Paws in the Sand

The Emergence and Development of the Use of Canids
in the Funerary Practice of the Ancient Egyptians
(ca. 5000 BC – 395 AD)

Volume I

A thesis submitted for the degree of Doctor of Philosophy

by

Mary Louise Hartley

B.A., M.A. (Egyptology)

Department of Ancient History
Macquarie University
Sydney Australia

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Declaration

I, Mary Louise Hartley, hereby declare that the material in this thesis entitled "Paws in the Sand: The Emergence and Development of the Use of Canids in the Funerary Practice of the Ancient Egyptians (ca. 5000 BC – 395 AD)" has not been previously submitted as part of the requirements for a higher degree at this or any other institution.

I declare that this is an original piece of research wholly written by me. Any assistance I have received in my research and in the preparation of this thesis have been duly acknowledged. All literature and information sources used within the thesis are cited in the text.

Dated this day of

Mary Lousie Hartley

Abstract

This research investigates the nature and scope of the inclusion of canids/dogs in the funerary practice of the ancient Egyptians. Canids used in a mortuary context are well known, due mainly to the use of canids in the later votive context. However, the first documented evidence of actual burials of canids/dogs occurred during the Predynastic Period, and it is this aspect that is the focus for this research. Where did the concept of burying a canid/dog originate, and why? And did the practice evolve over time to morph into the later votive practice? This research employs the use of history, archaeology and physical anthropology to present an analysis for the significance of a canid/dog burial, and to trace the evolution of the practice through time.

This research is based on a sample of 141 canid/dog burials derived from available archaeological data from the Predynastic to the Graeco-Roman Periods (ca. 5300 BC–AD 395). Additionally, a case study of 119 votive canid crania found at Saqqara, will provide data for the analysis regarding the use of canids in a votive capacity. The majority of canid/dog burials were observed in the Predynastic Period, therefore this period is significant to the understanding of how, when, and why this practice first began. Things do not 'just happen' without reason, and the historical iconographical evidence surrounding canids, particularly the dog, found in early communities provides an insight into how canids were perceived in society, which in turn provides a portal into the beginnings of the practice. Chronologically, canid/dog burials continued from the Predynastic Period, albeit somewhat sporadically, through to the Late Period, when a resurgence of the practice is observed. It is also during the Late Period that a marked rise in the use of votive canids linked to the Cult of Anubis begins. Burying a canid/dog in a funerary context, and offering a votive canid in a religious context, ran concurrently throughout the Late Period and into the Graeco-Roman Period, with the votive practice increasing considerably and becoming the preferred method for the general population to gain access to the god Anubis.

Quantitative and qualitative data analysis presented in this thesis identifies canid/dog burials in the archaeological record from the Predynastic to the Graeco-Roman Periods, confirming and interpreting their role within the funerary process. This research concludes that the common thread binding the presence of the canid in the funerary practice consistently demonstrates a protective function.

To

Roger, Peter, Claresta and Arden Hartley

Suzie, Paul and Hannah Aitken

This thesis is lovingly dedicated to my family,
without whose help this work would never have been accomplished.
Thank you all for your love and support throughout the entire process
and for your never failing belief in me.

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Abbreviations

Abbreviations used within the text and figures:

ACE	Australian Centre for Egyptology
[DRN]	Database Record Number
ED	Early Dynastic Period
FIP	First Intermediate Period
GRP	Graeco-Roman Period
LP	Late Period
MK	Middle Kingdom
MMA	Museum of Modern Art, New York
MNI	Minimum number of individuals
NK	New Kingdom
OK	Old Kingdom
SIP	Second Intermediate Period
TIP	Third Intermediate Period
Σ	sum

Abbreviations used within bibliography:

AAR	*African Archaeological Review,* Cambridge.
ABSA	*Annual of the British School of Athens,* London.
AJA	*American Journal of Archaeology,* New York.
ANES	*Ancient Near Eastern Studies,* Leuven.
BAR	*Biblical Archaeology Review,* Washington D.C.
BIFAO	*Bulletin de l'Institut Français d'Archéologie Orientale,* Cairo.
Cahiers de l'AARS	*Association des Amis de l'Art Rupestre Saharien,* Paris.
CdE	*Chronique d'Égypte,* Brussels.
CA	*Current Anthropology,* Chicago.
CASAE	*Cahiers. Suppl. Aux ASAE,* Cairo.
CRIPEL	*Cahiers de recherches de l'Institut de papyrologie et d'égyptologie de Lille,* Lille.
Egypte	Egypte. Afrique et Orient. Centre vauclusien d'égyptologie (Avignon, puis Paris). Continue Egyptes.
GM	*Göttinger Miszellen,* Göttingen.
IBAES	*Internet-Beiträge zur Ägyptologie und Sudanarchäologie,* Berlin.
ICAZ	*International Council for Archaeology,* Oxford.
JAA	*Journal of Anthropological Archaeology,* Michigan.

JARCE	*Journal of the American Research Center in Egypt,* Boston/Princeton/New York/Cairo.
JAS	*Journal of Archaeological Science,* London.
JCunStud	*Journal of Cunniform Studies,* NewHaven.
JEA	*Journal of Egyptian Archaeology,* London.
JFA	*Journal of Field Archaeology,* Boston.
JVMS	*Journal of Veterinary Medical Science,* Toyko.
Kush	*Kush. Journ. Of the Sudan Antiq. Serv.* Khartoum.
MDAIK	*Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo,* Mainz/Cairo/Berlin/Wiesbaden.
MEEF	*Memoir of the Egyptian Exploration Fund,* London.
OLA	*Orientalia Lovaniensia Analecta,* Louvain.
Sahara	*Sahara. Preistor. E stor. Del Sahara,* Milan.
WA	*World Archaeology,* London.
Wb.	*Worterbuch der Aegyptischen Sprache,* 7 volumes, Berlin.
ZÄS	*Zeitschrift für ägyptische Sprache und Altertumskunde,* Berlin/Leipzig.

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CHAPTER 1: INTRODUCTION TO RESEARCH

1.1 Research Context

During four excavation seasons from 2007 to 2010, Assoc. Prof. Boyo Ockinga from Macquarie University led an archaeological team, of which I was a member, working in the Teti Cemetery North at Saqqara. During these excavations we unexpectedly found thousands of disarticulated canid bones in the burial chambers of two New Kingdom shafts, deposited during a re-use phase of the structures.[1] The sheer quantity of the remains was remarkable, but time constraints meant that detailed examination and study of the bones was not possible at the time. Realising that the remains were too important to be overlooked, and that studying them would increase our knowledge of the role of canids in the mortuary practices of the ancient Egyptians, the most complete crania were selected, and a series of measurements recorded by the team's physical anthropologist, Dr Alanah Buck. The team photographer, Leonie Donovan, photographed each of the selected crania, providing high resolution pictures of the superior, inferior and lateral views, which permitted subsequent offsite examination. During these excavations, several Late Period human burials were also discovered containing canid skeletons (Hartley, Buck & Binder 2011), indicating that the burial of canids and the canid votive practice were occurring concurrently. These discoveries stimulated my interest in canids in the mortuary practices of the ancient Egyptians, and with the encouragement and support of my supervisor, Dr Yann Tristant, and my colleague, Dr Alanah Buck, led me to this research topic.

Historically, many canid burials were overlooked, discarded or dismissed in excavations (predominantly early excavations) as they were often considered insignificant in comparison to more 'important' grave contents. When deemed worthy of comment, canid burials were often casually categorised as a 'dog' (*Canis lupus familiaris*) with little effort to substantiate this claim. Early excavators also tended to simplistically assume that the relevance of the dog burial was merely the burial of an associated pet with little or no further consideration. Recent excavations however, have undertaken osteological studies of canid remains, confirming that the canids used in the early funerary practice were dogs.

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[1] Skeletal remains of more than one thousand disarticulated canids were found in three separate burial chambers at the bottom of two New Kingdom shafts. A secondary Late Period shaft associated with one chamber combined with architectural observations made above provided evidence of a Late Period reuse of the chambers (Ockinga 2011: 123-124).

The presence of canid burials throughout the history of ancient Egypt, across different regions, indicates a systematic and purposeful process which cannot be dismissed as coincidence. Egyptian culture came to identify strongly with canid gods, especially those who had a specific, immutable affiliation with protection in the Afterlife.

Since the domestication of the dog *ca*. 12,000-14,000 years ago (Turnbull & Reed 1974; Davis & Valla 1978; Beneke 1987; Tchernov & Valla 1997), the deliberate interment of dogs has been observed across the globe and throughout time. This suggests that dog burials were a fundamental element in the dog/human relationship (Crockford 2009; Morey 2010). The first documented evidence of actual dog burials in Egypt occurred during the Predynastic Period, however with other members of the Canidae family also present, it is difficult, without osteological study, to confirm that these burials were indeed the domestic dog. The available records of canid burials in ancient Egypt are dispersed across a range of reports, journals, and papers, and are likely to reflect only a subset of what may have initially been buried.

The majority of canid burials were observed in cemeteries, with a limited number found in settlements and temple/funerary enclosures. Chronologically, canid burials appear in human cemeteries from as early as the Predynastic Period and to varying degrees well into the Roman Period. Cemetery burials usually consisted of either an individual or multiple canids in a single grave, or individual or multiple canids in direct association with a human burial.

Throughout the Late Period and into the Graeco-Roman Period, burying a canid in a funerary context, and offering a votive canid in a religious context ran concurrently, with the votive practice developing into the preferred method for the general population to gain access to the god Anubis. Dog burials and the use of votive canids have historically been considered separate and distinct practices without regard to potential consistencies in their functional purpose, however this research will challenge this concept, and seek to show their connection and inter-related context.

1.2 Research Aims and Purpose

This thesis aims to review, examine, and analyse reports of the burial of canids/dogs within human cemeteries, and the use of canids in the votive practice. This aim will be achieved by analysing data collected from all published canid burials found in Egypt from *ca*. 4400 BC–AD 395, and by examining and analysing data from a case study of Late Period votive

canid crania. Diane Flores (2003) has previously researched all faunal burials found during the Predynastic Period. This thesis focuses on canid burials from the Predynastic Period to the Graeco-Roman Period and only deals with other faunal remains when found directly associated with canids.

The purpose of this research is to broaden our current understanding of the use of canids in the funerary practices of the ancient Egyptians, and to substantiate or refute current perceptions of the presence of canids in a burial. The purpose will be achieved by establishing a corpus of recorded burials to determine the paradigms and variations of the practice and how it developed over time, and examination of a case study of canid crania photographs and measurements to determine the use of canids in a votive context.

By outlining the significance of the earliest recorded burials, and then following the development of the practice within the mortuary culture to the Late Period, when the additional votive practice emerged, it is hoped to establish a common thread that will illustrate a progression between the initial early canid burials and the subsequent concurrent use of votive canids.

It would be an oversimplification to assume that the purpose of every canid in both the corpus and the case study was identical. There are variations and similarities which can be observed and analysed, and on the whole there appears to be a strong functional theme of protection running through the vast majority of each of these canids. Protection is inferred from proximity, placement, and positioning of the canid burials within human cemeteries, and from association of the votive canids with the protective role of the god Anubis.

1.3 Research Objectives

The research aims are achieved via the following objectives:

1. To ascertain by way of a literature review the current perceptions of the role of canids/dogs within the ancient Egyptian mortuary culture;
2. To undertake a comprehensive study of early skeletal remains and iconographic evidence to determine which members of the Canidae family were present in ancient Egypt;
3. To undertake a comprehensive survey of available published canid burials in ancient Egypt;

4. To undertake a morphological study of 119 canid crania from ancient Egypt to produce a case study of canids used in the votive practice; and
5. To compare and contrast the quantitative and qualitative data from these published canid burials with the results of the morphological and metric examination of canid crania to determine the role and treatment of canids in the funerary practices.

1.4 Materials and Method

A review of published canid burials from archaeological surveys formed the basis of this research. As a comprehensive record of known burials had not previously been compiled, the dataset produced in this research attempts to address this void. The compilation of the corpus was restricted by a number of factors, and these factors are set out below:

1. Chronology, as offered in original publications, subject to review by this author in certain instances where more comprehensive published primary evidence was both contradictory and available. The chronological table determining the division of periods used in this corpus is listed in Figure 1.1;
2. Geography, as offered in original publications using sites within Egypt between the Mediterranean coastline in the north and the second cataract of the Nile in the south. The 39 sites identified in the corpus are illustrated in Figure 1.2;
3. Archaeology, by examining available excavation data for references to specific members of the Canidae family; and
4. Additional elements extracted from the archaeological surveys of canid burials.

The relevant factors discerned from the dataset were entered into a *Filemaker Pro 12 Advanced* database for storage and analysis.

The corpus of published canid burials was supplemented by a case study of 119 canid crania found at Saqqara. Quantitative data of these crania were entered into an *Excel spreadsheet* database for storage and analysis. These crania were assessed according to the following methodologies:

1. Biological, based on observations of specific markers on only the complete crania identifying morphological and metric characteristics as well as pathological conditions;
2. Visual analysis, based on detailed photographic records taken of each cranium (superior, inferior and lateral views) which were subsequently analysed for species

determination, age and sex assessment and presence or absence of pathological conditions; and

3. Geographical, based on the location of votive animal cemetery sites across Egypt from the Late Period as illustrated in Figure 1.3.

1.5 Structure

The thesis is structured to achieve the objectives outlined within this introductory chapter. Chapter 2 reviews the body of existing literature that defines the current perceptions of ancient Egyptian canid mortuary culture, and is supplemented by existing scholarly perceptions of dog burials found in other cultures around the world. The traditional view of the functional purpose of a canid burial is defined by four main categories, being sacred, votive, food offering and pet. These have more recently been expanded to also incorporate amuletic, and protector concepts which will be expanded in this thesis.

Chapter 3 sets out iconographic and zoological evidence to support the presence of different members of the Canidae family in Egypt and Nubia (Sudan) before and during the Predynastic Period. This not only indicates the availability of different canids that may have been incorporated in the mortuary culture, but also potentially may reflect why specific canids were initially incorporated in funerary practices.

The quantitative results and analysis of the corpus of canid burials is set out in Chapters 4 and 5. Chapter 4 reviews the chronological and geographical distribution of canid burials, site type and grave architecture. Chapter 5 attempts to discern patterns in the contents of the grave, initially by reviewing whether there was a single canid or multiple canids in the burial. The analysis is extended based on additional grave contents observed, in accordance with the following:

1. A canid burial alone (without associated human or faunal remains);
2. A canid burial with associated humans (without associated faunal remains);
3. A canid burial with both associated humans and faunal remains; and
4. A canid burial with associated faunal remains (without associated human remains).

The use of wrapping and burial containers, together with associated grave goods is also reviewed for discussion. The positioning and placement of the canid body in the grave is also discussed to provide a more holistic understanding of the canid burial process. Species identification, age and sex estimation will be discussed where possible. Collectively, Chapters 4 and 5 illustrate how the use of canids in the funerary practice of the ancient

Egyptians developed over time, eventually expanding to incorporate the concurrent ritual use of canids in the votive practice of the Late and Graeco-Roman Periods.

Chapter 6 sets out the results of the case study sample of canid crania found at Saqqara, which has been included to illustrate the extent of the votive use of canids in the Late/Ptolemaic Periods, and which members of the Canidae family were used, and how the prevailing cultural demand impacted the lives of these canids.

Chapter 7 creates a timeline to illustrate how the Egyptians understood the protective qualities of canids, particularly the dog, and how this perception may have filtered into their mortuary practices. Evidence to support the protective hypothesis is set out, followed by aspects of burials that support a protective function. The later ritual use of canids as a votive offering to the god Anubis, a canid god associated with protection in the necropolis is seemingly an extension of canid related protection.

Chapter 8 concludes by reviewing the extent to which this thesis has fulfilled the research aims and purpose outlined in the introduction. The chapter summarises the study's findings and proposes opportunities for further research to expand, supplement and clarify the proposed interpretations for the use of canids in the ancient Egyptian funerary culture, in particular the extensive use of the dog.

CHAPTER 2: LITERATURE REVIEW

The aim of this chapter is to ascertain the pre-existing body of scholarly perceptions regarding the role of canids in the ancient Egyptian mortuary culture, with a particular focus on dog remains (*Canis lupus familiaris*) found buried individually or in association with humans. This aim will be achieved using four complementary processes. Firstly, a brief cross-cultural overview of different interpretations given to dog burials from selected geographical regions around the world will be presented, providing a holistic view of the use of dogs in a funerary context. Secondly, early iconography and how it has influenced our awareness of the importance of dogs in early communities along the Nile will be reviewed. Thirdly, a review of available scholarship defining our current understanding of canid burials in an Egyptian funerary context will be presented. Finally, a number of published excavation reports, particularly early reports pertaining to Predynastic sites where the earliest canid burials have been documented, will be examined to identify their impact on how early canid burials have been interpreted.

2.1 Cross-Cultural Perceptions of Dog Burials

Canids have been found buried in different geographical regions throughout the world, and the majority of these canids have been identified as dogs (Savolainen et al. 2002; Boyko et al. 2009; Pang et al. 2009; Thalmann et al. 2013; Larson & Bradley 2014). Therefore, the following discussion will focus on how researchers interpret canids in general, and dogs in particular, in a funerary context in different cultures around the world. Due to the vast scope of geographical regions in which canid burials have been found, the focus of this review is limited to a brief overview of studies where different interpretations have been proposed.

Morey (2006: 165; 2010: 184) researched canid burials in North America dating from 8500 BP to AD 700, and concluded that the indigenous peoples of North America first held the wolf in high esteem because of its spiritual qualities; qualities associated with 'quickness, stealth, cunning, ferocity and their pack behaviour', which were valued by North American plains group warriors (Keyser 2007: 66). These spiritual qualities were later transposed to the dog after domestication took place.

Both wolves and dogs were found buried at an Eneolithic site (4th millennium BC) at Botai, Kazakhstan, and Olsen documents at least 13 separate canid deposits, representing

15 dogs and three wolves (Olsen 2000: 74, Table 1). The majority of canid remains, both wolves and dogs, were found interred in small pits, in close association with houses, and these burials Olsen believed to be a reflection of a ritual associated with protection of the households, which implies the two species were used in a similar capacity. When found buried specifically on the west side of a house Olsen believed they held a more mythological association, possibly connected with guardians of the gates of the Otherworld (Olsen 2000: 86-87), whereas she believed isolated canid skulls found in houses and middens to be associated with rituals connected to local myths of cynocephali (dog-headed men) (Olsen 2000: 80).

As the first domesticated animal, the dog was the first animal to be associated with humans, therefore it is not surprising that dogs were one of the first animals to appear in burials with humans (Morey 2006: 158). Morey separates dog burials into two basic categories: the burial of an individual dog, or the burial of one or more dogs in direct proximity to a person (Morey 2010: 151).

2.1.1 Interpretations of dogs buried without direct human association

Dogs buried without associated humans have been interpreted as belonging to one of five major categories: sacred burials, as part of various rituals or ceremonies, as part of healing or purifying rites, as part of foundation rites associated with a building, or as part of termination rites associated with the discontinued use of a well or storage pit.

2.1.1.1 Sacred burials

Investigations into dog burials throughout the Italian peninsula and nearby islands during the Roman Period (*ca.* 27 BC–AD 345), led Wilkens (2006) to conclude that these dogs were sacrificed. When dog remains were found at specific sanctuaries, Wilkens interpreted these burials as a sacred ritual carried out within the sanctuary (Wilkens 2006: 132). De Grossi Mazzorin and Minniti (2006) examined a number of dog burials found in Italy from the Iron Age to the Roman Period (*ca.*1000 BC–AD 300) and provided a number of interpretations, dependent on the type of burial. They agreed with, and expanded on Wilkens' interpretation in proposing that dogs buried near sanctuaries were guardians and/or symbols of different gods and goddesses known to have possessed dogs as companions (De Grossi Mazzorin & Minniti 2006: 62-63).

From her research into dog burials in Sweden, Gräslund (2004) believed that dogs should be ascribed a more significant symbolic-mythological meaning in relation to their part in

the transformation from life to death (Gräslund 2004: 173). Gräslund points out that individual dog burials excavated from Mesolithic (*ca.* 5000 BC) cemeteries in Denmark and Sweden showed they had been buried with the same care as humans, and frequently their bodies had been covered in red ochre. She argued that the dog had been used in mythological/religious dimensions, most likely as a conductor to the realm of the dead, and/or the guardian of the entrance to the Underworld (Gräslund 2004: 171).

Morey believed the role of a dog in a burial was an extension of its living role taken into the perceived world of the dead. As the recipient of such ritualistic treatment at death, Morey considered that the dog must have held a special status in the communities in which they lived (Morey 2006: 164-165; 2010: 152). Olsen (2000: 71) concurs with Morey, but found it difficult to determine from the archaeological record whether dogs were regarded as sacred during their lifetime, which might explain their special treatment at death, or whether the sacrificial context of the dog in the burial may have conferred this spiritual status.

2.1.1.2 Ritual or ceremonial burials

A Chalcolithic burial (*ca.* 4500–3500 BC) at the site of Gilat (GIL91 139), located in northern Israel, excavated by Levy (2006), contained the complete articulated skeleton of a dog. It had been placed in the ground with a ceramic vessel, leading excavators to conclude that the burial held a ceremonial purpose (Levy 2006: 244).

In her investigation of dog burials throughout the Italian peninsula and nearby islands Wilkens (2006) considered that these dogs were sacrificed, a leftover element of earlier times when textual evidence related dog sacrifice to agricultural rituals (Wilkens 2006: 132). However, she also saw the need to look at different rituals unrelated to agriculture, and postulated that dog remains found deposited with other wild fauna were a connection to hunting, with the dog placed in the burial as a hunting companion.

2.1.1.3 Association with healing or purifying rites

Stager (1991) considers that dogs in the ancient Near East were commonly involved in healing cults from many different cultures in the region. Their association with temples and healing deities was widespread, and whether they were associated with Gula in Mesopotamia, Asklepios in Greece, Eshmun in Phoenicia, or Mukol or Resheph-Mukol in Phoenician Cyprus, their association with gods and goddesses of healing rituals was beyond doubt.

Thirty-three dog burials from *ca.*2100 BCE found at Isin in Mesopotamia, were considered to be linked to the main cult centre of the goddess Gula (Ornan 2004: 14). Ancient cuneiform texts refer to the Temple of Gula as the "Dog House" (é-ur-gi-ra) (Livingstone 1988: 54) and the emblem for the goddess of healing was the dog. More than half of the 33 dogs were puppies, and their young age indicates that they were probably killed and buried at the completion of a healing ritual.

Collins (1990) also argued that dogs were used in purifying rituals performed by the early Hittite communities (*ca.* 1600 BC). Using translations of Hittite texts, Collins outlined the role of young dogs and puppies in prevention and purifying rituals (Collins 1990: 211). Prevention involved the sacrifice of a dog, in a belief that such an action would provide protection from evil, while purification could involve either ingesting a portion of a puppy in the belief it held healing properties, or the puppy was used to transfer illness away from a sick person (Collins 1990: 214).

De Grossi Mazzorin and Minniti (2006) in their research into dog burials in Italy recognised a connection between some dog burials and purification rituals. It was believed that a puppy rubbed over the diseased area of a patient absorbed the disease from the patient. Once this was done the puppy was sacrificed and buried (De Grossi Mazzorin & Minniti 2006: 64).

Ashkelon in southern Israel is the site of a major dog cemetery, dated to the later Persian Period (538-322 BC), and is considered to be unique in its composition (Stager 1991). More than 1238 dogs have been found at the site, all buried with great care (Wapnish & Hesse 1993: 57). The dogs were not mummified but were individually buried over an estimated time span of no more than 50 years (Stager 1991: 31). Almost two-thirds of the sample (62%) were puppies, with adults making up another third (33%), and sub-adults making up 5% (Wapnish & Hesse 1993: 60). The significance of the burial of so many dogs is considered to be a conundrum (Halpern 2000), however Morey (2010: 182) believes that their careful burial indicates a "spiritual relevance in the sense of a concept of an Afterlife''. Stager (1991: 40) argues that the close association between dogs and deities with healing powers may hold the link to the interpretation of their significance, and considers a link to a Phoenician healing cult found in Cyprus, where dogs were part of the temple paraphernalia, to be the likely beginning. Heltzer (1998: 149-152) argued that

images found on coins from Sicily [2] were additional evidence for the existence of an Asarte cult in the area which involved dogs. Halpern (2000) agreed with Stager that the dogs were temple dogs related to a healing cult, but disagreed with the Phoenician origin and believed it to be more of a Mesopotamian origin. Wapnish and Hesse on the other hand preferred to see the burials as nothing more than "a local amalgam of attitudes towards dogs, and a burial ritual that cannot be attributed to a particular culture" (Wapnish & Hesse 1993: 76).

Edrey (2008) in his research into the significance of the Ashkelon dogs, compiled an extensive list of dog burials found at sites in the Levant, mostly in Israel. [3] These dog burials, dating from the Chalcolithic through to the Persian Period, together with ancient texts referring to dogs in cultic practices, were used to support his argument that the Ashkelon dogs were used in healing/purifying rituals, and the corpses later disposed of in designated areas that became known as a dog cemetery (Edrey 2008: 278). The dogs found in the burials making up Edrey's list consisted of puppies and adult dogs, with and without grave goods, frequently buried in close proximity to temples or cultic precincts, all of which led him to the conclusion that the dogs were used in a cultic ritual probably linked to healing or purifying rites.

2.1.1.4 Association with foundation rites

Dog burials from early Iron Age Europe and Britain (*ca.* 800-500 BC) were examined by Merrifield (1987). He considered dogs found buried in association with a building to be the ritual use of the dog representing a commencement or foundation offering (Merrifield 1987: 48). This concept was later supported by De Grossi Mazzorin and Minniti who considered dogs found buried under buildings, walls or defensive installations to be associated with foundation rites (De Grossi Mazzorin & Minniti 2006: 65).

In his research into animal burials, Morris discusses 459 cases of complete animal skeletons from 268 Neolithic, early Bronze and Iron Age sites in Europe, Africa and Asia (Morris 2011),[4] about half of which were dogs (Morris 2011: 1). For dogs found buried in an individual grave without human association, he saw the possibility of two interpretations: either as a foundation deposit where the dog was used as a spiritual or divine blessing for a new construction, or the dog as a cultic animal (Morris 2011: 3).

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[2] Coins from the 4th and 3rd centuries BCE had the image of Aphrodite on one side and dogs on the other (Heltzer 1998).

[3] For a detailed list of burials see Edrey (2008: 275-276).

[4] The original work on these 459 records was the work of Behrens (1964).

2.1.1.5 Association with termination rites

Merrifield considered that dogs found in deep pits in early Iron Age Europe and Britain were associated with a termination rite, primarily occurring when pits used for food storage were changed to refuse dumps (Merrifield 1987: 48). He proposed that dogs found at the bottom of wells indicated the termination of the use of the well as a water source (Merrifield 1987: 49), whereas dogs found at the bottom of deep shafts he believed represented a widespread ancient practice indicating a means of communicating with the powers of the Underworld (Merrifield 1987: 44). Wilkens also considered that dogs found in wells were connected with termination rites regarding the use of sacred wells (Wilkens 2006: 133-134).

2.1.2 Interpretations of dogs buried in association with humans

Dogs buried directly associated with humans have frequently been interpreted as a continuation in death, of their roles in life. These roles include the dog as a pet or companion, a status symbol, a food source, a hunting companion, a guard or protector.

Olsen argues that the complex relationship between dogs and humans in life, and the variety of roles the dog holds within the relationship, complicates any attempt to interpret prehistoric dog remains (Olsen 2000: 71). When discussing dog burials generally, Olsen divided the functional role of the dog into two broad groups, the secular and the sacred. For the secular she included dietary, fur-bearing, companionship, hunting, herding, guarding, haulage and military, and for the sacred she saw the roles as virtually limitless, but always closely related to the dog's role in life (Olsen 2000: 71).

White (1991) sees the ambiguous role of the dog in life, its value within different cultures, its constant presence in the human experience and its links to the feral world as a reflection of both human culture and human savagery. Symbolically, the dog is the animal pivot of the human universe, sitting between wildness and domestication, with the role of the dog extending beyond the world of the living into the world of the dead (White 1991: 15). White points out that in a number of cultures, the pastoral, hunting and protective role of the dog is extended beyond the world of the living into the world of the dead. As such, psychopomps, guardians of the gates of hell, hellhounds, and the souls of the dead themselves are often depicted as canine.

An Epipalaeolithic burial (*ca.* 12,000-10,000 BP) at the site of Ein Mallaha, northern Israel (burial H.104) contained a human and a young canid puppy (Davis & Valla 1978).

Although this burial has frequently been researched from a dog domestication perspective more than an archaeological perspective, the original excavators concluded that this burial provides proof of an affectionate bond between man and dog at this early time (Davis & Valla 1978: 609). A second Epipalaeolithic burial also in northern Israel at the site of the Hayonim Terrace contained a grave with the remains of three humans, two dogs and two tortoise shells (Tchernov & Valla 1997).[5] The excavators linked this burial with ritual activities connected with everyday village life, and also added that it indicated a close human/canid relationship.

Several different interpretations of dog burials from the Late Bronze Age mainland Greece, and Early Iron Age Crete, were proposed by Day (1984). He considered a dog/human burial found on the island of Cyprus dated *ca.*3200-2300 BC to be a sacrifice to serve its master after death (Day 1984: 22). Dog burials associated with humans dated slightly later to *ca.* 2500 BC, he considered to be either the dog accompanying the dead to the Underworld, or the dog as part of a ritual, however, more importantly, he believed that these burials consistently showed an attitude towards dogs which was not sentimental, but implied a reciprocal relationship between humans and dogs (Day 1984: 29). This concept of a reciprocal relationship is supported by Munt and Meiklejohn (2007) who refer to a mutually beneficial symbiotic relationship between humans and early domesticated dogs.

Day considered the correlation between dog burials and details regarding sex, age and physical condition of associated humans, to be an indicator of the dog's role in a purification rite; for example when a dog was buried with a young woman of child bearing age, the dog might indicate a rite for women who died in child birth, or when a dog was buried with a warrior, it might indicate a purification rite for one who died in battle (Day 1984: 28).

De Grossi Mazzorin and Minniti (2006) considered that dog/human burials may have been the burial of a pet, but more likely that the dog was linked to the deceased's journey to the Underworld, with the dog providing companionship or guardianship in the Afterlife.

Gräslund (2004) in her research on dog burials in Sweden, argues that the typical interpretation of dogs in a human/dog burial as a grave gift, a faithful companion or a symbol of wealth, is inadequate (Gräslund 2004: 167). The two cemeteries found at the site

[5] A Natufian burial of a woman at Hilazon Tachtit was accompanied by a large number of unique grave goods including many tortoise shells (but no dogs), and has been interpreted as the grave of a shaman (Grosman et al. 2008). The tortoise shells in the Hayonim Terrace could also link the burial to a shamanistic burial.

of Skateholm, Sweden (*ca.* 7000–5500 BP), where at least fourteen dogs were found buried in association with humans, were also discussed by Fahlander (2008). He noted that one of the most striking spatial patterns of these burials was the apparent close relationship between individually buried dogs and the burials of children under the age of eight (Fahlander 2008: 36). The dog and child burials in Skateholm II area appeared to be purposefully placed at the edges of the main activity area, with dogs in the east and west, and children in the north and south, whereas children and dogs in the southern part of Skateholm I were placed at the fringes at all four cardinal points (Fahlander 2008: Tab. 3).

Research by Morris (2011),[6] into Early Bronze and Iron Age dog burials in Europe, Africa and Asia determined that dogs found buried in association with a human, or close by to a human, held three possible interpretations: a reflection of high status or wealth where the dead could be seen as more important compared with those buried without a dog, the dog as a guide in the Afterlife, or the dog as a favoured pet.

In their research into dog domestication, Munt and Meiklejohn (2007) examined dog burials from three early archaeological sites: the Natufian site of Hayonim, Near East (*ca.* 11,000 BP), the Mesolithic site of Skateholm, Sweden (*ca.* 7000–5500 BP), and the Neolithic site of Botai, Kazakhstan (*ca.* 5600 BP). They concluded that although the symbolic use of dogs at these three sites could not be fully determined, the symbiotic multi-causality hypothesis was consistent in showing how the relationship with the dog in life can be transposed to ritual in death, and therefore the most likely scenario for these burials was the dog as a guardian of the cemetery (Munt and Meiklejohn 2007: 167-168).

In summary, the role of dog burials from geographical regions beyond Egypt have generally been interpreted as an extension of their living roles transposed into the world of the dead. Dogs have been interpreted as pets or companions, as reflecting the high status of the deceased, as connected with guardianship of the Gates of the Underworld, and as accompanying the dead on their journey to the Afterlife. They have been seen as guardians of cemeteries, connected with agricultural rites, foundation and termination rites, purification and healing rites, and were closely associated with gods and goddesses of healing. To a lesser degree they have also been identified as a grave good or food offering for the deceased.

[6] The original work on these 459 records was the work of Behrens (1964).

2.2 Canids in Early Egyptian Iconography

To understand the significance of dog burials found in ancient Egypt, it is important to firstly understand the role canids played in the daily life of the early communities in Egypt (Hendrickx 2006a). A great deal has been written about the early iconography of canids, with a particular emphasis on dogs and their interaction with hunters. Hendrickx (1992; 2010; 2011a) examined representations of Nilotic and desert hunting scenes found on rock art and decorated pottery, and concluded that the dog was a vital component of these scenes. The desert hunt allowed the upper class to project their importance and reflect an elite way of life, which later developed into hierarchic structures and state formation, while the Nilotic hunt held a special status, taking on aspects of protection against the dangerous crocodile and hippopotamus (Hendrickx 2010; Hendrickx & Eyckerman 2010; 2012; 2015). The very low representation of wild animal remains found in the faunal assemblage at Predynastic excavation sites indicates that the hunt had little direct relationship with economic reality (Hendrickx & Eyckerman 2015: 197), consequently Hendrickx and Eyckerman concluded that hunt scenes can be interpreted as a more symbolic expression rather than a depiction of daily life. Hendrickx and Huyge (2014: 249) argued that the special status of the hippopotamus hunt most likely developed into a symbol of control over elements of chaos by positive forces, which later developed into royal symbolism (Hendrickx & Eyckerman 2012: 29-30). The desert hunt scene, frequently represented by the dog alone with no associated human hunter, has been interpreted as a symbol of control and power (Hendrickx & Eyckerman 2012: 58). Hunt scenes have also been used in combination with scenes of military violence, scenes that appeared at the beginning of the Naqada culture, and are believed to symbolically represent the concept of the maintenance of order over chaos (Hendrickx 2006a; 2011a). The dog was always identified with the hunt, which in turn identifies it with the elite and their ability to structure and control the environment, clearly indicating the importance of the dog in conjunction with the development of the state (Hendrickx & Eyckerman 2012).

Insoll (2011) considered that the close relationship between humans and dogs and the high profile held by dogs in early Neolithic communities indicated that dogs may have belonged to a primitive stage of totemism[7] where different animals were totems of particular human tribes. DuQuesne (2005: 22-23), and Dunand and Lichtenberg (2006: 108, Fig. 165) had previously looked at iconographic representations found on Predynastic/Early Dynastic

[7] Insoll (2011: 1007) defines totemism as 'the use of plants and animals by social groups as guardians or emblems that are ritually celebrated'.

palettes, and concluded that canids depicted on early standards, a form of totemism, denoted different communities along the Nile. Wilkinson (2005: 12-13) discusses the divine standards on the Narmer Palette in conjunction with burials of canids in what he believes to be in a ritual context, and proposed that the images may represent more than just a tribal totem, and may signify "manifestations of the divine", showing an early stage in the development of the Egyptian gods. Peet (1914: 108) suggested that originally there was no 'god', only a totem animal tribe, and as the original meaning of totemism was lost, the totem animal gradually developed into a god retaining its animal head. In his work on Prehistoric cognition, Hill (1994) takes this one step further saying that if people first possess dogs for a living or hold them in high esteem in their community, it may create the need for a dog-related god (Hill 1994: 91).[8]

2.3 Current Perceptions of Canids in the Egyptian Mortuary Culture

2.3.1 Animals in Ancient Egypt

Based on how they have been depicted on different media, animals in ancient Egypt have been interpreted as companions of everyday life, sources of artistic and religious inspiration, a familiar part of the afterlife, and have frequently been represented in exalted positions in royal society. An overview of animals in general can be found in a number of publications which deal basically with the cultural significance of animals (Houlihan 1996; Germond & Livet 2001; Vernus & Yoyotte 2005). Osborn and Osbornová (1998) focused on mammals, providing a broad representation of the many mammals found in the iconography of ancient Egypt. Evans (2010) has gone beyond the generic approach and looked at all animals from a different perspective. By comparing images of animals found on tomb walls with known live animal behaviours, Evans has identified the behaviour of animals in the scenes which she believes is brought about by "a response to its environment, to members of its own or other species, and to its personal requirements" (Evans 2010: 13) clearly indicating that the ancient Egyptians were consciously observant of the detail of animal behaviour.

Other studies target specific classes of animals, and these works focus on the animal from an economic or religious perspective (Gamer-Wallert 1970; Houlihan 1986; Brewer & Friedman 1989; Malek 1993; Brewer, Redford & Redford 1994). Rice (2006) discusses the dog in ancient Egypt, and examines the evidence for the bond that existed between dog and

[8] For a brief discussion on the early representation of canid gods see §4.1.

man, particularly the hunting hound and its selective breeding, and its role in the elite hunting scene. A broader understanding of the multiple roles of the dog in Egypt and the Near East has been provided by Brewer, Clark and Phillips (2001) and Collins (2002) based on archaeological and iconographic evidence.

