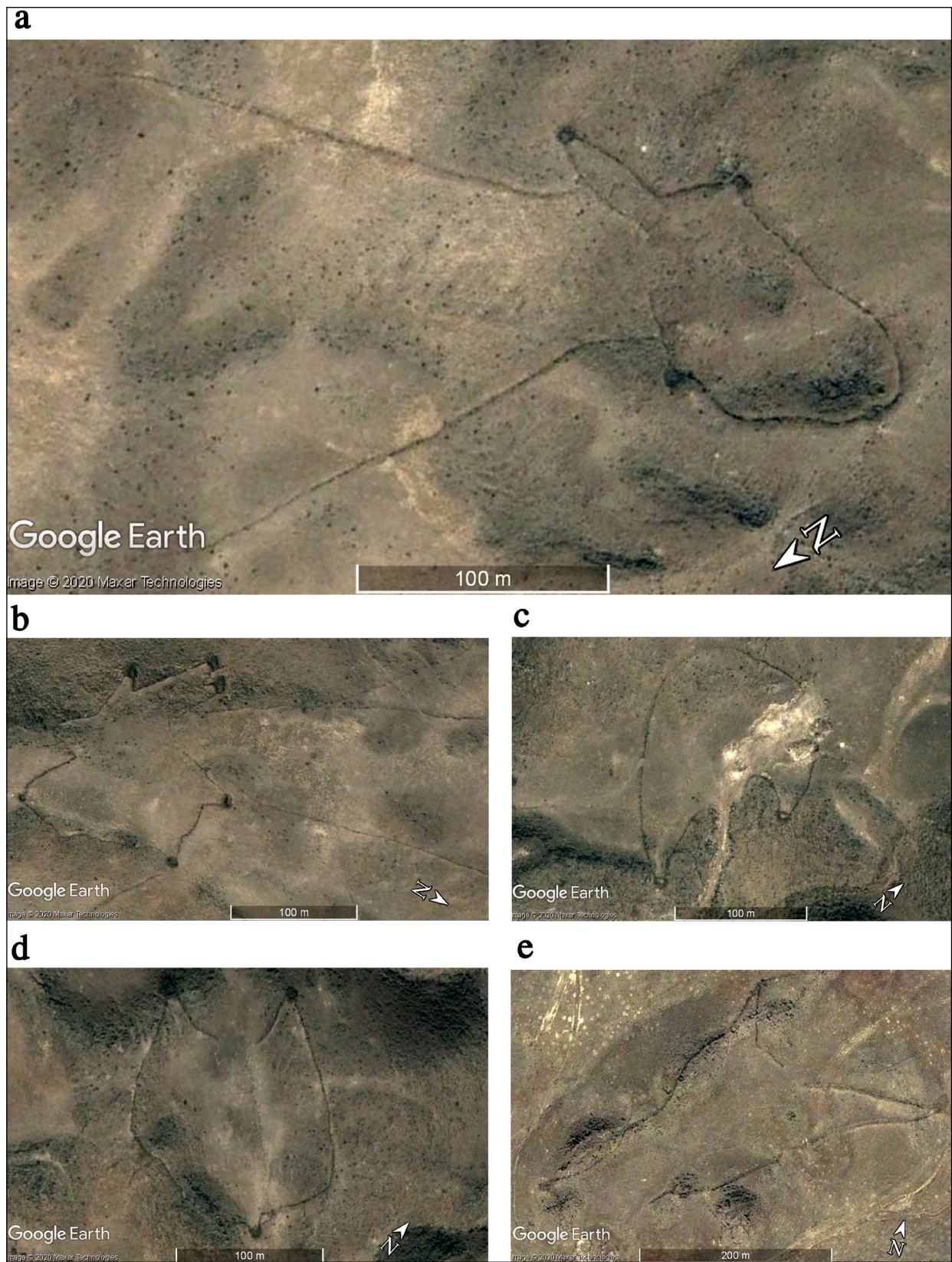


Figure 7. Forms of kites, that have shapes of animals and objects: a) Arteni, Armenia (calf); b) Aragatsavan, Armenia (lion); c) Aragatsavan, Armenia (inverted crescent); d) Aragatsavan, Armenia (fox); e) Lukashin, Armenia (donkey; author from Google Earth).

these do not exist. The hunting hypothesis is based on non-direct arguments, the examination of which indicates that they are problematic and do not validate the theory. Therefore, there is currently a need to review the function of kites.

In this paper, two methods are discussed that have potential to reveal the function of kites. The first method is the investigation of the petroglyphs of the Hemma Plateau in northern Syria. These petroglyphs occur in the vicinity of kites depicting the kites in the context of various scenes. The analysis and interpretation of these scenes will allow to us to make hypotheses about the possible function of the kites. The preliminary investigations suggest that petroglyphs with depictions of kites often represent mythological scenes which have parallels in Mesopotamian iconography. This has been mentioned in the literature, but this issue has not led to a revision of the function of kites. The presence of mythological scenes suggests that kites could have been used for ritual activities.

Another potential method for the understanding of the function of kites is the investigation of their forms. The diversity of these forms has often been mentioned in the literature, but no attempt has been made to explain their existence, the reason for their diversity or their meanings. The forms of kites have parallels with the forms of contemporaneous Near Eastern stamp seals and with the pictograms of the Mesopotamian proto-cuneiform script, which opens new perspectives towards their interpretation. The forms of kites also have the shapes of various objects and animals, which has never been discussed in the literature. This paper has put forward this hypothesis for the first time and further research and statistical analyses will be conducted to ascertain its validity. If this hypothesis is confirmed, kite structures will open new avenues and perspectives in the archaeology of the prehistoric Near East.

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# Peculiar Elements of the Built Environment: The Problem of ‘Special Rural Settlements’ and Identification of Rural Social Hierarchies. Archaeological Evidence from a Medieval Village in the Western Periphery of the German Central Uplands

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## Abstract

An extended archaeological excavation near Wetzlar-Dalheim (Hesse, Germany) has revealed a sequence of medieval occupation deposits belonging to a rural settlement dating from a period spanning from the Merovingian up to the late Middle Ages. Several features, associated with buildings and rubbish pits with building debris, as well as the artefacts found within are unusual for a peasant domestic space of the time. This paper investigates the significance of a group of specific features, while trying to find the meaning of these peculiar traces of the built environment and stress their social relevance and the possible special character of the settlement. I also consider a potential connection of the above to the iron metallurgy practised at the site, which is represented in the archaeological record.

**Keywords:** Medieval Rural Settlement, Abandoned Village, Built Environment, Social Elites, Economic Specialisation, Special Rural Settlement

## Introduction

In the archaeology of Central Europe, extensive excavations of medieval rural settlements rarely take place, compared to the traditionally high attention given to political or sacred centres such as fortified structures, churches and monastic sites. The lack of monumental features, complex stratigraphy, which is used for the construction of regional chronological frameworks, and the relative scarcity of finds, has led the medieval village to be considered a second-rate archaeological source. Another reason for the lack of study is the long-time domination of the concept of the village as a “location without history”, a romantic concept of a rural society which is inherently immune to historical changes (Schreg 2017, 101–102).

An exception to this lack of study is represented by rescue excavations. Due to their mandatory character and to the fact that they are undertaken in advance of construction projects, they sometimes affect large parts of medieval rural settlements. This was the case of the abandoned medieval village of Dalheim, near the city of Wetzlar, in the western periphery of the German Central Uplands, currently in the Lahn-Dill District of the federal state of Hesse (Figure 1).

Previous fieldwalking, several small-scale excavations and a large-scale geophysical survey, which was carried out in the context of rescue archaeology, confirmed that this ground contains archaeological remains from many time periods: from the Neolithic up to the late Medieval period. From 1999 to 2012 several activities, part of three research projects, made the investigations on the ground possible: fieldwalking, coring (which contained samples for radiocarbon dating) as well as test excavations (Schäfer 2002/2003, 195; Schäfer and Schroth 2008, 76–78; Walter 2011, 225–226).

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None of these activities can be compared in their extent with the large-scale rescue excavation that took place in 2006. This excavation took place because complex road construction works were taking place to enlarge a federal two lane-motorway, which had to cross through an area of the site. The results of this excavation represent the basis of my doctoral research and are the source of the finds discussed in this paper.



Figure 1. Central Hesse with the archaeologically investigated medieval sites (R. ZabolotnĚ and A.L. Schäfer).

### The Wetzlar-Dalheim Site

The existence of a medieval village named Dalheim on this ground (alternatively spelled as Dalheym, Thalheim, Daleheym or Dalhem) is demonstrated by the written evidence, field names and local oral tradition. The village was mentioned for the first time in 1226 (Wiese 1911, 3 Deed No.10). The documentary sources of the 14<sup>th</sup> century suggest that, around that time, this settlement was in the process of abandonment. Later documents refer to this terrain already as a deserted village or even as fields belonging to some citizens of Wetzlar, whose family members moved to the city from Dalheim and cultivated their inherited land parcels on the site of the abandoned village (Schoenwerk 1975, 44; Struck 1969, 198 Deed No. 397, 254, Deed No 502).

The free imperial city of Wetzlar, first recorded in 1141 CE (Wiese 1911, 1 Deed No. 1), reached the pinnacle of its economic success during the late Middle Ages. However, this time was also marked in central Hesse by violent military conflicts, into which Wetzlar was dragged. The first opponent of the ascending prosperous city were the Counts von Solms, whose lands stretched to the west and north of Wetzlar and whose residences, Burgsolms and Braunsfels, were located only a few kilometres away (Schoenwerk 1975, 146–147).

The only building that was not destroyed during the events of the late Medieval Period was the church or chapel of Dalheim (*Dalheimer Kirche/Dalheimer Kapelle*), as it appears on the maps of the 18<sup>th</sup> and 19<sup>th</sup> centuries (Fleischer after 1796; Riemann 1878, supplement map). Formerly the village church, it was situated on the limestone spur that dominated the landscape and was also used after the demise of the settlement: according to written sources it held services a couple of times a year. The building was abandoned and was gradually exposed to the elements after the Protestant Reformation spread into the area. At the end of the 19<sup>th</sup> century, the remains of the building were definitively destroyed in the course of limestone extraction.

A very fortunate discovery was made in the city archive of Wetzlar, where two illustrations of the chapel from the late 19<sup>th</sup> century were found, indicating the structure was already a ruin by that time. One of them is a photo taken by one of the Spalke brothers, a family owning a photography studio in Wetzlar at that time. Another one is a photographic reproduction of a painting by the local artist Carl Stuhl. Although the quality of both of these representations is relatively poor, these are the only two images of a building from the medieval village of Dalheim that we possess. In the right corner of the painting one can see, aside from the chapel, the valley of the Lahn River where the village was situated and, in the background, a structure likely to be the church of the Altenberg monastery.