2.3.2 Classification of animals

The classification of canids found in an Egyptian funerary context mostly occurs in Egyptological works relating to the overarching funerary analysis of all mummies and the mummification process (Adams 1998; Ikram & Dodson 1998; Taylor 2001, 2010; Dunand & Lichtenberg 2006). As the principal focus of these works relates to the human mummy, animal mummies are typically relegated to later chapters, and canids are then often only briefly discussed within these chapters.

Animal mummies have primarily been interpreted and classified into four standard categories (Ikram & Dodson 1998: 131; Taylor 2001: 244; 2010: 129-130; Ikram 2011: 73), which have formed the basis for discussion in subsequent publications. These categories were created when considering all animal burials, and subsequently superimposed onto the analysis of buried canids.

1. Sacred: If an animal represented a particular god and was buried with a great deal of pomp and ceremony, it could be considered *sacred* (Ikram & Dodson 1998: 132; Taylor 2001: 246; 2010: 129; Dunand & Lichtenberg 2005a; Ikram 2005: 4-14; 2007: 418; 2016: 405; Redford & Redford 2005: 169).
2. Votive: If an animal was prepared in a cult centre and offered to a particular god, it could be considered *votive* (Ikram & Dodson 1998: 135; Charron 2001; Taylor 2001: 254-260; 2010: 132; Ikram 2005: 10-11; 2007: 419; 2016: 406).
3. Food Offering: If an animal or part of an animal was placed in a burial for intended consumption by the deceased in the Afterlife, it could be considered a *food offering* (Ikram & Dodson 1998: 131; Taylor 2001: 244; 2010: 129).
4. Pet: If a tamed or domestic animal kept for companionship or pleasure (Russell 2012: 260) was buried with a human for continued companionship in the Afterlife, it could be considered a *pet* (Ikram & Dodson 1998: 132; Taylor 2001: 262; 2010: 129; Ikram 2013b: 301).

More recently a further interpretation of the role of the dog in the mortuary culture, that of protector, has been given greater recognition. A number of scholars have touched on the

concept of dogs as protectors, but until now, none have as yet integrated the individual concepts into a consistent theory. However, this research proposes to establish a fifth standard category of dogs as protectors.

5. Protector: When canids are found at the boundaries of cemeteries, the canids were protecting the borders of a specific cemetery; when located amongst a cluster of human burials, the canids were protecting a particular group of humans within a section of the cemetery; and when found in direct association with a human, frequently placed at the foot of the grave, the canids were protecting a specific individual (Hartley 2015).

Canid remains found interred in cemeteries, settlements and temples can be broadly divided into three types of burials: the mass burial of canids, canids buried in isolation, and canids buried in direct association with a human. Mass canid burials have been the subject of frequent discussions, usually found within publications relating to the broader topic of all animal mummies. These publications concentrate on the remains of cultic animals, that is sacred animals that are believed to have been either earthly incarnations of a particular deity, or votive animals, the mummified representative of a species offered to a particular deity in return for favours (Taylor 2001: 246; Dunand & Lichtenberg 2005a: 165-200; 2006: 108; Redford & Redford 2005: 205; Dodson 2009: 1; Ikram 2015; 2016).

2.3.3 Sacred canids

Sacred animals, their associated gods, and the cultic practice related to them is the focus of a publication where Ikram (2005) has brought together the works of experts who each concentrate on a specific cultic animal. These include the bull cult (Dodson 2005: 72-105), the ibis cult at Tuna al-Gebel (Kessler & Abd el Halim Nur el-Din 2005: 120-163), the cat cult at Saqqara (Zivie & Lichtenberg 2005: 106-119), the sacred ram cult at Mendes (Redford & Redford 2005: 164-198) and the crocodile cult of Sobek (Bresciani 2005: 199-206). The canid cult is not discussed separately,[9] however much can be understood relating to the function of the sacred and votive canid from transposition of related matter associated with the sacred animals discussed in each chapter.

Sacred canids have consistently been linked to the canid gods Wepwawet, Anubis and possibly Khentyimentiu (Peet 1914: 109; DuQuesne 2005: 367-397; Dodson 2009). If the

[9] Thousands of votive dogs found in catacombs are mentioned in a discussion on the sacred animal necropolis at North Saqqara (Nicholson 2005: 71).

sacred canid can be compared with its more prominent counterpart, the sacred bull, then only one canid at a time would have been found in the god's temple, and it would have been subjected to various rituals, and elaborate treatment in death (Dodson 2009: 1; Ikram 2016: 405), however this has not been substantiated.

Taylor argued that animals, the dog included, may have been venerated early in Egyptian history, probably deriving from a human desire to emulate their positive qualities or avert harmful ones, and out of this worship, animal cults began (Taylor 2001: 245). Dunand and Lichtenberg also saw the possibility of early worship of the dog in the context of the "sacralization'' of animals (Dunand & Lichtenberg 2006: 108). They proposed that an animal could be deified through the act of mummification, in particular referring to early Predynastic dog burials (Dunand & Lichtenberg 2006: 109). However, they justifiably pointed out that as the identification of the canid species used in these early burials was not always clear, early veneration could equally be applied to the jackal or the dog (Dunand & Lichtenberg 2006: 109). On the other hand Midant-Reynes argues that even though elements of the Predynastic cognitive scheme survive into the Dynastic period, "to attempt to extrapolate back from the Dynastic period into prehistory is somewhat dangerous, since concepts become crammed with new cultural nuances over the course of time, acquiring different appearances, and new myths are grafted onto old rites until almost all sense of their original identity has been erased" (Midant-Reynes 2000a: 179). DuQuesne also finds it difficult to assume that Predynastic animals were hypostases of a particular deity, and sees the traditional funerary practices and deification of animals as not being mutually exclusive (DuQuesne 2005: 10). Additionally, Flores (2003: 56, 64-65), who researched animal sacrifice in general during the Predynastic Period, saw little reason to assume that sacrificed dogs indicated actual divinities that heralded the later funerary cults, but rather saw them as sacrifices representing the traditional funerary customs of the individual cultures they were a part of.

2.3.4 Votive canids

When large numbers of canid remains have been found buried, they are typically understood to be the organised disposal of votive mummies associated with the religious cultic practice of the canid god Anubis (Charron 2001; Dunand & Lichtenberg 2006; Taylor 2010: 132; Hartley, Buck & Binder 2011: 17; Ikram 2011: 73; 2013b: 301; 2015; Kitagawa 2013; Dunand, Heim & Lichtenberg 2015; Dunand, Lichtenberg & Callou 2015; Nicholson, Ikram & Mills 2015).

Recent reports detailing the archaeological undertakings at the Dog Catacombs of the Sacred Animal Necropolis at Saqqara, under the auspices of Cardiff University and the Egyptian Exploration Society (Ikram et al. 2013; Nicholson, Ikram & Mills 2015), discuss the millions of canids found stored in the catacombs. Publication of the results of many years of work at the site provide detailed information regarding more than 7,000,000 canids found (to date) in the catacombs (Nicholson, Ikram & Mills 2015: 655). The layout of the catacombs and the large number of canids highlight the sheer scale of this Late/Graeco-Roman votive canid practice. Results of osteological studies identified the majority of canids as dogs (*Canis lupus familiaris)*, with a smaller number of jackals (*Canis aureus lupaster*), and an even smaller number of foxes (*Vulpes vulpes*).[10] Votive canids were most likely killed and mummified (to varying degrees), to be purchased by pilgrims to be then offered as votive gifts to Anubis in return for specified requests (Nicholson 2005: 50; Dodson 2009: 1; Ikram 2013b: 300; 2016: 406).

Although intrinsically linked to votive canids, sacred canids did not constitute a large proportion of mass canid burials, however it is possible that single canids found in receptacles and placed in niches cut into catacomb walls may have been sacred canids from the temples (Nicolson, Ikram & Mills 2015: 654).

2.3.5 Food offering

Although the consumption of dogs has been documented from different geographic regions over a wide time span (Morey 2010: Table 5.1) and is known to have occurred in areas of North and North-west Africa (ElMahi 1988: 74), no evidence exists to suggest that canids/dogs were ever eaten in ancient Egypt (Gransard-Desmond 2004; Taylor 2010: 128; Brixhe 2014), a fact supported by zooarchaeological evidence.[11] Therefore it is highly unlikely that canids were ever placed in a grave as a food offering in ancient Egypt, so this category will not be considered in this research.

2.3.6 Pet/Companion

Many individual canids found in burials associated with humans, have frequently been interpreted as pets (Flores 2003: 57; Taylor 2010: 129; Ikram 2011: 73). This classification

[10] Results of studies on the canid remains indicated that the animals identified so far were dogs (n=5,574), jackals (n=70) and foxes (n=22), and Nicholson suggests that any 'dog-like' animal was interchangeable in the cult of Anubis. The mix of dog, jackal and fox remains has also been documented by Lortet & Gaillard (1903: 17; 1909a: 264), Kitagawa (2013: 347), and Dunand, Lichtenberg & Callou (2015: 174-175).

[11] No canid remains have been found in the archaeological record that reveal specific cut-marks consistent with butchering (O'Connor 2000: 45-46; Morris 2011: 20-22) or bones found burned or exposed to intense heat which would suggest that the animal or part of the animal had been eaten.

appears to be based on the assumption that the animal accompanying the human was a dog, and therefore must have been the favoured pet of the deceased (Ikram 2005: 2), placed in the grave to provide constant companionship in the Afterlife (Ikram 2013b: 301; 2016: 405).

The pet interpretation most likely had its origins around the beginning of the 20th century, when canids found buried in human cemeteries were consistently recorded as dogs. During the 1910 excavations at Shellal and Khor Bahan, Reisner (1910a: 116) found a number of A-Group Culture dog burials which he simply stated were "a very interesting series of the remains of pet dogs". This interpretation was not only based on the assumption that the animals were dogs, but that a number were found with the remains of twisted leather either around their necks or near their bodies. Reisner considered the twisted leather to be remnants of collars or leashes. Brunton (1948: 22) described a Predynastic canid burial at Matmar as a pet based on the presumption that the animal was a dog, and had been placed in a wooden coffin of its own before being laid to rest at the foot of the human in the same burial. Saad believed the Early Dynastic canid burials excavated at Helwan were dogs and hence they had been buried as pets, "a custom of the ancient Egyptians to bury their pets either with the owner or in a separate grave nearby" (Saad 1969: 46, 80). It is highly likely that these early reports had a significant impact on the later interpretation of canid/human burials as they were progressively excavated.

Flores (2003: 57), discusses dog burials based on images of the dog depicted in desert hunt scenes on early rock art and Predynastic pottery, and saw the possibility that the dog in Predynastic human/dog burials was either a reflection of a personal relationship with the deceased, suggesting a pet/companion type relationship, or as a reflection of the economic value of the dog in the community, and therefore buried as a prized possession.

Many different Predynastic animal burials have been found during both initial excavations (Hoffman 1982) and present excavations at the extremely important Hierakonpolis Cemetery HK6 (Friedman 2010; Friedman, Van Neer & Linseele 2011; Friedman et al. in press), and the interpretation of their purpose is important in understanding the reasons behind the burial of each animal species. The animal remains were examined and initially reported on by Van Neer, Linseele and Friedman who concluded that the dogs, when buried with humans, had been placed in the grave to meet the expected needs of the deceased, either as a companion in the Afterlife or as a valued hunting aid (Van Neer, Linseele & Friedman 2004: 120). Subsequently, Friedman analysed specific burials in the

context of a possible protective function (Friedman 2010), discussed in more detail in the following section.

Using artist representations and textual evidence from the Old and Middle Kingdoms Zahradnik (2009) looked at the dog in ancient Egypt from a pet perspective. She proposed the function of Predynastic dogs found buried at a number of sites in Egypt was primarily that of the burial of a beloved pet. This interpretation was based on the depiction of dogs found on Old Kingdom tomb walls, where the emphasis is on the relationship between the dog and the human. The zooarchaeological details compiled in her list of canid/dog burials is limited to the original excavators' reports, where interpretation of the dog remains was not the main function of the report. Zahradnik used the early dog burials to support her argument that dogs during the Old and Middle Kingdoms were devoted pets.

Gransard-Desmond (2004) in his research into canids found buried in Pre-pharaonic Egypt and the Sudan considered dogs buried individually without human association to be a sacrifice, and dogs buried with human association to be a dog privileged to serve his master in the Afterlife (Gransard-Desmond 2004: 36).

Ikram acknowledged the difficulty when interpreting individual canid burials, particularly the early Predynastic dog burials, which she loosely classified as 'pets' but also saw the possibility that they could be considered to be "some sort of sacred/totemic animal" (Ikram 2005: 6; 2007: 417; 2013b: 301).

In 1993, a Czech expedition excavated the Old Kingdom family tomb of Shedu[12] at Abusir. A dog was found buried in its own shaft-grave in the outer chapel area (Bárta 2011: 185-186) and excavators interpreted the burial as that of a pet - "a favourite of the family, or at least of his master Shedu". This interpretation was based on a number of facets. Artistic representations of dogs found on tomb walls depicting the dog in various 'pet-like' relationships with the deceased, the frequent naming of dogs, indicating a close human/animal bond, and the famous stele of the dog called Abuwtiyuw found at Giza (Reisner 1936b). The text inscribed on this stele was interpreted by Reisner to indicate that the dog had been so favoured by the king, that he ordered the ceremonial interment of the dog when it died (Reisner 1936b: 99), thus assuring the king of the dog's continued attendance in the Afterlife (Reisner 1938: 9).

[12] Officials of a 'lower rank' arranged to have family tombs constructed, which meant a single family could be interred in one tomb over a period of several generations (Bárta 2011: 185-186).

A resurgence in the number of canid burials occurred in the Late Period when the majority of burials were associated with humans, and a number have been classified as the burial of a pet. A 26th Dynasty burial at Saqqara (Gisr el-Mudir) contained the remains of about 30 humans and an individual dog placed at the head of a group of four adults (Hawass 2009; 2010). The entire burial was interpreted by excavators as a family burial, and the dog was considered to be the pet of the most significant senior individual. Ikram also considered this dog burial to be that of a favoured household pet, but she expanded its role to be that of a guardian for the entire family in death, just as it had guarded the family in life (Ikram 2013b: 303-304).

A 30th Dynasty burial of a man and "a small mummified animal, most likely a dog" (Petrie 1902: 40) found in Tomb G61 at Abydos (Petrie 1902: 39-40, pl. lxxx) has been interpreted as the burial of a man and his pet dog, based purely on the placement of the human and the dog in the same coffin (Ikram 2013b: 301) with the dog at the deceased's feet. Ikram went one step further to suggest that the dog had pined to death after his master's death, and was duly interred with his master (Ikram 2013b: 301). Petrie made no attempt to interpret the function of the dog, however in the light of the protector function given to earlier Predynastic canid burials based on the placement of the canid at the feet of the deceased (Hartley 2015), this burial can also be interpreted as having a protective function.

A variation of the pet theory has been proposed by Behrens (1963: 79), who saw the burial of a dog when found in association with a human as a sociological phenomenon, with the dog adding impetus to the significance of the human in the burial. He considered dogs buried independently without grave goods and in a grave less elaborately constructed than for a contemporary human, to be either a part of a human funerary ritual or a sacrificial victim to a particular deity. Dogs found in cemeteries but not in direct association with a human he argued were most likely connected with the human graves surrounding it. This interpretation is consistent with the role of the dog as a protector of that group.

2.3.7 Protector

Hauck (1941: 27) reviewed a large number of dog mummies found at different sites in Egypt, and as part of his study he briefly looked at dogs found buried with humans. These dogs he considered to be spiritual guides and protectors during the journey to the Afterlife.

In his early work on animals Moustafa (1955) discussed the protective significance of dog burials, but did not develop this theory. When discussing the dog remains found in a Predynastic cemetery at Maadi, he considered the possibility that the dog had been worshipped from as early as the Predynastic Period (Moustafa 1952: 104). He understood that the dog's function in daily life as a guard-dog may have been transposed to the theological life of the people, resulting in the burial of a dog in a grave of its own among human burials. In a later publication, Moustafa again touched on the protector role for a dog found among numerous domestic animals in a deposit near the step pyramid of Sekhem-Khet at Saqqara (Moustafa 1964). This burial was dated much later to the Late Period, and he believed the dog had been placed in the grave among the domestic animals to perform the same function in death as it did in life – that of a guardian or protector of the flock/herd it had been buried with (Moustafa 1964: 264).

Debono and Mortensen (1988) also suggested a protective function for dogs buried in human cemeteries, but did not expand this concept further. The four individual dogs buried at the northern edge of a Predynastic cemetery at Heliopolis they suggested may have held a symbolic guardian function, however they returned to the conclusion that the dogs were more likely buried to accompany the deceased in the next life as a hunting companion (Debono & Mortensen 1988: 47).

Exploring the significance of individual dog burials without human association, Flores (2003: 64-66) researched canid/dog burials found in three early Egyptian cultures, and considered them to be an extension of the daily life role of the dog as a protector of flocks. However, in a slightly different vein she saw their presence in the grave as "a magical or symbolic means of meeting a specific need of this life, not the presumed needs of the afterlife" (Flores 2003: 64).

Ongoing excavations being carried out at the Predynastic cemetery site at Hierakonpolis HK6, have recorded a number of notable animal burials, potentially functioning in a protective capacity (Friedman 2010). Friedman argued that the burial of multiple animals in a single grave at the boundaries or corners of precincts and complexes, without grave goods and without human association, were potentially placed there as a marker, with the animal serving as spiritual guardian and protector of the area within (Friedman 2010: 72). This functional purpose was allocated to multiple domestic and/or wild animals and not specifically to canids. Taylor (2010: 129) agreed with Friedman, and considered the specific locations of the different animal graves to be indicative of a protective function.

A protector function has been proposed for the majority of documented canid burials from the Predynastic Period (Hartley 2015). This was based on the specific placement of the canid graves within human cemeteries. Hartley proposed that when found at the boundaries of cemeteries, the canids were protecting the borders of a specific cemetery; when located amongst a cluster of human burials, the canids were protecting a particular group of humans within a section of the cemetery; and when found in direct association with a human, frequently placed at the foot of the grave, the canids were protecting a specific individual. These proposed protector roles of canids support, complement and extend the protector roles of the animals buried at the boundaries of HK6.

Emery considered a protective function for the undisturbed burial of a dog excavated in the precincts of the 1st Dynasty mastaba of Her-Nieth at Saqqara (Emery 1958: 78). The dog burial was the only subsidiary burial associated with the mastaba and the specific placement of the dog at the entrance to the enclosure prompted Emery to suggest that the dog may have functioned as a guardian of the tomb.

A variation of the protector classification was proposed by Hartley and colleagues (2011), when an amuletic function was considered for a number of Late Period dog burials found at Saqqara. The dog burials were found in the Teti north cemetery and the specific placement of the dogs, either around the edge of a burial pit or at the northern foot end of a human coffin, led the excavators to hypothesise that the dog(s) had been buried with similar protective qualities to an Anubis amulet (Hartley, Buck & Binder 2011: 27). The positioning of the canids is also consistent with the specific placement of Predynastic canids buried with a protective function (Hartley 2015).

In a recent report on a group of Late/Ptolemaic Period dog burials with human association from Qasr Allam, Colin, Adam and Pranjic (2014) found that an amuletic theory was worthy of consideration, but felt this interpretation was too simplistic for the dogs buried at the Qasr Allam site, as two of the dogs had been buried with their own wadjet-eye amulet. Instead, using archaeological content indicating that a large proportion of the Qasr Allam canid burials were associated with children, together with a review of textual evidence pertaining to ancient funerary rites that included animals (Colin, Adam & Pranjic 2014: 44-51), they offered the hypothesis that the Qasr Allam dogs may have been linked with the 'canine companion of the Greek god Harpocrates', with the dog assuming the protective role of Anubis in providing vitality to infants at child birth and rejuvenating the deceased at death (Colin, Adam & Pranjic 2014: 60).

An even later Graeco-Roman burial from Deir el Banat, as yet unpublished by the excavators, has been discussed in a recent publication (Ikram 2013b: 304). The burial contained a young male in a shallow pit with up to eight dogs in a semi-circle around his feet. Ikram suggested the youth may have been in charge of dogs raised for the votive trade, and when he died, he was honoured by having a number of his charges buried with him (Ikram 2013b: 305). This potentially places the dogs in a companion role in the Afterlife. However, the placement of the dogs in a semi-circle at the foot end of the human body is consistent with the dogs functioning in a protective capacity (Hartley 2015).

Ikram pointed out that a number of documented Graeco-Roman canid burials were not easy to classify into the four standard defined categories of sacred, votive, food offering or pet (Ikram 2013b: 302). These particular burials she labelled "unusual burial type", and saw the possibility that their differences may have been either a reflection of a local mortuary custom or may have held some "magico-religious" function derived from foreign traditions and beliefs used in combination with Egyptian beliefs (Ikram 2013b: 306). Taylor also argues that foreign rule over Egypt impacted on local religious practices involving the divine association of animals (Taylor 2001: 246). This importation of external influences on the prevailing mortuary culture is illustrated by the association of the Egyptian God Horus the Child, translated by the Greek culture as Harpocrates (Pinch 2002: 146).

The cultural-historical significance of the dog in ancient Egypt from the Predynastic to the Graeco-Roman Period is discussed by Listemann (2010) who combines artistic representations, textual evidence, zooarchaeological and archaeological sources to illustrate the function of dogs in ancient Egyptian life. Listemann also constructed a substantive list of dog burials found in Egypt and neighbouring regions to the north and south, dating from the Predynastic Period through to the Greco-Roman Period and broadly defined dog/human burials as being undertaken for sociological, religious or emotional reasons, while the individual dog was buried for totemic, emotional or religious reasons (Listemann 2010: 36).

2.3.8 Parallels from the Sudan

Examination of canid burials and the significance of their role in the early mortuary practices of communities south of Egypt are of particular interest due to the close proximity of the area to Egypt. Early social interaction between Predynastic Egypt and its southern neighbours is apparent by the early exchange of goods (Friedman 1992: 100;

Midant-Reynes 2000b: 54; Hendrickx & Bavay 2002; Williams 2011: 83) and these exchanges may have impacted on the development of funerary practices with ideas and concepts moving up and down along the Nile.

One of the most significant sites where canid burials have been recorded is the Late Neolithic site of Kadruka (*ca.* 3500 BC) (Reinold 2005), located near the 3rd cataract of the Nile. KDK21 is a small cemetery holding over 243 human graves, and significantly, the borders of the cemetery were found intact. One dog burial was located in the centre of the burial mound and four double dog burials were located at the boundaries of the cemetery at set points to the north, south, east and west (Reinold 2005: 118). Due to a lack of comparative burials in the area at the time of excavation, the excavators were reluctant to interpret these burials, however they did recognise that the burials illustrated a guardian role of the funerary space (Reinold 2005: 118).

Two further sites in central Sudan, Esh Shaheinab and El Kadada also contained dog burials, broadly dated from between 5500–4500 BP (Bonnet et al. 1989: 26). Single, double and triple dog burials were found in cemetery C at Kadada, each consisting of a simple pit burial. The dogs were found in association with a human, buried with sheep or goats, or buried with a bovid cranium. The dogs were placed either directly at the bottom of the pit with the human above them, or behind the head of the deceased, against the wall of the pit (Bonnet et al. 1989: 27). With a lack of comparative documentation at the time of the publication, the excavators interpreted the role of the dogs as representing a defined ritual (Bonnet et al. 1989: 27) and hinted at a comparison with Egyptian animal burials, which they saw as possible pet burials (Bonnet et al. 1989: 28). They suggested that the dogs buried in the same tomb/grave as goats/sheep could represent the first step of a cult in conjunction with Egypt (Bonnet et al. 1989: 30).

From a slightly later time period (2500-1750 BC), a number of dog burials have been documented from the C-Group or Kerma cemeteries, located in northern Sudan, south of the 3rd cataract of the Nile (Chaix 1999). A small number of dogs found in pits, placed to the west or south of the deceased were dated to the period known as Ancient Kerma (2500–2050 BC). The number of dog burials increased during Middle Kerma (2050–1750 BC) when single and multiple dogs were either associated with humans or complete sheep/goats (Chaix 1999: 110). Of the 250 graves analysed up to 1999, 236 sheep, 14 goats and 22 dogs were attributed to the Middle Kerma period (Chaix 1999: 112). Examination of the archaeological context and the skeletal remains led the excavators to the conclusion

that the presence of the dogs in the graves clearly indicated that the dogs played a role in the Afterlife. Chaix argued that the placement of the dog at the feet of the human suggested that the dog had been buried as a companion for the deceased in the Afterlife. When the dog was placed in the grave with sheep/goats, Chaix understood the dog's function to be that of a shepherd dog, buried in order to care for and protect the small flock in the Afterlife (Chaix 1999: 110).

2.4 Published Excavation Reports

The compilation and subsequent interpretation of canid burials recorded in the dataset examined in this research relied heavily on initial excavation reports. The quality and quantity of detail provided in the reports varied, particularly in the earlier excavations, and as we no longer have access to these sites in the same way as the original excavators, the information that would potentially assist in interpreting a canid burial is now lost.

Many early reports, when it came to animal remains, had a minimalist approach. It was not uncommon for a report to simply describe the entry of a canid/dog burial as "dogs bones" (Firth 1912a: 144) or, "nine dead dogs" (Peet & Woolley 1923: 114). Emery (1938) failed to mention the presence of seven canid graves in his final report on the tomb of Hemaka and this information can only be found from an anonymous report on work undertaken by 'Service des Antiquites' at Saqqara north (Anon 1939).

The Early Dynastic cemetery site of Helwan excavated by Saad from 1942-1954 (1969) contained over 10,258 human tombs (Saad 1969: 5) and two dog burials. In a cursory one-liner Saad mentions "some tombs with dogs were found containing dog skeletons" (Saad 1947: 166), but fails to enumerate how many or provide details of their location, orientation or condition. Schweitzer (1948: 119-122) in his report on the same excavations went a step further and reported that tombs with dogs were 'often' found nearby a human tomb, but once again fails to enumerate how many or provide other details. A potential plethora of information, the detail of these 'often' canid burials, went completely unrecorded leaving only two canid burials documented in the entire cemetery.

Petrie in his report on the Early Dynastic subsidiary graves at Abydos, provided no more detail of a dog burial other than "dog in grave coffin" (Petrie 1925: Pl XXI). Similarly a dog burial at Ballas was recorded as "some bones of a dog in the fill" (Petrie & Quibell 1896: 13). At Hu (Diospolis Parva) the only reference to two multiple dog burials was "in two instances, circular graves were found filled solely with dog bodies" (Petrie 1901: 48).

A multiple canid burial found at Naqada was simply recorded as "Naqada Cemetery T, bones of about 20 individual dogs were found" (Petrie & Quibell 1896: 26). This particular burial has often been used as a parallel to date other multiple canid burials (Brunton & Caton-Thompson 1928: 94).

Many Predynastic/Early Dynastic cemetery sites were excavated before the advent of the zooarchaeological method. Zooarchaeology, as a multi-disciplinary field of research, significantly contributes to our understanding of human prehistory and history (Steele 2015). Multi-faceted detailed reports dealing with canid/dog burials help us to understand how these canids were treated in life, how they were utilized to secure and maintain social status, and how they were used in rituals or funerary beliefs (Morey 2010: 36).

Listemann (2010: 24) points out that an inadequate application of the zooarchaeological method impacts on the classification of animal material in a cultural and historical context. The frequent occurrence of fragmented remains and the limited amount of osteological study undertaken, particularly in early reports, are significant obstacles when attempting to classify canids found in burials.

Although zooarchaeological method is a relatively new practice, and difficult to implement due to the extremely disturbed state of many sites, consideration needs to be given to a number of early excavation reports that included in-depth examination and studies of animal remains, including those of the dog (Boessneck 1975; 1980; 1988; Boessneck & von den Driesch 1982; von den Driesch & Boessneck, 1985; Chaix & Olive 1986; Boessneck, von den Driesch & Ziegler 1989; Boessneck, von den Driesch & Eissa 1992). The inclusion of osteological studies on animals by Lortet and Gaillard (1903; 1907; 1909a; 1909b), although published in the early 20th century, provide a valuable resource for comparative studies when examining canid remains. Excavations undertaken to the south of Egypt, in the Sudan, also provide comprehensive zooarchaeological reports on animals and dogs (Bonnet et al. 1989; Gautier 1993; 2001; Chaix 1999), greatly increasing our knowledge regarding dogs found in burials in this closely associated region.

More recently, our understanding of Predynastic canid burials has been expanded considerably with detailed reports of grave contents, and osteological studies undertaken, confirming that many of the canids in graves were indeed dogs. Recent excavations undertaken in the Predynastic elite cemetery HK6 at Hierakonpolis under the direction of Renee Friedman (Van Neer, Linseele & Friedman 2004; Friedman, Van Neer & Linseele

2011; Friedman et al. in press) have provided a more detailed investigation into canid burials, highlighting the prominent place dogs held in the funerary practices of the elite burials in the cemetery. Results from excavations at the Predynastic Cemetery U at Abydos, under the direction of Gunter Dreyer and the German Institute (Dreyer et al. 2000), have painstakingly pieced together relevant details regarding Predynastic dog burials from the extremely disturbed tombs.[13] Dog burials associated with settlements have been thoroughly investigated at Adaima, under the direction of Béatrix Midant-Reynes and the French Institute (Midant-Reynes & Buchez 2002), providing valuable information regarding dogs buried at a settlement site. Recent work carried out at the site of Qasr Allam (Colin, Adam & Pranjic 2014) provides detailed results regarding dog burials found during the Late Period, broadening our understanding of the canid/human burial relationship at a later time in Egyptian history.

2.5 Conclusion

From the above review of current literature it becomes evident that the four standard classifications proposed for all animal burials in ancient Egypt do not apply equally to the burial of canids, and in particular dogs. While dogs as food offerings in Egypt have been ruled out, dogs were known to have been consumed in regions of North-west Africa and parts of Europe and South-east Asia. The religious context of sacred dogs representing deities in individual situations appears to have developed over time into the more pervasive votive context that peaked during the Late/Graeco-Roman Periods, when dogs became the conduit to access the god Anubis. A more persistent interpretation of dogs as pets or companions has been used from early excavation reports until present times. More recently there has been a growing volume of interest in the interpretation of the role of the dog as a protector.

While several scholars have touched briefly on the protector concept, it has remained on the periphery of main-stream thinking. The following chapters will consider the different members of the Canidae family found in ancient Egypt, and then present the results and analysis of a survey of published canid burials from the Predynastic Period through to the end of the Graeco-Roman Period, in order to explore the protector hypothesis and determine its authenticity.

[13] Excavations of Cemetery U where canids were found, have shown that the human graves in the same area belonged to wealthier burials (Hartung, personal communication).

CHAPTER 3: OVERVIEW OF THE CANIDAE FAMILY PRESENT IN ANCIENT EGYPT

The objective of this chapter is to provide evidence of the presence of the domesticated dog and other members of the Canidae family in the daily life of ancient Egyptian society. Many of the canid skeletons excavated in conjunction with human cemeteries and settlements in ancient Egypt have been recorded simply as 'dog', which is inadequate for our purposes. Therefore, a more detailed analysis is required to ascertain if the domestic dog was potentially the only canid used for funerary and mortuary practices or if a more thorough investigation may reveal that the documented remains may be more diverse in nature. To be able to make this distinction, it is necessary to understand which members of the Canidae family existed in ancient Egypt. Osteological evidence provides a lens through which we can determine which canids existed and at what stage of Egyptian history they were present. Iconographical evidence demonstrates qualities in these canids behaviour that were observed by the ancient Egyptians, qualities that may have led to their inclusion in the funerary practices. These combined sources may also aid the interpretation of this thesis concerning the significance of canid burials within the funerary culture of ancient Egypt.

By far the most commonly documented member of the Canidae family throughout ancient Egypt was the domestic dog *(Canis lupus familiaris).*The domestic dog is well documented from antiquity and remains widely distributed in significant numbers in Egypt today. Whilst only analysed in a limited capacity to date, the skeletal remains of dogs are abundant (Peet 1914; Dunand & Lichtenberg 2005b; Nicholson 2005; Hartley, Buck & Binder 2011; Ikram et al. 2013) and artistic representations are repeatedly found in a variety of media (Hendrickx 2006a; Zahradnik 2009; Listemann 2010). This is possibly due to the close association between humans and dogs in both life and death in ancient Egypt (Morey 2010).

The origin of the domesticated dog has been a much debated topic with the most recent research pointing strongly towards a European origin (Thalmann et al. 2013). However this does not eliminate the possibility of a similar domestication occurring in Northern Africa, or elsewhere, either concurrently or during a similar period. The majority of current academic discourse argues that the dog was not native to Egypt, but rather an introduced

species.[14] Regardless of initial origin, this chapter will argue that the presence of the domestic dog is confirmed by multiple sources in the ancient Egyptian region from as early as the Late Neolithic.[15]

Another member of the Canidae family known to be present in antiquity is the Egyptian jackal *(Canis aureus lupaster),* which exists in a limited number of areas in Egypt today (Hoath 2003: 70-71). This jackal has always been considered a rare subspecies of the golden jackal (*Canis aureus)*. However studies demonstrate morphological similarities between the Egyptian jackal and both the medium sized Indian wolf (*Canis lupus pallipes*), and the smaller Arabian wolf (*Canis lupus arabs*), both of which are subspecies of the grey wolf (*Canis lupus)* (Ferguson 1981: 464). Recent mitochondrial DNA studies have concluded that *Canis aureus lupaster* is not actually a golden jackal but rather should be placed within the grey wolf taxon (Rueness et al. 2011: 1). Therefore, when reference is made to jackals in Egyptian literature, it should be considered as meaning either jackals or wolves regardless of the genus.[16] To prevent confusion, the ongoing references to jackals will cover both jackals and wolves, regardless of their morphological distinctions.

A physically diminutive, but no less significant member of the Canidae family is the fox (genus *Vulpes*). Three subspecies are known to have existed in ancient Egypt and are also found in Egypt today (Osborn & Helmy 1980: 371-395; Hoath 2003: 76-80): the red fox (*Vulpes vulpes aegyptiaca),* Rüppell's sand fox (*Vulpes rueppellii),* and the Fennec (*Vulpes zerda)*. Their existence in ancient Egypt has been confirmed by both skeletal remains (Lortet & Gaillard 1909a: 260-267; Boessneck & von den Driesch 1982; Gautier 1993; Linseele, Van Neer & Friedman 2009) and artistic representations (Graff 2009).

Finally, the African wild dog *(Lycaon pictus)* is a unique species of the Canidae family and is the only species belonging to the genus *Lycaon* (Nowak 2005: 112). It exists only in small numbers in parts of Africa today and has been classified endangered. It is neither a dog nor a wolf although it is morphologically very similar to both (Raisor 2004: 35-36). The African wild dog was represented on a number of Early Dynastic Egyptian artefacts,[17]

[14] For discussion on the origins of the domestic dog, see § 3.1.
[15] For discussion on the appearance of the dog in Egypt, see §3.2.1.
[16] The synonymic interchange of the labels wolf and jackal is also argued by Osborn & Helmy (1980: 366).
[17] Huyge (2012: 29) in his study of rock art at Qurta mentions the depiction of a *Lycaon pictus* along with other animals and fish at nearby sites located at Wadi Abu Subeira.

and then disappeared from records.[18] As the animals represented on early art work are considered to be animals observed by artists at the time of construction (Hendrickx et al. 2009: 192; Morrow et al. 2010: 16), it is plausible that the African wild dog was a part of the environment during the early stages of Egyptian history.[19] However, the absence of skeletal remains, and the artistic representations which were often found in conjunction with mythical creatures may indicate a symbolic significance (Baines 1993: 63; Hendrickx 2006a: 742) rather than a physical presence, or potentially both.

3.1 The Ancestry of the Egyptian Dog

As mentioned previously, the dog is not considered native to Egypt. To appreciate from where and when it may have arrived, a brief outline of the ancestry of the domestic dog is helpful. It is generally agreed today that dogs were the very first domesticated animal in the world (Morey 2006:158; Larson & Bradley 2014). What is today referred to as 'the dog' is the result of a complex process of the domestication of the wolf (Figure 3.1). To understand this better, we will review the definition of the process of domestication, look at how, where, when, and finally why it occurred.

Concepts of 'domestication' can be divided into two categories: those that emphasize biological significance and those that emphasize social significance (Morey 2006: 159). Bökönyi (1969: 219) defines *domestication* as "the capture and taming by man of animals of a species with particular behavioural characteristics, their removal from their natural living area and breeding community, and their maintenance under controlled breeding conditions for profit". Clutton-Brock (1994: 27). defines *domestication* as an animal kept under controlled breeding conditions, resulting in a group of animals bred by humans that develop uniform characteristics which are inherited and distinguish it from other animals within the same species. For the purposes of this paper, the preferred definition of domestication is that of Morey who simply advocates that domestication of the dog should be regarded as the "development of a symbiotic relationship between two organisms" (Morey 2010: 67).

[18] Braulińska (2009: 17) makes an interesting point concerning the disappearance of the African wild dog in Egypt, questioning whether the African wild dog ever actually inhabited the area; the depictions may have been copies of products coming from other lands.

[19] Osborn & Osbornová (1998: 80) argue that the African wild dog existed in Lower and Middle Egypt into the Dynastic Period, based on its depiction on artefacts. They also suggest the animal was considered a cult animal in the late Naqada and early Dynastic Periods.

Both archaeological and molecular research has been used in an attempt to resolve the uncertainties concerning the origin of the domestic dog. Prior to 1993 the dog had always been identified as *Canis familiaris*, however during that year the Smithsonian Institute in conjunction with the American Society of Mammalogists formally reclassified the dog as a variety of the wolf, *Canis lupus,* and it is now designated as *Canis lupus familiaris* (Brewer, Clark & Phillips 2001: 20; Raisor 2004: 1; Morey 2006: 166; Germonpré et al. 2009). The physical distinction between dog and wolf is most visible in the morphological changes, especially the reduction in dog body size, the shortening of the facial region and the reduction in tooth size (Morey & Wiant 1992: 225; Dayan 1994: 633; Russell 2012: 209).

Debate still surrounds *when* the domestication of the dog occurred (Raisor 2004: 1; Morey 2006: 167). Zooarchaeological evidence indicates that domestic dogs were present in both Europe and the Near East around 14,000 years ago. Skeletal remains of dogs have been positively identified at Bonn-Oberkassel in Germany, *ca.* 14,000 BP (Benecke 1987), the Palegawra cave in north-eastern Iraq, *ca.* 14,000 BP (Turnbull & Reed 1974), the Hayonim Terrace in the Levant, *ca.* 12,000 BP (Tchernov & Valla 1997), Ein Mallaha in Israel, *ca.* 12,000 BP (Davis & Valla 1978), the southern shore of the Great Ushki Lake in Far Eastern Russia, *ca.* 10,800 BP (Dikov 1996), the rock shelter of Saint-Thibaud-de-Couz in the French Alps, *ca.* 10,000 BP (Chaix 2000) and the site of Star Carr in England, *ca.* 9500 BP (Clark 1971). All these dogs had been placed purposefully in the ground, indicating the existence of a connection between humans and dogs at the time.

There is a further body of archaeological research which remains subject to verification, which claims a possible earlier Late Pleistocene date for the presence of dogs, with canid bones being found at the site of Goyet in Belgium, *ca.* 36,000 BP (Germonpré et al. 2009), at the Gravettian Předmostí site in the Czech Republic, *ca.* 36,000 BP (Germonpré et al. 2012) and in the Razboinichya Cave in south-west Siberia, *ca.* 33,000 BP (Ovodov et al. 2011; Larson et al. 2012: 8878).[20] Human and canid footprints have also been found impressed into the floor of the Chauvet cave in France, dated to *ca.* 26,000 BP (Garcia 2005), suggesting the possibility that a bond existed between humans and canids at this time.

[20] The problem of positively identifying these canids is due largely to the difficulty in determining if the bones belong to wolves going through the initial stages of an incomplete domestication process or if they belong to a now-extinct population of wolves (Larson et al. 2012: 8878; Larson & Bradley 2014: e1004093).

Mitochondrial DNA analysis, on the other hand, carried out by an international team of geneticists and evolutionary biologists, concluded that domestication may have occurred more than 100,000 years ago (Vilà et al. 1997: 1687). However there is no zooarchaeological evidence to support this early date (Morell 1997: 1648). With the use of advanced 3D geometric morphometric analyses and ongoing comparable genetic analyses of modern and ancient domestic dog genomes, a more accurate date for the domestication of the dog will be forthcoming (Larson et al. 2012: 8882). To date, the Bonn-Oberkassel dog from Germany (14,000 BP) is considered the oldest *securely* established dog specimen in the world (Morey 2010: 25), preceding the first documented evidence for the dog in ancient Egypt by a considerable length of time. The existence of the dog in the North African region is only brought to light when images of the dog first appear perhaps as early as 6000 BC, carved in the rocks at sites in the Eastern (Morrow et al. 2010) and Western Deserts (Winkler 1938a; 1938b; Hendrickx et al. 2009; Darnell 2011) and the northern and southern Saharan deserts (Le Quellec 1998). Late Neolithic skeletal evidence from various settlement locations within ancient Egypt confirms the regional presence of the dog in that time period (Gautier 2001: 619-620).

Despite wide-ranging archaeological and genetic research, there is no full agreement about *where* the domestic dog originated, although a multi-region origin seems to be preferred. This is largely due to the difficulty in discriminating between small wolves and large domestic dogs and the inconsistencies in archaeological studies performed on animal remains around the world (Vilà et al. 1997; Pang et al. 2009: 2849). Ovodov and colleagues claim that morphological, behavioural and genetic evidence all suggest that dogs evolved from ancient wolves several times in several different places (Ovodov et al. 2011: 6). This theory is confirmed by Crockford who hypothesizes that dogs may have undergone "self-domestication" from wolves on multiple separate occasions, each event being a natural process involving the simple factor of proximity to humans (Crockford 2000a: 295; 2000b: 17). Tchernov and Valla (1997: 66) accept a multi-regional origin suggesting that their later Neolithic Levant dogs were possibly domesticated anew in the region. Boyko and colleagues argue that mitochondrial sequencing alone is not well suited to determine the location of domestication and agree with a multi-regional origin in both Europe and Asia[21] (Boyko et al. 2009: 13903). Alternatively vonHoldt and colleagues

[21] This study entailed the analysis of mtDNA, microsatellite, and SNP markers in 318 African dogs, 16 Puerto Rican street dogs, 102 known mixed breeds from the U.S.A. and several hundred dogs from 126 breeds, including 129 dogs from five African and Middle Eastern breeds (Boyko et al. 2009: 13903-13908)

recognise the feasibility of a multi-regional origin but propose a single Middle Eastern origin (vonHoldt et al. 2010).[22] The evolution from wolf to dog is argued by Pang and colleagues who point specifically to the area south of the Yangtze River in China (Pang et al. 2009).[23] An East Asian origin is supported by Savolainen and colleagues (2002: 1610),[24] and Dayan and Galili agree, extending the south-east Asian origin to include south-west Asia, using the small Indian (*Canis lupus pallipes*), Arabian (*Canis lupus arabs*) or Chinese (*Canis lupus chanco*) wolves found in this area as the most likely progenitors (Dayan & Galili 2000: 29). The most recent results of analysis of the mitochondrial genomes of 18 prehistoric canids from Eurasia and the New World compared with a number of modern dogs and wolves concluded that the mitochondrial legacy of modern dogs derives from wolves of European origin (Thalmann et al. 2013: 873).

Why dogs became domesticated is also a bone of contention amongst researchers. One theory suggests that dogs diverged naturally from wolves as a result of the natural course of evolution, and human intervention played no part (Raisor 2004: iv). Another theory put forward is based on the idea of 'co-evolution of co-operation', where initial contacts between humans and wolves were mutual, and the consequent changes in both wolves and humans need to be considered as a process of co-evolution (Schleidt & Shalter 2003: 57). The most popular theory is that dogs were domesticated from the wolf by humans to fulfil sacred and secular functions within the human-animal relationship. In this capacity dogs became guard animals, hunting aides, herders, sources of traction, status symbols, spirit guides, sacrificial offerings, pets, sources of fur, objects of worship, sources of medicine, raw material for witchcraft, and sources of food for both daily consumption and ritual feasts (Olsen 2000: 71; Morey 2010: 86-111; Russell 2012: 280).

If indeed Europe or Asia were the areas from where the first domestic dogs appeared, then the dog must have made its way into Egypt via the Iberian Peninsula or through the Middle East (Brewer 2001), and then spread throughout Africa. However, as argued by Crockford (2000a), self-domestication from wolf to dog may have occurred in multiple places at

[22] VonHoldt and colleagues conducted an extensive genome-wide survey of more than 48,000 single nucleotide polymorphisms in dogs and their wild progenitor, the grey wolf and showed that dog breeds share a higher proportion of multi-locus haplotypes unique to the grey wolf of the Middle East (vonHoldt et al. 2010: 898).

[23] Research by Pang and colleagues showed that dogs universally share a common homogenous gene pool containing ten major haplotypes, all of which were found only in south-eastern Asia south of the Yangtze River, suggesting that the origins were in this area (Pang et al. 2009: 2849-2864).

[24] Savolainen and colleagues examined the mitochondrial DNA sequence variation among 654 domestic dogs and found >95% of all sequences belonged to three phylogenetic groups universally represented at similar frequencies, suggesting a common origin from a single gene pool (Savolainen et al. 2002: 1610).

multiple times, leaving the possibility that it occurred somewhere in Northern Africa open for consideration.

3.2 The Dog in Ancient Egypt *(Canis lupus familiaris)*

The aim of this section is twofold. The first is to document the earliest skeletal remains found at human occupied settlement sites in ancient Egypt to confirm that the domestic dog was an integral part of society. The second objective is to discuss examples of artwork where images of dogs have been used as decorative elements with the aim of understanding how the dog was perceived by the ancient Egyptians. As the artistic representations of dogs in ancient Egypt are extensive,[25] this section will focus on a small number of the early representations to establish when the dog image first appeared and how it established itself in the iconography of ancient Egypt.

With the advent of hieroglyphic writing, scenes depicted on Old Kingdom tomb walls incorporate the word *ṯsm*  , which appears to describe the hound or hunting dog (*Wb*. V: 409.13-22; Hannig 2003: 1461 [38447]), while *iw*  or *iwiw*  can be found from the First Intermediate Period and seems to describe any dog (*Wb*. I: 48.3 & 50.1; Hannig 2003: 50 [1070]). There also appears to be a word that specifies a particular breed of dog, the wolfhound, which was written *wnš-iw*  (*Wb*. I: 324.16; Kahl 2002: 119).

3.2.1 Early Skeletal Remains

Skeletal remains of the dog have been found at a small number of early settlement sites in ancient Egypt. Whilst these remains confirm their presence, they do not necessarily indicate a sacred function for the dog at that time. Skeletal remains that are more than likely those of dogs have been recorded in Late Neolithic settlement sites excavated in the Western Desert, the western edge of the Nile Delta and south of the Delta in the Fayum region. Dog remains have also been definitively recorded in the later Predynastic sites of Maadi and Hierakonpolis.

When considering the earliest evidence of skeletal remains, reports from the prehistoric sites of the Nabta Playa and Bir Kiseiba areas of the Western Desert seem to indicate that the dog was a part of the Middle Neolithic pastoral and hunting communities (Gautier 2001: 631) where they probably fulfilled specific functions. Among the faunal remains

[25] For significant artistic studies on dogs see Zahradnik (2009) and Listemann (2010).

collected from the Late Neolithic deposit at Nabta site E-75-8 (6430 BP ± 90 years)[26] were numerous large, robust canid skeletal remains which have been identified as the domestic dog (Gautier 2001: 619-620). Additionally, von den Driesch and Boessneck recorded multiple dog bones found among the faunal remains excavated during Phases I-V of the work (5890 ± 60 and 5440 ± 75 BP)[27] carried out at the Late Neolithic settlement site of Merimde Beni Salame (von den Driesch & Boessneck 1985: 31, Tab. 13).

In the Fayum Neolithic A culture (*ca.* 5400-3900 cal BC),[28] primarily known from a series of sites along the north shore of the Fayum Depression (Flores 2003: 13), semi-sedentary communities practiced agriculture, hunting and fishing (Wenke, Long & Buck 1988). Faunal remains excavated at the settlement site of Kom W indicate the presence of 'several canines', presumably that of the domestic dog (Caton-Thompson & Gardner 1934: 34).

Turning to the Predynastic Period, the well-preserved cranium recovered from the Maadi Predynastic settlement (3900 – 3400 cal BC)[29] by Amer during the 1932-33 excavations was identified as a dog (Moustafa 1955: 107). A later study by Boessneck and colleagues reports that 121 dog bones were present in the Maadi settlement faunal remains (Boessneck, von den Driesch & Ziegler 1989: 88) and these included juvenile, sub-adult and adult dogs (Boessneck, von den Driesch & Ziegler 1989: 103). Extensive excavations at the Predynastic site of Hierakonpolis (Naqada II) have revealed numerous canid remains found in the wall trench and "modified" silts of the ritual area designated HK29A. Although these may include jackal remains, Linseele and colleagues believe they are far more likely to be the remains of the domestic dog (Linseele, Van Neer & Friedman 2009: 124).[30]

Skeletal evidence of the domestic dog found at a number of ancient Egyptian settlement sites dates their existence to approximately the beginning of the fifth millennium BC (6000-7000 BP). The sacred function of the dog discussed further in Chapters 4 and 5, is first evidenced during the Badarian culture (*ca.* 4400 BC) when the first canid burials occur in cemeteries at Badari [DRN 1] and Mostagedda [DRN 180].

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[26] Radiocarbon dates on charcoal confirm a Late Neolithic date of 6430 BP±90 years and a Middle Neolithic date of 7220 BP±75 years for deposits at E-75-8 (Close 2001: 361).

[27] Radiocarbon dates from Phase 1-V are set out by von den Driesch & Boessneck (1985: 2). These dates are confirmed by Midant-Reynes (2000a: 110) who suggests that the first phase of Merimdan culture should be dated to the very beginning of the fifth millennium BC.

[28] Fayum Neolithic dates are discussed by Hendrickx (1999: 17).

[29] Maadi-Buto dates are discussed by Hendrickx (1999: 20).

[30] A cut-mark on a talus suggests the animals may have had their pelts removed (Linseele, Van Neer & Friedman 2009: 125).

3.2.2 Early Artistic Representations

Skeletal evidence for the presence of the domestic dog in ancient Egypt is supplemented by the existence of artistic representations across various media. Early representations can be found etched on rocks, painted or incised on ceramic vessels and carved or modelled onto a variety of decorative or personal accessories. These images not only support the presence of the animal, but also suggest a symbolic importance for the dog in early Predynastic art.

3.2.2.1 Rock Art

The earliest evidence for the existence of the domestic dog in ancient Egypt is found engraved into rock in the form of petroglyphs. Rock art traditions are known to have existed in Egypt from as early as *ca.* 15,000 BP.[31] They appear to emerge from the continuous interactions between Egypt and Nubia along the Nile Valley, and through the routes of the Eastern and Western Deserts (Darnell 2011: 1151). It is believed that sites in these areas were important to nomadic groups for stone procurement and hunting (Storemyr 2009: 140-143). Animals depicted in rock art are understood to represent the species that artists were familiar with at the time of carving; it is also understood that the animals were represented in their functioning roles (Hendrickx et al. 2009: 192; Morrow et al. 2010: 16).

Among the scenes engraved in the rocks, the desert hunt is a dominant motif. Using visual and scientific methods, many of the desert hunt scenes can be placed in the timeframe of the 4th millennium BC or possibly earlier (DuQuesne 2005: 21; Hendrickx et al. 2009; Hendrickx 2010: 127-129; Morrow et al. 2010; Huyge et al. 2011; Hendrickx & Eyckerman 2012: 58-63). Judging from the frequency of such scenes, hunting was a significant component of life in the early societies of Predynastic Egypt. The majority of rock art images of dogs represent them taking part in the desert hunt. Hunters and dogs are depicted together, with the dog pursuing wild animals (Figure 3.2). Sometimes the dog is restrained on a lead and at other times the dog(s) is unleashed, free to chase its prey. The importance of the dog to the hunt scene is emphasised by the fact that the entire hunt scene is often reduced to the dog and its prey (Hartung 2010: 110), that is, without human control (Figure 3.3). The desert hunt was an activity undertaken exclusively by the elite (Arnold &

[31] Deposits covering rock art discovered at Quarta on the east bank of the Nile, 40km south of Edfu, have been dated using optically stimulated luminescence (OSL) techniques giving a date of *ca.* 15,000 calendar years ago. This confirms Huyge's original dating of *ca.* 23,000-11,000 years ago, when visual techniques were used to date the rock art including subject matter, technique and style, archaeological and geomorphological context, patination and degree of weathering (Huyge 2012).

Counts 2010: 19; Hendrickx 2010: 128), and the hunting dogs were part of this elite activity. The main focus of the hunt itself appears to be the capture of wild animals rather than the actual kill (Linseele, Van Neer & Friedman 2009: 126; Hendrickx & Eyckerman 2012: 59). The prestige associated with capturing and returning to the communities with wild animals, kept alive for later use in ritual contexts (Hendrickx & Eyckerman 2012: 59), may well have extended past the hunters themselves and incorporated their dogs. Hendrickx and Eykerman (2015: 198) have recently proposed that the hunter and his dog were also regarded as protectors of communities, as together they hunted animals considered dangerous to human life, crops and livestock.

Therefore the datable evidence available from rock art supports the skeletal evidence that the domestic dog existed in Egypt from at least 4400 BC and perhaps even earlier.[32] This important representation continued to be depicted on media other than rock art and can be found as a decorative theme on Naqada I-II painted and incised ceramic vessels.

3.2.2.2 Pottery

Red-polished pottery painted with cream/white line decorations, known as White cross-lined pottery (C-ware), was a special feature of Naqada I – early Naqada II. The dog image is represented on a number of instances of this type of pottery, where dogs are always shown actively engaged with the hunt (Hendrickx 2011a: 238). In a study of Naqada I - Naqada II decorated vases, Graff (2009: 35) identified twenty-two separate dog images on White cross-lined vessels that were found associated with human burials, suggesting that the dog and the hunt were a significant icon in the decoration of grave goods.

One of the earliest Naqada I White cross-lined vessels with the desert hunt scene is the Moscow bowl (Moscow Fine Arts Museum 2947). Four canids can be identified as dogs by their short upturned tails and pointed ears and also by the fact that they wear collars, they are all leashed and are under the control of a hunter (Figure 3.4). A similar representation can be found on a bowl now held in the Princeton Art Museum (Princeton Art Museum 30-493), where two leashed dogs are shown held by a hunter, and a third dog runs free in pursuit of a wild ungulate (Figure 3.5). This abridged version of the hunt showing the isolated dog and its prey is also found on a bowl excavated from tomb U-264 at Abydos, where a single unrestrained dog attacks a desert ungulate (Cairo CG 2076) (Figure 3.6).

[32] It should be noted that there is no evidence for the depiction of domestic dogs on the rock art from Quarta dated to 15,000 BP (Huyge 2012).

Other pottery has been excavated, also from Naqada I-II, which has the hunting scene incised into the artefacts rather than painted. A small number of Black-topped vessels used as grave goods have been documented (Hendrickx 2006a: Tab. 1), including a jar now held in Brussels (Brussels, MRAH E.2631). This artefact, provenance unknown, not necessarily from a tomb context although most likely (Hendrickx personal communication 14/11/2016), was decorated with the hunt scene set out in a linear style (Hendrickx 2006a: Fig. 1). Two dogs are depicted in pursuit of desert animals, and they are positioned at the end of the top row of animals (Figure 3.7). Hendrickx considers this 'row style' as simply a variant of the more explicit hunting scenes found on rock art and decorated vessels (Hendrickx 2006a: 724).

A new type of pottery produced slightly later during Naqada IIC-D (Hendrickx 2006a: 727) characterised by the use of pale clays decorated with reddish-brown painted motifs was known as Decorated Ware (D-ware). Although less frequent than White cross-lined ware, the dog and the desert hunt continue to be used as a decorative element. Graff identified five Decorated Ware vessels with the representation of dogs in her corpus of twenty-seven (Graff 2009: 35). A Decorated Ware vessel now in the Ashmolean Museum (Ashmolean Museum E. 2832) with the desert hunt clearly defined shows a large heavy-set dog with long tail and pointed ears, pursuing a number of desert ungulates (Figure 3.8).

Accordingly, the pottery evidence supports the existence of the dog from as early as Naqada I, where it was commonly used as a decorative element on ceramics used in settlements (Midant-Reynes & Buchez 2002; Tristant 2004: 85, Figure 92) as well as in human burials (Payne 1993: number 422). It is from Naqada I onwards that we begin to find images of the dog worked on various artefacts, indicating their continued importance typically as part of the hunt.

3.2.2.3 Artefacts

Images of the dog appear on a number of early artefacts, where the dog can be identified by different characteristics that distinguish it from other canids that are often depicted on the same artefact (Listemann 2010: Tab. 1). Whilst the desert hunt continues to be used as a popular decorative element, the animals typically appear in structured rows.

One of the earliest artefacts with the image of a dog is a Naqada I decorated ostrich egg (Teeter 2011: 158-159, Cat. 5). This very rare complete egg is decorated with incised lines and continues the theme of the desert hunt. The dog, identified by its pricked pointed ears

and short upturned tail, is depicted without human control, behind a group of desert ungulates (Figure 3.9).

A number of early decorated ivories dated to Naqada III are set out with the wild animals in the 'row-style' mentioned in §3.2.2.2. The Davis ivory comb, (MMA 30.8.224) is decorated on both sides with carved images of animals set out in horizontal rows (Figure 3.10). One row of lions ends with a dog (Cialowicz 1992: 250; Patch 2011: 197, Cat. 178) which Hendrickx argues is the representation of the dog as a controlling element over wild animals (Hendrickx 2006a: 736; Patch 2011: 153).

The Brooklyn knife handle (*ca.* 3200-3000 BC) (Brooklyn Museum 09.889.118), found at Abu Zaidan is decorated on both sides (Figure 3.11) in a similar arrangement to the Davis ivory comb (Figure 3.10), with ten rows of wild animals on each side (Churcher 1984: 153; Cialowicz 1992: 247-248). Three separate rows of animals each conclude with a dog, representing the same controlling element argued by Hendrickx (Churcher 1984: 154; Osborn & Osbornová 1998: 5; Hendrickx 2006a: 736). An additional artefact, the Carnarvon knife handle (*ca.* 3200-3100 BC), although badly damaged (Patch 2011: 153-154, Cat. 131) depicts the desert hunt. Although the number of dogs depicted in this scene is debateable,[33] two of the animals can be identified as dogs (Figure 3.12).

The Gebel el Arak ivory knife handle (Paris, Louvre E. 11517), dated to Naqada IID (Delange 2009: 28), found near Abydos, is decorated on one side with a structured and relatively orderly scene incorporating a human, three dogs and various wild animals (Delange 2009: Fig. 1a-b) (Figure 3.13). The dogs are two large heavy-set hounds and they stand below the iconic scene of 'The Master of the Animals' (Arnold and Counts 2010). In the area below, a leashed dog pursues a bovine animal, the scene clearly portraying a desert hunt (Delange 2009: 11-15: Listemann 2010: 165).

The slightly later Gebel el Tarif knife handle (Egyptian Museum CG 14265) dated to Naqada III depicts the same type of large heavy-set hound with its right paw extended towards the back of another quadrupe[34] (Figure 3.14) (Cialowicz 1992: 256-257; Osborn & Osbornová 1998: 7; Delange 2009: Fig. 32). This ivory knife handle presents a further complication to the interpretation of the image indicating a point of comparison between reality and myth, in that it portrays a mythical 'griffen' among wild and domestic animals.

[33] Osborn & Osbornová (1998: 6) identified three dogs; Churcher (1984: 168) identified two dogs; and Cialowicz (1992: 256) also doubts the presence of a third dog.

[34] Cialowicz (1992: 256) tentatively identifies this animal as a wild boar.

It is also interesting to note that Tomb 100 at Hierakonpolis, considered to be a maze of images that "allow a glimpse into the iconographic and semiotic universe that must have once existed" (Hendrickx 2011b: 77) also includes a section depicting dogs pursuing wild oryxes (Midant-Reynes 2000a: 208) (Figure 3.15). Tomb 100, long considered to be dated to Naqada II, is now thought to be originally constructed and decorated during Naqada II and then repainted and modernized during Naqada III (Huyge 2014). Huyge believes the only way to account for several anomalies in the artwork is to see the decorations as having taken place at two separate time periods.

During Naqada III dogs and the desert hunt are incorporated into the decorations on important palettes. The acclaimed Two Dog palette now held in the Ashmolean Museum (Ashmolean Museum E.3924) portrays three long-tailed, floppy-eared dogs pursuing wild animals (Figure 3.16). As with the Gebel el Tarif knife handle mentioned above, both sides of the Two Dog palette have a mixture of real and mythical animals in the scenes.

Another type of artefact worth mentioning is the stone or pottery modelled dog that appears in the archaeological record during early Naqada III. Various fragments representing the dog form have been found at Hierakonpolis. The stone torso of a collared, floppy-eared dog, now in the Ashmolean Museum (Ashmolean Museum E310) (Boessneck 1988: Fig.139), and the head and neck of a collared, floppy-eared dog (Quibell 1900: Pl. XXII, 7) both represent the typical hunting dog. A slightly different two dimensional carving on a grey steatite sceptre head retains the images of the hunt but uses the linear layout for the animals with three large mastiff hunting hounds in pursuit of three lions (Quibell 1900: Pl. XIX, 6) (Figure 3.17a). The representation of a single dog and a single lion can also be found on a small ivory spoon found at Ballas (Petrie & Quibell 1896: Pl. LXI, 46) (Figure 3.17b).

From Dynasty 1 onwards, the importance of the role of the dog as a hunter appears to be well established. A black steatite disc, found in the Tomb of Hemaka, an official during the reign of King Den, depicts two hunting dogs, one chasing a gazelle, the other catching a gazelle by the neck (Figure 3.18). This iconic scene is often repeated on later Old Kingdom tomb walls as part of the desert hunt. The tomb of Hemaka where the disc was found is also known for a series of seven separate dog burials (Anon 1939: 79) found as part of nineteen subsidiary graves south of the tomb [DRN 101, 207, 208, 209, 210, 211, 212]. The significance of such dog burials will be the subject of further discussion in Chapter 5.

The small number of objects discussed above demonstrates the symbolic importance of the dog in early Predynastic art. The image of the dog is invariably connected with hunting, the representation of which has been interpreted as symbolic of the control by man over nature and its phenomena (Hendrickx 2011a). It has also been argued that the representation of the dog in hunt scenes represents an act of protection (Hendrickx & Eyckerman 2015). Therefore the artefact evidence not only substantiates the existence of the dog from at least Naqada I, but it also shows how the image of the dog became a part of the iconography for the forthcoming Pharaonic Period and provides a hint as to the potential significance of their use in the funerary practice.

3.3 The Jackal in Ancient Egypt (*Canis aureus lupaster*)

Whilst the primary subject matter of this paper is the domesticated dog, it is necessary to consider the evidence supporting the existence of other canids present in ancient Egypt, especially the *Canis aureus lupaster,* or jackal, especially given the morphological similarities with canid skeletal remains, their presence in the geographical region, and the prominence of the jackal in religious significance for later periods.

References to the jackal in ancient Egypt have become synonymous with the canid deity Anubis (Baines 1993: 58). However, depictions and references to Anubis are not associated only with the jackal animal, as Anubis embodied the combination of characteristics of several different canids, a composite representation of the dog, the jackal and the fox (Osborn & Osbornová 1998: 76; Evans 2008; Braulińska 2009). As the purposes of this section is to identify the presence of the jackal animal, representations of Anubis the deity will not be used, only skeletal evidence or clearly defined representations of the jackal animal will be considered.

The jackal today can be distinguished from the domestic dog by its larger size (38-50 cm at withers) and its blackish-yellow coat with a black dorsal mane (Alderton 1994: 136; Braulińska 2009: 13). Jackals have a long snout, their legs are relatively long, and their tail is short and bushy reaching to the hocks (ankle) with a distinctive black tip (Osborn & Helmy 1980: 365). The jackal is widely distributed throughout Egypt today, where they are frequently found in mated pairs or small family groups (Alderton 1994: 136-138; Evans 2010: 120).

The hieroglyphic writing for jackal appears in the Pyramid texts of the Old Kingdom where *sꜣb*  (*Wb*. III: 420.5; Hannig 2003: 1057 [25945]) can be literally translated as

jackal. From the Old Kingdom onwards, the word *sꜣb* written with the jackal hieroglyph was also translated as 'judge' (*Wb*. III: 421), a symbol of controlling power. This topic is beyond the scope of this thesis, but worthy of future research. It is also interesting to note that the hieroglyphic term for the jackal could also be written as *wnš* (Hannig 2003: 352 [7706]) which suggests the ancient Egyptians may have seen the wolf and the jackal as one. Hannig translates *wnš* as 'Wolfsschakal' or (*Canis aureus lupaster*) the actual genus name for jackal.

3.3.1 Early Skeletal Remains

Skeletal remains definitively identified as jackals are scarce, however bones from a number of early Egyptian sites have been identified as jackals, typically on the basis of their larger size. The primary evidence for these jackal remains come from settlement sites in the Western Desert and in the northern Delta region.

Currently the earliest documented skeletal remains were excavated at the Middle Paleolithic (*ca.* 250,000-70,000 BP) settlement site of Bir Tarfawi, in the Western Desert. In the main excavation of BT-14, cranial remains, teeth and other dental fragments and various postcranial canid bones were excavated and measured, and consequently identified by their size to be that of a jackal (Gautier 1993: 127).[35]

At various sites at Bir Kiseiba and Nabta also in the Western Desert, large slender canid skeletal remains were excavated from the Late Neolithic (*ca.* 5100-4700 BC) layers (Gautier 2001: Tab. 23.1). The fragmentary remains caused the researcher some uncertainty, however mandible size and shape was consistent with that of a golden jackal (Gautier 2001: 619).

Further north in the Delta region, von den Driesch and Boessneck studied the faunal remains from the excavations at Merimde Beni Salame (*ca.* 5000-4100 BC) and acknowledged that in terms of size, a number of recorded canid bones, especially a calcaneus (ankle bone), suggested that the jackal was present at this site (von den Driesch & Boessneck 1985: 44). Also in the Delta region among the faunal remains from Late Neolithic Maadi, Boessneck and colleagues studied a canid cranium and, based on comparative size with dog crania, identified it as that of a jackal (Boessneck, von den Driesch and Ziegler 1989: 108).

[35] Gautier (1993: 138) argues that jackals may have been killed and skinned, but not eaten, preserving the bones of individuals in recognizable form, which may account for the disproportionate number of jackal bones found in the fauna of the Main Excavation of BT-14.

Lastly, two mummified jackals, now in the Musée des Confluences de Lyon in France, both came from Egypt in the late 1800's (Lortet & Gaillard 1903: 1). One has no provenance but the other came from Roda in Upper Egypt, along with a number of mummified dogs possibly dated to the Saïte Period (Lortet & Gaillard 1909a: 259). The two jackals were identified by their size and morphology and the colouring of the hair still evident under the wrappings attached to the skin (Lortet & Gaillard 1903: 17).

Although the skeletal evidence for the jackal is not abundant, remains excavated in settlement sites in north and south Egypt confirm the existence of this animal in multiple regions from as early as the Middle Palaeolithic, predating existing evidence for the domestic dog. Predynastic artistic representations of the jackal have also been identified on a small number of artefacts supporting the notion that the animal was present and suggesting the possibility that it held a significant place in the culture of the time. A more detailed analysis of these representations will be undertaken in the following section.

3.3.2 Early Artistic Representations

Artistic representations specifically depicting the jackal are rare, however, several of the existing artefacts date back to the Predynastic Period. Chronologically, they continue to appear sporadically on tomb wall scenes from the Old Kingdom and thereafter. It is important to note that morphological similarities between members of the Canidae family make the identification of images of the jackal often difficult to discern. Other depictions may not be sufficiently detailed to distinguish the finer nuances differentiating the various species. The corpus of jackal representations, although sparse, spans a variety of media: rock art, decorated ceramics and later tomb scenes.

The earliest documented representations of the jackal date to Naqada II. Two small crouching amulets made from bone, found on the chest of a child in a tomb from Mostagedda, have been identified as that of two jackals, the categorisation based on the signature characteristics of nose shape and short elevated tail above the ground (Patch 2011: 50) (Figure 3.19).

In Grave A226 at El-Ahaiwah the body of a woman dating to Naqada III was discovered with numerous objects (Reisner 1936a: 378). Amongst these objects was a slate zoomorphic palette, the shape of which Reisner described, in the early 1900's, as being that of a fox (Reisner 1936a: 378, Fig. 188). However, upon further analysis this description appears questionable, based on the stance of the animal's legs, the elevated

shorter thick tail and the pointed muzzle which collectively indicate this palette shape actually belonged to that of a jackal (Patch 2011: 50, Cat.46) (Figure 3.20).

The Brooklyn knife handle (Brooklyn 09.889.118), discussed in §3.2.2.3 for its dog images, dated to Naqada IIIB (Cialowicz 1992: 247-248; Osborn & Osbornová 1998: 4, Figs. 1-7), is decorated with various wild animals depicted in a series of horizontal rows. One of the rows has been identified as a line of jackals, based on their body shape and shorter bushy tails (Churcher 1984: 163; Cialowicz 1992: 249; Osborn & Osbornová 1998: 56). Their position among the lines of undomesticated animals suggests they were categorised as wild animals (Figure 3.11).

In the 5th Dynasty Giza tomb of *ꜣḫti-mrw-nswt* (Akhti-meru-nesut, G2184), a canid is shown lunging towards a calf which is being born. Evans is confident that this canid is a jackal because of its short legs, the tail length and the absence of a collar (Evans 2010: 121).

A pair of mating canids in the tomb of *Ni-mꜣʿt-rʿ* (Ni-maat-ra) have been identified as jackals by the short tail of the female and the caption above them that reads *nk wn*[*š*] – 'copulating jackal' (Evans 2010: 160). A small group of canids depicted on a sub-register in the tomb of *Mrii-tti* (Meri-teti) have been identified as jackals by their sharply pointed muzzles, straight backs and the long tail dropping below the register line.[36]

While it must be acknowledged that artistic representations of the jackal as a wild animal are extremely rare, nonetheless their presence on the Naqada III Brooklyn knife handle among other wild animals is telling. This not only indicates their physical presence at the time, but also differentiates their image from that of the domestic dog, as the jackal had remained wild which by definition reduces the quality and quantity of interactions with humans when compared to the domestic dog.

3.4 The Fox in Ancient Egypt *(Vulpes vulpes)*

Of the ten formally recognised species of fox (Nowak 2005: 72), the three subspecies identified as present in ancient Egypt are: the red fox *(Vulpes vulpes aegyptiaca)*, the largest of the Egyptian foxes (35-50 cm at withers) identified by its brownish-red colouring, white tipped long bushy tail, and relatively large pointed ears (Osborn & Helmy 1980: 372; Braulińska 2009: 12); the Rüppell's sand fox (*Vulpes rueppellii),* a slightly

[36] Although the long tail is characteristic of the reclining deity Anubis, Evans (2010: 121) believes it has been used in this case to reinforce the artist's attempt to portray jackals.

smaller fox (26 cm at withers) identified by its long grey-reddish fur, long bushy white-tipped tail, and large pointed ears with whitish margins (Osborn & Helmy 1980: 382; Alderton 1994: 157-158; Braulińska 2009: 12); and the smallest of the group, the fennec (*Vulpes zerda)*, (20 cm at withers) identified by its creamy-buff colouring, extremely large and pointed ears and a black-tipped long bushy tail (Osborn & Helmy 1980: 389; Alderton 1994: 144; Braulińska 2009: 13). The absence of skeletal remains of other foxes does not eliminate their existence in ancient Egypt, however it appears unlikely.

The challenges in definitively identifying the exact canid member depicted in many of the available artistic representations are again encountered when we turn to the fox. The difficulties are due to species sharing multiple similarities in their morphological features. However, skeletal remains of the red fox have been excavated in the Middle Palaeolithic settlement sites in the Western Desert. Remains of the sand fox and the fennec have also been located in the Late Neolithic excavation layers at settlement sites in the Western Desert and in the Delta region. The most commonly documented fox skeletal remains are those of the red fox which suggests it may have been the more prevalent subspecies present in ancient Egypt. Artistic representations, although infrequent, have been identified on rock art, decorated ceramics and in scenes from later tomb walls.

It is difficult to determine the actual hieroglyphic term for fox, perhaps the most convincing evidence in the written language is the hieroglyphic sign *ms* (Gardiner sign F31: Gardiner 1999: 544), which is believed to depict three fox pelts tied together. One other term that appears in the later Graeco-Roman Period is *w3s.t* which is translated as 'a fox-headed protective deity' (*Wb*. I: 259.18).

3.4.1 Early Skeletal Remains

The Middle Palaeolithic site of Bir Tarfawi (*ca.* 250,000-70,000 BP) in the Western Desert is the earliest site to attest skeletal remains definitively identified as belonging to a fox. A fragmentary tibia shaft from the BT-14 excavations was expertly identified as that of a red fox (*Vulpes vulpes*) (Gautier 1993: 127).

Faunal remains collected at the Neolithic site E-79-6 and E-79-2 at Bir Kiseiba (*ca.* 8800-4700 BC) in the Western Desert included two postcranial finds belonging to the sand fox *(Vulpes rueppellii)* (Gautier 2001: 619). The tentative identification of a mandible fragment of a small carnivore from Nabta Playa, site E-75-6, is believed to be that of a fennec (*Vulpes zerda)* (Gautier 2001: 619).

Of the twenty-six fox bones found at the Late Neolithic site of Merimde Beni Salame (5830 ± 60 BP – 5440 ± 75)[37] in the Eastern Delta region, von den Driesch and Boessneck (1985: 44-45) identified at least twenty belonging to the red fox (*Vulpes vulpes*) and an unquantified number belonging to the sand fox *(Vulpes rueppellii)*. During a study on the faunal remains from the early Predynastic Maadi site (*ca.* 3900-3400 cal BC),[38] Boessneck and colleagues identified three lumbar vertebrae and a small piece of skull belonging to the red fox (Boessneck, von den Driesch & Ziegler 1989: 108-109).

At the Upper Egyptian site of Hierakonpolis continuously used throughout the Naqada Period, bones of the sand fox (*Vulpes rueppellii*) were found amongst the animal taxa identified from the wall trench at HK29A, and bones of the fennec (*Vulpes zerda*) were excavated from the wall trench and "modified" silts (Linseele, Van Neer & Friedman 2009: Tab. 2).[39] At the Naqada II settlement site of Adaïma, four fox bones were found (Van Neer 2002: 529): the pelvis was identified as the red fox, the humerus, radius and tarsal bones could not be determined beyond 'fox'.