The village was in an idyllic landscape. We can easily imagine this rural settlement laying on the low slopes on the right bank of the Lahn. The three highest points in this landscape, the village church, the Altenberg Monastery and, on the opposite side of the Lahn Valley, the Kalsmunt Castle, give us not only a picturesque impression but also a good spatial sketch of the medieval axiology, a kind of microcosm of a medieval world.

As a result of extensive economic activities, such as iron mining and smelting processes—afforded by the presence of rich iron ore in the central areas of the Lahn valley—and very active agricultural usage of the terrain, we have to deal with a case of a landscape heavily changed by humans throughout history. The limestone spur on which the chapel stood does not exist anymore—it was destroyed during limestone quarrying. The course of the Lahn River also changed during the last few centuries. Today there are no archaeo-topographical or earthwork features visible to the naked eye on the surface that could be connected with certainty to the past settlement.

These aspects have a specific impact on the methodology used in the analysis and intended publication of the results of this archaeological excavation, reflected particularly in the usage of old field maps and their combination with new aerial photographs and LiDAR data.

### **The 2006 Archaeological Excavations**

At the beginning of the 2006 large-scale project it was already known (via previous research) what the working team should be expecting. The excavated surface had a very specific shape for a rescue excavation on a motorway project: it was about 1.2 km long and 20 to 30 m wide. The advantage of this was that it represented a kind of cross-section of the entire ground, through the area where the densest settlement was expected. The disadvantage is that such long rectangular trenches are not very suitable for the interpretation and reconstruction of aspects like the settlement pattern or the form of individual parcels or gardens. The excavation resulted in the discovery of an astonishing number of features from different periods: Neolithic Linear Pottery Culture, Urnfield Culture of the Late Bronze Age, Early and Late Iron Age, Germanic settlement of the Roman times and medieval features, which represent the biggest part of all finds.

The medieval material raises many very interesting questions about this settlement and the archaeology of the entire region. Here it is important to note that the initial phase of the settlement dates to long before the first historical mention in 1226 and earlier than expected before the excavation. It already began in the Merovingian period with several pit-houses and pits dating from the 6<sup>th</sup> to the late 7<sup>th</sup> century CE. This means that this site is one of the earliest medieval settlements in the entire federal state of Hesse to be archaeologically investigated. We also have finds and contexts from the Roman Iron Age, the first to the 3<sup>rd</sup> centuries CE, and then few, but still present, finds from the 4<sup>th</sup> and 5<sup>th</sup> centuries, therefore it is very likely that the site was continuously inhabited from the Roman Iron Age until the 13<sup>th</sup>-14<sup>th</sup> centuries. The latter is the period from which the latest artefacts date, which coincides with the documentary evidence about the abandonment of the village.

### Peculiar Features and Finds

Among the various features such as pit-houses, post holes from surface timber constructions, hearths, wells and pits with diverse functionality, there are some features whose construction characteristics, or the finds located within, are not common for the architecture of a rural settlement, at least of this region and time. The first example is a cellar which is the foundation of a building (Figure 2). The wall of the cellar is executed in *opus spicatum*, a technique used since Roman times, which consists of stones laid in a herringbone pattern. The dry masonry consists of broken stones of an irregular, scale-shaped form. The cellar has a polygonal shape, its east wall was destroyed after the abandonment of the building, probably to extract and reuse the stones. The construction is approximately 6.6 m long and 4.6 m wide. The stage of preservation of this feature cannot allow us to understand whether the whole building was constructed in this technique or if the stone basement supported a timber or a framed timber superstructure. The pottery finds from the building pit as well as from the filling belong to the same time period and date this building to the 11<sup>th</sup>-12<sup>th</sup> centuries.

This cellar has three characteristics that make it unique for its period. Stone walls and/or stone foundations are quite unusual for a rural settlement in the late Medieval period in this region. Basements are also unusual for the time and the kind of settlement: typically the buildings are timber framed buildings on the surface and sunken buildings like pit-houses (at least as far as the simple peasant buildings are concerned). Lastly, the *opus spicatum* building technique is totally unexpected for this context.

Further research into this unique feature discovered analogies, initially on a regional scale. For example, the same building technique was found in several village churches or chapels in Hesse: in Wirbelau, city of Runkel (Lehmann 1994, 585), Schemmern, city of Walldkappel (Zietz and Wiegand 1991, 522), Niederellenbach, municipality of Alheim (Kemp 1997, 74) and at St Martin church on the Christenberg, municipality of Münchhausen (Dehio 2008, 666). In all of these cases, courses of *opus spicatum* were combined with other building techniques. All of them were built in the 11<sup>th</sup> or 12<sup>th</sup> centuries, in the same period as the cellar in Dalheim. Another example is a half course of *opus spicatum* (only half of a herringbone pattern) in a central stone building of the Gronau Castle in central Hesse. Its walls are otherwise built in a broken stone masonry or “rubble-work” (Görich 1951, 36–37). Further examples were found in two regions neighbouring Hesse, such as the basement wall of a city house in Erfurt (Thuringia), which is partially built in *opus spicatum* (Düsterdick 2001, 161; Kojder and Schäfer 2017, 75) and several churches in Westphalia, with foundation walls constructed from the same type of masonry, all of them built in the 11<sup>th</sup> and 12<sup>th</sup> centuries (Isenberg 2002, 347–348).

The churches/chapels and the castle mentioned above, represent sacred or residential buildings and all of them date back to the same time. The initial dating of the central stone building of the Gronau Castle to the 8<sup>th</sup> century seems to be constrained by the tendency of connecting it with the Saxon Wars

of Charlemagne (Bauer 1974, 12-13; Görich 1951, 41), despite the fact that the pottery finds indicate an undoubtedly later construction. No example of such masonry was found in a secular context within a medieval rural settlement.



Figure 2. Cellar 3066, Wetzlar-Dalheim (for this and further pictures: all scales are in the metric system, Heritage Preservation Department of Hesse).

In contrast to the stone cellar, other two features, situated spatially close to each other, do not stand out because of their constructive characteristics, but because of the finds discovered in them. One of them (Pit 4342), is a rubbish pit with a lot of building debris such as rubble, roof slates, mortar chunks, tiles from a tiled stove, corroded window-glass fragments and architectural elements. Another pit is presumably a lime pit or mortar pit, eventually reused as a rubbish pit, with 61 roof slate fragments, many of them with fixing holes (Pit 4430; Figure 4). In both of these pits an impressive quantity of pottery was discovered: at least 231 vessel units weighting ca. 16.8 kg, a big part of which represents the so called 'near-stoneware' and stoneware vessels of a very high quality. Almost all of them are pouring and drinking vessels. This ware, as well as other pottery from the feature (except the intrusive prehistoric samples), dates to the late 13<sup>th</sup> and 14<sup>th</sup> centuries. This period marks the appearance and development of the medieval stoneware with its preliminary stages like the near-stoneware (Figure 3). It was a new, superior kind of ceramic and its massive occurrence at a medieval rural site is strange.

Slate as a roofing material appears in archaeological contexts since the 13<sup>th</sup> century (Figure 4; Untermann 2009, 353). All similar findings come from castles, wealthy city houses and churches (for castles or other residences of the political elite: Atzbach 1998, 195; Heine 2000, 199; 2001, 324, 327-328; Schlicksbier 2000, 137-138 for the urban context: Rötting 1985, 120-121; for the religious context: Engelbach 1983, 73-74, 77). This is also valid for the fragments of window glass. Until the High Medieval period it was used almost exclusively in religious buildings, in later medieval times it can be sometimes found in some secular buildings too, but even these cases are examples of elite architecture (Kirchberger 1995, 79-80; Steppuhn 2002, 373).

The fragmented tiles from the tiled stove represent one of the earliest stove tile types known in the region and throughout Central Europe—the so-called ‘conical vessel-tile’. Such stove tiles were used in the 12<sup>th</sup> and 13<sup>th</sup> centuries (Roth-Heege and Dittmar 2012, 225). The tiled stoves of that period are interpreted as a sign of wealth in archaeologically investigated households (Haarberg 1973, 58).

Lastly, the stone column fragment and another architectural detail (Figure 5), possibly a base for an additional building element, are not typical elements of an ordinary peasant dwelling. However, it allows us to assume the presence of a building near these rubbish pits, filled with debris and waste from this building. Since the beginning of the research, upon first confrontation with these features and finds within, it was clear that they need special attention.

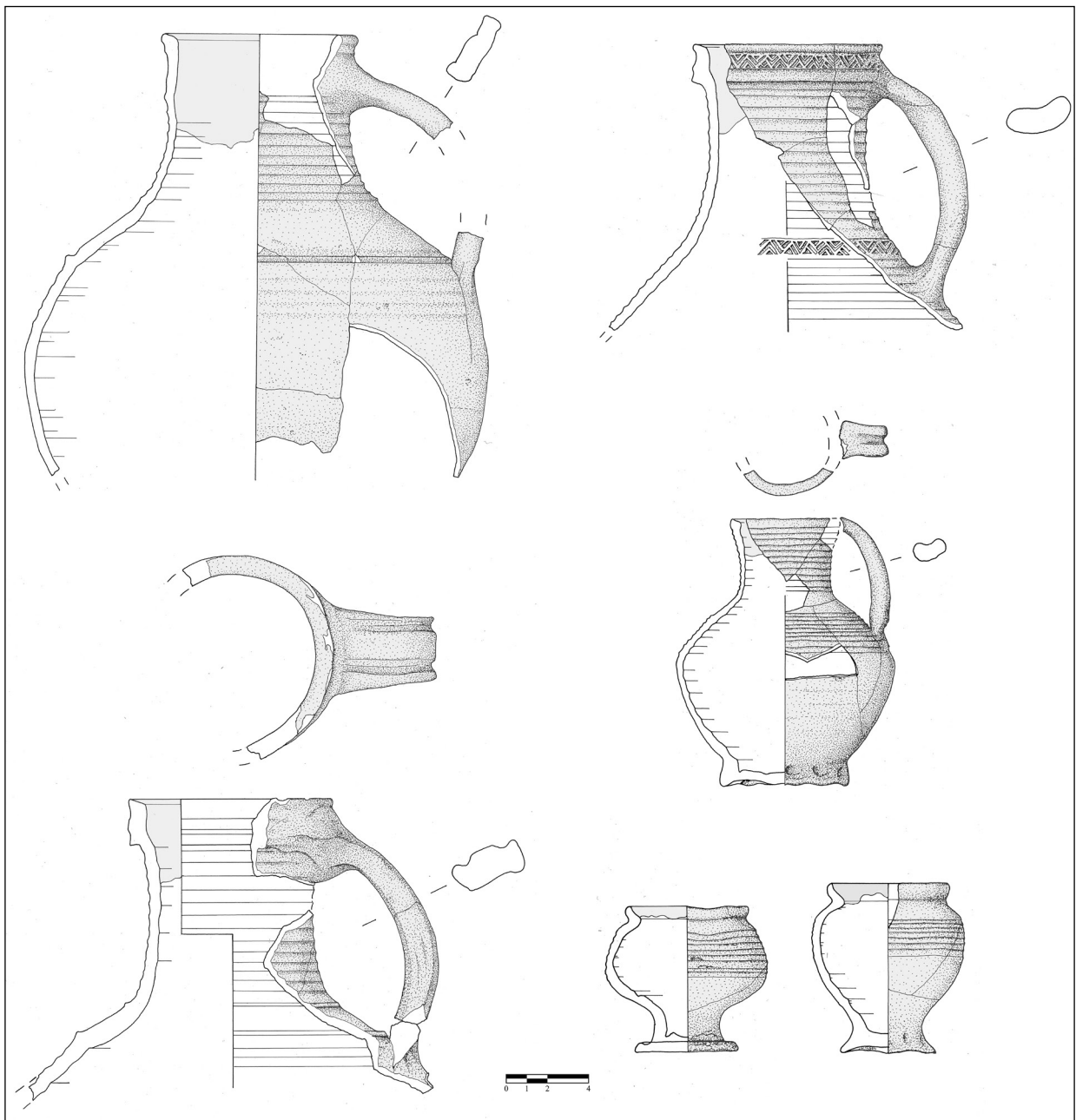


Figure 3. Stoneware and near-stoneware samples from the Pits 4342 and 4430, Wetzlar-Dalheim.

These features and finds have been further researched, and even though some may claim that they are not important for social, sociocultural or functional interpretation of the structures, this has been proved false. In the case of sites with large and well-preserved stone foundations, walls and medieval written sources the interpretation of an existence of a manor house is confirmed. However, with less information, the smaller features and finds as well as original methodologies are needed to research various interpretations of the structures.



Figure 4. Roof slate fragments from the Pit 4430, Wetzlar-Dalheim.

### Similar Cases and Interpretation

In other studies on issues related to the archaeology of rural settlements, similar cases are discussed, with the authors trying to provide an interpretation for them.

For example, in a medieval mining settlement focused on silver ore extraction near Birkenberg in the Black Forest (Baden-Württemberg), the presence of tiled stoves in every house is seen as a “clear mark of luxury” (Steuer 2017, 124). Tiled stoves, along with metal (especially silver) objects and ceramic and glass vessels, allows Steuer to claim that “the pattern of everyday life [in Birkenberg] was no different from that of the wealthy townsmen in Freiburg” (a neighbouring city; Steuer 2017, 124). There are other examples known in Germany, such as silver mining settlements in Sulzburg in the Black Forest, in Altenberg bei Müsen in Siegerland and several sites in the Harz Mountains (Steuer 2017, 128-131), as well as other similar examples in Switzerland, Bohemia, Moravia and Slovakia (Steuer 2017, 131-133). These kinds of settlements are also known in England. For example, the silver mining village at Bere Alston in the Tamar valley, Devon or the village of Lyveden in Northamptonshire, a community specialised in pottery production (Rippon *et al.* 2018, 184).

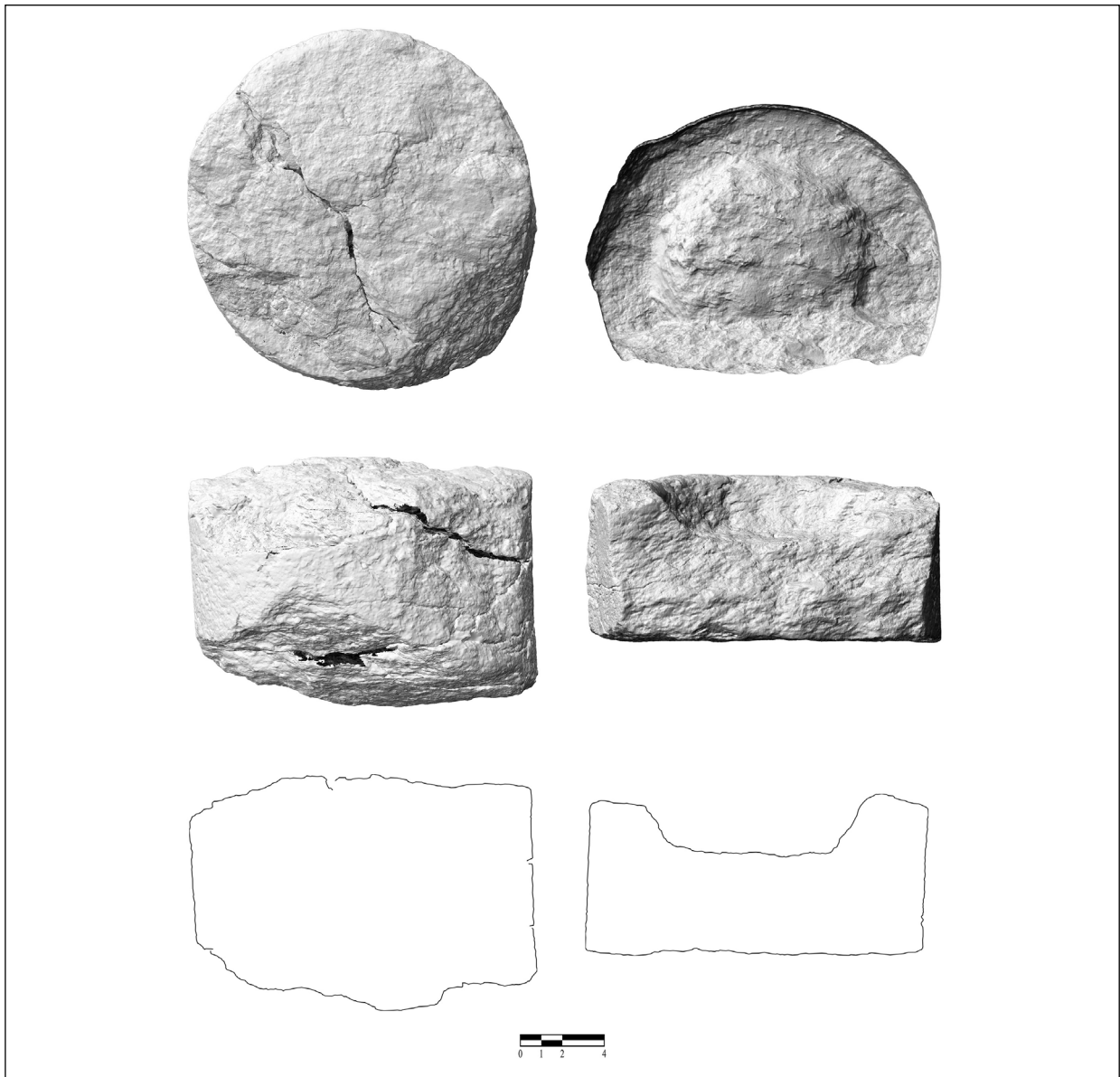


Figure 5. Stone architectural elements from the Pit 4342, Wetzlar-Dalheim. (St. Ott, R. Zabolotnîi).

The term “special rural settlements” is used for describing these settlements, as their focus was on exploiting resources other than farming (Steuer 2017, 123). The series of high-quality finds and features discussed in the literature are usually considered marks of the presence of elites in the medieval villages and used as criteria to identify these social groups.

It is also possible to identify several well-documented sites in south-western Germany, where the stone buildings and the cellars in these buildings are used as one of the criteria to identify the former residences of high-ranking individuals (Schreg 2006, 302). The same criteria is used for some villages in northern France, where the presence of window glass fragments and the stone architecture beginning in the 11<sup>th</sup> century received the same social explanation (Peytremann 2017, 193, Fig. 10). At the same time, the research shows that the presence of only one of these types of features or artefacts must not be seen as a criterion for the argumentation. Only a combination of as many find categories as possible allows us to consider an interpretation (Peytremann 2017, 193).

Turning back to Dalheim, it is not easy to interpret the high medieval building with the stone cellar. Despite its uniqueness in the context of a rural settlement, its humble dimensions prevent us from assuming that it could be a manor house. It is possible, however, that it was at least part of a wealthy household. In addition, another building, the existence of which is suggested by the finds from the two debris pits, is highly likely to have been a residence of the local elite: either local gentry or non-aristocratic administration representatives.

The presence of a lower nobility in the village of Dalheim can only be supposed based on several known historical documents, which deal with the transfer of property. In the medieval documents mentioning this village there are at least two persons with the particle 'de' in Latin or 'von' in German in their names, a prefix designating noble titles: Conradus de Dalheim/Konrad von Dalheim (1300 CE) (Wiese 1911, 230 Deed No. 488) and Ludewicus de Dalheim/Ludwig von Dalheim (1303 CE) (Wiese 1911, 249 Deed No. 534). The problem is that in the Middle Ages this particle was not only used as part of a noble title, but also to indicate the origin of a person, in these cases, meaning 'from' a certain village or a certain town.

There is another very interesting clue, which could shed more light on the issue discussed here. In a study about the history and topography of the city of Wetzlar and its surroundings, written by Friedrich Wilhelm Baron von Ulmenstein in 1802, there is a very short textual mention of the fact that, at the beginning of the 19<sup>th</sup> century, some parcels of past households of the village of Dalheim were still identifiable on the surface, as well as the remains of an enclosure with stone ruins of a building, which the author associates presumably with a small castle located in the village (von Ulmenstein 1802, 61). There is no reference to the precise location of these structures. We can only guess the ruins mentioned by the Baron von Ulmenstein could indeed relate to the archaeologically investigated features described above.

Except the argumentation based on the presence of social elites, there is another reason that could explain or complete our explanation of this specific archaeological data. The region where Dalheim was located is an old iron mining region. The rescue excavation of 2006 has brought some features associated with iron working, such as pits with slag. These kinds of pits are frequently found close to the iron smelting bloomeries. In total, there are at least eight similar pits with slag, dating from the Carolingian to the High Medieval period found on the site. A number of Iron Age smelting kilns are also known from earlier excavations here. The iron working practised here actively since the Iron Age may be a reason for the pronounced signs of wealth found at the site.

In this regard, it is worth mentioning the high proportion of imported wares among the general amount of the medieval pottery found at the site. The presence of early and high Medieval period ceramics such as Mayen Ware, which was produced in the Eifel region and Pingsdorf Ware from the Rhineland piedmont is very suggestive. When combined, Mayen Ware and Pingsdorf Ware account for 4.28% of the fragments and 4.37% by weight of the total medieval ceramics from the 2006 excavations. If we add the Mayen and Pingsdorf wares with the late medieval near-stoneware and stoneware (which for Dalheim is also imported ware), they reach 13.59% of the total number of fragments and 18.45% by weight. This gives a perspective on the integration of this rural settlement into the trade network of the time. The majority of the near-stoneware and stoneware fragments seems to have been produced in the Rhineland, having close analogies to the early Siegburg production (Beckmann 1975). Due to the very similar visual appearance of such vitreous or semi-vitreous wares in the different production centres of the Late Middle Ages, it is hard to determine its origin without the use of scientific analysis.