Lortet and Gaillard document two mummified red foxes (*Vulpes vulpes*) found in the cemetery of Assuit, 'probably dated to the Saïte Period' (Lortet & Gaillard 1909a: 259). One mummy was a complete animal, the other consisted of only the cranium (Lortet & Gaillard 1909a: 264).

From the skeletal remains it would appear that the red fox, the sand fox and the fennec were all present in ancient Egypt, with the red fox appearing from as early as the Middle Palaeolithic. Artistic representations of the fox are infrequent, however the few that do exist indicate the presence of this species from at least Naqada I.

3.4.2 Early Artistic Representations

Artistic representations of the fox are limited in number. They appear on a small number of Naqada I-II ceramics, an important Predynastic palette and thereafter they were primarily depicted as hunted prey in hunting scenes found on Old Kingdom tomb walls.

Graff, in a study of White cross-lined and Decorated Ware ceramics from the Naqada I - Naqada II Periods divided the representations of canids into two groups: the domesticated dog and the wild canid. Using the various characteristics such as the tail and ears, Graff

[37] These radiocarbon dates for Layers I-V are set out by von den Driesch & Boessneck (1985: 2).
[38] Maadi dates discussed by Hendrickx (1999: 20).
[39] Cut marks on the distal end of the scapula suggest that the fennec had been skinned (Linseele, Van Neer & Friedman 2009: 125).

confidently identified a red fox, a fox or possibly a jackal, and a fennec (Graff 2009: 35). This would demonstrate their presence from Naqada I.

The Late Predynastic Hunters' Palette (*ca.* Naqada III), (British Museum, EA. 20790, EA. 20792, Louvre E. 11254[40]) depicts numerous animals grouped together in the central section of the palette. All these animals are contained by a continuous row of hunters that provide a border. The inner decoration depicts a desert hunt scene and among the wild animals being hunted are two running foxes with the characteristics of the red fox (Osborn & Osbornová 1998: 3) (Figure 3.21).

The frequency of artistic representations of the fox increases when we consider decorative scenes from Old Kingdom tomb walls which incorporate the desert hunt. The majority of such representations depict the fox as the object of the hunt rather than as a participant in the hunting process. In the Dynasty 3 tomb of *Nfr-mꜣʿt* (Nefer-maat) at Meidum, three foxes are represented with a dog grasping one fox by the tail (Osborn & Osbornová 1998: 71, fig 7-59). Although the markings of these foxes are unusual the foxes are identifiable by their longer, bushier tails and tall pricked ears.

In a hunting scene in the Dynasty 5 tomb of *Rʿ-m-kꜣ.i* (Ra-m-kai) at Saqqara, a dog is shown grasping a fox by the neck (Evans 2010: 124, Fig. 8-23 (HB92)). Two red foxes are shown mating in the Dynasty 5 hunting scene of *Ptḥ-ḥtp* (Ptah-hotep) (Evans 2010: 161, Fig. 10-22). Much later in Dynasty 12, an agricultural scene from the tomb of *Wḫ-ḥtp* (Ukh-hotep) at Meir, shows a fox sniffing at the head of an 'about to be born' foal of a wild ass (Blackman 1915: Pl. VIII). In the Dynasty 18 tomb of *Wsir* (User), Davies describes the canid hiding under a small bush as a fennec (Davies 1913: 28, Pl. XXII). This identification appears to be correct as the ears are extremely long, and the tail is long and bushy, and foxes are known to crouch under bushes when in danger and away from their den.[41]

Whilst skeletal remains indicate that the fox was present in Egypt from the Middle Palaeolithic period (*ca.* 250,000-70,000 BP), the limited available artistic representations indicate the presence of this species from at least Naqada I. Additionally, the more commonly depicted red fox was always represented as a wild hunted animal, differentiating it from the domesticated dog which was typically represented as the hunter.

[40] The palette is broken; one section is held by the British Museum and a second section is held by the Louvre.

[41] My thanks to Dr Linda Evans of Macquarie University for her discussions regarding behaviour and characteristic analysis of animals in the Old Kingdom.

3.5 The African Wild Dog in Ancient Egypt *(Lycaon pictus)*

The final member of the Canidae family to be discussed in this chapter is the African wild dog (*Lycaon pictus)*, and although its physical presence in ancient Egypt remains subject to debate, its appearance on early rock art and a number of artefacts is worthy of consideration. This relatively large animal (65-78 cm at withers) is easily identified by its characteristic large, rounded or oval-shaped erect ears. They also have a short broad muzzle, a thick bushy white-tipped tail and distinctive tricolour coat (Alderton 1994: 147; Raisor 2004: 35; Braulińska 2009: 17). They do not exist in Egypt today and their possible existence in ancient Egypt is based on a small number of artist representations.[42]

3.5.1 Early Skeletal Remains

To date, no canid skeletal remains from ancient Egypt have been identified specifically as African wild dog. However, skeletal remains have been found south of the Egyptian border in Sudan, indicating they were present in antiquity at sites in the Wadi Shaw north-west of Laqiya (Van Neer & Uerpmann 1989: 318). The absence of officially recorded skeletal remains of the African wild dog is not indicative of their absence in ancient Egypt. The current body of academic discourse leans towards interpreting this as being evidence that their physical presence was questionable (Braulińska 2009). There is another school of thought which argues that they could have been physically present and that the apparent absence of physical remains is due to either the remains being incorrectly categorised as another member of the Canidae family, or simply that they remain undiscovered at the current point in time (Osborn & Osbornová 1998; Nowak 2005). The simple fact that the African wild dog is morphologically similar to other larger canids, especially to the untrained eye, suggests that incorrect identification of skeletal remains at the time of excavation could be a valid reason why we have a complete absence of this species in the zooarchaeological records. The main evidence used to support the supposition that the African wild dog was present relates to the artistic representations from Naqada III and one image found on rock art. Current excavations with more thorough and rigid methodologies and the benefit of specialist zooarchaeologists could unearth the first recorded skeletal remains. Additionally, future revised analyses of available recorded finds and their initial categorisations may result in amended recordings.

[42] Nowak (2005: 112), when discussing the occurrence of the *Lycaon,* states that the African wild dog was present in environmentally suitable parts of the Sahara and in Egypt.

3.5.2 Early Artistic Representations

Early artistic depictions of the African wild dog are crucial for arguing the potential presence of these animals. The earliest depiction of an African wild dog in Egypt has been identified as part of a group of animal figures represented on rock art found at Wadi Abu Subeira (near Aswan). This Late Palaeolithic image of a canid with a short tail, rounded ears, and short wide muzzle is dated to *ca.* 19,000 BP (Huyge & Ikram 2009: 168; Huyge 2012: 29) (Figure 3. 22) and closely resembles the African Wild Dog. Numerous rock art scenes found west of Egypt in the northern and central Sahara (Libya) also depict African wild dogs (Le Quellec 1998: 105).

The most significant artistic representations of the African wild dog are found on a number of important late Predynastic decorated palettes (Fischer 1958: 81; Hendrickx 2006a: 740).[43] Often the body of the African wild dog has been modelled to provide a border for the extremities of the palette, not only placing it in a very prominent position (Hendrickx 2006a: Tab. 5) but potentially indicating that the animals provided a protective border surrounding the inner scene.

The upper section of the Two Dog palette (*ca.* Naqada III) from Hierakonpolis (Ashmolean Museum E. 3924) portrays six individual African wild dogs on the obverse and reverse. Two African wild dogs dominate the palette (Fischer 1958: 65, Figs. 1-2; Patch 2011: Figs. 37a-b), with the three-dimensional sculpting of their bodies incorporating the obverse and reverse of the palette, providing a frame or protective barrier for the mix of wild and mythical animals in the centre. A further three African wild dogs, smaller in scale, have been placed on the obverse of the palette in specific positions, once again creating a 'border', this time confining the mythical animals depicted within. Another African wild dog has been placed on the reverse, where it is included as part of a mix of wild and mythical animals (Figure 3.16). It has been suggested that the central theme of the decoration of this palette is the containment of disorder (Baines 1993: 65; Hendrickx 2006a: 742; Patch 2011: 140) with the African wild dog understood as the controlling element (Fischer 1958: 83). The African wild dog could also be seen as a symbol of demarcation, defining the boundaries between domestic and wild, order and chaos (Baines 1993: 63). It can be argued that the prominence and frequency of these African wild dog representations on this palette indicate that they have an important spiritual or mythical

[43] Kemp (1989: 46) believes the palettes must have originated from the royal courts or the elite households of Upper Egypt.

symbolic status with an underlying theme of protection. They also support the conclusion that the African wild dog may have been physically present, following the Egyptological assumption that artists typically depicted animals and events that they physically observed.[44]

The Hunters' Palette (*ca.* Naqada III) (British Museum, EA. 20790, EA. 20792, Louvre E. 11254) depicts two canids which Osborn and Osbornova (1998: 3) have identified as two foxes, however Hendrickx (personal communication 14/11/2016) believes that one of these represents an African wild dog. The apparel worn by the human hunters bordering the palette is of particular interest (Patch 2011: 142, Cat. 115). The row of nineteen figures representing hunters all carry weapons, all wear a particular type of head dress and they all have a tail hanging from their waists (Figure 3.21). The size, bushiness and hatched markings on these tails suggest the hunter's wore a African wild dog tail attached to their waists as part of their hunting attire (Fischer 1958: 81; Hendrickx & Eyckerman 2012: 60).[45] One conclusion that has been drawn from this palette is that the African wild dog was a successful and revered hunter with skills and attributes that human hunters would desire to possess. Another interpretation could be that the hunters and their paraphernalia placed around the border of the palette were symbolic of a protective border similar to the protective border of the African wild dog itself. If this representation of hunters wearing regalia incorporating elements of the African wild dog are depictions of actual events, then this would indicate the African wild dog was physically present in Egypt or at least regionally.

The Pitt-Rivers knife handle (British Museum EA 68512) dated to Naqada III is decorated with rows of animals on either side (Osborn & Osbornová 1998: Figs. 1-8). The animals in the fifth row of both sides have been identified as jackals by Osborn & Osbornová (1998:

[44] Further significant representations of the 'framing' African wild dog can be found on a number of complete and fragmented Naqada III palettes. A fragment now in Brussels (Musées de l'Art et d'Histoire E. 6196), only represents a small section of the African wild dog (Fischer 1958: Figs. 5-6). A complete palette, The Four Dog palette (Louvre E. 11052) is framed by four African wild dogs (Figure 3.23), with mythical and real animals inside their borders (Fischer 1958: Figs. 7-8). The upper section of the Metropolitan palette (Metropolitan Museum of Art 28.9.8), is framed by two female African wild dogs suckling canine pups, while another four smaller African wild dogs have been placed towards the bottom section of the palette along with a mythical long-necked animal (Figure 3.24) (Fischer 1958: Figs. 19-20). The Munagat fragment also shows the three-dimensional representation of the underbelly of a lactating African wild dog with small scale adult dogs, represented close to, but not attached to the teats (Fischer 1958: Figs. 11-12). The Michailidis fragment is extensively fragmented and only shows the two-dimensional head and shoulder of a African wild dog (Fischer 1958: Figs. 9-10).

[45] Hendrickx (2006a: 742) and Hendrickx and Eyckerman (2012: 60-62) see the symbolic function of the hunters as more or less identical to that of the African wild dog on the Two Dog palette, referring to order over chaos, or the containment of unrule.

56). Cialowicz (1992: 249) was more reserved in his identification, and identified them more generally as 'canidés (chacals, loups, hyènes?)'. The identification of these canids is difficult as the handle is damaged, however the one characteristic that the four remaining animals retain is the distinctive, erect, well rounded ears with the inner detail shown, associating them more with the imagery of the African wild dog than the jackal[46] (Figure 3.25). If this 5th row is actually the African wild dog, rather than being assumed to be canids generally, then this would indicate that they were not merely mythical creatures, but rather actual, wild animals that were physically present.

Moving away from the Nile Valley, two sites in the northern and central Sahara are well known for their rock art (Le Quellec 1998; DuQuesne 2005: 21). The connection of these two sites with Egypt is debateable,[47] however symbolic associations between the two areas can be understood from the depictions. At the site of Messak, where the petroglyphs have been dated to around the 5th millennium BC (Le Quellec 2013: 35), thirty-six representations of the African wild dog have been recorded, identified by their wide muzzles and large round ears (Le Quellec 1998: 105). These petroglyphs suggest that the African wild dog existed in the area, coexisting with the artists, (D'Huy & Le Quellec 2009: 89-90), and if there was interaction between Messak and the Nile Valley as suggested by scholars (Wenke, Long & Buck 1988: 47; Wendorf et al. 2001: 9), then the inhabitants of the Nile valley were most likely aware of the presence of this animal.

The Messak site is also renowned for a number of images of a composite 'Lycaon-man' carved into rocks. (Figure 3.26) They have human bodies with the head of a *Lycaon pictus* and these figures are always represented as part of the hunt scene (Le Quellec 1998: 356). These images are suggestive of a man wearing the pelt of an African wild dog over his head and shoulders, creating a distinctive costume worn by hunters. Although difficult to discern, these 'Lycaon-men' also appear to wear a tail attached to their waists (Le Quellec 1998: Fig. 29). Le Quellec suggests the 'Lycaon-men' may have been the object of a cult, or perhaps even revered and seen as a deity of the hunt (Le Quellec 1998: 357).[48] If the

[46] My thanks to Dr Linda Evans, Old Kingdom Animal Specialist of Macquarie University who studied these images and agreed that they were more likely to be the African wild dogs than jackals.

[47] Wenke, Long and Buck (1988: 47) suggest a possible Saharan origin for the earliest occupation of the Fayium. The Eastern Saharan societies that existed at Nabta during the Late Neolithic period must have impacted on the societies in the adjacent Nile Valley (Wendorf et al. 2001: 9).

[48] Other cultures are also known to wear canid skins with skull attached as distinctive dress for specific occasions (Olsen 2000: 81). See also discussion on representations identified on rock art at Bear Gulch and Atherton Canyon in central Montana, USA, dated to *ca.* 1000 BC where Indian warriors wear distinctive 'wolf hats', headgear consistent with a wolf pelt placed on the head and let fall over the back (Keyser 2007: 62-69).

rock art indicates that the African wild dog was part of the environment of the southern Sahara (D'Huy & Le Quellec 2009: 89-90), and if Hugye's (2012: 29) interpretation of the Abu Subeira rock art image as a African wild dog is correct, then it is almost certain that the animal existed in the Nile valley at this time.

The only later representation of an African wild dog is a tenuous identification of an animal in the Dynasty 12 tomb of *Wḫ-ḥtp* (Ukh-hotep) at Meir, where the animal concerned certainly has the distinct, erect, round ears, but the shape and size of the body makes a positive identification far from conclusive (Blackman 1915: pl. VII). However, depictions found in New Kingdom tomb scenes appear to show the pelts of African wild dogs being brought as tribute to Egypt by the Nubians (Davies & Davies 1940: pl. XXIV).

While the current absence of zooarchaeological evidence points towards the non existence of the African wild dog in ancient Egypt, when we consider the available artistic representations, the quality, quantity and significance of these depictions support the argument that the African wild dog did actually exist, however briefly (Fischer 1958: 82).

3.6 Summary/Conclusion

This chapter has identified the known canids from ancient Egypt derived from archaeological reports and documentation of early artworks. Middle Palaeolithic and Late Neolithic skeletal remains indicate the presence of three members of the Canidae family, dogs, jackals, and foxes at this time. Furthermore, their existence is confirmed by later Predynastic artistic representations found on rock art, decorated pottery and various artefacts. Artistic representations suggest the likely presence of a fourth canid, the African wild dog, especially given the quality, quantity and significance of these depictions which support the probability that the African wild dog may also have been physically present.

Whilst the origin of the domestic dog remains open to discussion, the confirmation of which remains outside the scope of this paper, whether it was in Europe, south-east Asia or within Egypt itself, the domesticated dog most likely became a member of the extended social structure in Egypt when communities relied on hunting to supplement their subsistence. Early representations indicate that the dog was closely linked to the hunter, most notably in the desert hunt, and to a lesser degree, to the river hunt.

It has been suggested that members of a society who exhibited hunting skills in addition to their other abilities were elevated to the elite status of their respective societies (Hamilarkis

1996: 163). Hendrickx argues this point, noting that the implications of hunting in Predynastic Egypt went far beyond food procurement, and into the sphere of social status and hierarchy (Hendrickx 2011a: 238; Hendrickx & Eyckerman 2012). Through hunting the elite were able to manipulate, structure and control the environment both to exceed the daily contribution and significance of the average individual, and to display their power and prestige through defeating exotic and/or dangerous creatures (Hendrickx 2011a: 256). It is proposed that the admiration for such valuable social contributors may have been extended and imparted onto one of the most valuable hunting accessories, the dog, which is often also depicted in isolation as 'the hunter'. As such the dog's protective function alongside the hunter may have become an increasingly important quality.

Whilst the domestic dog is the primary focus of this paper given its prevalence in both artistic representations and skeletal remains, we must also give consideration to the presence of less ubiquitous Canidae family members whose skeletal remains may have also contributed to the societal funerary beliefs in a similar manner to the domestic dog.

Skeletal evidence for the jackals and foxes confirms the existence of both species in Egypt from as early as the Middle Palaeolithic. It also appears possible that jackals and foxes were among the wild animals hunted by man and dog. Zooarcheological evidence suggests that jackals (Gautier 1993: 138) and foxes (Linseele, Van Neer & Friedman 2009: 125) may have been skinned, but not necessarily eaten, suggesting that the value of the animal was not primarily as a source of food but rather lay in secondary purposes such as symbolic or ritualistic or practical uses of the skins. This theory is consistent with the presence of the depiction of the 'Lycaon-man', etched in the rock at northern and central Saharan sites.

The presence of the African wild dog remains open to discussion. With the absence of skeletal evidence to definitely confirm its existence, and only one possible representation appearing on rock art, plus a number of representations on elite objects during a limited period of time (Kemp 1989: 46), their actual presence in ancient Egypt remains unsubstantiated. The argument for their existence in ancient Egypt centres on the recognised belief that artists typically portrayed animals and events that they had witnessed, and is bolstered by the regional presence of these animals today. The argument against their presence in ancient Egypt is that the depictions of the African wild dogs were symbolic, since the limited sample of representations of the animal are often displayed in

conjunction with mythical animals, and no physical remains have been positively identified.

The analysis and discussion provided in this chapter allows us to determine a definitive point of departure from which we can begin to analyse the significance of canid burials in Egyptian funerary culture. The physical presence of skeletal remains in conjunction with artistic evidence allows us to commence this analysis from the Neolithic period onwards with sufficient certainty. The primary source of evidence for this analysis will be a database of known canid burials throughout ancient Egypt, supplemented by a corpus of 119 canid crania from a single site in Saqqara. This latter corpus forms a case study, the aim of which is to understand which canid members were employed in a subset of a funerary processes known as votive burials.

CHAPTER 4: ANALYSIS OF THE CORPUS OF CANID BURIALS PART I

This chapter examines, evaluates and presents the primary results and analysis of a corpus of canid burials from ancient Egypt according to the chronological and geographical distribution. Additionally the corpus will be analysed according to burial site type and grave architecture. Further results and analysis pertaining to aspects of burial content focused on the burial of a canid, either single or multiple, with or without human association will be presented in Chapter 5.

The following definitions were employed to assist in the classification, compilation and completion of the primary database from where these results were extracted.

The term 'burial' is defined as the deliberate interment of an articulated body of a canid, or a substantial part of a canid. This paper extends this definition to include burials incorporating only parts of a canid in accordance with the work of Grant (1984: 533-534). Grant also notes that if animal skeletal remains exhibit evidence of butchering marks, this is indicative of the animal being a food offering. As no evidence exists to suggest that canids (and dogs in particular) were ever eaten in ancient Egypt (Brixhe 2014), when burial report descriptions were limited to the presence of only a few dog bones, these were included as a burial on the presumption that the canid burial was both intentional and not functioning as a food offering.

The classification of associated faunal remains was more problematic, with the identification of non-food offering faunal remains coming predominantly from entries identified as the burial of a complete animal alongside a canid. Other entries were also classified as a burial if a substantial portion of an animal was present, and showed no signs of butchering. Although a number of these faunal remains recorded in the corpus may actually belong to the food offering category (which have otherwise been excluded from the corpus), these have been included in the absence of express or implied information that would indicate they were actually food.

The relevant time period for this study is based on divisions set out by Shaw (2000: 481-489), with specific subdivisions of the Predynastic Period defined by Hendrickx (2006b) and Gatto (2000) (see Figure 1.1). The selection of chronological periods commences with

the Predynastic Period and extends to the Graeco-Roman Period.[49] To date no canid burials have been documented in ancient Egypt prior to the Predynastic Period, hence no earlier period has been included in the corpus. The period after the Graeco-Roman Period has not been included, as with the advent of Christianity substantial and significant changes impacted on the prevailing funerary beliefs of the Egyptians (Peacock 2000: 436).

While the present corpus may not represent a complete account of all canid burials during the established chronological period, it nevertheless endeavours to provide a sample as complete as possible, including all documented canid burials published prior to the end of 2015.[50] Consideration of the relatively small sample size, especially for a number of time periods, means that the strength of conclusions drawn may lean more towards hypotheses than proven conclusions.

Each published burial was classified according to information provided in original reports, however in some instances there is conjecture regarding the details and assumptions provided, particularly relating to the lack of certainty over the dating. While these entries are discussed further when relevant, the dating for the purposes of this study is also entirely in accordance with the published records, with the exception of those entries specified.

Most documented canid burials are of individual or small groups of canids, however when large volumes of canids have been recorded within one burial, these canids are arguably more appropriately classified as 'votive' in nature. A large collection of canids in one tomb is more consistent with the Late/Ptolemaic Period practice of taking the overflow of votive canids from temples within the vicinity, and ritually reburying them in a pre-existing tomb (Nicholson 2005: 50; Dodson 2009; Taylor 2010: 134; Ikram 2013b: 301; Ikram et al. 2013: 50; Dunand, Heim & Lichtenberg 2015; Nicholson, Ikram & Mills 2015). The corpus has included a small number of burials that could reasonably be considered to be 'votive' in nature, however these entries were recorded as burials in the initial excavation reports and have been included in this corpus accordingly.

[49] The Old Kingdom and FIP have been combined as the only entry to include the FIP was broadly dated Old Kingdom/FIP. The Ptolemaic and Roman Periods were combined and defined as the Graeco-Roman Period.

[50] For example, two new dog burials have recently been excavated. At Hierakonpolis cemetery HK6 in an area known as Tomb 72 Complex a single dog was located in Feature M, the grave positioned on the eastern perimeter of the complex. A single dog was located in Tomb 63, the grave positioned close to Tomb 64, the grave of a probable male. Tombs 63 and 64 were located toward the west of Tomb Complex 72 (Friedman et al. in press).

The skeletal remains of 16 dogs found at Ein Tirghi Cemetery, Balat, were not included in the corpus as a Graeco-Roman burial, as the animals were found in the disturbed upper part of a tomb where the animals were believed to have been trapped after the roof collapsed (Churcher 1993: 40). Two dog skeletons found at Edfu (Moeller & Marouard 2012-2013) were not included in the corpus as a SIP burial, as excavators doubted the authenticity of the three humans and the two dogs found at the bottom of a silo as an actual burial, and considered the possibility that the bodies had been simply thrown into the silo.

The corpus excludes artistic representations of dogs found on tomb walls and stelae as these images do not represent the burial of a dog, and hence serve a different functional purpose. These dogs are generally depicted in scenes of daily life indicating a personal human/dog relationship (Zahradnik 2009; Listemann 2010) rather than a funerary practice.

Additionally, a number of small limestone stelae, each believed to have been originally placed in a grave with a dog (Martin 2011) have not been entered into the corpus as no canid skeletal remains associated with the stelae were recorded in the respective excavation reports. However, these stelae are extremely relevant to the canid burial practice, and whilst not directly included in the corpus, their importance will be discussed in Chapter 7.

Finally, the accuracy of the detail within this corpus was limited in certain instances by inconsistent recording methods, lack of detail, incorrect assumptions, and the disturbed condition of many graves. There remains the possibility that initial excavations may have considered canid remains to be irrelevant debris and hence discarded without commentary or even fleeting acknowledgement, and this must be taken into consideration. For example, multiple reports provide no detail other than a cursory reference to 'dog bones were found in a pit'.[51] Where possible, data related to such canids has been extrapolated from accompanying data and photographic evidence associated with such grave reports.

The archaeological survey of available reports which form the corpus, revealed 39 sites across Egypt and Lower Nubia[52] (see Figure 1.2), presenting 141 burials, each containing at least one canid, with an aggregated MNI (minimum number of individuals) of 271

[51] For example see Petrie (1901: 48) and Petrie and Quibell (1896: 26).

[52] Lower Nubia has been included in the corpus as it has been pointed out by Hendrickx & Eyckerman (2008: 238) that by late Naqada I-early Naqada II Hierakonpolis was in control of contemporaneous sites to the south, including cemetery 17 at Khor Bahan. Also the area between the 1st and the 2nd cataract south of Aswan was frequently under Egyptian control during the Pharaonic Period.

canids.[53] These burials have been dated within the predefined chronological timeframe, from the Predynastic Period to the Graeco-Roman Period.

The primary results and analysis of the corpus are presented below in greater detail according to distribution by chronology, geography, burial site type and grave architecture. These results are distorted to a degree by the significant level of disturbance recorded in burials relating to canids. Fifty-eight (41.1%) of the total 141 entries burials were recorded as 'disturbed' to varying degrees and the condition of 55 burials was completely omitted. Only 28 burials were described as 'intact' or undisturbed'. The chronological distribution of disturbed graves is illustrated in Table 4.1 below.

Table 4.1: Chronological distribution of disturbed graves

Period	**Disturbed**	**Total**	**% Disturbed**
Predynastic	43	75	57.3%
Early Dynastic	0	12	0.0%
Old Kingdom/FIP	1	6	16.7%
Middle Kingdom	0	8	0.0%
SIP	2	3	66.7%
New Kingdom	1	2	50.0%
TIP	0	0	0.0%
Late Period	9	18	50.0%
Graeco-Roman	2	17	11.8%
TOTAL	**58**	**141**	**41.1%**

4.1 Chronological Distribution of Burial Sites

The chronological distribution of the burial sites within the corpus is in accordance with the specified periods. This distribution is important to show the relative popularity of the practice of utilising canid burials in the prevailing funerary practice over time. The results and analysis are provided in Table 4.2 below.

[53] The total MNI does not including six burials recorded as 'multiple' as no individual MNI was provided [DRN 4, 18, 60, 61, 105, 204], and also one entry recorded as a shaft filled with 332 dogs [DRN 154].

Table 4.2: Chronological distribution of 141 canid burials

Period	**Sample**	**%**	**Number of Years**
Predynastic	75	53.2%	*ca.* 1400
Early Dynastic	12	8.5%	*ca.* 314
Old Kingdom/FIP	6	4.3%	526/105
Middle Kingdom	8	5.7%	405
SIP	3	2.1%	100
New Kingdom	2	1.4%	481
TIP	0	0.0%	425
Late Period	18	12.8%	312
Graeco-Roman	17	12.1%	727
TOTAL	**141**	**100%**	

Overall, the greatest number of canid burials in the corpus were attributed to the Predynastic Period (Σ =75) with over half the total number of burials dated to this period. A smaller but still significant number of burials have been dated to the Early Dynastic Period (Σ =12), after which the number of published burials decreases considerably. From the Old Kingdom through to and including the New Kingdom only a limited number of burials were recorded (total Σ =19), before a complete absence during the Third Intermediate Period. During the Late Period the number of canid burials again increased (Σ =18) and remained at a relatively consistent level during the Graeco-Roman Period (Σ =17) (Figure 4.1).

Chronologically, the two most statistically significant periods worthy of discussion are at the commencement of the chronological distribution, being the Predynastic/Early Dynastic Period and also at the conclusion of the chronological distribution, being the Late and Graeco Roman Periods. The small sample sizes for the Old Kingdom through to the end of the Third Intermediate Period make meaningful conclusions challenging, however when results are worthy of comment they have been included.

With over half the entire canid burials in the corpus occurring during the Predynastic Period (53.2%) it is apparent that the practice was a significant component of the established funerary practices at this time. Egypt during the early Predynastic Period was

made up of a number of diverse autonomous communities located along the Nile River (Bard 2000; Hendrickx & Vermeersch 2000; Midant-Reynes 2000a, 2000b; Köhler 2008) indicating this funerary practice was not isolated, but rather a widespread phenomenon distributed over multiple communities in multiple regions. The majority of Predynastic canid burials have been located in cemeteries attributed to four separate cultures, the Badarian, the Lower Egyptian (Maadi-Buto), the Naqada and the Early A-Group. Archaeological evidence characteristic of these cultures demonstrates the existence of stratified societies (Hendrickx & Vermeersch 2000: 37; Midant-Reynes 2000b: 56), with wealthier graves either separated into specific areas of a cemetery (Brunton & Caton-Thompson 1928: 7) or buried in special cemeteries dedicated to the elite. It is within these 'wealthier' or 'elite' cemeteries that many Predynastic canid burials were found.[54]

Whilst iconographic evidence has not been included in the corpus, it is worthy of discussion in the context of this chronological analysis. Arguably this significant development in the funerary practices during the Predynastic Period is closely associated with the depictions of dogs on rock art, specifically the iconographic representation of the hunt.[55] The quantity of depictions representing this specific event suggests hunting was an extremely important aspect of life in the early cultures (Hendrickx 2010; 2011a; Hendrickx & Eyckerman 2012). The hunter accompanied by a dog, initially provided food for the communities. As communities became more self-sufficient with the use of domesticated animals and plants, the role of the dog extended to incorporate the protection of community groups, herds and crops, especially from dangerous and wild animals (Hendrickx & Eyckerman 2015). The hunt remained an extremely important aspect of community life, and extended into the retrieval of exotic wild animals for ritual use (Linseele & Van Neer 2009; Hendrickx & Eyckerman 2015: 197). By the time dog burials first appeared in the funerary practice of the ancient Egyptians, the hunter (and by association the dog) would have been considered elite members of the community. The dog may initially have been buried alongside the hunter not simply as an indicator of the hunter's elite standing, but also in a continuing role as protector of the deceased in the Afterlife. As this funerary process became more established it expanded into instances where a dog was buried in isolation near a cluster of human burials, where its role may

[54] Examples of elite cemeteries during the Predynastic are Cemetery HK6 at Hierakonpolis (Hendrickx & van den Brink 2002: 363; Friedman et al 2011); Cemetery U at Abydos (Hendrickx & van den Brink 2002: 358-359) and Cemetery T at Naqada (Petrie & Quibell 1896; Hendrickx & van den Brink 2002: 360).

[55] For a discussion of rock art scenes representing the dog participating in the hunt scene see §3.2.2.1.

have been the protector of an elite family or community group.[56] Furthermore, when a dog was buried at the borders of a cemetery its role appears likely to have been that of a protector of those buried within (Hartley 2015).

Following the Predynastic Period, these various autonomous communities unified into one large territorial state during the Naqada III period. Political consolidation took place and this laid the foundations for the Early Dynastic state and the establishment of kingship (Bard 2000: 57). The significant decrease in number of canid burials (representing 8.5% of the total corpus) most likely reflects these political and/or religious changes taking place at this time. Canid burials during the Early Dynastic Period were almost exclusively found in association with elite grave architecture, suggesting the practice was restricted to elite individuals. The canids, buried in their own graves within the precincts of a mastaba, appear to be specifically placed in a position, providing protection for the elite deceased in the afterlife.[57]

From the Old Kingdom through to the commencement of the Late Period canid burials decline significantly in number (representing a combined 13.5% of the corpus) and in some periods canid burials are completely absent.[58] This is consistent with the change in the religious ideology during these periods and how this may have impacted the need/desire for the elite/royalty to physically bury a canid. When examining Old Kingdom archaeological, iconographical and literary evidence, the existence of an established state religion with defined gods becomes evident. Amongst these gods, canid deities played a significant role, usually in the protection of necropoli and/or protection of the elite buried within. The three prominent canid deities worthy of comment are Anubis, Wepwawet and Khentyamentiu.[59]

Anubis appears in the offering formula inscribed on 4th Dynasty tomb walls (DuQuesne 2005: 375-376), and his name appears as part of priestly titles indicating that an established

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[56] Hartung (2010: 108) points out that several groups of tombs in elite Cemetery U at Abydos, correspond to different families or clans.

[57] For example, see [DRN 96], the burial of a canid at the entrance to Mastaba 3507, the tomb of Her-Neith (Emery 1958: 78 & Plate 91).

[58] It is important however, when considering this low number and/or complete absence of canid burials to exercise caution, as absence of proof is not necessarily proof of absence. It is possible that canid bones may have been dismissed or discarded without documentation. The disturbed and looted state of many tombs prior to excavation may have seen canid remains destroyed beyond recognition. An example of non-reporting is Emery's report on the Tomb of Hemaka, where at no stage does he mention the seven dog burials associated with the mastaba (Emery 1938). This information was only provided in an anonymous report on general excavations undertaken in the Saqqara North area (Anon 1939).

[59] Other canid gods or jackal related deities include: Wepiu, Sed, Goddess of Cynoplois (Anupet), Hereret. Igai, Qebhut, *Šmsw-Ḥr, Bꜣw-Nḥn*, Children of Horus (DuQuesne 2005: 398-430).

canid cult flourished during the Old Kingdom (DuQuesne 2005: 377). Anubis is referred to in approximately 50 spells in the Pyramid Texts inscribed on the walls of 5th and 6th Dynasty royal burial chambers, where the king frequently identifies himself with certain embalming and judgement attributes of Anubis (DuQuesne 2005: 380). Wepwawet is identified with the king in the Pyramid Texts with the functional purpose of protecting the king against enemies in life, and also in death (DuQuesne 2005: 397). Khentyamentiu appears in Old Kingdom funerary formulae as a protective deity of the royal necropolis of Abydos until the Middle Kingdom (DuQuesne 2005: 386). Khentyamentiu is also known by the titles, Lord of Abydos, Lord of the West, Lord of the Western Desert (DuQuesne 2005: 385), and these titles later merged with Anubis (Wilkinson 2005: 187). These three canid gods all represent various aspects of mortuary and afterlife concerns, and their role as 'foremost of the westerners' (Wilkinson 2005: 187) or 'opener of the ways' (DuQuesne 2005: 191) implies that their role as protectors into the Afterlife was paramount.

With the presence of established canid gods, the need to bury a dog/canid with the deceased to provide protection was seemingly less necessary, as the gods could now be invoked to provide protection through prayer. However, the fact that canid burials still occurred during the Old Kingdom demonstrates that the practice had not been entirely discarded, even though aspects of religious prayer were most likely the preferred method of accessing protection. Egyptian religion continued to develop throughout this period with canid gods consistently and robustly linked to protection of the deceased.

As the level of personal piety gradually and continuously grew over time, access to the canid gods expanded through the social strata (Ockinga 2001: 44), and the increased access to the gods is correlated with the diminished levels of physical canid burials. By the Late Period the general population were able to access the gods in ways only the elite had been able to do so previously. This becomes particularly evident with the sheer number of different animals, particularly canids, being used in a votive capacity [60] indicating that the practice was accessible to a large proportion (if not all) of the population.

The number of canid burials in the Late Period increased once again, but never to the same extent as those observed in the earlier Predynastic Period. The non-funerary practice of canids being used as votive offerings to Anubis ran concurrently with the funerary practice

[60] Different animal cults related to their respective gods were used in large numbers as votive offerings during the Late Period (Ikram 2005). Votive canids were linked with the cult of Anubis and the enormous number of skeletal remains attributable to votive canids excavated at one site, indicate the enormity of the practice at this time (Nicholson, Ikram & Mills 2015).

of canids used in a burial context although the votive use far exceeded burials. The return to canid burials and the increased votive use of canids is most likely attributable to the political changes taking place that impacted on religious practice. After a period of considerable turmoil (Taylor 2000) the Late Period saw the state re-unified and kingship re-established (Lloyd 2000a). The general trend at this time was a return to ancient religious values and practices (Clayton 1999: 195). This is particularly evident in the increased number of canid burials documented from the Late Period (12.8% of the corpus and almost equivalent to the collective size from Old Kingdom to the TIP). Canid burials at this time are generally associated with humans, and descriptions of these graves indicate that these burials are not necessarily restricted to elite individuals. The positioning and placement of the canids in the graves implies a role imbued with protection.

Canid burials continued during the Graeco-Roman Period (12.1% of the corpus), however it is the votive use of canids that is the major practice during this time, especially during the earlier Ptolemaic (Graeco) Period when it is considered to have peaked in popularity (Nicholson, Ikram & Mills 2015: 647). The small number of canid burials that occurred during this period is more votive in nature, suggesting the canid was incorporated in burials with individuals in a protective capacity through the votive link to Anubis.[61]

A brief summary of the chronological distribution, indicates that the earliest period saw the greatest number of canid burials. The proposed function for the majority of these canids is that of a protector of the elite. The canid as a status symbol had evolved from the hunter/dog relationship, an important part of the different cultures and a concept which pre-dates the Predynastic Period. The funerary process in the Predynastic Period had a broad application across diverse regions and cultures where the canid was seen as the protector. The process of canid burials developed into an elite/royal only practice, with the canid used in a protective capacity, before religious ideology developed and canid gods were established, however still maintaining a protector function. Canid burials decreased in number as protection could now be accessed through prayer. Over a period of time, the extent of personal piety increased and gradually canid gods became more accessible to the general population. This developed into the widespread use of canids in a votive capacity.

[61] For the votive use of canids linked to Anubis see Chapter 6.