Some relevant information is expected from the zooarchaeological analysis of the animal bones currently in progress. The bone material from Dalheim is abundant and has a very good level of preservation. The particularities of the samples from the features discussed here could show special consumption traditions of the residents, suggesting an upper social rank and facilitating the interpretation of the available data. At this stage of the research it would be correct to leave this question open. Only after the completion of the typology, statistics, distribution and chronology of finds, as well as the analysis of other features, especially of those associated with iron metallurgy, will it be possible to find an optimal explanation for these special archaeological traces.

## Conclusion

The medieval village of Dalheim, with its history stretching over 800 years, can give us a rare and valuable chance to track the development of a rural community throughout the centuries. Moreover, it allows us to detect the traces of social differentiation embodied in material culture. The different, diachronic occurrence of such characteristics touches on some important and perennial questions from the field of social sciences, above all regarding the strategies of social representation through new or special techniques in the built environment, domestic equipment and prestige goods. If the common presence of household wealth in Dalheim could be connected with the local specialisation in the exploitation of iron ore and iron smelting, it would be possible to consider this village as a “special rural settlement”.

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# The Fort-Towers in La Rioja (Central-Northern Iberia): Conservation Status and Rehabilitations

Isaac Martínez-Espinosa<sup>1</sup>

## Abstract

The Ebro Valley of the Iberian Peninsula was throughout the Middle Ages (711-1482 CE) a space of struggles between Christians and Muslims first and among Christian kingdoms later. Despite the existence of a large number of disputes throughout the period, it also established a very heterogeneous space for exchanges of people, objects, cultures, heritage and societies. The two elements that structured the region were the pilgrimage route to Santiago de Compostela on the one hand and defensive architecture on the other. In the Autonomous Community of La Rioja (Central-Northern Iberia), there were more than 130 examples of defensive architecture divided into eight typologies. Among them, fort-towers account for 30% of all buildings. They were especially common during the 14<sup>th</sup> century, although their construction takes place between the 11<sup>th</sup> and 15<sup>th</sup> centuries. From then on they became practically obsolete. Today there are only 18 left, of which only seven have undergone some kind of restoration, while the rest are likely to disappear. The objective of this paper is to study the restoration materials, the restoration campaigns that have been carried out and the enhancement of these seven buildings, five of which have been rehabilitated for private use and two as recreational spaces, giving them a second life so that they can be enjoyed by all of us.

**Keywords:** Castles, Fort-Towers, Restoration, Archaeology and Middle Ages

## Introduction and Methodology

### *Introduction*

It is difficult to find a landmark that absolutely defines a period as vast as the Middle Ages (711-1482 CE). Among them, we must surely mention the cathedrals, the codex sets, the monasteries and, obviously, the castles. The Iberian geography is scattered with instances of defensive architecture of various dimensions, shapes and states of conservation. They are especially abundant in the border areas near land and river communication routes, for example in the area under study, the ancient Roman roads and the Ebro Valley. Those border areas were the limits between the Christian and Muslims kingdoms (Jimeno Jurío 2006, 81). These spaces were very dynamic and not very stable because they changed with certain frequency, but at the same time, they were places of great transit of people, merchandise and materials. The Ebro Valley was the border between Navarre, Castile and Aragón.

In the current Autonomous Community of La Rioja, more than 130 examples of defensive architecture of eight kinds coexisted. These will be briefly analysed in this article. The main architectural type was the fort-tower. This was a space which focused the administrative, judicial, economic, military and legislative powers of the locality in which it was situated.

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In the area under study 35 fort-towers coexisted. Unfortunately, over the centuries, the number of towers has decreased because many of these buildings were abandoned due to the lack of a defensive function. We currently preserve archaeological remains of 18 towers and only seven of them have been restored, leaving a poor balance in the Riojan heritage. Within the castellological diversity, a singular element such as the formal diversity of its openings, access on the first floor, or the almost total absence of other annexed defensive elements such as walls or moats. These are found in all these towers.

The main objective of this paper is to present the restoration work that has been carried out in the towers of Anguciana, Baños de Rioja, Herce, Lumbreras, Muro de Aguas, Préjano and Torremontalbo, the materials that have been used for it and the uses currently given to them.

A brief analysis will be made of the geographical and historical context with which to centre the moment and place for the construction of the fortresses. I will define the other types of defensive architecture that are in the area, as well as the main original materials with which they were constructed to be able to establish the differences with respect to the new materials. I used primary and secondary sources to write this article. Different bibliographical sources have been used and the towers have been visited in order to check and photograph the current state of the buildings.

### ***Methodology***

To research this paper, a methodology divided into two large parts, fieldwork and desktop analysis has been used. The first phase consisted of a literature review of all the books and articles that could be of interest, reviewing all the relevant publications that could be related to defensive architecture, restoration or dissemination of this type of heritage. At the same time, all the towers included in this paper were visited in order to see their current status, obtain the visual material that could be needed and know if more restorations were going to be carried out in the near future. With all this, tables were created in order to systematise and summarise all the data obtained in order to create an overview of the state of the towers in La Rioja and prepare the article and the presentation.

## **Geographical and Historical Contexts**

### ***Geographical Context***

La Rioja is a geographical space created by the Ebro River and all its tributaries in the north and the mountains in the south. The main economic areas are in the north. The Ebro Valley and its tributaries occupy a good part of the upper third of La Rioja region and runs between the Sierra de Cantabria in the north and the Iberian System in the south. The highest point is in Haro, at San Lorenzo, around 2300 metres above sea level (García Ruiz and Arnáez Vadillo 1994, 37) and the lowest in Alfaro, with a difference in altitude of 200 metres. There is a Mediterranean-continental climate (with mild winters in the valley and cold in the mountainous areas and very hot summers in the valley area; García Ruiz and Arnáez Vadillo 1994, 130).

Both the river courses and the mountain ranges that surround them were formed during the Tertiary and the Quaternary epochs and therefore contain large quantities of clays, conglomerates, limestones, marls, gypsums and sandstone (García Ruiz and Arnáez Vadillo 1994, 46–49). This soft composition of the soils and the gentle slopes of the mountains make the valleys an ideal space for the creation of caves or hollows in which to develop the first defensive architecture that overlooked the communication routes.

The valleys in La Rioja were a border space between the kingdoms of Aragón, Castile and Navarre from the 11<sup>th</sup> to 15<sup>th</sup> centuries. Being a border space implies the confrontation and exchange of people, cultures, artistic influences and business activity between these kingdoms. This is what has encouraged the creation of defensive and military architecture everywhere, for example mountains, hills, valleys and villages, designing a landscape full of castles during the Middle Ages.

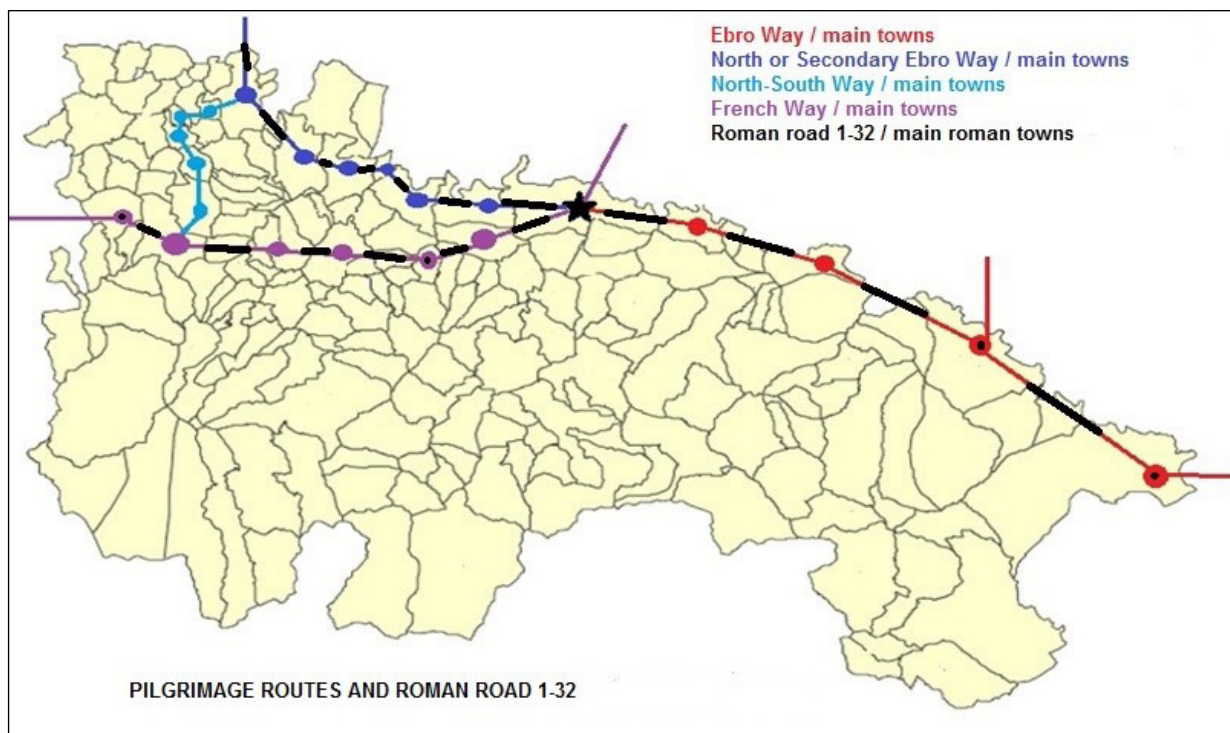


Figure 1. Pilgrimage routes to Santiago de Compostela and Roman Road 1-32 (author).

During the Middle Ages there were two main roads of communication and commerce. The two pilgrimage routes to Santiago de Compostela in La Rioja, divided at the city of Logrono into the North or Secondary Ebro Way and the French Way, but both ran on the known Roman road 1-32 and the secondary roads (Figure 1). The roads were active until the 15<sup>th</sup> century (Arnedo Franco and Urbina Merino 2000, 24). In the 10<sup>th</sup> century, the Ebro Way ascended about five kilometres from Tritium to nearby Nájera when it became the capital of the Najera-Pamplona Kingdom between 923 and 1113 CE.

### **Historical Context**

Historically, La Rioja was a space with very permeable and dynamic border areas in which the existence of the route to Santiago was necessary to understand the richness and social, economic, political, artistic, cultural and religious diversity of the province. The quantity and quality of monasteries and castles was a good example of the expansion of this power, for example San Millán de la Cogolla and Davalillo (De la Iglesia Duarte 2002, 196).