4.2 Geographical Distribution of Burial Sites

This regional distribution of canid burials is important to show patterns or variations in the development of the practice across regional areas. The geographical distribution of the 39 burial sites within the corpus is in accordance with the following regions:

- Lower Egypt (Nile delta and Faiyum to Harageh);
- Middle Egypt (Sedment to Dendera, including the Red Sea coast);
- Upper Egypt (Naqada to Aswan);
- Lower Nubia (1st cataract to the 2nd Nile cataract); and
- Oasis Region (Western desert).

The regional distribution results are illustrated in Table 4.3 below.

Table 4.3: Geographical distribution of 141 canid burials

Region	**Sample Size**	**%**
Lower Egypt	33	23.4%
Middle Egypt	39	27.7%
Upper Egypt	34	24.1%
Lower Nubia	27	19.1%
Oasis Region	8	5.7%
TOTAL	**141**	**100%**

Geographical distribution indicates that canid burials consistently occurred in regions along the Nile River, with a limited number also occurring in the Oasis Region. When the results are viewed according to the geographical distribution, the practice of burying a canid occurred in all five regions set out in the study. The greatest numbers were observed in Middle Egypt, Upper Egypt and Lower Egypt, with approximately a quarter of the total burials occurring in each region. Lower Nubia accounted for just under a fifth of the corpus and only a small number of entries were observed in the Oasis Region (Figure 4.2). If the regions are combined, then divided purely on a north south basis, almost three quarters of the total burials occurred in the southern regions, suggesting a southern bias toward the practice.

4.2.1 Geographical distribution by chronology

The above geographical analysis is enhanced by differentiating between the respective chronological periods within the above regional classifications (Figure 4.3), and the results are illustrated in Table 4.4 below.

Table 4.4: Geographical distribution by chronology

Period	Total	Lower Egypt	Middle Egypt	Upper Egypt	Lower Nubia	Oasis Region
Predynastic	75	9 (12%)	17 (22.7%)	25 (33.3%)	24 (32.0%)	0 (0 %)
Early Dynastic	12	11 (91.7%)	1 (8.3%)	0 (0 %)	0 (0 %)	0 (0 %)
Old Kingdom/FIP	6	2 (33.3%)	1 (16.7%)	1 (16.7%)	0 (0 %)	2 (33.3%)
Middle Kingdom	8	0 (0 %)	3 (37.5%)	5 (62.5%)	0 (0 %)	0 (0 %)
SIP	3	1 (33.3%)	2 (66.7%)	0 (0 %)	0 (0 %)	0 (0 %)
New Kingdom	2	0 (0 %)	1 (50.0%)	1 (50.0%)	0 (0 %)	0 (0 %)
TIP	0	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)
Late Period	18	8 (44.4%)	3 (16.7%)	1 (5.6%)	0 (0 %)	6 (33.3%)
Graeco-Roman	17	2 (11.8%)	11 (64.7%)	1 (5.9%)	3 (17.6%)	0 (0 %)
TOTAL	**141**	**33 (23.4%)**	**39 (27.7%)**	**34 (24.1%)**	**27 (19.1%)**	**4 (5.7%)**

The widespread use of canids in burials during the Predynastic Period, particularly in Middle Egypt, Upper Egypt and Lower Nubia, and to a lesser extent, Lower Egypt, again reflects diverse cultural groups located along the Nile River (Figure 4.4). Different communities all included the burial of a canid in their funerary practices. The only region devoid of canid burials at this time was the Oasis Region, potentially signifying its relative lower importance as an autonomous community, or its isolation from the communities located in the Nile Valley, or the low number of known archaeological sites. During the Predynastic Period the incidence of canid burials in one cemetery is more frequent at significant sites,[62] where multiple canid burials have been excavated in cemeteries dedicated to the elite. This not only suggests the importance of the particular community in

[62] For example, Abydos, Hierakonpolis, Naqada.

that area but also suggests that when the practice began it was linked to elite individuals. If the practice had been available to the population wealthy enough to afford burials, then the number of canid burials would have been far greater within the cemeteries of each community and not isolated to elite cemeteries.

During the Early Dynastic Period, Upper Egypt and Lower Egypt were unified into one state and kingship was established (Bard 2000). It has been suggested that the large, rich tombs of the officials excavated at Memphis (Saqqara) in Lower Egypt, are indicative of a central administrative body existing in the area (Bard 2000: 64). Analysis of the corpus is consistent with this theory as 94.7% of canid burials during the Early Dynastic Period were located in Lower Egypt. Canid burials were observed in only one other region, that being Middle Egypt where one burial was recorded [DRN 92]. This burial was one of about 154 subsidiary human burials associated with the valley mortuary installation attributed to King Djet of Dynasty 1, located at Abydos.[63] No canid burials were observed in Upper Egypt, Lower Nubia or the Oasis Region suggesting the practice was a privilege of royalty and/or the elite classes who were buried in the region where they governed the country.

The small number of canid burials observed in the Old Kingdom make conclusions difficult, however of the six burials documented two (33.3%) occurred in Lower Egypt [DRN 155, 185] where the royal residence and central administration were located at Memphis (Saqqara) (Malek 2000). DRN 185 dated to the 4th Dynasty reign of Cheops (Khufu), was a burial from the West Cemetery at Giza, suggesting the owner was a close relative of the king, placing him in the elite class. DRN 155, located at Abusir, was the 5th Dynasty family tomb of a lower ranked official,[64] however the tomb owners connection with the funerary temple of the cult of King Nyuserra, likely places him in the upper echelons of society (Bárta 2011: 185). The Oasis Region also accounted for two burials (33.3%), with each canid burial associated with the burial of a governor of the Kharga Oasis [DRN 102, 131]. As a governor, he would have been a member of the elite in this region. Only one canid burial occurred in Upper Egypt [DRN 188] and Middle Egypt [DRN 59][65] and no canid burials were observed in Lower Nubia.

[63] Although only one canid burial was recorded in Abydos, at least six stelae found in close proximity to burial complex of King Den are believed to belong to canids buried within the complex. These stelae are discussed in Chapter 7.

[64] DRN 155 was described by the excavators as a family tomb typical of a lower rank burial from the time of King Nyuserra (Bárta 2011: 185).

[65] DRN 59 is an unusual canid burial with a more ritual aspect and will be discussed further in Chapter 7.

The First Intermediate Period saw the disintegration of the central powerbase and the rise of numerous provincial centres throughout the country (Seidlmayer 2000). The only documented burial for this time period was broadly dated Old Kingdom/First Intermediate Period [DRN 188] and this entry has been considered as part of the Old Kingdom corpus. No other canid burials were documented for this time, suggesting periods of turmoil may have impacted the popularity of the canid burial practice.

The unification of the country during the Middle Kingdom saw the power base first established at Thebes (Luxor) Upper Egypt, and then moved north to Lisht in the Faiyum Lower Egypt (Callender 2000). Once again, only eight canid burials for this time period make meaningful analysis difficult. However five Middle Kingdom canid burials occurred in Upper Egypt (62.5%) where the powerbase was first located [DRN 108, 137, 138, 139, 143].[66] The other three canid burials were located in Middle Egypt (37.5%) [DRN 60, 136, 204] however no canid burials were observed in Lower Egypt where one would expect to find elite related burials associated with the new capital. The complete absence in Lower Nubia or the Oasis Region possibly reflects their isolation from the main powerbases at this time.

At the beginning of the Second Intermediate Period, the country was again divided into Upper and Lower Egypt, the north being ruled by the Hyksos from Avaris in Lower Egypt and the south being ruled by the Egyptians from Thebes in Upper Egypt (Bourriau 2000). With only three canid burials documented for this period, and possibly two of these incorrectly interpreted,[67] meaningful analysis is impossible. However, one canid burial located in Lower Egypt, at Tell el-Maskhuta [DRN 182] is potentially linked to the northern foreign Hyksos rule. The undisturbed burial of a woman, a dog, a goat and a pot suggests the woman and the dog were killed in warfare (Holladay 1982: 44-45). Both had received head wounds consistent with the blow of an Asiatic axe, suggesting the two had been dispatched by such an implement before burial. No burials were observed in Upper Egypt, Lower Nubia or the Oasis Region, (and potentially Middle Egypt) therefore with just one valid entry located in Lower Egypt this suggests once again that periods of turmoil impacted on canid burial practice.

[66] DRN 143 was a canid burial found in a settlement context. The canid was found buried under a Middle Kingdom town wall, near the Temple of Khnum at Elephantine (Boessneck 1980: 39-41).

[67] DRN 153 and 154 were both dated by their existence in two SIP graves. However, the quantity of canids in DRN 154 is more indicative of the later practice of storing excess votive canids in pre-existing tombs, while the content of DRN 153 is comparable to the content of DRN 161, a Roman burial, potentially dating both 'burials' in the Graeco-Roman Period.

The unification of the country and the beginning of the New Kingdom saw the royal court and powerbase firmly established at Thebes in Upper Egypt (Bryan 2000). For a short period the capital moved to Amarna in Middle Egypt, and then the central government disintegrated into important religious centres at Thebes, Abydos, Memphis and Heliopolis (Van Dijk 2000). Interestingly during the heavy religious influence on the powerbase during this time, only two canid burials were documented. One of these two was found at Thebes, Upper Egypt [DRN 140] located in the Valley of the Kings, clearly associating the burial with royalty. The second was found in Middle Egypt at Amarna [DRN 206] however the somewhat dubious New Kingdom dating needs to be considered.[68] No canid burials were observed in Lower Egypt, Lower Nubia or the Oasis Region during this time period.

After a period of 400 years of political turmoil, known as the Third Intermediate Period (Taylor 2000) where no canid burials were documented, the Late Period saw the central powerbase re-established in the north (Lloyd 2000a). During the 200 years that define the Late Period, the country oscillated between rebellion, independence and occupation (Lloyd 2000a: 387). Continuity with older customs and a return to traditional religious values were particularly evident at this time (Clayton 1999: 195). The Assyrian invasion prior to the Late Period and again at the beginning of the Late Period followed by two periods of Persian occupation, is likely to have influenced the return to old religious values in two ways (Dodson & Hilton 2004: 242-248). Firstly, foreign canid related religious beliefs and practices are said to have peaked in the Southern Levant during the Persian Period (Edrey 2008: 277). These practices and beliefs may have filtered down from the north[69] merging with local Egyptian beliefs. Secondly, it has been suggested that the Egyptians may have responded to the troubled times by reinstating and upholding ancient Egyptian religious beliefs (Ikram 2005: 7; Nicholson, Ikram & Mills 2015: 648-649), causing a revival of ancient practices of which canid burials was one. Perhaps the more likely scenario was a combination of the two factors, which influenced the return to popularity of the canid burial practices.

[68] DRN 206, the burial of nine canids in a temple context, has been dated to the New Kingdom simply because of its presence in Amarna. No other canid burials have been documented for the Amarna Period whereas dog burials have been found dating to the later Graeco-Roman Period re-use of the site (Payne 2006).

[69] Persian Period dog burials and their related cults from the Levant and their potential movement in the Middle East are extensively discussed by Edrey (2008).

As mentioned, more than three quarters of the canid burials from the Late Period were found in the north of the country, with Lower Egypt accounting for 44.4% [DRN 156, 159, 160, 162, 163, 164, 165, 167], and the Oasis Region (the most northern Bahariya Oasis), accounting for 33.3% [DRN 46, 132, 157, 213, 214, 215]. Moving south away from the powerbase, Middle Egypt accounted for 16.7% [DRN 62, 183, 184][70] while Upper Egypt accounted for only 5.9% [DRN 216][71], and canid burials were completely absent further south in Lower Nubia during the Late Period.

The final Graeco-Roman Period saw Egypt occupied by the Greeks and the Romans and the central powerbase remained in the north where key political and military strategy was focused on the Mediterranean (Lloyd 2000b; Peacock 2000). The trend for burials to move in accordance with the powerbase location is not evident during this time period. However what does become evident is the canid burials are distributed at a number of sites in all regions, indicating that the practice was now widespread and found in communities not directly tied to the prevailing powerbase. Over half (64.7%) of the documented burials occurred in Middle Egypt [DRN 17, 18, 61, 105, 135, 147, 148, 149, 150, 151, 217],[72] suggesting a link to the region where the canid gods were first established. Only two canid burials were observed in Lower Egypt (11.8%) [DRN 166, 168], one in Upper Egypt (5.9%) [DRN 161], and no canid burials were recorded in the Oasis Region.[73] Interestingly, Lower Nubia once again comes into the equation with a relatively significant 17.6% of documented burials [DRN 45, 125, 126]. The widespread occurrence of canid burials at this time, especially in regions like Lower Nubia is more indicative of an increased access to the practice possibly due to the increased distribution of wealth, and the movement of population and growth of areas in Egypt.

These results indicate that the popularity of canid burials as a part of the funerary practice was significantly influenced by both region and time period. The relative importance of each of the different regions varied over time, and the incidence of canid burials appears to fluctuate accordingly. The connection appears to be correlated both with the presence of elite and significant individuals and also the regional location of the governing powerbase.

[70] DRN 183 and 184 were found in a temple context and represent the votive use of a canid (Ikram 2013a).

[71] DRN 216, the burial of two mummified canids along with one mummified cat, two mummified falcons (with the crowns of Upper and Lower Egypt) and two mummified ibis can potentially be classified as votive fauna (Bietak & Reiser-Haslauer 1982: 190 & 288-289).

[72] DRN 217 was located on the Red Sea coastline at Berenike and was incorrectly included in the Middle Egypt region whereas it should have been included in the Lower Egypt region.

[73] Six burials from Qasr Allam [DRN 46, 132, 157, 213, 214, 215] in the Oasis Region have been dated to the Late Period but it has been acknowledged by the excavators that these burials may have occurred early in the Ptolemaic Period (Colin 2009; Adam & Colin 2012; Colin, Adam & Pranjic 2014).

The widespread incidence of canid burials during the Graeco-Roman Period appears more likely to be linked to the renaissance of religious beliefs associated with the region from which it originated, but also reflects how the practice had become more votive in nature.

4.3 Distribution by Site Type

The distribution of canid burials by site type was analysed to discern the extent of the practice within the mortuary culture of the ancient Egyptians. The 141 identified canid burials in the corpus were classified in accordance with the following three burial site type definitions.

1. Cemetery: being areas specified and recognised as designated for human burials;
2. Settlement: being areas specified or recognised as designated for human habitation; and
3. Temple/funerary enclosure sites: being buildings recognised as places of worship.

The results are illustrated in Table 4.5 below.

Table 4.5: Distribution of canid burials by site type

Site Type	**Sample Size**	**%**
Cemetery	131	92.9%
Settlement	7	5.0%
Temple/Funerary Enclosure	3	2.1%
TOTAL	**141**	**100%**

The vast majority, 131 (92.9%) of canid burials were observed in a cemetery context (Figure 4.5). These burials occurred during all time periods and across all regions. Each of these site types will now be considered in turn.

4.3.1 Cemetery Burials

Cemetery burials represented 131 (92.9%) of the total corpus. Ninety (68.7 %) of these 131 burials contained a single canid, and the remaining 41 burials (31.3%) contained two or more canids. Fifty-three (40.5%) of the 131 cemetery burials were directly associated with a human burial, thus 78 (59.5%) of the 131 were buried without direct human association.

Of the 53 (40.5%) canid burials with human association, 14 (10.7%) also contained associated faunal remains. Of the 78 (59.5%) canid burials without human association 12 (9.2%) also contained associated faunal remains.

4.3.1.1 Cemetery burials chronologically

The significant sample size of canid burials found in a cemetery context permits further analysis from a chronological perspective, and this is illustrated in Table 4.6 below.

Table 4.6: Distribution of cemetery burials by chronology

Period	**Sample Size**	**% of 131**	**Total Period**	**% of Period**
Predynastic	69	52.7%	75	92.0%
Early Dynastic	12	9.2%	12	100%
Old Kingdom/FIP	6	4.6%	6	100%
Middle Kingdom	7	5.3%	8	87.5%
SIP	3	2.3%	3	100%
New Kingdom	1	0.76%	2	50.0%
TIP	0	0.0%	0	0.0%
Late Period	16	12.2%	18	88.9%
Graeco-Roman	17	13.0%	17	100%
TOTAL	**131**	**100.0%**	**141**	**92.9%**

Almost all canid burials within each respective period occurred in a cemetery context with the one outlier being the New Kingdom where only 50% of canid burials were observed in a cemetery context. However the small sample size (∑=2) for this time frame needs to be considered. The Predynastic Period is important to consider, given its large sample size, and whilst 92% of Predynastic burials are located in a cemetery the fact that 8.0% of the total are not in a cemetery context is a reflection of localised mortuary practices that will be discussed below.

Given the chronological distribution shows limited variation by site type, it is necessary to consider the potential for geographical variations or similarities in the corpus.

4.3.1.2 Cemetery burials geographically

Table 4.7: Distribution of cemetery burials by geography

Region	Sample Size	% of 131	Total Period	% of Period
Lower Egypt	33	25.1%	33	100%
Middle Egypt	35	26.7%	39	89.7%
Upper Egypt	28	21.4%	34	82.4%
Lower Nubia	27	20.6%	27	100%
Oasis Region	8	6.1%	8	100%
TOTAL	**131**	**100.0%**	**141**	

One hundred percent of canid burials in Lower Egypt, Lower Nubia and the Oasis Region occurred in cemeteries and the vast majority of the canid burials in Middle Egypt and Upper Egypt also occurred in a cemetery context.

The strong presence of canid burials in a cemetery context, across all regional locations is indicative of an established funerary practice that was widely adopted. Specifically, the highest sample sites were located at Abydos in Middle Egypt (18 burials), Hierakonpolis in Upper Egypt (17 burials), Saqqara in Lower Egypt (16 burials) and Khor Bahan in Lower Nubia (12 burials), which were all established cemetery sites. The volume of canids within these cemeteries most likely relates to the importance of the cemetery within each respective community.

Further insights into canid related funerary practice can be gained from looking at the small sample of non-cemetery burials and these will be discussed below.

4.3.2 Settlement burials

Seven (4.9%) of the total 141 canid burials in the corpus occurred at settlement sites. This small sample size may also be due to the limited number of settlement sites excavated and published to date. Additional canid burials may come to light when the settlement archaeology being currently undertaken is published. The sample size is not large enough to permit a detailed chronological or geographical analysis, however important results are noted below.

Six of the seven burials occurred during the Predynastic Period [DRN 4, 48, 49, 50, 51, 53], and five of these burials occurred at a single location, Adaima, Upper Egypt. The seventh burial occurred in the Middle Kingdom [DRN 143], containing a canid burial under a town wall near a Temple at Elephantine.

Six of the seven burials from Upper Egypt contained a single canid, whilst the other burial from Middle Egypt contained 15 or more canids.[74] None of the canid settlement burials were directly associated with human burials and none contained associated faunal remains.

Of the seven settlement burials, the five from Adaima are of particular interest. These burials have been dated to Naqada IIC-D (*ca.* 3500-3200 BC), and presented with evidence of matting, indicating the animals had been wrapped before burial. Two burials contained complete vessels, and two others contained pottery fragments, carbonised wood and flints (Midant-Reynes & Buchez 2002: 534), indicating a purposeful mortuary practice rather than the disposal of an animal.[75] It was suggested by Van Neer (2002: 543) that the five dogs may have functioned as foundation deposits, however only one burial was located near post holes. All five burials were located in isolation near middens (Midant-Reynes & Buchez 2002: 23), potentially more indicative of a termination deposit rather than a foundation deposit.

Although no dogs were found in any of the cemeteries at Adaima, a canid related find was recorded in the Eastern cemetery. Pot burial S673 (Midant-Reynes 2007: 12) contained a young child, and was dated to the slightly later Naqada IIIA2 (*ca.* 3200-3000 BC). On the left arm of the child was a bracelet made up of a Red sea shell, various beads, and two sections of canid mandible with the 1st and 2nd molars *in situ* (Figure 4.6). The inclusion of the mandible pieces in the construction of the bracelet shows a deliberate selection of an identifiable part of a canid. It is possible that the bracelet was placed on the child's arm in a protective capacity, the teeth of a canid potentially holding similar protective qualities as the complete canid (Hartley 2015: 66).

With such a small number of burials documented it is difficult to draw conclusions, however the careful, purposeful interment of each canid clearly indicates they had not

[74] This burial [DRN 4] was tentatively dated Predynastic by the original excavator with the possibility of it being an intrusive Old Kingdom burial (Brunton & Caton-Thompson (1928: 94/Plate LXIX). Examination of the archaeological record potentially places doubt on both these assumptions, with the multiple burial more consistent with later Graeco-Roman practices.

[75] Four child burials and the burial of a piglet within this settlement area (Midant-Reynes & Buchez 2002) could represent an indirect association of the canid burials within this specific mortuary context.

simply been disposed of, and their presence along with the four child burials and the burial of a piglet within the settlement indicate all ten burials were a part of the broader mortuary landscape.

4.3.3 Temple/funerary enclosure burials

Three (2.1%) of the 141 canid burials were observed at temple/funerary enclosure sites. Two of the three burials contained a single canid, whilst the other burial contained nine canids. No temple/funerary enclosure burial was directly associated with human or faunal remains.

It appears likely that this temple/funerary enclosure style of burial is relevant to both the prevailing time period and the specific location. The multiple burial of nine canids was classified New Kingdom[76] and the other two burials were dated to the Late Period [DRN 183, 184]. Each Late Period burial presented with a canid placed in a ceramic vessel then buried within a pre-existing temple/funerary enclosure.[77] The process employed for these two burials is consistent with the votive use of canids in the Late/Graeco-Roman Period,[78] the importance and significance of which is discussed in Chapter 6.

Canid burials in a temple/funerary enclosure context were extremely rare, and appear to show an alternative funerary practice reflective of specific personal preferences related to broader votive context associated with the later periods.

4.4 Grave Architecture

Examination of the grave architecture used in canid burials provides a basis for our understanding of their significance in the funerary practice of the ancient Egyptians. The methods used to construct the canid graves and any architectural elements found above ground, demonstrate similarities and differences with human grave construction at any given time, providing an insight into the significance of the canid burial practice.

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[76] The New Kingdom date for this temple canid burial at Amarna [DRN 206] is not consistent with canid burial practices during the Amarna Period, where no canid burials have been documented. It is however, more consistent with the later Graeco-Roman Period practice of burying multiple canids, with over 120 dogs found in Grid 10 of the Amarna area (Payne 2006).

[77] Many jars were recovered in the same south-east area of the temple, of which 13 were investigated. Four were empty, three contained ibises and five were said to contain dogs (Ikram 2013a: 266).

[78] Similar jar burials containing animal remains have been found in a cemetery context at Abydos (cemetery section E), dated to the Roman Period (Peet & Loat 1913), and these animal burials appear votive in nature. Although not found in a temple/funerary enclosure context, the similarity between the two Late Period jar burials and the five Roman Period container burials [DRN 147, 148, 149, 150, 151] points towards a votive context. Five Abydos canid burials were recorded by Peet & Loat (1913: 43), the containers described as either jars or small bricked enclosures surrounding jars.

For the purpose of this study, grave architecture has been divided into two categories: Substructure (all features below ground), and Superstructure (all features above ground).

The classification of the entries in the corpus was restricted by the fact that 58 (41.1%) of the burials were recorded as disturbed and/or looted to varying degrees, making it possible that the presence of a superstructure may have been higher than the results indicate. The analysis below is based on whether the burial had substructure or superstructure components, with entries classified as 'both' when both categories were incorporated.

Of the 141 burials, 111 were classified as a substructure only. A further five burials were classified as a superstructure only, with canids found within the respective above-ground structures. Twenty-five entries in the database were classified as 'both' because they displayed evidence of both a substructure and an associated superstructure.

Substructure only architecture was identified in eight of the nine relevant periods and four of the five regions. Whereas superstructure only architecture was identified in only three of the nine periods and three of the five regions. Burials identified as both substructure and superstructure were observed in seven of the nine periods and in all five regions.

The chronological and geographical distribution of grave architecture is illustrated in Table 4.8 and Table 4.9 below.

Table 4.8: Chronological distribution of grave architecture

Period	**Sub**	**Super**	**Both**	**Total**
Predynastic	71	1	3	**75**
Early Dynastic	3	0	9	**12**
Old Kingdom/FIP	2	0	4	**6**
Middle Kingdom	4	3	1	**8**
SIP	2	0	1	**3**
New Kingdom	1	0	1	**2**
TIP	0	0	0	**0**
Late Period	11	1	6	**18**
Graeco-Roman	17	0	0	**17**
TOTAL	**111**	**5**	**25**	**141**

The majority of records in each of the specified time periods and region have been classified as substructure burials only. Chronologically (Figure 4.7), the only exceptions are the Early Dynastic Period and the Old Kingdom/FIP which presented with a majority of burials containing both substructure and superstructure components. Geographically (Figure 4.8), the only exception is the Oasis Region which presented with all burials associated with both substructure and superstructure components.

Table: 4.9: Geographical distribution of grave architecture

Region	Sub	Super	Both	Total
Lower Egypt	20	1	12	**33**
Middle Egypt	36	1	2	**39**
Upper Egypt	29	3	2	**34**
Lower Nubia	26	0	1	**27**
Oasis Region	0	0	8	**8**
TOTAL	**111**	**5**	**25**	**141**

4.4.1 Substructure

The category of substructure burials incorporates pits, rock-cut chambers and shafts, bricked burials, containers placed in the ground, and holes associated with walled structures. The distribution of the substructure types (Figure 4.9), including both the 111 entries classified as substructure only and the 25 entries classified as 'both', is illustrated in Table 4.10 below.

Table 4.10: Substructure types

Substructure Type	Number	% of 136
Pits	108	79.4%
Rock-cut chamber/shaft	10	7.4%
Bricked burials	5	3.7%
Jars/Pots	5	3.7%
Holes in/under wall	5	3.7%
Unknown	3	2.2%
TOTAL	**136**	**100%**

By far the most common type of substructure was a pit (108 of the 136). Thirty-six (33.3%) of the 108 were described simply as a 'pit', 18 (16.7%) were described as 'circular pits', 22 (20.4%) were described as 'oval pits', 26 (24.1%) were described as 'rectangular pits', three (2.8%) were considered to be 'irregular shaped pits', and three (2.8%) were recorded as pits cut into a cell.[79]

Chronologically, almost all burials throughout the specified periods were identified as containing substructure features (Figure 4.10). The only period with a lower percentage of burials with a substructure feature, was the Middle Kingdom with 62.5%. When these substructures were divided into pit and non-pit burials, it is evident that pits were consistently utilised throughout the entire time frame, with the exception of the New Kingdom when non-pit substructures were preferred. The vast majority of Predynastic Period and all the Early Dynastic Period substructures were pits while the remaining seven periods saw a fluctuating division between pit and non-pit substructures (Figure 4.11).

When substructure burials were examined regionally, all five regions demonstrated that the majority of burials contained substructure features, especially Lower Nubia and the Oasis Region where 100% of canid burials had a substructure component (Figure 4.12). Further, when the substructures in the five regions were divided into pits and non-pits, the pit type of burial being the majority of burials in each region and 100% of Lower Nubian burials (Figure 4.13).

Of the 136 substructure burials, 93 (68.4%) contained a single canid, 35 (25.7%) contained associated human remains only, 12 (8.8%) contained associated faunal remains without human remains, and 13 (9.6%) contained both associated human and faunal remains.

4.4.2 Superstructure

The category of superstructure burials incorporates mastabas, cell foundations and wall cavities, vaulted tombs, stone slabs, above ground rooms, and mounds of sand, as well as substructure burials which also have one of these superstructure features (classified as 'both') (Figure 4.14).[80] The specific superstructure types are illustrated in Table 4.11 below.

[79] These cells were the square box-like framework underpinning ramps and pavements constructed for and around temples, the cells being subsequently reused for later burials.

[80] All the above superstructures except for the wall cavities and stone slabs were superstructures built for humans and the canids were incorporated in the burial.

Table 4.11: Superstructure burial types

Superstructure Type	Number	% of 30
Burial associated with mastaba	13	43.3%
Cell foundations and Wall Cavities	7	23.3%
Vaulted tombs	4	13.3%
Pits with stone slabs	3	10.0%
Above ground room	2	6.7%
Mound of sand	1	3.3%
TOTAL	**30**	**100%**

With only 30 instances of the construction of a superstructure specifically for a canid related burial, this practice was clearly not common. The relative popularity of superstructure architecture across the chronological periods is illustrated in Figures 4.15 and 4.16. Two burials are noteworthy for the presence of a superstructure. DRN 54 and DRN 70, both Predynastic multiple canid burials incorporated the use of stone slabs covering the grave. When a superstructure was evident, the canid burial was highly likely to be directly or closely associated with the human burial that the superstructure was constructed for. The relative popularity of superstructure architecture across the geographic regions is illustrated in Figures 4.17 and 4.18.

Of the 30 superstructure burials, 24 (80.0%) contained a single canid, 12 (40.0%) contained associated human remains only, one (3.3%) contained associated faunal remains without human remains, and two (6.7%) contained both associated human and faunal remains.

Examination of substructure and superstructure architectural features for canid graves shows a close correlation between the construction of human graves in each respective time period. During the Predynastic Period, canid graves consisted mainly of pits, frequently in the same shape as those constructed separately for humans. From the Early Dynastic Period onward, the canid graves were typically associated with a human burial and any related superstructure associated with the combined burial.

4.5 Summary

This chapter has presented the quantitative primary results and following analysis of the corpus of canid burials according to chronological and geographical distribution, site type

and the grave architecture. Canid burials were observed at 39 sites with a minimum number of 141 burials, with an MNI of 271 canids.

Chronologically, the greatest number of canid burials was attributed to the Predynastic Period, with just over a half the total sample. A smaller but still significant number occurred during the Early Dynastic Period, then relatively few, up to and including the New Kingdom. A complete absence was noted for the TIP before an increase occurred during the Late Period and the trend continued through the Graeco-Roman Period.[81]

Regionally, canid burials were observed in all five regions set out in this study. The region with the highest representation in the sample was Middle Egypt, with a lesser but marginal difference between Upper Egypt, Lower Egypt, and Lower Nubia. The least represented region was the Oasis Region.

In terms of site types, the overwhelming majority of canid burials were found in a cemetery context across all time periods except the TIP, and in all five regions, indicating it was an established funerary practice at all times in all regions. A limited number of canid burials were documented in a settlement context, and a smaller number were found in a temple/funerary enclosure context, demonstrating that canid burials were employed in different mortuary practices.

Examination of grave architecture revealed that the majority of burials consisted of a substructure only. A small number of burials consisted of both a substructure and a superstructure however it was rare for a canid burial to exhibit a superstructure only.

The most common type of substructure was a pit cut into the ground and when a canid burial was associated with a superstructure, that structure was most commonly a mastaba associated with a human burial. Construction of canid burials consistently mirrored the construction of human burials at all times and in all regions.

Despite the inherent challenges, the findings presented above are substantial enough to be considered representative of certain trends regarding the use of canids in the Egyptian mortuary culture. These results will be expanded in Chapter 5 to include quantative results and analysis of the corpus relating to grave content, specifically related to canids buried individually as compared to canids buried in direct association with human remains.

[81] This distribution is expected to change as new canid burial reports come to light.

CHAPTER 5: ANALYSIS OF THE CORPUS OF CANID BURIALS PART II

This chapter extends the analysis set out in Chapter 4, to include a more detailed analysis of the specific burial content of the corpus of canid burials. This incorporates an examination of canids buried in isolation and canids buried in direct association with human remains, in order to determine whether these associated grave contents impacted the functional purpose of the canid. In order to accommodate the possible variation of grave use, further distinctions will be made identifying associated fauna and the presence of grave goods.

To enhance our analysis of the significance of canids utilised in burials, when available, a brief outline of the bodily treatment before burial, and the subsequent positioning of the body in the grave will follow. Additionally results estimating species, sex and age of the canids will be presented.

The corpus has been classified initially into the following four categories:

1. A canid burial alone (without associated human or faunal remains);
2. A canid burial with associated humans (without associated faunal remains);
3. A canid burial with both associated humans and faunal remains; and
4. A canid burial with associated faunal remains (without associated human remains).

These four categories were employed to assist in investigating paradigms and variations based on whether the canid in the burial was a single canid, or part of a multiple canid burial, to determine whether the number of canids within the burial was a significant factor in the functional purpose.

The above four categories have also been recombined into three distinct groups in accordance with the non-canid contents of each entry:

1. Canids with **direct faunal association**. This incorporates:
    a. canid burial with both associated humans and faunal remains; and
    b. canid burial with associated faunal remains (without human remains).
2. Canids with **direct human association**. This incorporates:
    a. canid burial with associated humans (without associated faunal remains); and
    b. canid burial with both associated humans and faunal remains.

3. Canids with **no direct human association**. This incorporates:
    a. canid burial alone (without associated human or faunal remains); and
    b. canid burial with associated faunal remains (without human remains).

When canids were found with direct human association, the sex and age of each human present has been documented and presented in tabular form following the Corpus of 141 Canid Burials.

The results will be set out in their relevant categories and analysis will determine if a common thread emerges regarding the functional purpose of the use of canids over time. This will be accomplished by analysing the results using the previously outlined categories of canid functional purpose discussed in Chapter 2, to establish the most relevant classification for the canid burials in the corpus. These categories are summarised and determined as follows:

1. Sacred: a sacred interpretation is possible but unlikely during the Predynastic Period when canid burials were first observed. As pointed out by Olsen (2000: 71), it is difficult to determine from the archaeological record whether canids were regarded as sacred during their lifetime and therefore buried at death. Canid burials observed after the Predynastic Period most likely continued the same functional purpose established earlier which does not appear to be sacred.
2. Votive: a votive interpretation is not likely before the Late Period when a significant rise in animal cults and the widespread mummification of animals occurred, the popularity of which continued throughout the Graeco-Roman Period (Nicholson, Ikram & Mills 2015; Ikram 2016).
3. Food offering: there is no evidence to suggest that canids/dogs were ever eaten in ancient Egypt (Gransard-Desmond 2004; Taylor 2010: 128; Brixhe 2014), a fact supported by zooarchaeological evidence with no canid skeletal remains exhibiting signs of butchering, hence this interpretation has been discounted completely.
4. Pet: this interpretation is possible in a small proportion of burials in any of the time periods when dogs are found directly associated with a human burial (Ikram 2005: 2), however, the majority of canid burials in the corpus are not buried with humans making this interpretation less plausible, and rather an exception to the established practice. Additionally, 30% of the corpus presented with multiple canids in the same burial, more likely indicating an emphasis of the functional purpose rather

than the unlikely alternative that the associated human (if any) had multiple pets, all of which were canids.

5. Protector: it is the proposed protector hypothesis that will be investigated when analysing the functional purpose of a canid burial, as the most likely dominant factor in the funerary process. A related amuletic interpretation has been proposed by Hartley and colleagues (Hartley, Buck & Binder 2011), and while this categorisation was based on canid burials from the Late Period, it is plausible for all periods, as canid amulets have been found throughout the history of ancient Egyptian human burials.[82] However more importantly, the amuletic canid is closely linked to a protective function.

5.1 Individual Canid Burials

The majority of the corpus presented as individual canid burials. An individual canid burial is defined as the burial of a single canid in a single grave, regardless of other content. The categorisation of an individual canid is highly dependent on the respective excavation reports and the diligence and accuracy of each author. Individual canid burials were analysed to determine their functional purpose and also whether the absence of multiple canids in a single grave impacted the functional purpose of the canid. The presence of an individual canid placed in a grave accounted for 98 (69.5%) of the total 141 burials (Figure 5.1). These individual canid burials were analysed over time, and by location, to determine whether consistencies or variations existed for this practice.

5.1.1 Individual canid burials chronologically

Chronologically, individual canid burials presented in eight of the nine specified periods, the exception being the TIP. The relative percentages of individual canid burials across the chronological periods are illustrated in Table 5.1 below.

[82] Possibly the two earliest bone canid amulets were found on the chest of a child buried at Mostagedda (Burial 1757) dated to Naqada II (Brunton 1937: 71). Illustration of the amulets see Figure 3.19. Also the burial of a child excavated from Adaima, Eastern cemetery, dated Naqada IIIA2, retained a bracelet on the left arm, made up of two sections of a canid mandible plus other shells and beads (Midant-Reynes 2007: 12).

Table 5.1: Chronological distribution of individual canid burials

Period	Sample	% of 98	% of Period
Predynastic	53	54.1%	70.7%
Early Dynastic	12	12.2%	100%
Old Kingdom/FIP	5	5.1%	83.3%
Middle Kingdom	6	6.1%	75.0%
SIP	2	2.0%	66.7%
New Kingdom	1	1.0%	50.0%
TIP	0	0.0%	0.0%
Late Period	10	10.2%	55.6%
Graeco-Roman	9	9.2%	52.9%
TOTAL	**98**	**100.0%**	**69.5%**

Chronologically, the use of individual canids in a burial was more popular in earlier periods and declined progressively as the use of multiple canids increased in popularity (Figure 5.2), however at least half of all canid burials in each period were single canids. This sample has also been classified in accordance with the specific contents of each respective burial (Figure 5.3) and percentages are illustrated in Table 5.2 below.