Between the 8<sup>th</sup> and 11<sup>th</sup> centuries, the Muslims controlled areas in the Ebro Valley. Javier García Turza (Pascual 2006, 13) affirms that this space is where the conflicts started between the Muslims, who wanted to reach the Middle Ebro Valley (from Haro in La Rioja to south of Alava to the riverbank in Navarre and to Zaragoza in Aragón) and the Christians who wanted to control the Muslim's territories. The borders and the castles that defended the valley were shaped like those at Nájera and Viguera, in

the kingdom of Navarre, and whose fortresses Muhammad ibn Lubb (844–898 CE) reconstructed in the second half of the 9<sup>th</sup> century (Moya Valgañón *et al.* 1992, 16). The delimited space between Calahorra and Zaragoza was known as the East Septentrional Border of the Christian kingdoms and the control of the passage of the Cidacos that links the plateau with the valley became something of vital importance. The Christians conquered castles like those of Arnedo, Cornago, Nájera, Tudela, Ablitas or Cortes, towers such as Inestrillas, Herce or Préjano and places like Albelda between Ordoño I and Musa ibn Musa in the 9<sup>th</sup> century (Moya Valgañón *et al.* 1992, 14).

In the 10<sup>th</sup> century, the area was controlled by Muslims. The Banu-Qasi (Sesma Muñoz 1994, 22) was the dominant family of the area between Calahorra and Zaragoza, around the Ebro tributaries (Jimeno Jurío 2006, 81). This family built several fortresses to control the old Roman road between the rivers Duero and Ebro. They improved the infrastructure and roads to connect very important cities such as Logroño, Calahorra, Tudela, Tarazona or Nájera. One of the most important moments was the definitive incorporation of Calahorra into Navarre in 1045 CE (Pascual 2006, 11). During the second part of the 10<sup>th</sup> century, Navarre and Aragón monopolised the control of the entire Septentrional Border. The area gradually moved from Muslim to Christian control, the *Tenencias* a practice widely used by the Navarrese kings during the La Rioja campaign (Pascual 2006, 11). The *Tenencias* were ruled by the *Tenentes* that depended on the kings or other lords; at their side, there were administrative officials known as *Merinos*.

During the 11<sup>th</sup> century, borders between the Christian kingdoms and the power in the region became well defined; the Ebro became the border. The southern side of the Ebro was in the hands of Castile and the northern was Navarrese. Aragón wanted the localities of La Rioja Baja like Alfaro, Cervera and Calahorra. The García Ordóñez and Urraca families based in Nájera controlled the central area, and the López de Haro family ruled the Rioja Alta and its periphery (Moya Valgañón *et al.* 1992, 27). In the south, the Lords of Cameros controlled Arnedo, Jubera, Ocón, the castles and the roads (Moya Valgañón *et al.* 1992, 26).

The 12<sup>th</sup> century was a period of great tension due to the pressures between Navarre and the Muslims. It also is when the monasteries started to organise and control part of the region. San Prudencio de Monte Laturce in Clavijo, San Martín in Albelda, Santa María la Real in Nájera or San Millán de la Cogolla were the most important monasteries, they became places where religious, political, cultural and administrative powers converged (Pascual 2006, 11).

During the 13<sup>th</sup> century, the Lopez de Haro family controlled La Rioja, especially the *Señorío* de Cameros, the most important *Tenencia* in the south. Their relationship with the Castilian monarchy was not always friendly and they sometimes ended up allying with the Navarrese king during the second half of the 13<sup>th</sup> century. In the last part of this century, the four most important families in the area were excluded from the succession in Castile and this became the start of the Castilian Civil War between Pedro I of Castile and Enrique II of Castile (of the Trastámara house) a few years later (1366–1369 CE) (Moya Valgañón *et al.* 1992, 40).

The hostilities began with Alfonso XI and the disputes between his lover Leonor de Guzmán (mother of Enrique II de Trastámara) and his wife María de Portugal. These circumstances led to a war of succession that ended with Enrique II as monarch after the battle of Montiel in 1369 CE, the establishment of the house Trastámara in Castile and the end of the dynasty of Burgundy. In this century, the main families in La Rioja were Velasco, Guevara, Zúñiga, Lopez de Haro and Ladrón (Moya Valgañón *et al.* 1992, 44–49). They controlled the territory until the 15<sup>th</sup> century.

## Types of Defensive Architecture in La Rioja

In La Rioja (Figure 2), there are more than 130 examples of defensive architecture, which have been divided into eight styles and centuries. Fortresses in La Rioja during the 5<sup>th</sup> to 10<sup>th</sup> centuries took the form of caves or *Penas Bravas*, watchtowers and castles in rocks. During the 11<sup>th</sup> to 15<sup>th</sup> centuries they took the form of castle-fortresses, fortified palaces, walls, *cortijos* and fort-towers. The most common is the fort-tower, of which there were 35 discovered in more than 30 villages. Today we can visit 18 of these towers, of which seven are in good condition. Fort-towers were an element of power, control and defence among other castles of bigger size.

Before the 10<sup>th</sup> century, we can distinguish three types of defensive architecture. The oldest are the rock fortifications or *Peñas Bravas*. They are common in the valleys of the eastern tributaries of the Ebro such as Najerilla, Iregua, Leza, Cidacos and Alhama. They are artificial caves in the hills with walls, palisades, adobe and hollows. In the trusses, wooden steps were added as bridges or drawbridges. Some of them were used since the 12<sup>th</sup> century as houses, pens and chapels.

Surveillance towers and watchtowers were built among other defensive systems. Their aim was to control and warn the populace before the enemy arrived by signals, allowing the fast communication between other defensive systems and the interior of the cities using different types of acoustic, luminary and visual signals. Their conservation status depends on the difficulty to access and study them.

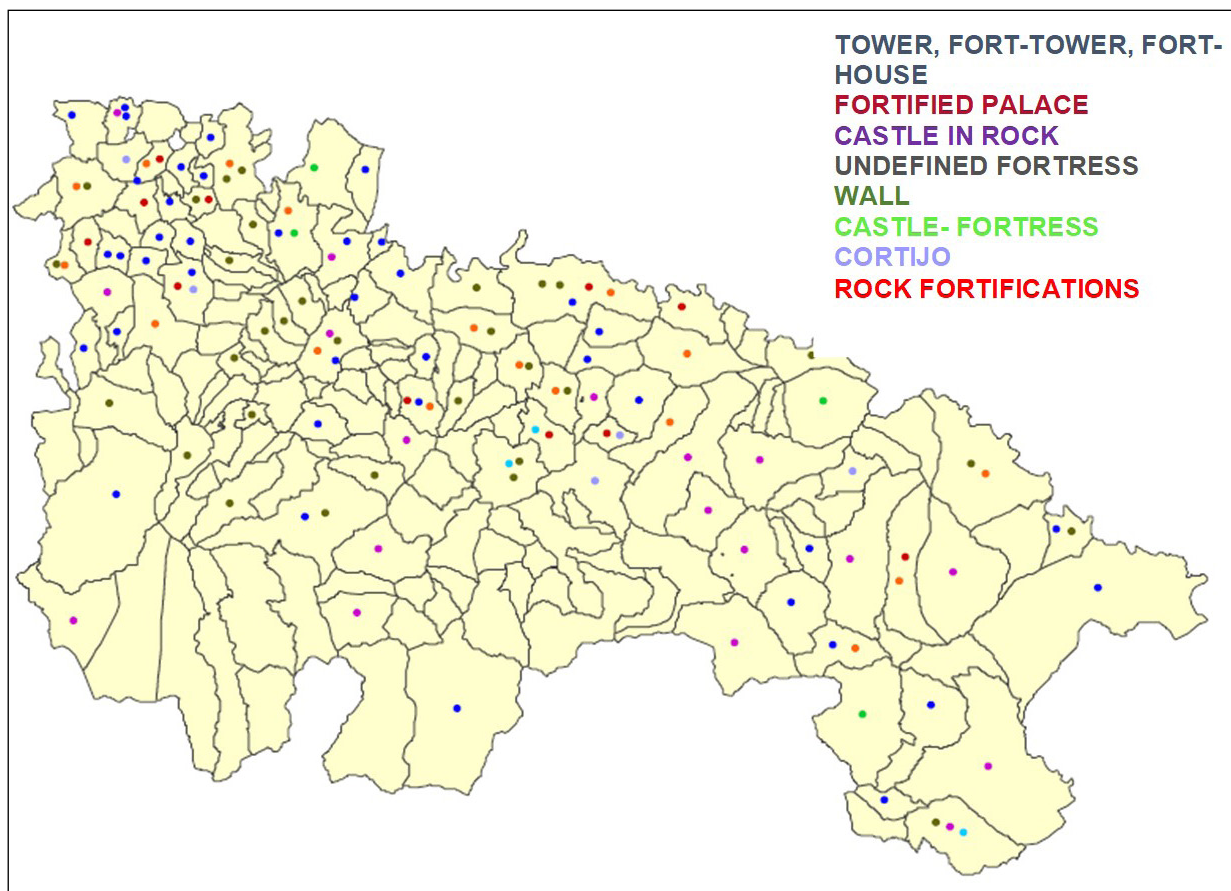


Figure 2. Defensive architecture in La Rioja (author).

Castles in rocks were built on inaccessible hills and mountains. They accompany other castles as previously seen. The best example is Clavijo, near Logroño. Its ergonomics adapt to the place and normally they are of Muslim origin. They do not have a habitation function, only defensive. During the 10<sup>th</sup> and 11<sup>th</sup> centuries, we find additions, reuses and rehabilitations that modified the original aesthetics.

Between the 12<sup>th</sup> and the 15<sup>th</sup> centuries, we can find city walls and four types of castles: castle-fortress, fortified palace, *cortijos* and fort-towers. The castle-fortress is distinguished by its exterior defences following the same criteria as the castles in rocks. The keep is usually quadrangular and made with stone and filled with boulders. Floors are supported by wooden beams that also support the walls. They have a varied typology of openings, from narrower ones in the interior part to wider ones in the upper areas.

The second type is the fortified palace. Normally, it was built on the plains and we can find two models. The first have a rectangular or square perimeter wall with towers in its vertices (*Sajazarra*), and the second has a square layout with towers in the corners (*Cornago*). The walls are constructed of two edges filled with rolling stones. The central courtyard has internal divisions of wood.

Thirdly, the *cortijos* are concentrations of buildings, normally houses, with an interior patio or a fort in small towns such as Aldeanueva. The *cortijos* had defensive towers formed by the bell towers of the churches and chapels that were fortified for that purpose, becoming authentic bell towers—fortified as in the case of Santa Eulalia Somera.

City walls were common in the bigger cities. At the beginning, they were made of adobe and palisades and their function was to delimit the urban territory. From the 14<sup>th</sup> century, they were built with two sandstone walls and filled with boulders, lime, sand and gravel. Sometimes towers were added.

### **Fort-towers: Original and New Materials for Rehabilitations**

The history of the fort-towers started in the 11<sup>th</sup> century, but 90% of the constructions date to the 14<sup>th</sup> century. Beginning in the 15<sup>th</sup> century their popularity decreases and their abandonment began. This typology makes up 35% of the defensive architecture of La Rioja.

Normally, they are built within towns, such as Baños de Rioja, Villalobar de Rioja, Cenicero, Cellórigo, Mahave and Préjano or in their vicinity, in the case of Foncea, Muro de Aguas, Ábalos Herce and Lumbreras. The towers were close to each other, which allows for visual control between them, improving the defensive capacity of the whole, constituting a defensive system between several of them and larger castles. Those that are located in high places have a greater defensive character, because they offer a better defence given the difficulty to reach them. Sometimes they were built on mountain slopes (*Inestrillas*) or on top of them to control more territory (*Herce* and *Préjano*).

From the 13<sup>th</sup> century, the towers change from having a defensive function to a family home. They were well-equipped houses with kitchens, bathrooms and domestic rooms. The lord of the village had the administrative, military, political, social and economic control. The lords demonstrated their influence and power in front of the common people with taxes and bureaucratic functions that were centralised in these places. There were restrictions for the construction of new fortresses and limitations to the repair of existing ones. The nobles, to demonstrate the power over the population, forced their vassals to work in deplorable conditions, even going against the *fueros* (royal laws made to attract more population to the town), general royal laws and other provisions that protected them (Sesma Muñoz 1994, 171–178).

The tower's popularity declined in the 16<sup>th</sup> century when the internal borders were stable. For this reason, the fortresses of La Rioja gradually lost importance and many were abandoned (Pascual 2006, 13). Nowadays only seven are beginning to be restored.

The fort-towers are square or rectangular in shape as in Anguciana and Baños de Rioja, although there are polygonal ones like Préjano and Muro de Aguas and with three or more floors like Torremontalbo. They continue to contain the previously seen order of bays in the buildings of the Late Middle Ages, from the narrowest and simplest in the lower part to the widest and most diverse in the upper levels. The entrance was originally in the first floor, which was accessed by means of a ladder of wood or rope that was removed after its use maintaining some defensive character. Defensive systems were completed with slopes, walls or moats, but these were not very common in La Rioja.

The construction of a tower began when a lord requested permission for its construction from the monarch and an ideal location was sought depending on the purpose (Martínez Espinosa 2016, 51). Among the original materials, we can distinguish mainly two: stone and wood. These are the most used elements for defensive constructions. Stone was used for the walls. Wood on the other hand was used for the interior panelling of all towers, palisades, buildings annexes and internal divisions.

The most common stone to build castles, walls and towers in La Rioja in the Middle Ages, is sandstone. It is simple to extract and shape. It is a short-lived stone, which is affected by rain, pollution, winds and moisture. It is common to find spots of moisture and vegetation on the walls, which aggravates its poor condition. Most of the fort-towers are found in La Rioja Alta, where the quarries can be found in Ábalos, Sajazarra, Fonzaleche, Briones, San Asensio Casalarreina, Tirgo and Cuzcurrita de Río Tirón.

Wood in turn seems to be an abundant material during the Middle Ages in La Rioja Alta but not in La Rioja Baja. There were large forests between Haro and Santo Domingo de la Calzada, for example in Ayuela and throughout the Sierra de la Demanda (Martínez Espinosa 2016, 28). The use of this wood was very common, not only for defensive architecture, but also in many homes beginning at the end of the 14<sup>th</sup> century. Mainly poplar, oaks, pines, holm oaks and beech trees were used.

Wood was used for interior floors and roofs in which tile and wood were combined. The deterioration of these buildings begins with the loss of their roofs, at which time the problems begin. In the rehabilitation processes, these types of original and local materials are used in order to maintain stylistic coherence.

Other widely used materials are brick and tile made of baked clay. This is a traditional material and is abundant in La Rioja since Roman times with the development of *terra sigillatas* throughout the Najerilla area. Beginning in the 10<sup>th</sup> century (although especially from the 12<sup>th</sup> century) the Arabic roof tile is used instead of the Roman roof tile; the first is arched and the second is flat.

The construction of the fort-towers began with the foundation and scaffolding of wood and rope, while wood and stone were collected. The most commonly-used technique consisted of two parts of the wall being filled with boulders, waste material from the quarry, lime, sand and water. This was a construction system with which costs were reduced since the walls were not massive, although they were not narrow. The thickness of the walls ranged between 1.40 m from the Torre de Baños to 5.15 m at the Torre de Herce placed in rectangular, quadrangular or trapezoidal layouts. The stone work was finished with plastering, whitewash and wall paintings. There are two elements that are unique in the defensive constructions in La Rioja, the moats and the slope that coincided in the Torre de Préjano, creating an inclined plane and a perimeter pit. The heights of the fort-towers were very diverse, usually between 15 and 23 m.

The walls, regardless of their thickness, are covered with openings that are spatially organised, leaving those of smaller size in the lower levels and in the upper levels those of larger size and with varied typologies. Access is always on the first floor, which is accessed by a hanging wooden ladder. If the original floors have not been preserved, we can distinguish them by the support points of the beams. Internal frameworks were made with local wood. For this, works of carving and joinery are used. In addition to the slabs, stairs or floors, they were used for palisades or exterior defensive architecture. Scaffolding and cranes also required woodworking. Although the most commonly used woods were the holm oaks, pines, beech and poplars, some of more durability were used such as iroko or oak which could be coated with paints and varnishes.

Rooftops are poorly known because the originals have not been completely preserved. They were crowned or closed with clay tiles of Arabic type, an aspect that has remained until today, although in the last restorations they have been replaced by flat terraces and metal and plastic materials for the enclosures. The old racks were made of wood, but today metal slabs have replaced them. The restored towers are Anguciana, Baños de Rioja, Lumbreras, Préjano and Torremontalbo.

On many occasions, the restoration or transformation of the buildings is done for new business or, in the worst cases, they end up as a quarry for the raw materials, as we have seen in the Herce tower, which ended up being used for the construction of the chapel of El Salvador. For the restoration of the castles, old materials such as stone, wood, brick and tile have been used, but new materials are also being used, for example metals or plastic elements. Other stones of the same type, but of new sources, replaced the ashlar which are in a deplorable state or have disappeared. In the case of the Torre de Baños de Rioja, all the ashlar were replaced, and new ones were installed in order to create a terrace area instead of the original roof.

In restorations (when a building is repaired but still with the same use), transformations (when the building is transformed for another use), rehabilitations (when a building is restored for another use), emergencies (when emergency intervention is necessary to prevent loss of the building) and/or consolidation actions (when the building needs to repair a part even if it is a ruin), the use of new materials such as concrete, cement, metals, plastic or glass is common. To avoid misuse of these new materials and any damage to the original construction, the Spanish Historical Heritage Law (16/1985, 25<sup>th</sup> June, *Patrimonio Histórico Español*) and the La Rioja Cultural, Historical and Artistic Heritage Law (7/2004, 18<sup>th</sup> October, *Patrimonio Cultural, Histórico y Artístico de La Rioja*) must be applied, taking into account that since 1949 the Spanish state issued a Decree (22<sup>nd</sup> April 1949) on the protection of castles.

The most common new materials for restorations are concrete and cement (Figure 3). There is a debate about their use since the Athens Charter of 1931, the first international document on restoration and conservation (González-Varas 2008, 467–469) and in the Venice Charter of 1964, which updates the one from Athens after World War II (González-Varas 2008, 469–472). Although the use of these charters must be careful, many times the criticism is based on an aesthetic issue but not on the need for the consolidation of the castle. Normally, an exterior framework with a reinforced metal interior and a filling of concrete or cement mixture is created. On many occasions the use of these new materials, although not recommended, allows one to keep a monument rather than lose it forever. To preserve the original material as well, they use removable fixes.

The use of metals for construction begins at the end of the 18<sup>th</sup> century in England and extends throughout Europe in the 19<sup>th</sup> century. The wooden structures were replaced by wrought iron or steel as beams in construction and for stairs (Figure 4). Minor elements such as panels, windows, gates, pipes and protection fences are also created in metal. Within the restorations they are given varied finishes so that they have different textures and appearances. In addition, we can find them in the machinery that



Figure 3. Different uses for concrete: left: Crown in Anguciana; right: Wall in Herce (author).



Figure 4. Stairs in Briones (author).



Figure 5. Information panel in Santurde de Rioja (author).

is installed as boilers and elevators. The last materials that are used mostly in restoration are crystals, glasses and plastics in many modalities. They are very popular in enclosures for their acoustic and climatic isolation, although decorated glass is more common in religious buildings. Plastics, in their various forms, add uses such as lighting systems, supports and various aspects related to musealisation (Figure 5).

### Discussion of Towers

Anguciana (Figure 6) is a tower constructed in the 14<sup>th</sup> or 15<sup>th</sup> century with a rectangular layout, ashlar masonry walls and five floors and a basement. It has a variety of windows on all sides but the neo-Gothic ones stand out on three of its floors. The entrance was on the first floor, but it was converted into a window. Its roof consists of a double crown which is crenelated. The restoration to which it was subjected consisted in improving the conditions of the roof, where the concrete of the interior crown (a restoration of the 1930s) was much damaged. A complete rehabilitation of the crown of the 14<sup>th</sup> and 20<sup>th</sup> centuries was performed respecting the original materials such as stone and concrete.



Figure 6. Tower of Anguciana (author).



Figure 7. Tower of Baños de Rioja (author).



Figure 8. Torre de Lumbreras (author).

Baños de Rioja (Figure 7) dates back to the 14<sup>th</sup> century, it has a rectangular floor plan and four floors originally made of ashlar stone. It had battlements, a roof and a variety of windows on the four sides from the narrow ones in the lower part to the lobed ones in the upper part. The rehabilitation turned it into a hotel with a flat roof. A basement was created for the elevator machinery and the boiler. A reconstruction of all its floors was made respecting their original height. To all of this wall paintings were added based on medieval patterns.

Lumbreras (Figure 8) is a practically quadrangular tower topped with rounded buttresses at the corners. It has strong masonry walls that denote the defensive purpose of the tower, today a belfry of the chapel. The restoration consisted of the adaptation of the roof at the end of the 20<sup>th</sup> century. It has windows on its three floors and in three of its four faces.

Préjano (Figure 9) is formed by a pentagonal tower that sits on a crumbling slope and has not been restored. The walls are made of masonry with a great diversity of windows. There is an initial reconstruction of the building on all its floors since the tower was hollow inside except for the ground floor. The door of the enclosure was blocked with cement and stones. The architect involved in the restoration, Óscar García, recovered the door as well as the interior staircase. It seems that it was part of the defensive wall of the town and that it was based on an earlier one. It has a walled enclosure that was used as a cemetery and which, in the near future, will be studied in other phases of restoration. Until now, the restoration activities have been dedicated to recovering the plans from the lower to the upper levels in five phases and have turned the castle into a municipal multifunctional space.



Figure 9. Tower of Préjano (author).



Figure 10. Tower of Torremontalbo (author).

Torremontalbo (Figure 10) dates to the 14<sup>th</sup> century and it is a much renovated and well-preserved tower. It currently consists of five floors and a basement, although it is likely that it originally had three, which were based on a wooden structure. The access to the tower was made through a gate with a semi-circular arch in the north wall, which is now blocked. The building has several window bays, although the main attraction is the viewpoint that has been created under the roof.