Table 5.2: Detailed chronological distribution of individual canid burials

Period	Sample Size	Canid Only %	Canid + Human %	Canid + Human + Fauna %	Canid + Fauna %
Predynastic	53	30 (56.6%)	14 (26.4%)	6 (11.3%)	3 (5.7%)
Early Dynastic	12	11 (91.7%)	1 (8.3%)	0 (0.0%)	0 (0.0%)
Old Kingdom/FIP	5	2 (40.0%)	3 (60.0%)	0 (0.0%)	0 (0.0%)
Middle Kingdom	6	2 (33.3%)	4 (66.7%)	0 (0.0%)	0 (0.0%)
SIP	2	0 (0.0%)	0 (0.0%)	1 (50.0%)	1 (50.0%)
New Kingdom	1	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)
TIP	0	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Late Period	10	4 (40.0%)	6 (60.0%)	0 (0.0%)	0 (0.0%)
Graeco-Roman	9	3 (33.3%)	1 (11.1%)	1 (11.1%)	4 (44.4%)
TOTAL	**98**	**52 (53.1%)**	**29 (29.6%)**	**8 (8.9%)**	**9 (9.2%)**

Predynastic Period: The 53 individual canid burials represent 70.7% of all Predynastic canid burials, indicating that approximately 30% of Predynastic canid burials contained multiple canids. The large proportion of canid only burials is consistent with the hypothesis of an indirect protector function of the canid in relation to an individual human or group of humans within proximity, primarily in a cemetery context. Canids buried with direct human association accounted for approximately 38% of this sample reflecting a direct protector function of the specific human. The presence of additional faunal remains is not inconsistent with the canid protector function (direct or indirect), but rather reflective of their own separate functional purpose in the diverse funerary practices of regional communities.

Early Dynastic Period: The 12 individual canid burials represent 100% of all Early Dynastic burials, indicating the absence of multiple canid burials in this period. The preference appears heavily skewed towards the burial of a single canid only, without directly associated content. Only 8.3% of individual burials contained an associated human (for example DRN 188), and the practice of incorporating associated fauna appears to have not been employed at all during this period. Relative to the Predynastic Period, the Early Dynastic funerary practice increased the use of individual canids only, decreased the use of directly associated human remains, and ceased the use of associated faunal remains.[83]

Old Kingdom/First Intermediate Period: The five individual canid burials represent 83.3% of all Old Kingdom/FIP burials, indicating that approximately 16% of the burials in this period contained multiple canids. The preference appears skewed towards the burial of a single canid with an associated human, indicative of a direct protector function closely followed by a single canid buried in isolation, indicative of an indirect protector function. The practice of burying associated fauna appears to have not been employed at all during this period, with relevant consideration given to the sample size. Relative to the Early Dynastic Period, the Old Kingdom/FIP funerary practice significantly decreased the use of canid only burials, significantly increased the use of canid burials associated with human remains, and maintained the exclusion of associated fauna. The small number of canid burials indicates this practice was not continued by the broader elite community.

Middle Kingdom: The six individual canid burials represent 75% of all Middle Kingdom burials, indicating that 25% of Middle Kingdom burials contained multiple canids. The

[83] It should be noted that although other fauna was not placed in a grave with a canid, when canid burials were associated with a human burial complex, birds were frequently found in independent burials, for example DRN 101, 207, 208, 209, 210, 211, 212 were also accompanied by three separate avian burials.

preference appears skewed towards the burial of a single canid with an associated human, reflecting a direct protector function, followed by a single canid burial in isolation. The majority of observations in this period are individual canids placed in a burial chamber with multiple humans. The canids observed buried in isolation are consistent with an indirect protector function of human burials in close proximity. Importantly the associated human burials are no longer restricted to elite individuals, indicating a broader application across the social strata. The practice of burying associated fauna appears to have been excluded during this period, again with relevant consideration given to the sample size. Relative to the Old Kingdom/FIP, the Middle Kingdom practice slightly decreased the use of individual canid burials, slightly increased the use of canid burials associated with human remains, and maintained the exclusion of associated fauna.

Second Intermediate Period: The two individual canid burials represent 66.7% of all SIP burials, indicating that approximately 33% of SIP burials contained multiple canids. The preference appears skewed towards the use of associated faunal remains. All individual canid burials contained associated fauna, with half associated with humans and half without. The practice of burying a canid in isolation, or with a human only, was not employed at all in this period, again with particular consideration given to the sample size. Relative to the Middle Kingdom, the SIP funerary practice saw a shift to the incorporation of additional fauna. This is an important change in the burial preferences (despite the small sample size), the significance of which likely reflects a shift in prevailing religious attitudes.

New Kingdom**:** The one individual canid burial represents 50% of the two New Kingdom burials listed, indicating that 50% of New Kingdom burials contained multiple canids. The preference is skewed towards the use of associated fauna with the one individual canid burial containing associated fauna. The practice of burying a canid in isolation or with an associated human was not employed at all during this period, again with particular consideration given to the sample size. Relative to the SIP, the New Kingdom funerary practices maintained the use of associated fauna with canid burials, and eliminated completely the direct association with human remains. Whilst based on only a single entry this could imply a possible shift in the burial preferences and prevailing religious attitudes.

Third Intermediate Period: No individual canid burials have been identified relating to this period.

Late Period: The ten individual canid burials represent 55.6% of all Late Period burials, indicating that approximately 45% of Late Period burials contained multiple canids. The preference appears skewed towards the burial of a single canid without associated fauna. The practice of incorporating directly associated human remains, appears in 60% of this sample indicative of a direct protector function, while the remaining burials are canids in isolation indicative of an indirect protector function. Relative to the New Kingdom, the Late Period funerary practices ceased the use of associated fauna. They significantly increased the burials of a canid with associated human remains, and increased the practice of burying a canid in isolation. This is another important shift in the burial preferences, possibly reflecting a return to earlier religious practise (Clayton 1999: 195; Lloyd 2000a).

Graeco-Roman Period: The nine individual canid burials represent 52.9% of all Graeco-Roman burials, indicating that approximately 47% of Graeco-Roman Period burials contained multiple canids. The preference appears less obvious, given the variety of burial types observed in this sample. The results are slightly skewed towards no directly associated human burial. Canid burials in isolation represented 33.3% of the sample, while canids buried with associated fauna represented a combined 55.5%. Canid burials with associated human remains were observed to a lesser degree (a combined 22.2%). When a human was present with a canid burial the likelihood of associated fauna also being present was evenly distributed. Relative to the Late Period, the Graeco-Roman Period practice reintroduced the use of associated fauna, significantly reduced the use of canid and human burials only, and recorded a similar level of canid burials in isolation. The Graeco-Roman Period had a high degree of burial diversity which incorporated a votive theme in many instances. The votive burials appear to engage the canid protector function through access to the canid god, and at the same time, the non-votive canid burials are also consistent with the direct protector function, similar to observations in earlier periods.

Turning to the four respective categories of individual canid burials and reviewing each over the chronological periods, the following summary provides a more specific chronological analysis of each type of practice. Whilst the accuracy of the data in the earlier periods is bolstered by the larger sample sizes, the trend lines provides interesting observations worthy of comment.

5.1.1.1 Individual canid in isolation chronologically

Figure 5.4 illustrates the change in popularity of the practice of an individual canid buried in isolation over the respective chronological periods. This burial process was observed most during the two earlier periods (Predynastic and Early Dynastic Periods). Thereafter the practice steadily declined in popularity with a complete absence in the SIP, New Kingdom and TIP, and a minor resurgence in the Late Period and thereafter where the popularity remains reasonably consistent.

5.1.1.2 Individual canid with associated human remains chronologically

Figure 5.5 illustrates the change in popularity of the practice of an individual canid buried with associated human remains over the respective chronological periods. This burial process was relatively uncommon in the Predynastic and Early Dynastic Periods. The popularity increased significantly in the Old Kingdom and Middle Kingdom and was completely absent in the SIP, New Kingdom and TIP before a significant resurgence in the Late Period. The practice was again only partially employed in the Graeco-Roman Period.

5.1.1.3 Individual canid with associated human and faunal remains chronologically

Figure 5.6 illustrates the change in popularity of the practice of an individual canid buried with associated human and faunal remains, over the respective chronological periods. This burial practice was most popular in the SIP. The practice was only employed to a minor degree in the Predynastic Period, and Graeco-Roman Period and was completely absent in the remaining six periods.

5.1.1.4 Individual canid with associated faunal remains chronologically

Figure 5.7 illustrates the change in popularity of the practice of an individual canid buried with associated fauna only, over the respective chronological periods. This burial practice was considerably more popular during the later periods relative to the earlier periods. The process was almost absent in the Predynastic Period, and was not employed during the Early Dynastic Period, Old Kingdom and Middle Kingdom. The SIP saw a notable spike in the burial of canids with fauna, the popularity of which continued to increase in the New Kingdom. The practice ceased during the TIP and Late Period before a resurgence during the Graeco-Roman Period.

5.1.2 Individual canid burials geographically

Geographically individual canid burials presented in all five of the specified regions. The relative percentages of individual canid burials across the geographical regions are illustrated in Table 5.3 below.

Table 5.3: Geographical distribution of individual canid burials

Region	Sample	% of 98	% of Region
Lower Egypt	28	28.6%	84.8%
Middle Egypt	26	26.5%	66.7%
Upper Egypt	21	21.4%	61.8%
Lower Nubia	18	18.4%	66.7%
Oasis Region	5	5.1%	62.5%
TOTAL	**98**	**100.0%**	**69.5%**

Each region had a greater than 60% incidence of individual canids being used in a burial. The highest propensity was in Lower Egypt, and despite being more isolated from the Nile Valley, the Oasis Region recorded a large proportion of individual canid burials. These burials have also been classified in accordance with the associated contents of each respective burial (Figure 5.8), and are illustrated in Table 5.4 below.

Table 5.4: Individual canid burials geographically

Region	Sample size	Canid Only %	Canid + Human %	Canid + Human + Fauna %	Canid + Fauna %
Lower Egypt	28	18 (64.3%)	8 (28.6%)	2 (7.1%)	0 (0.0%)
Middle Egypt	26	11 (42.3%)	11 (42.3%)	0 (0.0%)	4 (15.4%)
Upper Egypt	21	6 (28.6%)	6 (28.6%)	6 (28.6%)	3 (14.3%)
Lower Nubia	18	14 (77.8%)	2 (11.1%)	0 (0.0%)	2 (11.1%)
Oasis Region	5	3 (60.0%)	2 (40.0%)	0 (0.0%)	0 (0.0%)
TOTAL	**98**	**52 (53.1%)**	**29 (29.6%)**	**8 (8.9%)**	**9 (9.2%)**

Lower Egypt**:** Individual canids were observed in approximately 85% of burials in this region. The preference for this region appears skewed towards the burial of a single canid only. A directly associated human burial was observed in a combined 35.7% of individual

canid burials in this region. The inclusion of associated faunal remains was rare with an associated human and completely absent when there was no human present.

Middle Egypt: Individual canid burials represent 66.7% of all burials in this region. The preference for this region appears skewed towards the burial of a single canid without associated faunal remains. The burial of a single canid in isolation, and a single canid with associated human remains is evenly distributed (at 42.3% each). Whilst only 15.4% of all burials in this region contained associated faunal remains, the practice of burying a canid with associated fauna is only employed without an associated human.

Upper Egypt: Individual canid burials represent 61.8% of all burials in this region. The preference for this region is less obvious, given the different burial types observed. There appears to be a strong preference for the inclusion of an associated human (a combined 57.2%), and a 42.9% probability of the inclusion of faunal remains. The least employed practice was the burial of a canid with associated faunal remains only.

Lower Nubia: Individual canid burials represent 66.7% of all burials in this region. The burial of a canid in isolation is extremely popular in this region, while the inclusion of either associated human or other fauna is rarely observed. The burial of a canid with human and other associated fauna is not present in this region.

Oasis Region: Individual canid burials represent 62.5% of all burials in this region. The preference for this region appears to be in favour of the burial of a single canid in isolation, and to a slightly lesser degree the burial of a single canid with an associated human. The use of associated fauna in a canid burial is completely absent in this region.

In summary, individual canid burials made up a large proportion of all canid burials in each region. The regional diversity is best illustrated when considering the associated grave contents, with associated remains likely to be attributed to both regional customs and prevailing religious beliefs.

Turning to the four categories of individual canid burials, the following summary provides a more specific geographical analysis of each type of practice.

5.1.2.1 Individual canid in isolation geographically

Figure 5.9 highlights the change in popularity of burying an individual canid only, across the respective geographic regions. This burial process was most popular in Lower Nubia. Lower Egypt and the Oasis Region both had a high propensity to employ this burial style,

while the practice was employed to a slightly lesser degree in Middle Egypt. This burial practice is strongly observed in each region and is least popular in Upper Egypt which still maintained a level of 28.6%.

5.1.2.2 Individual canid with associated human remains geographically

Figure 5.10 highlights the change in popularity of burying an individual canid associated with human remains, across the respective geographical regions. This burial process is observed in all regions to varying degrees. The popularity of this practice was highest in Middle Egypt (42.3%) and the Oasis Region (40.0%). Relative to the remaining regions, Lower Egypt and Upper Egypt both had a high propensity to employ this burial style, while the practice was rarely employed in the Lower Nubia.

5.1.2.3 Individual canid with associated human and faunal remains geographically

Figure 5.11 highlights the change in popularity of burying an individual canid associated with both human and faunal remains, across the respective geographic regions. This burial process was employed significantly more frequently in Upper Egypt (28.6%). Only a small proportion of burials in Lower Egypt (7.1%) employed this burial style, and it appears to have been absent in Middle Egypt, Lower Nubia and the Oasis Region.

5.1.2.4 Individual canid with associated faunal remains geographically

Figure 5.12 highlights the change in popularity of burying an individual canid associated with other fauna only, across the respective geographic regions. This burial process is relatively unpopular or non-existent across all regions. The practice appears slightly more frequently in Middle Egypt, Upper Egypt and Lower Nubia. The practice is completely absent in Lower Egypt and the Oasis Region. It should be noted that whilst this practice was most popular in Middle Egypt, only 15.4% of the burials were of this style.

Given the relatively consistent levels of popularity of each of these four burial types across the relevant geographic regions, it may suggest that the selection of grave content with individual canid burials was more heavily influenced by the prevailing chronological funerary beliefs, however regional factors still had a contributing influence, albeit to a lesser degree.

5.2 Multiple Canid Burials

The presence of multiple canids placed in a burial accounted for 43 (30.5%) of the total of 141 burials (Figure 5.1). A multiple canid burial is defined as the burial of more than one

canid in a single grave, regardless of other content. Again the categorisation of a multiple canid burial is highly dependent on the respective excavation reports and the diligence and accuracy of each author. Multiple canid burials were analysed to determine whether the number of canids in a single grave influenced the functional purpose of the canids. The analysis of the significance of multiple canid burials is based on the following hypotheses: multiple canids were indicative of the significance of associated humans, and/or multiple canids amplified the significance of the protective functional purpose of the canid. Multiple canid burials were analysed from a chronological and geographical perspective to determine the existence of paradigms and variations.

5.2.1 Multiple canid burials chronologically

Chronologically, multiple canid burials presented in seven of the nine specified periods (Figure 5.13) with no observations during the Early Dynastic or TIP. The relative percentages of multiple canid burials across the chronological periods are illustrated in Table 5.5 below.

Table 5.5: Chronological distribution of multiple canid burials

Period	Sample	% of 43	% of Period
Predynastic	22	51.2%	29.3%
Early Dynastic	0	0.0%	0%
Old Kingdom/FIP	1	2.3%	16.7%
Middle Kingdom	2	4.7%	25.0%
SIP	1	2.3%	33.3%
New Kingdom	1	2.3%	50.0%
TIP	0	0.0%	0.0%
Late Period	8	18.6%	44.4%
Graeco-Roman	8	18.6%	47.1%
TOTAL	**43**	**100.0%**	**30.5%**

The total number of multiple canid burials was highest during the Predynastic Period, and again in the Late/Graeco-Roman Periods. After an absence during the Early Dynastic Period, multiple canid burials were observed more frequently, except for the TIP (Figure 5.14), however no more than half of all canid burials in each period were multiple canids. These multiple canid burials chronologically have been classified in accordance with the associated contents of each respective burial, as illustrated in Table 5.6 below.

Table 5.6: Chronological distribution of multiple canid burials

Period	Sample Size	Canids Only %	Canids + Human %	Canids + Human + Fauna %	Canids + Fauna %
Predynastic	22	14 (63.6%)	4 (18.2%)	3 (13.6%)	1 (4.5%)
Early Dynastic	0	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Old Kingdom/FIP	1	0 (0.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)
Middle Kingdom	2	2 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
SIP	1	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)
New Kingdom	1	1 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
TIP	0	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Late Period	8	1 (12.5%)	5 (62.5%)	2 (25.0%)	0 (0.0%)
Graeco-Roman	8	6 (75.0%)	1 (12.5%)	0 (0.0%)	1 (12.5%)
TOTAL	**43**	**24 (55.8%)**	**10 (23.3%)**	**6 (14.0%)**	**3 (7.0%)**

Predynastic Period: Multiple canid burials observed during the Predynastic Period represent 29.3% of all Predynastic canid burials, and hence approximately 70% of Predynastic canid burials contained individual canids. The preference for this period appears heavily skewed towards the burial of multiple canids only, followed by multiple canids buried with an associated human (a combined 31.8%). The practice of burying multiple canids with associated fauna appears significantly less popular, however more likely to occur when an associated human was present. This period shows higher diversity in canid burial practices, once again most likely attributable to multiple autonomous regional communities each with different established funerary practices. Relative to individual canid burials in the Predynastic Period, a multiple canid burial appears more likely to be without additional associated grave contents, and slightly more likely to contain associated faunal remains. Therefore the presence of multiple canids in this period suggests an amplification of the protector function of the canid, with the protection employed for indirectly associated humans within close proximity.

Early Dynastic Period: No multiple canid burials were observed in the Early Dynastic Period. All canid burials in this period were individual canids. Relative to the Predynastic Period, the Early Dynastic funerary practice employed a higher level of individual canid burials.

Old Kingdom/First Intermediate Period: The one multiple canid burial represents 16.7% of all Old Kingdom/FIP burials, indicating that approximately 83% of Old Kingdom/FIP burials contained individual canids. This single entry contained canids, humans and fauna however there is insufficient data to determine the prevailing preferences for this period. It is also difficult to draw meaningful conclusions of the different burial types relative to earlier periods other than to note the continued preference for individual canid burials. Relative to individual canid burials in the Old Kingdom/FIP, a multiple canid burial appears more likely to contain associated faunal remains, and less likely to occur in isolation.

Middle Kingdom: The two multiple canid burials represent 25% of all Middle Kingdom burials, indicating that 75% of Middle Kingdom burials contained individual canids. Both of these multiple canid burials were canids only with an absence of any associated human or faunal remains. There is insufficient data to permit meaningful analysis of the prevailing preferences for this period. Relative to individual canid burials in the Middle Kingdom, a multiple canid burial appears more likely to be in isolation.

Second Intermediate Period: The one multiple canid burial represents 33.3% of all SIP burials indicating that approximately 67% of SIP burials contained individual canids. This single burial contained multiple canids and other faunal remains. Again, there is insufficient data to determine the prevailing preferences for this period. Relative to individual canid burials in the SIP, a multiple canid burial maintains the strong preference for including faunal remains and ceases to include associated human remains.

New Kingdom: The one multiple canid burial represents 50% of all New Kingdom burials, indicating that 50% of New Kingdom burials contained individual canids. This single burial contained multiple canids without associated human or faunal remains. Again, there is insufficient data to draw meaningful conclusions as to the prevailing preferences for this period. Relative to individual canid burials in the New Kingdom, a multiple canid burial shifts from the strong preference to include faunal remains to simply multiple canids in isolation, potentially indicating an amplification of the functional purpose of the canid.

Third Intermediate Period: No multiple canid burials have been identified relating to this period.

Late Period: The eight multiple canid burials represent 44.4% of all Late Period burials, indicating that approximately 55% of Late Period burials contained individual canids. The

preference for this period appears heavily skewed towards the burial of multiple canids with associated human remains, followed by multiple canids buried with human and faunal remains. One burial contained multiple canids only without any associated human or faunal remains. The practice of burying multiple canids with associated faunal remains only is not observed in this period. It is difficult to draw meaningful conclusions with this small sample other than to note the resumption and increased popularity of multiple canid burials relative to earlier periods. Relative to individual canid burials in the Late Period, a multiple canid burial had a significantly increased probability of containing both associated human and faunal remains. This is consistent with both hypotheses, however additional factors may be relevant, for example a human burial with multiple canids placed in a barrier-like position around the edge of the burial pit [DRN 165], is indicative of the amplification of the protector function.

Graeco-Roman Period: The eight multiple canid burials represent 47.1% of all Graeco-Roman burials, indicating that approximately 53% of Graeco-Roman Period burials contained individual canids. The preference for this period is heavily skewed towards multiple canids buried in isolation. One burial contained multiple canids and associated human remains only, and a single burial contained multiple canids and associated fauna only. The practice of burying multiple canids with both associated human and fauna does not appear in the corpus during this period. Relative to the Late Period, the Graeco-Roman Period appears to have moved away from multiple canid burials associated with human remains to multiple canids in isolation. The limited use of additional fauna continues however the practice only appears in association with canids, not human remains. Relative to individual canid burials in the Graeco-Roman period, a multiple canid burial had a significantly increased probability of being canids in isolation and a significantly lower probability of containing either human or faunal remains. These multiple canid burials fall into two subcategories. Some can be classified as votive in nature, linked to a canid god predominantly associated with the protector function, or alternatively the nature of the burial was consistent with previous periods when the canids had the functional purpose of being the protector, for a direct human burial or an indirect human burial in proximity.

In summary, the presence of multiple canids most likely reflects an amplification of the functional purpose of the canid in the funerary practice. This amplification of the protector function may have been for a specific, significant person, or to provide a stronger degree of protection for a group of humans buried nearby.

Turning now to each respective category of multiple canid burials and reviewing across the chronological periods the below summary provides a more specific chronological analysis of each practice. The accuracy of the data is significantly impacted by the small sample sizes however the trend lines provide interesting observations.

5.2.1.1 Multiple canids buried in isolation chronologically

Figure 5.15 illustrates the change in popularity of burying multiple canids only, across the respective chronological periods. This burial process was relatively popular during the Predynastic Period, the Middle Kingdom, the New Kingdom and the Graeco-Roman Period. The practice was rare in the Late Period and completely absent in the Early Dynastic Period, Old Kingdom/FIP, SIP and TIP.

5.2.1.2 Multiple canids buried with associated human remains chronologically

Figure 5.16 illustrates the change in popularity of burying multiple canids with associated human remains only, across the respective chronological periods. This burial process was most popular in the Late Period (62.5%). The practice was rare in the Predynastic Period and Graeco-Roman Period and completely absent in the Early Dynastic period, Old Kingdom/FIP, Middle Kingdom, SIP, New Kingdom and TIP.

5.2.1.3 Multiple canids buried with associated human and faunal remains chronologically

Figure 5.17 highlights the change in popularity of burying multiple canids with associated human and faunal remains, across the respective chronological periods. This burial process was more popular in the Old Kingdom/FIP (100%). The practice was rare in the Predynastic Period and Late Period and completely absent in the Early Dynastic Period, Middle Kingdom, SIP, New Kingdom, TIP and Graeco-Roman Period.

5.2.1.4 Multiple canids buried with associated faunal remains chronologically

Figure 5.18 illustrates the change in popularity of burying multiple canids with associated faunal remains only, across the respective chronological periods. This burial process was most popular in the SIP (100%). The practice was extremely rare in the Predynastic Period and the Graeco-Roman Period and completely absent in the Early Dynastic Period, Old Kingdom/FIP, Middle Kingdom, New Kingdom, TIP and Late Period.

5.2.2 Multiple canid burials geographically

Geographically, multiple canid burials were observed in all five of the specified regions. The relative percentages of multiple canid burials across the geographic regions are illustrated in Table 5.7 below.

Table 5.7: Geographical distribution of multiple canid burials

Region	Sample	% of 43	% of Period
Lower Egypt	5	11.6%	15.2%
Middle Egypt	13	30.2%	33.3%
Upper Egypt	13	30.2%	38.2%
Lower Nubia	9	20.9%	33.3%
Oasis Region	3	7.0%	37.5%
TOTAL	**43**	**100%**	**30.5%**

Each region recorded less than a 40% incidence of multiple canids being employed, with the highest proportional representation in Upper Egypt, and the lowest in Lower Egypt. These burials have been classified in accordance with the associated contents of each respective burial and are illustrated in Table 5.8 below and in Figure 5.19.

Table 5.8: Multiple canid burials geographically

Region	Sample size	Canids Only %	Canids + Human %	Canids + Human + Fauna %	Canids + Fauna %
Lower Egypt	5	1 (20.0%)	4 (80.0%)	0 (0.0%)	0 (0.0%)
Middle Egypt	13	9 (69.2%)	1 (7.7%)	1 (7.7%)	2 (15.4%)
Upper Egypt	13	5 (38.5%)	3 (23.1%)	4 (30.8%)	1 (7.7%)
Lower Nubia	9	9 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Oasis Region	3	0 (0.0%)	2 (66.7%)	1 (33.3%)	0 (0.0%)
TOTAL	**43**	**24 (55.8%)**	**10 (23.3%)**	**6 (14.0%)**	**3 (7.0%)**

Lower Egypt: Multiple canid burials represent 15.2% of all burials in this region, indicating that approximately 85% of Lower Egyptian burials contained individual canids. The preference for this region appears heavily skewed towards the burial of multiple canids with directly associated human remains, and to a lesser degree by multiple canids buried in isolation. The practice of burying multiple canids with directly associated faunal remains is not employed in this region. Relative to individual canid burials in Lower

Egypt, a multiple canid burial appears considerably more likely to be associated with human remains, and without associated faunal remains. This could be indicative of the significance of the human within the burial, however it may also suggest an amplified protector function of the canids due to the importance of the human.

Middle Egypt: Multiple canid burials represent 33.3% of all burials in this region, indicating that approximately 67% of Middle Egyptian burials contained individual canids. The preference for this region appears to be strongly in favour of the burial of multiple canids in isolation (69.2%). Within this region, a combined 23.1% of burials contained associated faunal remains, which were more likely to occur without an associated human. Only 15.4% of multiple burials in this region contained associated human remains, with equal probabilities of whether or not faunal remains were included. Relative to individual canid burials in Middle Egypt, a multiple canid burial appears considerably more likely to be buried as canids in isolation. There is a significant decline in the propensity to use associated human remains and a higher propensity to use associated faunal remains with a multiple canid burial.

Upper Egypt: Multiple canid burials represent 38.2% of all burials in this region, indicating that approximately 62% of Upper Egyptian burials contained individual canids. The burial of multiple canids in isolation remains popular in this region, however the preference for this region is the inclusion of an associated human (a combined 53.9%), and a combined 38.5% probability of the inclusion of faunal remains. Relative to individual canid burials in Upper Egypt, a multiple canid burial appears slightly less likely to be buried with associated human remains. However when a multiple canid burial contains human remains it is more likely to contain associated faunal remains when compared to individual canid burials in this region. The popularity of including associated faunal remains also appears to decline when multiple canids are present.

Lower Nubia: Multiple canid burials represent 33.3% of all burials in this region, indicating that approximately 67% of Lower Nubian burials contained individual canids. The burial of multiple canids in isolation is the only practice employed in this region with no burials recorded with associated human or faunal remains. Relative to individual canid burials in Lower Nubia, a multiple canid burial was only recorded in isolation and there was less diversity in funerary practices. This is consistent with the hypothesis that the presence of multiple canids was an amplification of their functional purpose, specifically the indirect protection of humans buried nearby.

Oasis Region: Multiple canid burials represent 37.5% of all burials in this region, indicating that approximately 63% of Oasis Region burials contained individual canids. The preference for this region is entirely in favour of the burial of multiple canids with human remains, more often observed without additional faunal remains. However, 33.3% of multiple canid burials in this region also contained associated faunal remains. There are no examples of multiple canids being buried in isolation, or multiple canid burials with associated faunal remains only. Relative to individual canid burials in the Oasis Region, a multiple canid burial appears to considerably increase the likelihood of an associated human burial, and increase the likelihood of further inclusion of additional faunal remains. Individual canid burials in this region were far more likely to be buried in isolation. This could be indicative of the significance of the human within the burial, however it may also suggest an amplified protector function of the canids due to the significance of the human. Specifically, each of these three burials contained a child human which may indicate a higher level of vulnerability, potentially requiring a higher degree of protection from the multiple canids buried therein.

Turning now to each of the four respective categories of multiple canid burials and reviewing across the respective geographical regions the below summary provides a more specific analysis of each practice. The accuracy of the data in this section is again constrained by the respective sample sizes however the trend lines provide interesting observations worthy of comment.

5.2.2.1 Multiple canids buried in isolation geographically

Figure 5.20 highlights the change in popularity of burying multiple canids only, across the specific geographical regions. The use of multiple canids with no associated human or other faunal remains was strongest in Lower Nubia, and slightly less popular in Middle Egypt. The practice was reasonably frequent in Upper Egypt, less popular in Lower Egypt, and completely absent in the Oasis Region.

5.2.2.2 Multiple canids buried with associated human remains geographically

Figure 5.21 highlights the change in popularity of burying multiple canids with associated human remains only, across the specific geographical regions. The use of multiple canids with associated human remains only, was strongest in the Lower Egypt and the Oasis Region. The practice was rare in Upper Egypt and Middle Egypt and completely absent in Lower Nubia.

5.2.2.3 Multiple canids buried with associated human and faunal remains geographically

Figure 5.22 highlights the change in popularity of burying multiple canids with associated human and faunal remains, across the specific geographical regions. The use of multiple canids with associated human and faunal remains was relatively rare in all regions. The strongest utilisation was in the Oasis Region and Upper Egypt. The practice was extremely rare in Middle Egypt and completely absent in Lower Egypt and Lower Nubia.

5.2.2.4 Multiple canids buried with associated faunal remains geographically

Figure 5.23 highlights the change in popularity of burying multiple canids with associated faunal remains only, across the specific geographical regions. The use of multiple canids with associated faunal remains only, was extremely rare. The practise was employed to a low degree in Middle Egypt and Upper Egypt and was completely absent in Lower Egypt, Lower Nubia and the Oasis Region.

The above analysis assists with recognising the paradigms and variations of burials based primarily on whether the burial contained single or multiple canids. A similar analysis will be completed for canid burials with direct human association, direct faunal association or no human association respectively.

5.3 Canid Burials (single and multiple) with other Faunal Remains

As defined in Chapter 4, associated faunal remains were classified on the basis of the inclusion of other animals in the grave, which were not explicitly a food offering and which showed no signs of butchering that may imply a food offering. Canid burials with directly associated faunal remains were analysed to determine whether the additional fauna influenced the functional purpose of the canid or if it had its own individual significance. The results of the corpus showed that only 26 (18.4%) of the 141 canid burials featured associated faunal remains which will be analysed from a chronological and geographical perspective.

5.3.1 Chronological distribution of canid burials with other faunal remains

Chronologically, canid burials with associated faunal remains were observed in six of the nine specified periods with the exception of the Early Dynastic period, Middle Kingdom and TIP, and these results are illustrated in Table 5.9 and Figure 5.24.

Table 5.9: Chronological distribution of canid burials with associated faunal remains

Period	Canids + Fauna Only	Canids + Fauna + Humans	Sample	% of 26	% of Period
Predynastic	4	9	13	50.0%	17.3%
Early Dynastic	0	0	0	0.0%	0.0%
Old Kingdom/FIP	0	1	1	3.8%	16.7%
Middle Kingdom	0	0	0	0.0%	0.0%
SIP	2	1	3	11.5%	100%
New Kingdom	1	0	1	3.8%	50.0%
TIP	0	0	0	0.0%	0.0%
Late Period	0	2	2	7.7%	11.1%
Graeco-Roman	5	1	6	23.1%	35.3%
TOTAL	**12**	**14**	**26**	**100%**	**18.4%**

The most relevant periods for analysis of this sub-sample are the Predynastic Period and the Late/Graeco-Roman Periods, representing a combined total of 21 of these 26 entries in the corpus. The SIP and New Kingdom had a large proportion of total burials which included other fauna, however the sample sizes are extremely small, likely distorting the relevance of the burials. Approximately 54% of canid/fauna burials also contained a directly associated human, and the presence of the canid/fauna within such burials may reflect the significance/importance of the human, especially during the Predynastic Period. The presence of the canid/fauna in the Graeco-Roman Period burials is more likely to be votive in nature given the prevailing religious beliefs and customs,[84] and this is consistent with the absence of directly associated human burials.

The preference in earlier periods is towards incorporating a human with the canid /faunal remains, indicating a direct functional connection with the human for each animal. Alternatively, the later periods had a slight preference towards canid/fauna burials without the inclusion of a human, either indicating an indirect functional connection with human burials in proximity or a votive function, particularly in the Graeco-Roman Period. In each of these capacities the canid appears to retain a protective functional purpose and the

[84] The use of a wide range of fauna in the votive practice increased substantially during the Late Period and reached a peak during the Ptolemaic Period (Bresciani 2005; Kessler & Abd el Halim Nur el-Din 2005; Redford & Redford 2005; Zivie & Lichtenberg 2005; Nicholson, Ikram & Mills 2015). Also during the Graeco-Roman Period specific areas of cemeteries were dedicated to the burial of votive faunal and avian remains; for example, Cemetery E at Abydos was almost exclusively devoted to mummified ibis (Peet & Loat 1913: 43).

additional presence of other fauna likely performs its own specific function. The presence of fauna in the Predynastic burials is consistent with an innovative culture trialling a new burial practice, particularly for elite/significant individuals, hence the fauna may represent a symbol of status. Later period faunal burials are typically more votive in nature.

5.3.2 Geographical distribution of canid burials with other faunal remains

Geographically, canid burials with associated faunal remains were observed in all five of the specified regions (Figure 5.25). The relative percentages across the geographical regions are illustrated in Table 5.10 below.

Table 5.10: Geographical distribution of canid burials with associated faunal remains

Region	Canids + Fauna Only	Canids + Fauna + Humans	Sample	% of 26	% of Period
Lower Egypt	0	2	2	7.7%	6.1%
Middle Egypt	6	1	7	26.9%	17.9%
Upper Egypt	4	10	14	53.8%	41.2%
Lower Nubia	2	0	2	7.7%	7.4%
Oasis Region	0	1	1	3.8%	12.5%
TOTAL	**12**	**14**	**26**	**100.0%**	**18.4%**

The most relevant regions for analysis of this sub-sample are Upper Egypt and Middle Egypt, representing a combined total of 21 of these 26 entries in the corpus. Upper Egypt also had a higher percentage of total regional burials incorporating other fauna.

The preference in Upper Egypt is towards a canid/human/fauna burial, whereas Middle Egypt has a strong preference towards canid/fauna without the inclusion of a human. The geographical proximity of these two regions likely contributed to similar funerary practices, however this was also influenced by the prevailing time period.

Ten (71.4%) of the 14 Upper Egypt burials occurred in one single Predynastic cemetery, HK6 at Hierakonpolis. This sub-set provides a fascinating window into the evolution of the canid burial process in a single place and time. When these canids were associated with a human, remains of elephant, donkey, hartebeest, goat, sheep, cattle, pig, birds, crocodile, hare, gazelle, and baboon were also found [DRN 40, 189, 192, 193, 194, 195, 196]. When the canid burial was associated with other faunal remains only, and no human, the graves held canids, sheep, baboon, aurochs and goats [DRN 65, 198, 201]. This cemetery is under

continuing excavation and future reports will expand our understanding of the relevance of canid/fauna burials. The ritual use of both domesticated and wild fauna in burials regardless of the presence of a human, suggests the canid is not of secondary importance in these burials, and each different animal was likely to have a specific functional purpose.

The other three regions recorded small samples, which still provide an interesting contrast, as seen in two Lower Nubian burials. One burial [DRN 14] from the Predynastic Period is a canid/fauna (dog and goat) burial located in a cemetery that had a large number of canids buried in isolation. The other entry [DRN 45], from the Graeco-Roman Period, was a canid/fauna (dog and sheep) burial located in a cemetery that had significant incidences of other fauna, buried in groups of specific species. This supports the notion that chronological funerary practices were a significant contributor to regional variations. The regional concentrations likely reflect the diffusion of the ideas associated with funerary practices.

Therefore, the fact that only a small proportion of canid burials in the corpus contained additional faunal remains, likely indicates that the fauna was at best, of equal significance as the canid, however more likely reflects the other animal being of secondary importance to the canid.

The presence of such a wide variety of different fauna is consistent with the hypothesis that each different animal served a specific functional purpose, whether it be a food offering, an amplification of the significance of the human burial or possibly a votive/sacred offering to a different god to whom they were specifically connected.

5.4 Canid Burials (single and multiple) with Direct Human Association

Canid burials with directly associated human remains were analysed to determine whether there was a functional difference between canids buried without humans, and those with direct human association. In order for a canid burial to be classified as directly associated with a human burial, the skeletal remains of both the canid and the human needed to be found within the same grave or tomb.

Results of the corpus indicate that 53 (37.6%) of the 141 canid burials were buried directly with human remains and hence classified as having direct human association (Figure 5.26). Of these 53 direct human associated burials, 37 contained a single canid and 16 contained multiple canids.

The hypothesis proposed is that a canid burial with a directly associated human served as a specific protector for that person.

5.4.1 Chronological distribution of canid burials with direct human association

Chronologically, the 53 canid burials with direct human association were observed in seven of the nine specified time periods, the exceptions being the New Kingdom and TIP (Figure 5.27). The relative percentages of these burials across the chronological periods are illustrated in Table 5.11 below.