Figure 11. Left: Tower of Herce; right: Torre of Muro de Aguas (author).

Herce and Muro de Aguas (Figure 11) have been restored as viewpoints. They are two public parks outside the villages over the rivers Cidacos and Cañizal respectively. At the time they must have been quadrangular or polygonal towers, but large parts of their walls have since eroded. The reconstruction works were limited to consolidating the ruins that remained of the towers and their surroundings. They were originally constructed with sandstone which has been heavily eroded in the passage of time. We can say little or nothing of its original constructions.

## Conclusions

The Middle Ages and the image of the castle are closely related. History and stories about their constructions have created legends and myths in the current folklore. There is a big typological variety of buildings in the military architecture of La Rioja because it is a border region with many disputes to control the territory and its communication routes, between Christians and Muslims first and between the Christian kingdoms later. They tried to defend the roads and the villages and cities creating a defence system.

The 35 towers were built between the 11<sup>th</sup> and 15<sup>th</sup> centuries but nowadays there are only 18 left, of which only seven have been restored or rehabilitated. We can say that conservation and restoration measures have been scarce and insufficient at best, except those that we have referred to in this article. The works have been diverse: from processes of consolidation of the crowns, as in the case of Anguciana with which it is intended to avoid the future ruin of the building, to integral restorations such as that of Préjano, converted into a municipal space or Baños de Rioja converted into a particular business.

This shows once again the importance of giving new life to historic buildings due to the economic, touristic, cultural and artistic benefits that they bring to the town in which they are located, thus attracting the interest of citizens for its history and its heritage. This concern begins with the first law on protection of castles in Spain dating from 22<sup>nd</sup> April 1949. The great impulse comes with the Spanish Historical Heritage law of 25<sup>th</sup> June 1985, which increased the protection of all those buildings considered historical, although none of the towers mentioned have achieved the highest level of protection.

Although there is an interest in conservation and enhancement of Riojan castellological heritage, there is no real will to restore the network of fortresses, which implies a rapid degradation of these buildings. When reviewing the actions that we have studied in this paper, we can conclude that most of them began as emergency measures such as the cases of Préjano, Herce, Muro de Aguas or Lumbreras. It has been possible to give to the castles a second life as public spaces of common interest for the entire population (houses of culture, viewpoints or religious spaces). Others, for example Baños de Rioja and Torremontalbo, have managed to develop these restorations for personal use (business and housing). Others, unfortunately as in the case of Anguciana, will need more restorations to avoid collapse. There is much work to do with this typology of defensive architecture if we want to maintain the enormous variety that we have shown in this article and, above all, if we intend to leave a magnificent legacy to the next generation.

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# Introduction: Really Cool Stuff in the Future of Archaeological Sciences

Ruairidh Macleod<sup>1</sup>

## Abstract

This paper primarily describes the content of an introductory presentation given by the author for the Archaeological Sciences session of the CASA 2019 conference. In addition to introducing the session's speakers and their topics, this presents an abridged perspective of major developments in recent years in the field of archaeological sciences, and discussion of the state of research at present and in the future. Considerations such as the continued exponential growth in data production, interdisciplinary co-operations and conflicts, and the ethical questions around some research approaches form the basis of an examination of possible future trajectories for research in the field.

**Keywords:** Archaeological Sciences, Ancient Genomics, Palaeo-omics, Future Perspectives

## Introduction

The title of this introductory paper and of the CASA session itself 'New Frontiers in Archaeological Sciences: Trowel-Blazing at the Cutting Edge?' reflect an almost naive scientific enthusiasm and excitement that I feel is at least sometimes present in the current flourishing of novel scientific methods that are yielding unprecedented new insight in archaeology, and certainly that I myself share. Besides apologising for the somewhat forced pun in the session title, I should also emphasise that this perspective should not suggest a blindness to the concerns and issues prevalent in archaeological sciences; indeed, this will be a focus of much of the 'review' component of this paper. Initially, a summary of the session will be described, followed by a discussion of the review of the field covered by the presentation. In the intervening time between the conference and this paper, the world has been entirely changed by the global SARS-CoV-2 pandemic and concluding remarks will also consider how this may alter previous perspectives on the future.

As a subfield of archaeology, archaeological sciences have in the past sat uncomfortably within a subject that has many proponents more closely allied to the social sciences. In an influential book on archaeological theory, Shanks and Tilley (1992, xvii) appear to denigrate the role of the scientific method in archaeology, writing: "there are still many, and particularly in the United States, who consider archaeology a scientific exercise". Concerns from archaeological scientists over this attitude have only rarely actually appeared however, and for the most part, studies (for example) in the *Journal of Archaeological Sciences* over the years since 1992 make little reference to any perceived inconsistency between archaeology and science. Instead, archaeological sciences, an inherently multidisciplinary subject, have grown to greatly expand the scope of archaeological findings, fulfilling the prediction of Price (attributed in Collins 2006, 33) that "major discoveries in archaeology in the coming years will be more often in the lab than in the field". On the basis of this, it is fitting that a conference entitled 'New Frontiers in Archaeology' should include at least one session focused on the contributions of scientific analyses.

On the final day of the conference itself, five speakers were invited to present in the archaeological sciences session, although in the actual event, Erwin Mansyur Ugu Saraka (presenting on 'Skeletal

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Biology of Human Populations Between Classical and Post-Classical Times in Italy: The Evidence of Dental Enamel Hypoplasia') was obliged to pull out due to travel issues. Nonetheless, a broad range of topics were represented, although with a definite bias towards biosciences. The first speaker, Tuuli Kasso, presented research from the ArcHives project exploring the potential for a biomolecular record of bees (using palaeoproteomics and palaeogenetics) in the beeswax of medieval manuscript seals, alongside broader ongoing bioarchaeological research into manuscripts within the Beasts2Craft ERC project. A relatively novel application of the biochemistry of aromatic compounds was demonstrated by Barbara Huber in her presentation entitled: 'Past Scents: Using Chemical Analysis to Recreate the Smellscape of an Ancient Oasis', followed by Brittany Stone's presentation on elemental analysis of glass fragments from Sepphoris, Israel. Finally, Anne Kathrine Runge spoke on 'Palaeoproteomic Analysis of Coprolites from Nunalleq' which provided a highly original and insightful description of the inferences available from archaeological dog faeces preserved in permafrost.

The emphasis on biology in this session, especially methods from molecular biology, reflects a broader trend in science, and in particular science funding. In a high-profile review, Venter and Cohen (2004, 1) predicted that "[i]f the 20<sup>th</sup> century was the century of physics, the 21<sup>st</sup> century will be the century of biology". The current *zeitgeist* in archaeological sciences centres primarily on molecular biology as the dominant theme of what gains wide public appreciation as 'really cool stuff'. Approaches such as ancient genomics promise implications far beyond the scope of archaeological investigation, with hopes to impact upon in human health and predictive medicine. Funding for this type of research certainly appears to be a popular priority; greater sums are now being allotted for the 'biomedical bubble' than in any other research field, with potential detrimental effects for all sciences (Jones and Wilsdon 2018). The question of where archaeological sciences will go next is therefore a significant issue; some might predict that it will continue to diverge from traditional archaeology, while others might see it as becoming more dominant in the future of archaeology. To evaluate this question, it is useful to start by considering the history of the field.

### The Current State of Archaeological Sciences

For the presentation I gave, I attempted to construct a 'Harris matrix' of the major developments in archaeological sciences (see Figure 1); this was intended to provide an overview of the development in research, starting with the fundamental principle of chronological superposition established by Nicholas Steno in the 17<sup>th</sup> century. This figure suggests that significant and rapid development only begins to occur in the 20<sup>th</sup> century with the advent of radiocarbon dating and the quantitative analytical methods required for approaches such as geometric morphometrics. These can all clearly be seen to have been drawn from other scientific disciplines (such as chemistry, zoology, geology and botany) and essentially adapted and applied to archaeological evidence. This formula has in many ways persisted into the 21<sup>st</sup> century, though by no means should this suggest that archaeological scientists are simply unoriginal 'method-borrowers'. A significant proportion of archaeological scientists who have made significant methodological contributions have begun their careers not as archaeologists but as geologists or biochemists and now, bioinformaticians. Archaeology in general has tendency to consider shifts in perception in very absolute terms though, for example developments in <sup>14</sup>C isotope ratio dating were extolled as a series of radiocarbon revolutions (Renfrew 1970), beginning with the discovery of the method by Libby *et al.* (1949), followed by isotope fluctuation calibration through dendrochronology (Suess 1955), and then the application of Bayesian probabilistic estimation from calibration databases (Stuiver and Reimer 1993; van der Plicht 1993). Assessing this situation, Bronk Ramsey (2008, 1) suggests that "radiocarbon seems to have managed rather too many revolutions for the good of either archaeology or the application of science to the arts". A tendency towards revolutions of understanding may suggest instability in a field rather than a stable process of new knowledge gradually building upon existing understanding, alluding to a more explicitly Kuhnian interpretation of scientific history. Nonetheless,

it is also quite likely that the revolutionary spirit in archaeological sciences may also be attributed to the relative youth of the field.

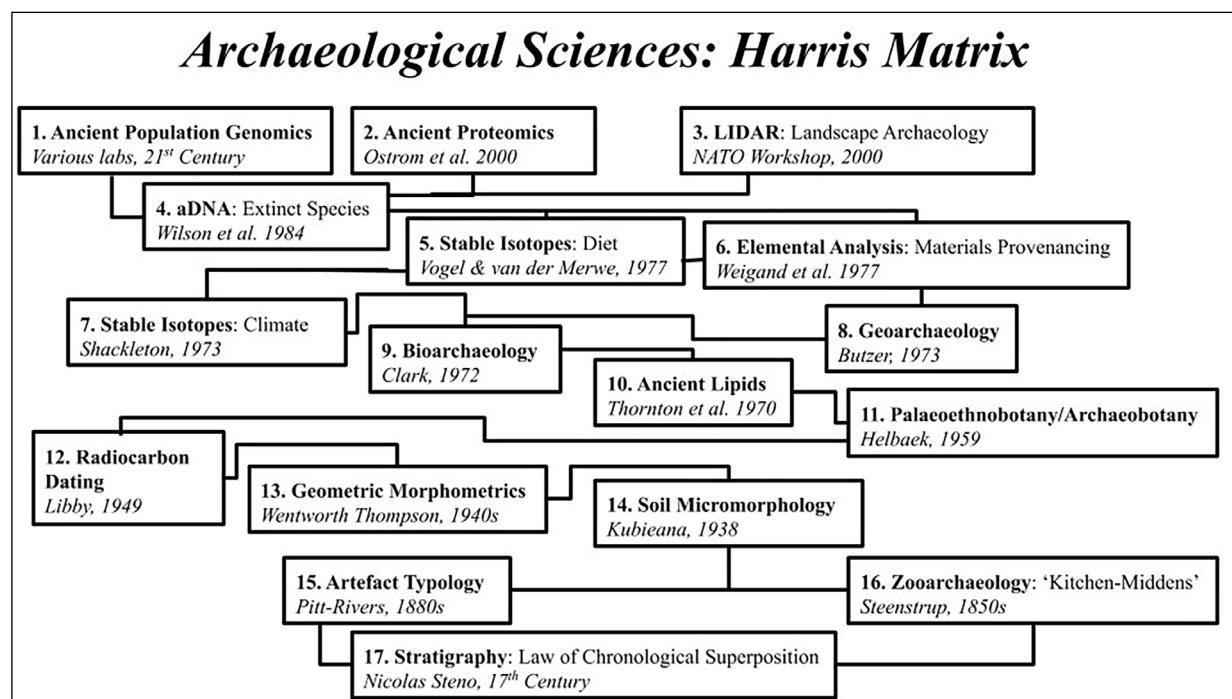


Figure 1. 'Harris matrix' of major developments in archaeological sciences. The style of this matrix is adapted to fit within a presentation slide (author).

Future developments that might extend the 'Harris matrix' in Figure 1 include a multitude of new and emerging approaches for applications in archaeological sciences. Many such technical approaches focus on providing new levels of resolution and comprehensiveness in data collection. For example, synchrotron beamline micro-computed tomography now effectively offers a fully 3-dimensional, non-destructive alternative to histology at a microscopic resolution. In a demonstration of the utility of this, a group at the Max Planck Karlsruhe facility scanned mineralised ancient insect cocoons and used neural network algorithms to automate digital reconstruction and articulation of the parasitoid wasps that had developed within the larvae in some cocoons (van de Kamp *et al.* 2018). Ancient genomics is now also moving towards seeing the potential of 'hologenomics', or the genomes of all individuals within a holobiont, for example capturing the genomic diversity within oral and gut microbiomes of individuals. This would facilitate better understanding of the ecological relationships that determine much of the life history and adaptation of past humans. Other new techniques include the use of drone-mounted ground-penetrating radar, which may make much physical excavation and survey methods redundant. Novel means of statistical analysis, modelling and simulation continue to provide increased predictive power and better explanatory power for understanding both cultural and biological adaptation and evolution. A reasonable (and increasingly commonplace) view is that the 21st century is just as much the century of Big Data as it is biology (though with biological sources accounting for a lot of that data).

All the methods described in the preceding paragraph are certainly topics that I would consider reasonable to describe as 'really cool stuff'; they certainly provide sufficient potential for new means of insight that they might be expected to incite excitement among young practitioners in the field. This enthusiasm for 'cool research' becomes more of an issue, however, when high-profile research that

attracts significant prestige and funding targets begins to dominate attention within fields. At present this issue is perhaps most prominent in ancient genomics, where competition to produce the first ancient human genome, the first Neanderthal genome, the oldest genome and similar milestones has been intense (see Pääbo 2014). In this respect, the trend of ancient genomics (and similar excitement-generating approaches) may be predicted to follow a distribution that matches the so-called ‘hype cycle’ developed by the technology firm Gartner to describe trends in the new industrial technologies (see Figure 2). This describes the trajectory of a method or technology’s prominence as an initial rise and peak of inflated expectations (during which it is considerably hyped) followed by a trough of disillusionment (when it fails to meet the hype) and eventual reaches of plateau of productivity (where estimations are realistic). Ancient genomics may well have enjoyed a particularly notable expectations peak that it is now just emerging from. Similarly, other approaches at different stages of the trajectory might include palaeoproteomics (currently at the initial slope) and radiocarbon dating and stable

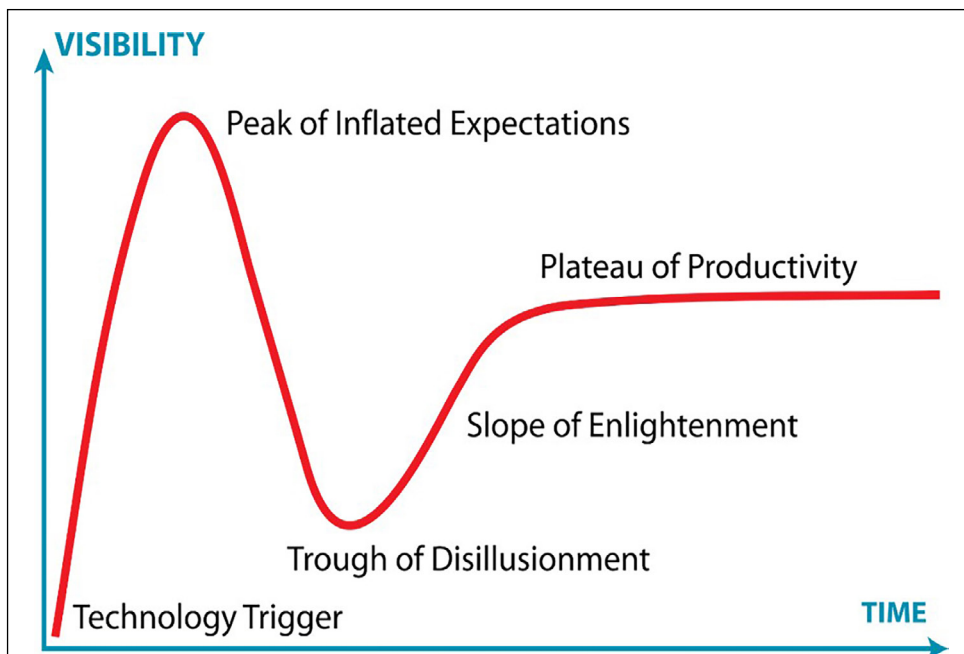


Figure 2. The Hype Cycle describing the trajectory of novel technologies, developed by Gartner, Inc. (Kemp 2007).

isotope analysis (both recovering from relatively shallow troughs). Indeed, the family of postmodernist-influenced theoretical frameworks that influenced authors such as Shanks and Tilley could also be said to approximate a trajectory similar to the hype cycle, leading to post-postmodernist perspectives subsequently emerging within archaeological theory.

### Concerns for the Future?

One of the few publications by an archaeological scientist that explicitly discusses concerns around the divergence of archaeological theory and archaeological science is a review by Collins (2006), that parodies the situation of divisions in the form of ‘archaeology town’ and ‘archaeometry science park’ as an overspill for inhabitants on the edge of ‘sciences metropolis’ that is proximal to some suburbs of archaeology town. This caricature is in some ways accurate, however, the current trajectory of archaeological science and theory is likely to be one less marked by research topic divisions, as these begin to appear more arbitrary. Presently, a litany of new research frontiers have been revealed through archaeological sciences, and these will always inherently rely upon theory to provide interpretations.

While it may not be disproved that we cannot know the past on the basis of the present, we can certainly attempt to build greater confidence in models of understanding through methods such as parsimonious inference based on evidence. Flannery (2006, 12) summed up the change in attitude following increased reliance on archaeological sciences quite bluntly:

“I long ago advised them [my students] not to jump on the postmodern bandwagon. Science ... is an unstoppable express train. Postmodernism was just an idealistic siding that led nowhere. Most archaeologists believe that the world’s fascinating past will only surrender its secrets to research that is as objective as we can make it. You certainly can’t get at them through political correctness”.

Although Flannery reasonably captures the disillusionment with postmodernism (and the renewed belief in the pragmatism of the scientific method), the last sentence in the quote above belies a potential conflict of attitudes (as well as indicating a somewhat dated view, before ‘political correctness’ became as loaded a term). This leads to another inherent difference between archaeology as a social science and archaeological sciences as a ‘hard’ science; specifically, a difference of perspectives for understanding issues in human cultures and histories. Fundamentally, this can affect the quality of the research itself, if an awareness of inherent biases and assumptions is not considered. This is not simply ‘political correctness’ but rather a very real concern for accuracy of data generated. For example, many datasets used for studying recent human adaptation and diversity significantly over-represent European lineages, leaving other groups vastly underrepresented and resulting in gaps or errors in models. Differences in such perspectives also impact on moral and ethical considerations, such as in the misuse of data gathered from individuals (a recent scandal over the commercialisation of genetic data from African individuals by the Wellcome Sanger Institute is a prominent reminder of this (see Stokstad 2019)). Criticisms of colonialism in science only make sense when humans are in some way involved as the basis of studies (for the most part), hence why they are not necessarily a part of the background considerations for scientists who have begun their careers in bioinformatics or chemistry (including to some extent Flannery, who initially studied zoology). By no means they should not be at risk of being held culpable on account of their non-human focused background as an excuse, however. The simple and obvious solution to preventing colonialist science is greater dialogue and cooperation, and respect for all the humans that are involved in research (as investigators, collaborators or data contributors, even when the latter are long deceased). This problem is also more of a generational issue. Young researchers or students are generally more aware of such issues and sensitive to them, given that universities have also changed dramatically in terms of the experiences and environments that students exposed to. This was a significant point that was repeatedly raised after the conference session was opened to audience discussion.

In a broader perspective of academia, it seems that the emergence of archaeological sciences is an outcome of a wider trend towards the arbitrary boundaries between academic disciplines becoming blurred and overcome entirely. This will likely see many more research careers that are not focused on one question or topic, but depend on methods and data from a variety of disciplines and faculties. Ultimately, if all research becomes interdisciplinary (and that term itself becomes unnecessary), any researchers working on past humans will hopefully be well-immersed in the requisite considerations and sensitivities of the field (better, for instance, than researchers who have previously focused their careers on model organisms like roundworms).

More fundamental is the question of how the structure of academia will be affected by the way science and research are growing at exponential rates, and yet are currently limited by the necessity for departments, faculties, distinct subject funding bodies and similar. This situation reminds me of a quote by Douglas Adams, responding to questions about how computers will affect publishers, journalists,



to focus funding on biomedical research (to the detriment of other areas). This could well produce a situation in which the current provisions of academia are compromised, as universities become obliged to focus on the most 'economically-sensible' courses such as law and medicine. Archaeology, which has sat straddling the edges of humanities and sciences for several decades now, could well be one of the fields severely compromised as a result. A best-case scenario would be one in which government funders and leaders recognise the importance of the un-obvious benefits that broad academic research has. Like all human activities, research is more than simply the profits or utility it generates but holds the potential for discovery and wonder which is profoundly emotive and stimulating in its own right. The interdisciplinary ocean I described above will come to fruition anyway, I believe, despite the possibility that SARS-CoV-2 has delayed it. Looking to the future therefore, it seems that a subject like archaeological sciences, inherently and intrinsically interdisciplinary from its outset, represents a highly promising starting point towards this.

In the interests of full disclosure, I should admit that most of my personal research focus is in ancient biomolecules (proteins and DNA) at present, and this may account for the more frequent use of these approaches when illustrating examples. I hope this is balanced to some extent though by the subsequent diverse focuses represented in this volume.

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