Table 5.11: Chronological distribution of canid burials with direct human association

Period	Canids + Human Only	Canids + Humans + Fauna	Sample	% of 53	% of Period
Predynastic	18	9	27	50.9%	36.0%
Early Dynastic	1	0	1	1.9%	8.3%
Old Kingdom/FIP	3	1	4	7.5%	66.7%
Middle Kingdom	4	0	4	7.5%	50.0%
SIP	0	1	1	1.9%	33.3%
New Kingdom	0	0	0	0.0%	0.0%
TIP	0	0	0	0.0%	0.0%
Late Period	11	2	13	24.5%	72.2%
Graeco Roman	2	1	3	5.7%	17.6%
TOTAL	**39**	**14**	**53**	**100.0%**	

The two most significant periods when canids were observed in direct association with a human were the Predynastic Period and the Late Period, representing a combined 40 of the sample 53. The observations of canid/human burials during the remaining periods were lower, however this is likely a reflection of the small sample sizes. The popularity of canid/human burials over the respective periods is illustrated in Figure 5.28.

Predynastic Period: Approximately two-thirds of Predynastic burials with direct human association contained associated faunal remains. These results indicate that during the Predynastic Period a number of canids were placed in a grave or tomb with a human, however the preference for the period was still to bury a canid in isolation. The ratio observed is approximately 2:1 in favour of canid burials without direct human association. The functional purpose of these canid burials is consistent with a protector function,

however the variation in burial style may be due to the diverse number of autonomous communities at this time.

Early Dynastic Period: Only one (8.3%) of the 12 Early Dynastic canid burials was directly associated with a human [DRN 98], and the canid in this burial was described by the excavator as a later "intrusive burial of a dog" (Emery 1954: 34), with no further explanation for this conclusion. The canid and the human in this burial may not be contemporaneous however this entry has been classified as having direct human association based on photographic evidence (Emery 1954: Pl. XXIV). The remaining 11 burials will be discussed further in §5.5.1, due to their strong association with humans. The ratio observed is approximately 9:1 in favour of canid burials without direct human association in this period. Relative to the Predynastic Period we see a considerable decline in the practice of burying canids and humans together in the same grave. Insufficient evidence exists to verify the hypothesis proposed for the functional purpose of this canid.

Old Kingdom/First Intermediate Period: Four (66.7%) of the total six Old Kingdom/FIP canid burials were directly associated with a human burial, only one of which contained associated faunal remains. It should be noted that one entry [DRN 59] contained discrepancies regarding the date of the contents. This burial of an ox, two canids and six gazelle heads[85] were all dated to the 6th Dynasty based on the location of the grave within the 6th Dynasty section of the cemetery. The human found at the higher level of the burial was described as a New Kingdom secondary burial (Petrie 1901: 38) based on a 19th Dynasty scarab found with the deceased. However this burial was classified as an associated burial because all the skeletal remains were reportedly in one grave. The ratio observed is approximately 2:1 in favour of canid burials with direct human association in this period. Relative to the Early Dynastic we see an increase in the practice of burying canids and humans together in the same grave, giving due consideration to the small sample size. These canid burials appear consistent with the hypothesis of being a direct protector of the humans.

Middle Kingdom: Four (50.0%) of the eight Middle Kingdom canid burials were directly associated with human remains. All four burials were found in Upper Egypt and in each case a single canid was associated with multiple humans and no faunal remains. The ratio observed is approximately 1:1 for canid burials with direct human association or without

[85] The six skulls were identified as gazelles by Petrie, but with no osteological study undertaken, therefore they could also be goats or sheep.

direct human association in this period. Relative to the Old Kingdom we see a slight decrease in the practice of burying canids and humans together in the same grave, giving due consideration to the small sample size. These canids appear to serve the functional purpose of being a protector for a specific group of humans.

Second Intermediate Period: One (33.3%) of the three SIP canid burials was directly associated with a human and this burial also included associated faunal remains [DRN 182]. The ratio observed in this small sample is approximately 2:1 in favour of canid burials without direct human association in this period. Relative to the Middle Kingdom we see a further decline in the practice of burying canids and humans together in the same grave, however there is only a single data point.

New Kingdom: Neither of the two New Kingdom burials contained directly associated human remains.

Third Intermediate Period: No canid burials were recorded for the TIP.

Late Period: Thirteen (72.2%) of the total 18 Late Period canid burials were associated with a human burial. Eleven of the 13 were directly associated with a human burial, with no associated faunal remains and the other two were associated with both human and faunal remains. In addition to these 13 observations, DRN 157 is an individual canid burial located 33 cm from the burial of a child, employing similar placement and burial techniques (Adam & Colin 2012: 317-318), suggesting the two burials were contemporaneous and canid/human burials may actually be higher than the results indicate. The ratio observed in this sample is approximately 3:1 in favour of canid burials with direct human association in this period. Relative to the previous periods we see a significant increase in canid/human burials in the same grave, and a stronger link between the canid and a specific human. The high level of inclusion of a canid in a human burial is consistent with the direct protector function hypothesis.

Graeco-Roman Period: Three (17.6%) of the 17 Graeco-Roman Period canid burials were directly associated with a human burial. Two were directly associated with humans only, and one was a single canid associated with human and other fauna. The ratio observed in this sample is approximately 4:1 in favour of canid burials without direct human association in this period. Relative to the previous periods we see a significant reduction in canid/human burials in the same grave, albeit in a period when the protector function of a canid was becoming more consistently applied to the broader funerary beliefs.

In summary, the relevant time period appears to be an important factor in considering whether a canid was incorporated within the grave of a human burial. The functional purpose of the canid appears to be the specific protector of the associated human or group. For the deceased to have been buried with a specific protector suggests a degree of importance associated with that human, whether that be wealth, a person of cultural or spiritual significance, or a young/vulnerable individual perceived to be in need of specific protection. The presence or absence of additional faunal remains does not appear to impact the functional protector purpose of the canids in these burials.

5.4.2 Geographical distribution of canid burials with direct human association

Canids buried with direct human association were observed in all five specified regions (Figure 5.29). The relative percentages across the geographical regions are illustrated in Table 5.12 below.

Table 5.12: Geographical distribution of canid burials with direct human association

Region	Canids + Human Only	Canids + Humans + Fauna	Sample	% of 53	% of Region
Lower Egypt	12	2	14	26.4%	42.4%
Middle Egypt	12	1	13	24.5%	33.3%
Upper Egypt	9	10	19	35.8%	55.9%
Lower Nubia	2	0	2	3.8%	7.4%
Oasis Region	4	1	5	9.4%	62.5%
TOTAL	**39**	**14**	**53**	**100%**	

Geographically, each region (except Lower Nubia) presented with a significant portion of their total canid burials having direct human association. The relative strength of this practice is illustrated in Figure 5.30.

Lower Egypt: Fourteen (42.4%) of the 33 Lower Egypt burials were directly associated with human remains and the practice of incorporating associated faunal remains was rare. The ratio observed is approximately 3:2 in favour of canid burials without direct human association in this region.

Middle Egypt: Thirteen (33.3%) of the 39 Middle Egypt burials were directly associated with human remains and the practice of incorporating associated faunal remains was

extremely rare. The ratio observed is approximately 2:1 in favour of canid burials without direct human association in this region.

Upper Egypt: Nineteen (55.9%) of the 34 Upper Egypt burials were directly associated with human remains and the practice of incorporating associated faunal remains was noticeably higher than any other region with approximately 50% of the entries incorporating associated faunal remains. The ratio observed is slightly higher than 1:1 in favour of canid burials with direct human association in this region.

Lower Nubia: Two (7.4%) of the 27 Lower Nubia burials were directly associated with human remains and the practice of incorporating associated faunal remains was noticeably absent. The ratio observed is approximately 12:1 in favour of canid burials without direct human association in this region.

Oasis Region: Five (62.5%) of the eight Oasis Region burials were directly associated with human remains and the practice of incorporating associated faunal remains was rare. The ratio observed is approximately 2:1 in favour of canid burials with direct human association in this region.

In summary, the popularity of canid burials with direct human association was likely influenced by both the prevailing funerary beliefs and the physical location of the burial. The presence of the canid within the human grave is potentially indicative of the significance of the person, which is accentuated by the directness of the protection afforded by having a canid and a human buried together. The regional influence on burial practice appears to have a greater impact on the absence or presence of additional fauna within the same grave, also likely to be associated with the significance of the person.

5.5 Canid Burials (Single and Multiple) Without Human Association

Canid burials with no directly associated human remains were analysed to determine whether there was a functional difference between canids buried with humans, and those without direct human association. Results of the corpus indicate that 88 (62.4%) of the 141 were canids buried without human association (Figure 5.26). Of these 88 burials, 61 contained a single canid and 27 contained multiple canids. Interestingly, only one of the 27 multiple canid burials also contained associated faunal remains.

5.5.1 Chronological distribution of canid burials (single and multiple) without direct human association

Chronologically, the 88 canid burials without direct human association were observed in seven of the nine specified time periods, the exceptions being the New Kingdom and TIP (Figure 5.31). The relative percentages of these burials across the chronological periods are illustrated in Table 5.13 below.

Table 5.13: Chronological distribution of canid burials without direct human association

Period	Canids Only	Canids + Fauna	Sample	% of 88	% of Period
Predynastic	44	4	48	54.5%	64.0%
Early Dynastic	11	0	11	12.5%	91.7%
Old Kingdom/FIP	2	0	2	2.3%	33.3%
Middle Kingdom	4	0	4	4.5%	50.0%
SIP	0	2	2	2.3%	66.7%
New Kingdom	1	1	2	2.3%	100%
TIP	0	0	0	0.0%	0.0
Late Period	5	0	5	5.7%	27.8%
Graeco Roman	9	5	14	15.9%	82.4%
TOTAL	**76**	**12**	**88**	**100%**	

The most significant periods when canids were observed without direct human association were the Predynastic and Early Dynastic Periods, and the Late and Graeco-Roman Periods, representing a combined 78 of the 88 burials. The proportion of canid burials only during the remaining periods is likely impacted by the small sample sizes for these periods.

The incorporation of additional fauna is rare throughout the chronological periods, however the Graeco-Roman Period has a higher proportion of total burials incorporating additional fauna. This is more likely attributable to the increasing importance of sacred animals and their associated cult groups, and the increasing popularity of the use of avian and mammalian fauna in a votive capacity (Bresciani 2005; Kessler & Abd el Halim Nur el-Din 2005; Redford & Redford 2005; Zivie & Lichtenberg 2005).

New Kingdom, Early Dynastic Period and Graeco-Roman Period each reported the highest percentages of canid burials without direct human association. During the Predynastic Period the majority of canid burials did not have a directly associated human, however the

majority are directly linked to human burials in close proximity or placed specifically on the extremities of cemeteries in a protective role, not of a specific human, but rather as the protector of all human burials within the cemetery (Hartley 2015).

Eleven of the 12 Early Dynastic burials have been classified as having no direct human association, however archaeological evidence demonstrates a direct link with a human despite not being placed in the same grave or burial chamber,[86] hence not accurately reflecting the true directness of the nature of these canid burials. If these were reclassified, relative to the Predynastic Period, this brings the canid into a more direct association with a specific human, and increases the likelihood of a direct protector function.

On the whole, the Early Dynastic canid burials were associated with royal/elite burials. At this time iconographic evidence incorporates the canid protector function hypothesis, with the example of the *imy-wt* fetish and its link with the King in what has been interpreted as a protective function (Logan 1990: 69).[87] Also, a number of small stone stelae found in close proximity to the burial complex of King Den at Abydos,[88] were inscribed with the names of different dogs, and these stelae would have been placed with a burial identifying the occupant, indicating the inclusion of a dog in a funerary practice was the prerogative of the royalty/elite.

Textual evidence from the Old Kingdom indicates an established religion with canid gods connected to the protection of the king in the Afterlife (DuQuesne 2005: 377, 380, 397) and functioning as protectors of cemeteries, especially those at Abydos (DuQuesne 2005: 385-386). It was relatively uncommon to find an individual canid at this time, however when observed they were located within the precincts of a mastaba [DRN 102, 131], indicating an indirect link to the owner of the mastaba, and hence their function as a protector of that individual.

The Graeco-Roman burials without direct human association represent a large proportion of canid burials from this time. These may be more reflective of the significant shift in religious practice resulting in the votive use of avian and mammalian fauna.

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[86] Seven individual dog burials associated with Mastaba 3035 [DRN 101, 207, 208, 209, 210, 211, 212], one dog burial associated with Mastaba 3507 [DRN 96], two individual dog burials from Helwan located in the cemetery in close proximity to large tombs [DRN 73, 78] and one individual dog burial from Abydos, located in a group of subsidiary human burials associated with the burial complex of King Djet [DRN 92].

[87] For a discussion on the *imy-wt* fetish see Chapter 7.

[88] For a discussion on the stelae found with the burial complex of King Den, see Chapter 7.

A canid buried without human association is more than twice as likely to contain multiple canids, as it is to contain associated faunal remains. This emphasises the significance of the canids, and is consistent with the hypothesis that multiple canids amplified the functional purpose of the canid, whereas associated faunal remains were potentially of secondary significance and/or held an alternative function.

5.5.2 Geographical distribution of canid burials (single and multiple) without direct human association

Canids buried without direct human association were observed in all five specified regions (Figure 5.32). The relative percentages across the geographical regions are illustrated in Table 5.14 below.

Table 5.14: Geographical distribution of canid burials without direct human association

Region	Canids Only	Canids + Fauna	Sample	% of 88	% of Region
Lower Egypt	19	0	19	21.6%	57.6%
Middle Egypt	20	6	26	29.5%	66.7%
Upper Egypt	11	4	15	17.0%	44.1%
Lower Nubia	23	2	25	28.4%	92.6%
Oasis Region	3	0	3	3.4%	37.5%
TOTAL	**76**	**12**	**88**	**100%**	**62.4%**

Geographically, the largest number of canid burials without humans occurred in Middle Egypt, Lower Nubia and Lower Egypt. The observations are also high in Upper Egypt, with the only region to record low observations being the Oasis Region.

The incorporation of additional faunal remains is rare throughout these regions, however Middle Egypt and Upper Egypt have a slightly higher proportion of total burials incorporating additional faunal remains. This is more likely attributable to a regional practice influenced by the prevailing time period.

Lower Nubia contained the highest proportion of canid burials without direct human association. The key element in this region appears to be the canid burial in isolation, within a broader cemetery context, rather than being associated with a specific human. The preference in Middle Egypt and Lower Egypt burials appears to be for a canid burial to be without direct human association.

On the whole, there was a significant number of observations in each region where canids were not buried with direct human association. The presence of additional fauna appears to be more likely determined by regional preference.

5.6 Grave Goods

The inclusion of grave goods associated with a canid burial in the corpus was dependent on the accuracy of published archaeological records. The types of grave goods observed were classified into the following six broad categories:

1. Ceramic vessels (including jars, pots, bowls and sherds);
2. Tools (including implements, flint, weapons, palettes and seals);
3. Models and amulets (including figurines, and ivory carvings);
4. Shells and beads;
5. Leather objects; and
6. Ecofacts (including carbonised wood, resin and malachite).

It should be noted that there is a clear distinction made between a canid buried in a jar (which is defined as a container burial) versus an associated jar found within a burial (which is defined here as a grave good).

Grave goods in a funerary context were observed in 55 (39.0%) of the 141 canid burials and of these, 33 (60.0%) were identified as canids buried with their own specific grave goods. A further 22 of the 55 (40.0%) burials were canid/human burials where grave goods were found, making the attribution of these grave goods challenging. Of these 22, only three records specified that grave goods were associated with both the human and canids in the burial. Five entries were directly associated with the human remains, and the remaining 14 were uncertain as the reports were not sufficiently detailed to draw an accurate attribution.

All 55 burials with associated grave goods will be discussed, however the focus will be on the 33 canid burials with their own directly associated grave goods.

Thirty-eight of the 55 burials contained only one type of grave good. Seven entries contained two types of grave goods, nine entries contained three types of grave goods and only one entry had four of the six categories of grave goods. Hence, there are 83 grave goods observed across the 55 burials with associated grave goods. The summary of grave

good types is illustrated in Table 5.15 below, and the incidences observed in each of the above six categories are illustrated in Figure 5.33.

Table 5.15: Classification of grave good types

Grave Good Type	Sample	% of 55 burials
Ceramic vessels	38	69.1%
Tools	9	16.4%
Models and Amulets	12	21.8%
Shells and Beads	10	18.2%
Leather objects	6	10.9%
Ecofacts	8	14.5%
TOTAL	**83**	

5.6.1 Chronological distribution of grave goods

Associated grave goods were observed in seven of the nine time periods, the New Kingdom and TIP being the exceptions. Canid burials associated with grave good were more commonly found during the Predynastic and Early Dynastic Periods. The chronological distribution of grave goods is illustrated in Table 5.16 below.

Table 5.16: Chronological distribution of grave goods

Period	Sample	% of total period	% of 55
Predynastic	28	37.3%	50.9%
Early Dynastic	9	75.0%	16.4%
Old Kingdom/FIP	4	66.7%	7.3%
Middle Kingdom	4	50.0%	7.3%
SIP	1	33.3%	1.8%
New Kingdom	0	0.0%	0.0%
TIP	0	0.0%	0.0%
Late Period	5	27.8%	9.1%
Graeco Roman	4	23.5%	7.3%
TOTAL	**55**	**39.0%**	**100%**

The highest number of canid burials associated with grave goods was found in the Predynastic and Early Dynastic Periods representing a combined 37 of the 55 observations

(Figure 5.34). Figure 5.35 illustrates the respective percentages of canid burials containing grave goods in each period. Interestingly, the Early Dynastic recorded the highest percentage of burials within that period incorporating the use of grave goods.

Predynastic Period: Grave goods found in 15 of the 28 burials were directly associated with the canid, with leather (∑=8) and ceramic vessels (∑=7) being the most observed type. Two of the 28 burials contained grave goods that can be attributed to both the canid and human remains found therein. Only one of the 28 burials recorded grave goods associated directly with the associated human burial. The remaining ten burials contained canids and humans where the grave goods cannot definitely be attributed to either the canid or human within the burial. Of the 13 burials which cannot be attributed only to the canid within the burial, all contained one or more ceramic vessels, and six contained tools.

Early Dynastic Period: Grave goods found in eight of the nine burials were directly associated with the canid, with 100% containing a single ceramic vessel only. The remaining burial also contained human remains, and thus the ceramic vessel therein cannot definitely be attributed to either the canid or the human. The ceramic vessel emphasises the significance of the canid and its functional purpose, specifically noting the indirect association with the elite human burials.

Old Kingdom/First Intermediate Period: Grave goods found in three of the four burials were directly associated with the canid burial, two of which contained shells and beads (potential collar [DRN 102, 131]) and the third contained ceramics and charcoal. The fourth entry contained a scarab which can directly be attributed to a secondary burial of human remains. Again these grave goods reflect the significance of the canid and its functional purpose.

Middle Kingdom: Three of the four burials contained ceramics. One entry contained eight ceramic vessels directly attributable to the canid in the burial, likely emphasising the significance of the canid and a significant human burial in proximity. One entry contained grave goods associated directly with both the canid and human burial contained therein. One contained beads of faience directly attributable to the human within the burial, and the final entry contained a ceramic vessel and human remains, and thus cannot definitely be attributed to either the canid or the human.

Second Intermediate Period: This burial contained a single canid, a single human, a single caprid and a single ceramic vessel. It is not possible to attribute the grave goods to either

party but it is more likely attributable to the human given the placement of the vessel at the head of the human.

New Kingdom: No burials contained grave goods in the New Kingdom.

Third Intermediate Period: No burials containing grave goods were recorded for TIP.

Late Period: Three of the burials contained grave goods directly attributable to the canids within. One entry contained an amulet and a shell directly attributed to the canid, another contained sherds (however excavators described these as functioning as packing within the burial pot). The third canid burial contained charcoal under the body. One burial contained multiple amulets directly attributable to five of the seven humans contained therein. The final entry contained multiple canids, a human and grave goods including statues, shabtis, weapons, tools, ceramics and other mummified faunal remains, and it is not possible to attribute these grave goods to either the canids or human.

Graeco Roman Period: Grave goods found in three of the four burials are directly associated with the canid remains, and each is a different category of grave good. One is a ceramic vessel, one contained a canid figurine, and the other contained a shell. The fourth burial had a ceramic vessel with an inscription directly associated with the human within the burial.

In summary, there is a stronger tendency to attribute grave goods to the canid within the burial in the first two and last two periods of the corpus. The type of grave good employed is generally consistent with the grave goods used for human burials in each respective period. Therefore the use of grave goods in any burial is likely to be indicative of the significance of direct or indirect associated human and by extension the significance of requiring a canid for protection.

These results are also assessed in accordance with their geographical locations.

5.6.2 Geographical distribution of grave goods

The geographical distribution of canid burials containing grave goods may provide insights into the potential differences of regional burial practices. Associated grave goods were observed in all five specified regions and the results are set out in Table 5.17 below.

Table 5.17: Geographical distribution of grave goods

Region	Sample	% of total Region	% of 55
Lower Egypt	14	42.4%	25.5%
Middle Egypt	9	23.1%	16.4%
Upper Egypt	18	52.9%	32.7%
Lower Nubia	9	33.3%	16.4%
Oasis Region	5	62.5%	9.1%
TOTAL	**55**		**100%**

Geographically, the highest number of canid burials associated with grave goods was found in Upper Egypt and Lower Egypt (Figure 5.36). Middle Egypt, Lower Nubia and the Oasis Region recorded significantly lower numbers of observations. Figure 5.37 illustrates the respective percentages of canid burials containing grave goods in each region. Interestingly, the Oasis Region recorded the highest percentage of burials within that region incorporating the use of grave goods, albeit with a smaller sample size.

Lower Egypt: A canid burial in Lower Egypt has approximately 40% probability of containing grave goods. All 14 burials contained a single canid, and five of the 14 had directly associated human remains. Presence of the grave goods in these burials appears most likely to be attributable to the significance of the canid, potentially to emphasise the protector function.

Middle Egypt: A canid burial in Middle Egypt has approximately 25% probability of containing grave goods. Six of the nine burials contained a single canid, and four of the nine were directly associated with human remains. A variety of non-ceramic grave goods was more common in this region. The type of grave goods observed appears to reflect the significance of the canid (ceramics and figurines) and the human burial (tools) which is consistent with the prevailing funerary practices.

Upper Egypt: A canid burial in Upper Egypt has approximately 50% probability of containing grave goods. Fourteen of the 18 burials contained a single canid, and twelve of the 18 had directly associated human remains, making the attribution of these grave goods challenging. The presence of multiple types of grave goods is higher in this region relative to the two previous regions discussed. Fifteen entries contained ceramic vessels, six of which can be directly attributed to the canid(s), and only one can be directly attributed to

the human, with the remainder being uncertain. Six burials contained ecofacts, five contained models/amulets, four contained tools, three contained shells/beads and one the twisted leather remains of a collar/leash. The type of grave goods observed appears to either reflect the significance of the canid (ceramics, ecofacts, shells/beads, amulets and twisted leather) or the human burial (tools) which is consistent with the prevailing funerary practices. The significance of humans likely influenced the importance of the canid and its protector function of that specific person.

Lower Nubia: A canid burial in Lower Nubia has approximately 33% probability of containing grave goods. Six of the nine burials contained a single canid, and only two of the nine burials contained associated human remains. The typical burial contained a single canid with no associated human remains and the presence of twisted leather attributed to the canid. The presence of multiple types of grave goods is rare in this region. Four of the nine entries contained ceramic vessels, of which two can be attributed to the canid and the other two are uncertain. Two entries contained shells, one contained tools and one contained models. The presence of the grave goods in these burials appears most likely to be attributable to the prevailing funerary practices of the region, with the twisted leather collar/leashes likely involved in leading the canid to the burial. Therefore, certain grave goods may have been practical items involved in the funerary process while other grave goods emphasised the significance of the functional purpose of the canid.

Oasis Region: A canid burial in the Oasis Region has approximately 60% probability of containing grave goods. Four of the five burials contained a single canid, and two of the five burials contained associated human remains. The typical burial contained a single canid with no associated human remains and the presence of shells/beads. The number of amulets observed is higher in this region, with the relevance appearing to be connected with the associated human remains, however amulets were specifically placed with both canids [DRN 214] and humans within these burials. Presence of the grave goods in these burials appears most likely to be attributable to the prevailing funerary practices of the region, rather than being a reflection of wealth or status. There is an increased use of grave goods that have functional relevance and less bulk deposits of ceramics, tools and figurines in this region. Both burials containing humans and amulets contained one or more children indicating the amulets and the canids had a particularly important function, most likely associated with protection.

In summary, the popularity of using grave goods seems to be slightly more closely correlated with the respective time period. However, the type of grave good employed appears more likely influenced by regional practice. Geographically, there appears to be a transition from almost entirely ceramics in Lower Egypt to a greater quantity of ceramic vessels plus figurines/models in Middle Egypt. Upper Egypt appears to be similar to Middle Egypt in the variety of grave good types present, however there is an increased level of associated human remains in the burials in this region. Lower Nubia exhibits a higher instance of single canids with twisted leather remains, a lower frequency of ceramic vessels, with the grave goods appearing to have a more functional purpose. In the Oasis region, there is a complete absence of ceramics and other types of grave goods. The function of the grave goods appears to be more symbolic, with the increased use of amulets if the canid was associated with human remains.

The additional element of incorporating grave goods with a canid burial, emphasises the significance of the canid and hence its functional purpose as protector in the grave. Grave goods attributed to both the canid and the human most likely reflects the significance of the human, and by extension, the importance of the protection provided by the canid.

5.7 Bodily Treatment

Bodily treatment details were examined to determine the specific treatment of the canid before burial. This section examines the wrapping and storage of canids together with the placement and positioning of the body within the grave. The compilation of the corpus was impacted by the high frequency of disturbed burials [89] (see Chapter 4 Table 4.1). Analysis was completed based on evidence of wrapping, application of mummification techniques and treatment and/or the placement of a body in a container or coffin before burial.

5.7.1 Wrapping

Evidence of canid wrapping was observed in four of the five regions and six of the nine periods set out in this study. For a body to be classified as 'wrapped', excavators either described the body explicitly so, or recorded sufficient references to matting, matting remains, materials or fibres. Analysis of the data indicated that a total of 34 of the 141 (24.1%) burials showed evidence of wrapping. Table 5.18 illustrates the wrapping type observed in the corpus.

[89] Fifty-eight burials in this dataset (41.1%) were described as 'disturbed' to varying degrees, and a description of the condition of 55 burials was completely omitted from their respective reports. Only 28 burials were described as 'intact' or undisturbed', hence limiting the accuracy of the results.

Table 5.18: Wrapping type description

Wrapping Type	**Total**	**% of 34**
Evidence of matting	19	55.9%
Wrapped in cloth	13	38.2%
Mummified & unwrapped	2	5.9%
TOTAL	**34**	**100%**

The most observed types of wrapping were cloth and matting. Interestingly, seven entries contained a wrapped canid also placed within a coffin utilising the additional element of a container [DRN 101, 207, 208, 209, 210, 211, 212]. Only two instances were observed where mummified canids had been subsequently unwrapped [DRN 140, 166].

Twenty-five (73.5%) of the 34 wrapped canid burials were single canids. A combined 24 (68.6%) of these 34 were observed in the initial two periods. This is consistent with the similar wrapping of human remains in these periods, especially the Predynastic Period, indicating a higher level of effort and attention and hence the significance of the canid. Nine (26.5%) of the 34 records contained associated human remains, of which four also contained faunal remains.

It should be noted that Graeco-Roman mass burials of votive canids, which were typically mummified and/or wrapped have not been included in this section as one burial would distort the results, and hence votive burials are considered separately in chapter 7.

5.7.2 Container

Analysis of the dataset indicated that 19 (13.5%) of the 141 burials canids were found placed in a container or coffin before being placed in a grave. These containers varied from wooden or clay coffins, to large ceramic bowls or jars. Although not frequently observed, the placement of canids in a container was found in four of the five regions and six of the nine periods set out in this study.

Table 5.19: Container type description

Container Type	Total	% of 19
Coffin (Wooden or Clay)	12	63.2%
Jar or Ceramic Vessel	7	36.8%
TOTAL	**19**	**100%**

Eighteen (94.7%) of the 19 canid container burials were single canids. Eight (42.1%) of these 19 were observed in the Early Dynastic. Five (26.3%) of the 19 contained associated human remains, of which no burial contained faunal remains.

Table 5.20: Chronological distribution of container burials

Period	Containers	Total	% Region	% of 19
Predynastic	1	75	1.3%	5.3%
Early Dynastic	8	12	66.7%	42.1%
Old Kingdom/FIP	1	6	16.7%	5.3%
Middle Kingdom	5	8	62.5%	26.3%
SIP	0	3	0.0%	0.0%
New Kingdom	0	2	0.0%	0.0%
TIP	0	0	0.0%	0.0%
Late Period	2	18	11.1%	10.5%
Graeco Roman	2	17	11.8%	10.5%
TOTAL	**19**	**141**	**13.5%**	**100%**

Proportionally, the use of containers with canid burials was more commonly employed in the Early Dynastic Period and the Middle Kingdom. Interestingly, container canid burials were extremely rare in the Predynastic Period (n=1), however this is consistent with human burials which also did not generally incorporate the use of containers. During the Early Dynastic Period, all eight burials were single canid burials, seven of which were discussed in §5.7.1 as also being 'wrapped'. Whilst these seven entries were individual canid burials with no direct associated human remains, there is a strong indirect association with both human and other fauna given the close proximity of Mastaba 3035 (and the burials of three birds using identical techniques). Five of the eight (62.5%) Middle Kingdom canid burials employed the use of a container and the container selection is closely correlated with the burial style of an associated human. Typically, subterranean container canid burials were in coffins (n=3), however if located within above ground tombs, the canid was typically placed in a ceramic

vessel on or near a human coffin (∑=2). Four of these five Middle Kingdom container burials were associated with multiple human burials (average 5.5 humans per burial).

The two Late Period burials were each single canids placed in individual ceramic vessels, buried in a pre-existing temple. Neither contained associated human or faunal remains. These burials were more likely votive in nature, as the votive practice was becoming more popular during this time period, reflecting the prevailing accessibility to the gods by the general population. Two of the 17 (11.8%) Graeco-Roman canid burials employed the use of a ceramic vessel. These burials were in a time period which also focused heavily on the accessibility of the gods by the general population. The two burials had no direct human association but each had a large number of associated faunal remains, consistent with the votive influence on funerary practices.

Table 5.21: Geographical distribution of container burials

Region	**Containers**	**Total**	**% Region**	**% of 19**
Lower Egypt	8	33	24.2%	42.1%
Middle Egypt	6	39	15.4%	31.6%
Upper Egypt	4	34	11.8%	21.1%
Lower Nubia	0	27	0.0%	0.0%
Oasis Region	1	8	12.5%	5.3%
TOTAL	**19**	**141**	**13.5%**	**100%**

The highest number of container burial observations occurred in Lower Egypt and Middle Egypt representing a combined 14 of the 19 observations. This type of burial was extremely rare in the Oasis region and seemingly absent in Lower Nubia.

Approximately one in four Lower Egyptian burials employed the use of a container. The eight burials were each found in individual wooden coffins. All eight entries were individual canids, and each had an indirect association with a human burial given their proximity to a nearby mastaba.

Approximately one in seven Middle Egyptian burials employed the use of a container. Four of the six burials were found in ceramic vessels and two were found in wooden coffins. The four ceramic vessel burials also contained multiple associated faunal remains, whereas the two coffin burials contained no associated faunal remains. The associated

faunal remains appear more correlated with time period and specific cemeteries rather than the broader geographical location.

Approximately one in eight Upper Egyptian burials employed the use of a container. Three of the four burials were found in ceramic vessels, and one was found in a wooden coffin. All four burials were associated with multiple human remains and no faunal remains.

While no burials in Lower Nubia employed the use of a container, one canid burial [DRN 202] was found in a small recess cut into rock at the foot of a human grave. This burial is noteworthy as it is a purpose built recess acting in a similar capacity to a container and the specific placement of the canid is consistent with the protector hypothesis.

The single Oasis Region container burial employed the use of a clay coffin. The proximity to a mastaba indirectly links this burial with a human, and appears consistent with the protector function also.

5.8 Body Positioning and Placement

Given the ancient Egyptian culture was heavily focused on their environment and natural cycles, analysis of the canid body positioning in the grave and the head orientation was recorded where possible to determine the relevance, if any, of geographical influences. It has been proposed that ancient Egyptians may not have aligned burials according to true cardinal/ordinal points but rather may have followed the orientation of significant landmarks, such as the Nile River (Bard 1994: 53), but the corpus does not indicate a clear pattern confirming or denying this theory.

Body position classification was divided into canids found lying on their left side, right side, back, or standing. The following analysis is based on the detail provided in only the 54 entries with sufficient detail to identify the body position.

Table 5.22: Body position classification

Body Position	**Sample**	**% of 54**
Left Side, lying	28	51.9%
Right Side, lying	22	40.7%
Back, lying	3	5.6%
Standing	1	1.9%
TOTAL	**54**	**100%**

Whilst likely to be a function of the practicalities of burying a physical canid body, canid burials were most commonly found on their left or right side with a relatively even distribution. There is no consistency of placement, and this is particularly evident when looking at the same cemetery or settlement site during the same period.[90] This suggests the physical presence of the canid was more relevant than the body positioning of the canid within the burial. Additionally when burials contained multiple canids there is inconsistency in body positioning with each canid positioned in a different manner [DRN 68, 165].

Three entries in the corpus (containing five canids in total) were classified as canids buried lying on their back. Whilst no entry contained detail of head orientation each of the canids had been wrapped prior to their burial. This was likely intentional, as burying an unwrapped canid on its back would result in the animal falling to either side. There is also evidence of wrapped canids being specifically buried on their side, therefore this back-laying placement appears intentional.

One entry in the corpus was classified as a canid standing, and this entry provided no head orientation. The burial was found at Thebes and is described as a rock-cut tomb. It was described as having been mummified and unwrapped [DRN 140] which would account for rigidity required to hold the canid in a standing position. The canid was accompanied by a mummified and unwrapped monkey, but no indication of the tomb owner. However its location in the Valley of the Kings indicates the burial was associated to some degree with royalty, and the presence of the two animals appear to be linked with their respective gods, with the canid invoking the protector function through the canid god Anubis.

Only 49 burials were recorded with a specific head orientation. In some cases the orientation was deduced from photographs or drawings where a north-south arrow was provided. There was little to no consistency in head orientation, and what is particularly noticeable is that burials that occurred in the same cemetery, dated to the same time period, were often placed with heads oriented in different directions, with no discernible pattern. Whether buried in a burial chamber [DRN 185], or in the precincts of a mastaba [DRN

[90] For example, the Lower Egyptian Predynastic cemetery site of Heliopolis, with five canid burials, had one canid lying right side - head south, one lying right side - head north, one lying left side - head west and another lying left side - head north; the fifth burial was not described (Debono & Mortensen 1988: 17, 39). Similar examples were identified in the Lower Nubian Predynastic cemetery site of Khor Bahan which contained 12 canid burials (Reisner 1910a: 138-139); the Lower Nubian Predynastic cemetery site of Shellal which contained nine canid burials (Reisner 1910a: 37-42); the Upper Egyptian Predynastic cemetery site HK6 at Hierakonpolis which contained 19 canid burials (Van Neer, Linseele & Friedman 2004: Tab.; Friedman, Van Neer & Linseele 2011; Friedman et al. in press); and the Predynastic settlement site of Adaima which contained five canid burials in close proximity (Midant-Reynes & Buchez 2002: 533-534).

102, 131], or at the foot of a human [DRN 188], the canids were consistently placed in the graves in a position of protection.

5.9 Canid Species Identification, Sex and Age Estimation

The excavation reports and journals indicate that the canid most commonly utilised in burials was the dog, however limited or no osteological studies were employed in earlier reports to verify these findings. More recent excavations have employed osteological examination which in turn has confirmed that canids assumed to be dogs have been accurately identified as such.

When examining canid skeletal remains the only definitive method to identify the sex of the canid is the presence of a baculum (penis bone) to identify a male. Whilst the absence of a baculum may indicate a female canid, it is more likely that the heavily disturbed state of many of the graves in the corpus caused the destruction of this fragile bone or it may have been simply overlooked or lost. Therefore it is understandable that the majority of reports lack any form of gender identification, making sex analysis difficult.

The age of each canid at death was rarely specified, however for the purposes of this study, if a report identified the animal as a 'dog', this was taken as meaning an adult animal, on the assumption that juvenile dogs could be identified using other skeletal identifiers (such as the presence of deciduous teeth and/or epiphyseal fusion) and therefore recorded as such.

5.9.1 Canid species identification

Examination of the corpus reveals that 139 of the 141 canid burials (98.5%) contained one or more 'dogs'. Of the remaining two entries, one canid was described as a jackal [DRN 156] and the other was described as 'a dog or a jackal' [DRN 1]. Neither of these two 'jackal' entries were subject to further osteological examination, therefore a degree of uncertainty exists over the accurate identification of the species of both these canids.

With the dog being the most common canid utilised in a burial context, the corpus was then analysed to determine, where possible, the type of dog present. Only more recent excavation reports have provided osteological studies describing morphological variations and providing measurements of relevant identifying bones. Based on an estimation methodology using different shoulder heights as an indication for certain breeds, two breeds of dog are potentially apparent in the corpus. The formula proposed for estimation

of a common pariah dog was exhibiting a shoulder height of 45.66cm or less, as opposed to the larger greyhound type, which would likely have exhibited a shoulder height of 50.73cm or more (Brewer 2001: 41).

Within the corpus, four pariah-type dogs were explicitly identified in the reports [DRN 70, 131, 132, 214] and ten greyhound-type dogs were explicitly identified [DRN 38, 40, 65, 67, 68, 102, 143, 108, 161, 200]. It was possible in some instances to supplement the shoulder height methodology with data from excavation reports, to identify more canids in each of these categories. For example, the canid at Maadi [DRN 6] had a shoulder height of 52cm, placing this dog in the greyhound-type. Additionally a recent report on 21 dogs from Qasr Allam, area C413, found the average height index for the dogs to be 49cm, which when analysed in more detail by the authors indicated most of these canids were consistent with the pariah-type category (Colin, Adam & Pranjic 2014: 43).[91]

Also included within the contents of the 141 canid burials were two entries which specified additional canid family members within the associated faunal remains. In the bottom of a chamber and shaft at Dier al-Barsha, 332 dogs were found with an additional canid being identified as a red fox (*Vulpes vulpes*) [DRN 154]. Additionally, at Dier al-Barsha, a single dog was accompanied by a red fox and other faunal remains [DRN 153].

The excavation reports and journals taken at face value indicate that the canid most commonly utilised in burials was the dog. The more frequent presence of the dog is likely due to a combination of factors; including their domestication and hence ease of accessibility, their functional hunter/protector purpose in life, and their protector function transferred into the Afterlife. The presence of other members of the Canidae family is rare but may serve a similar functional purpose to the dog.

While these results cannot conclude that the other members of the Canidae family were absent, their presence is considered unlikely. The burial of the jackal, similarly, is either a rare occurrence or was not observed at all. The presence in the corpus of two red foxes was observed within the associated faunal remains in two multiple burials, and their infrequent observation is seemingly exceptional in nature. The employment of fox burials appears to be related to the Canidae family more broadly in its protector capacity, and is potentially more a reflection of their physical inaccessibility (relative to the accessibility of the dog).

[91] Boessneck studied dog skeletal remains extensively and concluded that the majority of ancient Egyptian dog skeletons belong to medium-sized animals consistent with the pariah dog (Boessneck 1975: 7).

5.9.2 Estimated canid sex

Four of the 141 entries in the corpus specifically identified male canids within these burials. The presence of five baculum bones across three Predynastic burials at Hierakonpolis [DRN 40, 67, 70] confirmed the use of at least five male dogs. The fourth example, from Thebes [DRN 108] notes the presence of a baculum with a single dog found in a coffin, confirming the animal was male. The low number of canids definitively identified as male is more likely a reflection of the disturbed nature of many of the graves.

Subsequent to the closure of the database, a recent report on the Qasr Allam canid burials (Colin, Adam & Pranjic 2014: 38), indicated seven of the 21 canid skeletons retained a baculum in anatomical position. Using an additional gender identification technique based on long bone length, excavators considered four more skeletons to be male (Colin, Adam & Pranjic 2014: 43). This indicates a male : female ratio of approximately 1:1. Of these 21 canid skeletons from Qasr Allam analysed above, this corpus only contains the remains of 18 canids, none of which had the sex accurately identified at time of the original reports and hence the data was not incorporated in the corpus. The subsequent report does however assist in providing a generalised gender analysis for these specific 18 canids, which is likely to be closer to an even distribution across the sexes.

5.9.3 Estimated canid age

Of the total 271 'dogs' identified in the corpus, 256 (94.5%) have been classified as adult based on both explicit documentation or on the assumption that lack of detailed age analysis otherwise indicated the canid had reached adulthood. Nine entries in the corpus contained one or more juvenile canids providing a combined total of 15 (5.5%) of the 271 canids specifically identified as juvenile. There are no observable examples of a juvenile canid being buried in isolation, and the most common accompaniment for a juvenile canid burial was another canid, with seven of the nine entries containing an additional adult canid. When a juvenile canid was not accompanied by an adult canid, it was typically buried with other juvenile canids and/or with multiple faunal remains. Only two of the entries containing juvenile canids held an associated human burial, and this may have reflected a prevailing attitude/belief that a juvenile canid could not serve the protector function in the same capacity as an adult, and hence needed additional support from a multiple canid burial to strengthen the level of protection.

The corpus contains the abovementioned 18 canids found in six burials from Qasr Allam which were identified initially as adult canids. Subsequent to the closure of the corpus, additional osteological studies were undertaken on these 18 canids and a further three canids (from Qasr Allam, area C413), which was able to more accurately estimate the age of 13 of the canids (Colin, Adam & Pranjic 2014: 42). Two canids were considered old adults (> than six years), six canids were considered middle-aged adults (2-4 years), three canids were considered young adults (1-2 years), and two canids were considered juveniles (6-12 months). Whilst this degree of detail is only available for a small portion of the total corpus, this indicates a strong propensity for the use of an adult canid in burials in the Oasis Region. This is consistent with the assumed use of adult canids outlined above.

In summary, excavation reports and journals indicate that the canid most commonly utilised in burials was the domestic dog. Identification of skeletal remains indicated the presence of two different breeds of dog, the common pariah-type dog and the greyhound-type dog. The entry of one jackal in the database remains questionable as no osteological evidence was provided to support this conclusion however given the presence of jackals in ancient Egypt as discussed in Chapter 3 §3.3, the possibility of their presence in burials cannot be dismissed. The presence of two red foxes found among the multiple associated faunal remains in two multiple burials confirms their use in the funerary practice.

The sex determination within the corpus was particularly challenging without access to primary data, however the confirmed presence of ten baculum bones indicates at least ten male canids were buried within the total 271 MNI observed. Additionally, a recent report from Qasr Allam, potentially identifies the presence of a further 11 males (Colin, Adam & Pranjic 2014). Overall there does not appear to be a preference for either sex, when burying a canid.

Finally, the majority of burials were classified as ‘dog’ therefore it was assumed that the canid had reached adulthood. Only 15 of the total 271 canids were specifically identified as juvenile. Juvenile canids were never buried in isolation, and were frequently accompanied by an adult canid, arguably to strengthen their functional purpose.

5.10 Summary

This chapter analysed the canid protector hypothesis based on the canid contents of the grave, the human contents of the grave and also the presence of associated grave goods.

Additional detailed analysis of the canid was completed, incorporating the body positioning and placement as well as an estimation of the canid species, age, and sex.

In summary, the overarching preference was for an individual canid burial, while there were still a considerable number of multiple canid burials across the corpus. The use of individual and multiple canids and the incorporation of associated grave contents, was influenced by both the prevailing time period and the regional funerary practices. What appears to have remained consistent across all time periods and all regions, was that individual and multiple canid burials both acted in a similar protective capacity. The protection provided by the canid burial was for either a directly associated human within the same burial or the indirect protection of one or more humans buried in proximity.

The additional presence of multiple canids in a burial is most likely indicative of an amplification of this protector function. The incorporation of additional faunal remains was not common, and each different animal likely served a specific functional purpose whether it be a food offering, or to amplify the significance of the human burial, or a votive offering to the related god.

The presence of a canid within a human grave is potentially indicative of the significance of the person, which is accentuated by the directness of the protection afforded by a joint burial.

Additionally, the small sample of burials with grave goods appears to highlight the significance of the grave occupants, whether human or canid. The associated grave goods were similar in style and purpose across the corpus, and were attributed to the canid, the human or both occupants. Furthermore, elements such as wrapping, use of containers and the placement of the canid were reflective of the prevailing funerary practices and did not impact the functional purpose of the canid within the burial.

The majority of entries in the corpus were canid burials with no directly associated human burials, most of which were single canids in isolation. This indirect protector functional purpose was strongest in the earliest and the latest periods of the study. There was however a significant difference in the context surrounding the canid burials in each of these periods. The Graeco Roman period specifically saw a notable shift in the method of accessing the protector function from the canid, through the utilisation of votive processes and the canid god.

The species, age and sex of the canids incorporated was difficult to determine given the high degree of disturbed graves in the corpus and the low level of detail provided by excavation reports. More recent studies continue to contribute to our understanding of these factors, similar to one example provided in the Saqqara sample in Chapter 6.

CHAPTER 6: A CASE STUDY OF SAQQARA CANID CRANIA

The purpose of this chapter is to analyse the data taken from a sample of 119 canid crania which form part of an assemblage of disarticulated canid skeletons found in the Teti Cemetery at Saqqara.[92]

The objective of this analysis is to not only provide a record for future research into canid remains, but also to promote further discussion and contribute to our understanding of the role of canids in the votive funerary practices of ancient Egyptians.

The sample for this study was collected during the 2007 to 2010 archaeological excavations undertaken by Macquarie University in the Teti Cemetery North at Saqqara (Figure 6.1) (Ockinga 2011: 119-138). Skeletal remains of more than one thousand disarticulated canids were found in three separate burial chambers at the bottom of two New Kingdom shafts (Figure 6.2). A secondary Late Period shaft associated with one chamber combined with architectural observations made above provided evidence of a Late Period reuse of the chambers (Ockinga 2011: 123-124). During the Late/Ptolemaic Period the practice of collecting the overflow of votive animals[93] from nearby temples and ritually reburying them in a 'sacred space' (Nicholson 2005: 50; Dodson 2009: 4; Taylor 2010: 134; Ikram 2013b: 301; Ikram et al. 2013: 50; Dunand, Heim & Lichtenberg 2015; Nicholson, Ikram & Mills 2015) combined with the archaeological evidence at the site provides a relative date for these canid remains to the Late/Ptolemaic Period votive context.

Three burial chambers were almost completely filled with debris and bones, from which thousands of disarticulated canid bones were extracted. After the chambers were excavated the debris was sieved, and the bones were removed and sorted. Due to limited time and the fact that no skeleton was fully articulated, it was decided to record and analyse the metric and morphological characteristics of a sub-sample of crania only. The remaining post-cranial bones were stored for possible future research. All elements of the skeleton were present, leading to the conclusion that complete skeletons had originally been placed in the burial chambers.

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[92] Henceforth known as the Saqqara sample.

[93] During the first millennium BC an increase in personal piety saw interactions between people and the gods taking place on a more personal level (Taylor 2010: 132). This was accomplished by presenting mummified animals at the temples as a votive offering to the relevant god, and in the case of Anubis, mummified canids were presented.

The purpose of the statistical and morphological analysis of the Saqqara sample is to:

1. Identify similarities and differences in size and shape of the crania, to ascertain if different species of canids were present;
2. Establish an estimation of the sex and age of each specimen;
3. Investigate observable pathologies, to provide evidence for the health, management and treatment of these animals during their lifetime; and
4. Provide a comprehensive dataset of cranial measurements and analysis for future comparative works.

By considering all the data it was hoped to observe certain patterns contributing to our understanding of the use of canids in the votive funerary practices of ancient Egypt.

6.1 General Methodology

An on-site count of the Saqqara crania established a MNI (minimum number of individuals) of 1,314 (Hartley, Buck & Binder 2011: 18). A sub-sample of 119 of the most complete crania was then extracted for analysis based on the degree of completeness of the zygomae (cheek bones), snout[94] and braincase (Figure 6.3). This method was employed because complete crania allow multiple accurate measurements for comparative purposes. As a result of this selection process, the majority of these crania were more likely to have belonged to relatively robust adults, as more fragile juvenile crania were more prone to post-mortem damage. The inherent bias involved in the selection of the most robust complete crania needs to be considered when examining the results. Furthermore, DNA analysis was unavailable, so was not undertaken as part of the excavation or subsequent analysis (Hartley, Buck & Binder 2011).

A combination of metric and morphological analysis was employed to estimate relevant factors of the sample, namely species, sex, age, and pathologies. Metric and visual examination was performed on these crania both on site and post excavation using scaled photographic records of the superior, inferior and lateral views of each cranium (Figure 6.4). Initial on-site examination was limited, given time constraints, however it was sufficient to identify and record several key features of individual crania.

To facilitate the recording and analysis of metric features the selected crania were numbered from 1 to 119, and a series of eight canonical measurements (Figure 6.5) from each cranium were recorded using hand-held sliding calipers to the nearest 0.5mm. These

[94] The snout is defined by the maxilla, nasal bone and incisive bone.

measurements were adapted from Haddon[95] (Haddon 1914: 43-48) and are presented in Table 6.1. More detailed descriptions of the landmarks can be found in von den Driesch (1976: 42-46).

Table 6.1: Measurements taken from Saqqara crania (after Haddon 1914: 43-44)

Measurement	Description of measurement	von den Driesch measurement[96]	Number of specimens
1. Total length	Akrokranion to Prosthion	1	107
2. Upper neuro-cranium length	Akrokranion to Frontal midpoint	7	118
3. Basal length	Basion to Prosthion	3	107
4. Palatal length	The median point of intersection of the line joining the deepest indentation of the Choanae to Prosthion	13a	104
5. Facial length	Frontal midpoint to Prosthion	9	107
6. Interorbital width	Entorbitale to Entorbitale	33	117
7. Maximum height	Height of the skull from Basion to the vertex of the sagittal crest	38	118
8. Zygomatic breadth	Zygion to Zygion	30	57

Post excavation, univariate and multivariate statistical analysis and graphing were performed using SAS v9.3© statistical software. This work was undertaken at the University of Western Australia by Dr Helen Atkinson in association with Dr Alanah Buck. Univariate analysis of cranial measurements was used to assess the statistical distribution of each variable from the Saqqara crania. The statistical distribution of these factors is presented in Table 6.2, and will be analysed further in §6.2 and §6.3.

[95] Haddon's measurements were used in this study as they were the only set of measurements for canid crania accessible to the Macquarie excavation team while on-site.

[96] The corresponding von den Driesch (1976: 42-46) measurement numbers have been included in this table for reference.

Table 6.2: Distribution of each variable from the Saqqara crania

Measurement	Mean	Min.	Max.	Sample size	P-value normality
1. Total length	172.8	142.0	208.0	107	Non significant
2. Upper neuro-cranium length	90.8	77.0	102.0	118	Non significant
3. Basal length	152.1	128.0	179.0	107	Non significant
4. Palatal length	84.2	72.5	101.0	104	Non significant
5. Facial length	86.6	70.0	110.0	107	Non significant
6. Interorbital width	35.6	28.0	44.5	117	*P=0.04
7. Maximum height	49.3	40.0	60.0	118	Non significant
8. Zygomatic breadth	98.7	85.0	116.0	57	Non significant

All measurements were normally distributed with the exception of interorbital width[97] which, when combined with length measurements, separates short from long-headed specimens. Measurements for interorbital width were slightly skewed towards the upper end of the scale. The graphical distributions of each measurement are presented in Figure 6.6.

Subsequently a sub-set (Σ=104) of the Saqqara crania was used in the multivariate analysis. Fifteen crania previously included in the univariate analysis were removed from the multivariate analysis due to a missing variable (incomplete palate). Seven of the eight univariate measurements were used in the multivariate analysis. Maximum zygomatic width was removed due to the small number of individuals with complete zygomae (57 of the sample of 119).

A multivariate analysis of cranial measurements was undertaken to assist in the categorisation of possible sex and species within the Saqqara crania. A principal components analysis (PCA) was conducted in this study to examine size and shape differences between individuals within a population. Measurements of biological features, such as head length and snout width, were statistically analysed to identify similarities and statistical outliers. It may be expected that canid breeds could be reasonably accurately categorised based on overall size and general head shape (slender *versus* broad). The

[97] * (P=0.04; Anderson-Darling test).

numbers (components) generated from a PCA were graphed in a scatter plot for visual interpretation and analysis (Figure 6.7).

Principal components are numbered sequentially from PC1 onwards according to the amount of variation they describe. Principal Component 1 expresses size differences between individuals, which may indicate sexual dimorphism. When size is removed from the analysis, PC2 and PC3 traditionally express shape variation in the population. Therefore, PC2 and PC3 can describe shape regardless of the size of the individual and further strengthen the results. High principal component numbers (for example PC9 and PC10) usually express the least amount of variation. In most biological studies no more than the first five principal components are examined.

6.2 Species Determination

The initial excavation records described the crania as being those of 'dogs', an approach based on previous excavation reports,[98] where analysis of the canid findings was not the primary objective, and hence often dismissed or disregarded. However, it is conceivable that the initial classification of the Saqqara sample as 'dogs' could be expanded to include jackals and foxes, as evidence confirms the use of jackals and foxes in canid-related funerary practices (Lortet & Gaillard 1903: 17; Lortet & Gaillard 1909a: 264; Haddon 1914: 40, 44; Ikram et al. 2013: 56; Kitagawa 2013: 347; Dunand, Lichtenberg & Callou 2015: 174-175).

6.2.1 Species determination method

The initial method used to determine species was the visual comparison of physical crania, followed by a comparison of photographic records of dog, jackal, fox and African wild dog (Figure 6.8a-d). Careful examination of diagrams representing crania from one breed of jackal and three breeds of fox (Osborn & Helmy 1980: 359-395) (Figure 6.9a-d) all of which were known to have existed in Egypt during this period,[99] was also undertaken. This observational review compared degree of slant of the forehead, size and shape of the auditory bulla, snout length and snout width, and the shape of the occipital bone in an attempt to identify key morphological similarities and differences (Figure 6.10). Univariate

[98] Haddon's methodology took the length of the face, and multiplied it by 100, then divided this figure by the length of the cranium. If the resulting index was low, with a value of <85 Haddon argued that this index was an indicator of a jackal cranium, with higher index values being less jackal-like and more dog-like (Haddon 1914: 44-46).

[99] For a discussion on the different canids found in ancient Egypt see Chapter 3.

and multivariate statistical tests were applied to morphological data to quantify visual observations regarding species determination.

This species analysis employed the use of Haddon's index values which were based on Huxley's method of taking the basiocranial axis as 100 and expressing all other measurements as relative numbers (Haddon 1914: 43). The analysis was aided by using the Crockford classification technique for dogs (2009: 17). This system suggests that if the total skull length is between 108 – 165mm and the humerus is ≤140mm and the femur is ≤160mm, then the animal can be classified as a 'small' dog. If the total skull length is between 165 – 196mm and the humerus is ≥140mm and the femur is ≥160mm, then the animal can be described as a 'large' dog. Due to the absence of matched post cranial bones in the Saqqara sample due to disarticulation, as shown previously in Figure 6.2, this methodology was modified to include cranial length only, the results of which are presented below.

6.2.2 Species determination results

Metric and morphological analysis of the Saqqara sample broadly reveals one group of canids. Using Haddon's index value (Haddon 1914: 46) of <85 being the possible indicator of a jackal cranium, 14 crania (12%) of the Saqqara sample had indices <90, and three of these scored <85, which indicates they are particularly more 'jackal-like' in proportions. This was confirmed when the three crania were compared with the jackal cranium diagram (Figure 6.11a-b). Visual examination of the photographs compared with fox crania diagrams (Figure 6.9a-c) indicated no Saqqara sample crania were 'fox like'.

Using the Crockford methodology (2009: 17), utilising cranial measurements alone, 28 of the 119 Saqqara canids (24%) could be considered "small dogs", with the total skull length ranging from 142mm to 165mm, and 73 crania (61%) could be considered "large dogs"[100], with total skull length ranging from 166mm to 208mm (Figure 6.12). The remaining 18 crania (15%) were not sufficiently complete to enable total length measurement. While this method in isolation does not distinguish between a small dog and a large fox (for example), other factors including the more obtuse angle of the slant of the forehead, the narrower, shorter snout, the wider flare of the zygomae, the shape and size of the auditory bulla and

[100] "Small dog" and "large dog" is a terminology used by Crockford (2009: 17) to assist in the classification of dogs by size, which is helpful to current research when attempting to establish species of canids or possible breeds of dogs amongst canid skeletal remains.

the shape of the occipital bone supports the conclusion that no foxes were present in this sample.

6.2.3 Species determination discussion

The univariate statistics confirm that the cranial measurements from the Saqqara sample were normally distributed with a small degree of variation (Figure 6.6). Thus the Saqqara sample (n=119) appears to contain the remains of one homogenous group of dogs consistent with the pariah or common dog (*Canis lupus familiaris*).

Differences in cranial shape in the Saqqara sample were observed at the multivariate level. Cranial shape varied from long and narrow in form to a shorter, more robust head shape. However, the variation in cranial morphology was not statistically significant, and the Saqqara sample appeared to be relatively homogenous in overall shape (Figure 6.7). Fourteen of the 119 Saqqara sample presented with jackal-like measurements, and three of these 14 exhibited characteristics that could be considered more consistent with those of a jackal (Figure 6.11a-b).

The absence of any fox-like crania in this Saqqara sample does not indicate a complete absence of foxes in the remaining 1,195 crania, however it does suggest that if present, foxes were potentially less frequently used in the canid votive funerary practice.

These results are consistent with the hypothesis that the vast majority of the canids used in the votive funerary practice were common dogs. There may have been a minority sub-group of jackals or jackal-like dogs, however this proportion was small in the Saqqara sample.

6.3 Sex Assessment

6.3.1 Sex assessment method

The only definitive method to ascertain the sex from a canid skeleton is the presence of a baculum or penis bone, and this method was not possible due to the disarticulated state of the skeletons.

A univariate analysis of each cranial measurement was plotted to test for bimodal distributions that may reflect male and female means (Figure 6.6). Multivariate analysis was also used to assess sex differences based primarily on size (Figure 6.7). Examination of photographs of the crania identified morphological indicators that were used

concurrently to determine the likely sex distribution of males and females with a high degree of confidence.[101]

Subsequent to determination of species (§6.2), the following morphological indicators used concurrently for sex estimation were:

1. The size and robustness of each cranium was examined, with adult males of the same species typically larger than adult females (Figure 6.13);
2. The triangular area in the basioccipital region that extends from basion to a line joining the medial points of the two tympanoccipital fissures, where in a probable male the two sides of the triangle (almost) meet at the median line, making an acute vortex angle creating a narrow elevated triangle; while in a probable female the sides of the triangle never meet at the median line, creating a more broad truncated triangle (The & Trouth 1976: 569; Trouth et al. 1977; Onar et al. 2002: 320) (Figure 6.14);
3. The definition of the sagittal crest, where the adult male often has a strong well defined crest (Shigehara, Onodera & Eto 1997: 116; Smith 1999: 76; Crockford 2000a: Fig. 8) due to muscle attachment along the sagittal crest (Crockford 2009: 49), and the ridges, crests and processes of the basioccipital, which are typically smaller and smoother in the female (The & Trouth 1976: 570) (Figure 6.15); and
4. The shape of the orbital process, where the female orbital process is strongly hooked, while the male has a swelling behind the orbital process (Crockford 2000a: Fig. 8; 2009: 49) (Figure 6.15).

Intra-observer error was lessened through cross-checking independent analysis undertaken by this author and physical anthropologist Dr Alanah Buck. Therefore it is believed that the sexing assessment of the Saqqara sample was done with a high degree of confidence.

6.3.2 Sex assessment results

The result of the univariate analysis showed no bimodal distributions among the measurements, suggesting that there was no clear cutoff points between males and females at the univariate level. Multivariate results indicated sex differences based primarily on size. Specimens with a total length of 187mm or more were classified as ‘male’, while specimens with a total length of 150mm or less were classified as ‘female’.

[101] The accurate identification of the sexual dimorphism between male and female dogs is discussed by The and Trouth (1976) where, in a study of 80 dog skulls, 12.5% or 10 of the 80 crania could not be successfully identified, however the 87.5% success rate gives a high degree of confidence.

The morphological assessment using the criteria outlined above, estimated that 95 (80%) of the sample crania were male and 24 (20%) were female (Figure 6.16).

6.3.3 Sex assessment discussion

Although univariate results indicated no obvious sex differences in cranial measurements, multivariate results confirmed the presence of both sexes based on size differences and ranges. The differences between maximum and minimum values for total length suggested that males and females were both present.

The additional morphological characteristics identified and analysed provided specific differentiation between sexes with a high degree of confidence. Morphological analysis estimated that 95 (80%) crania presented as male and 24 (20%) crania presented as female. This predominance of males is consistent with the examination of a sub-sample of 485 dog specimens from the dog catacombs of Saqqara, where the results of sex determination clearly identified males to females at a ratio of 37:4 (Ikram et al. 2013: 59), which represents 90% male to 10% female.

This may also be connected to the prevailing funerary beliefs of a society that worshipped Anubis, a male canid god, thereby exhibiting a preference for male votive offerings.[102] If this hypothesis is indeed true, then it is also possible that females were only used in the votive context when the supply of males was insufficient to meet the demand for votive offerings. This could be the subject of future research.

6.4 Age Estimation

Using a combination of indicators set out below, the age of each animal at death was divided into three broad groups: Young Adult, Adult, and Old Adult.

6.4.1 Age estimation method

The age of each animal at the time of death was estimated using a combination of three indicators:

1. Maxillary tooth eruption (Silver 1963: 265; Crockford 2009: 44-45);
2. Degree of tooth wear (Horard-Herbin 2000: 117-118); and
3. Degree of fusion of cranial sutures (Silver 1963: 254).

[102] Evidence of male gods receiving castrated male animals and goddesses receiving female victims during Roman rituals is discussed by Scheid (2007), who also discussed the use of specific coloured animals chosen for specific gods, both factors suggesting that the choice of an animal was not random.

The standard technique to assist age estimation using fusion of the epiphyses of the long bones was not possible in the Saqqara sample as no skeleton was found fully articulated, therefore no crania could be directly matched with any long bones.

Adult maxillary tooth eruption occurs in canids from the age of four to seven months, as presented in Table 6.3 below. Therefore if a cranium presented with deciduous dentition in occlusion (juvenile teeth still present) it would be considered to be less than six months of age (Crockford 2009: 45).

Table 6.3: Eruption of permanent teeth (after Evans and de Lahunta 2013: 286).

Group	**Tooth**	**Eruption Period**
Incisors	Central	2 to 5 months
	Intermediate	2 to 5 months
	Corner	4 or 5 months
Canine		5 or 6 months
Premolars	First	4 or 5 months
	Second	6 months
	Third	6 months
	Fourth	4 or 5 months
Molars	First	5 or 6 months
	Second	6 or 7 months
	Third	6 or 7 months

Tooth wear is another method often employed in age estimation. Dental examination in this sample was limited due to the high proportion of post-mortem tooth loss manifest in most specimens (see §6.5.2.1 and Table 6.8). Due to ante-mortem and post-mortem tooth loss no specimen presented with a full dental arcade, therefore the extent of observable tooth wear was limited in most crania. When assessing age using the degree of tooth wear, other factors need to be taken into consideration, for example the individual animal's nutritional status, likelihood of sand inclusion in the diet, and/or living conditions may also impact on the amount of wear on a tooth.

The third method employed in age estimation was examination of the cranial sutures. The joints between the cranial bones are termed sutures, and these unfused joints support growth to adulthood. Cranial sutures begin to fuse from around four months of age

(Crockford 2009: 38), and the joint between the two bones progressively melds until fully fused around 10-12 months (Figure 6.17).

Using the three indicators above, the age of each animal at death was divided into three broad groups.

1) 'Young Adult' was classified by a full adult dentition with limited to no tooth wear in conjunction with minimal fusion of cranial sutures (Figure 6.18a-b), placing them in an age range greater than six months old but less than two years of age;
2) 'Adult' was classified by a full adult dentition with moderate tooth wear, complete fusion of cranial sutures, and limited development of the boney ridges and crests, placing them in a group over two years of age but less than six years (Figure 6.19); and
3) 'Old Adult' was classified by a full adult dentition, a severe amount of tooth wear or tooth loss and a greater degree of development of ridges, crests and processes of the basiocciput, placing them in a group over six years of age (Figure 6.20).

6.4.2 Age estimation results

Results of the analysis showed that 54 of 119 crania (45%) were estimated to be Young Adult, 63 (53%) to be Adult, one to be Old Adult (1%) and one was unknown due to the complete absence of the snout associated with post-mortem damage. These figures indicate that all but one of these animals were killed after reaching maturity but before reaching old age (Figure 6.21) and demonstrates a potential selection bias in this sample towards more robust adult crania.

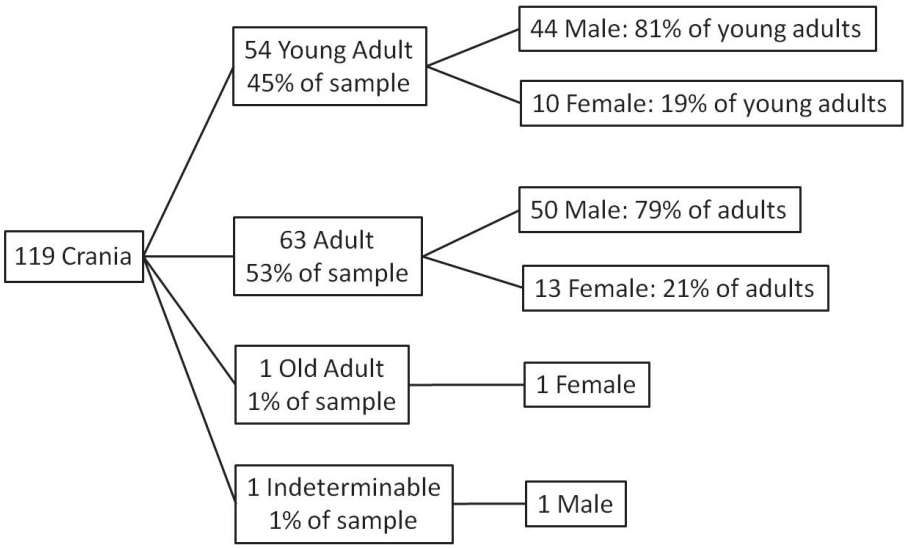
Of the 54 crania identified as Young Adult, cranial sutures observed on 13 individuals were either not fully fused, or fused but still visible (Figure 6.18b). This indicated that these 13 were particularly young dogs, however complete adult dentition confirmed that the individuals were older than six months but less than 12 months. Of the remaining specimens identified as Young Adult, all 41 exhibited complete fusion of cranial sutures, and limited to no tooth wear.

The 63 specimens identified as Adult exhibited complete fusion of the cranial sutures, however they were distinguished by the existence of moderate tooth wear most likely attributed to increased age.

The above age categorisations can be further divided by sex for additional demographic analysis, as illustrated in Table 6.4 below. Forty-four (81%) of the 54 Young Adult crania were male, and 10 (19%) were female. The Adult category showed a similar sex distribution, with 50 (79%) of the 63 crania categorised as male, and 13 (21%) as female.

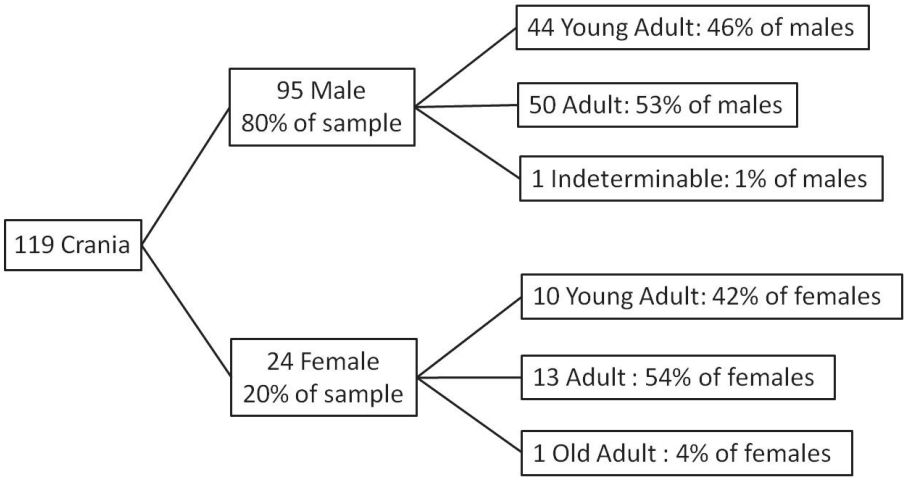
The only Old Adult presented with full cranial fusion, significant tooth loss and with well-developed ridges and processes and was categorised as female (Specimen 63). It was not possible to determine the age of one male cranium given the absence of the dental arcade, however the cranial sutures suggest this dog was older than 12 months.

Table 6.4: Demographic profile by age and sex



Demographically, it is also interesting to consider an analysis of sex by age, as illustrated in Table 6.5 below. Of the 95 males in the sample, 44 (46%) were Young Adult, 50 (53%) were Adult, and one cranium (1%) was not able to be 'aged' given the absence of a dental arcade. Of the 24 females in the sample, 10 (42%) were Young Adult, 13 (54%) were Adult and one (4%) was considered an Old Adult (Figure 6.22).

Table 6.5: Demographic profile by sex and age



6.4.3 Age estimation discussion

Despite the limitations for the cranial age classification above, the results indicate that it was extremely rare for a 'votive'[103] dog to have lived for more than six years. Ninety-eight percent of the sample did not live to reach old age, suggesting that they had been killed. The Saqqara sample results confirm that the younger the age at death, the more likely the specific animal was male, which supports the theory that there was a preference for male animals in the canid votive trade, while females were more likely to be retained for their functional purpose of breeding in a planned and controlled environment (Ikram et al. 2013: 59). The oldest cranium was classified as a female, which supports the hypothesis that females may have been kept for breeding and hence lived longer, however the small sample of n=1 must be taken into consideration.

Specimen 63 is an interesting case as it was the only cranium considered to be an Old Adult (Figure 6.23a-c). This female presented with an ante-mortem tooth loss (§6.5.2.3) of 13 which most likely reflects the biological and/or environmental stress endured during her lifetime. Specimen 63 may have been an excellent breeder, possibly retained for her ability to produce frequent large litters. A study undertaken by Lukacs & Largaespada (2006) reported that human females with insufficient dietary supplements during multiple pregnancies can experience a higher proportion of tooth caries leading to eventual tooth loss. If this finding can be transposed to canids,[104] it would support the suggestion that Specimen 63 was kept as a breeder, subjected to frequent pregnancies, with an inadequate diet, explaining her high ante-mortem tooth loss. Most likely at the age of seven or older, suffering from periodontal disease and tooth loss, her days as a breeder were finished but she still had one further role to play, that of a votive offering.

As mentioned above, the distribution of age at death of the Saqqara sample likely represents the deliberate slaughtering of the animals. This may have occurred sporadically or alternatively at specific times of the year to coincide with festivals related to Anubis (Kessler 1989: 300; Charron 2001: 11). The younger adults were more likely to have been

[103] For the discussion on 'votive' dogs see §6.6.

[104] My thanks to zooarchaeologist Dr Deb Bennet from the Equine Studies Institute, Livingston, California, who pointed out that although dogs are susceptible to the same conditions as humans, the differing dietary requirements of the dog and its different capabilities for producing Vitamin D necessary for calcium to be properly metabolised and/or emplaced in the bones and teeth, would need to be considered before linking canids to the human condition.

slaughtered when they reached a suitable body size for mummification[105] or before the young males became sexually mature around seven months of age, and hence aggressive when competing for female dogs on heat (Kawakami, Tsutsui & Ogasa 1991: 241). Other dogs may have been slaughtered after reaching full adulthood when they were no longer considered necessary for the breeding program and were culled, or the extent of a cull may have been more driven by the prevailing demand.

This is consistent with the hypothesis that farmed dogs[106] (regardless of sex) were typically sacrificed at a younger age, and females were more likely to be retained either for breeding purposes or due to their less aggressive temperament. Such planned and controlled farming of dog breeding would have been necessary to meet the high demand for votive dogs in the Late/Graeco-Roman Periods, with regular harvesting taking place and new litters replenishing the stock pile.

6.5 Paleopathology

Paleopathologies are a physical manifestation of a disease, trauma, congenital variation and activity related change in ancient skeletal remains. Only certain types of disease, or diseases experienced for an extended period, will manifest in the skeletal remains compared with the vast array seen in soft tissue.

Visual examination of the crania *in situ*, combined with subsequent examination of the photographic records, allowed the identification of certain pathological conditions caused by trauma, illness and/or stress during the animal's life.[107] Each cranium was specifically examined for evidence of fractures, infection, tumours and hypertrophy (boney growth); and dental pathology including periodontal disease, abscesses, alveolar resorption, ante-mortem tooth loss; and non metric variations.[108] The results, analysis and discussion below are limited to the maxillary dental arcade only, and have been classified into three major categories: trauma, dental pathology, and dental variations.

[105] A concept of animals being slaughtered at a particular age to be used as a votive animal is discussed by Armitage & Clutton-Brock (1981: 193) in their article concerning cat mummification. This same concept could relate to dogs.

[106] Kessler (1989: 299) argues that the masses of mummified animals came from special separate breeding places, which could be interpreted as 'farms'.

[107] All pathologies were identified and discussed in consultation with physical anthropologist Dr Alanah Buck.

[108] It is acknowledged that non-metric variations are not strictly pathology. They are included in this section for the purposes of consolidating the text.

6.5.1 Trauma

Types of trauma exhibited in the crania were healed depressed fractures and perforations on the palatine process of the maxilla caused by blunt and sharp force trauma, respectively.

6.5.1.1 Healed depressed fractures

The presence of healed depressed fractures indicates that the animal had been struck on the head with sufficient force to produce a fracture, although the force had not been severe enough to kill the animal, and the animal had lived long enough for the fracture to heal. The shape of the fracture strongly suggests that the animals had been struck from above with a sizeable stick-like weapon most likely used by humans to discipline the dogs (Figure 6.24).

6.5.1.1.1 Healed depressed fractures identification method

Healed blunt force trauma was identified by observation of discrete, shallow depressions, differing in size and shape, where remodeling of the bone was evident (Hartley, Buck & Binder 2011: 20-21). The area of trauma was identified and measured.

6.5.1.1.2 Healed depressed fractures results

Of the Saqqara sample crania, seven (6%) of the 119 presented with healed depressed fractures. The size and location of these fractures are presented in Table 6.6 below. Each of the seven specimens presented with one completely healed depressed fracture. The majority of these fractures were found on the frontal region, superior to the orbit, with three fractures located on the left side, three fractures located on the right side, and one on the right maxilla. No specimens presented with partially healed depressed fractures. No crania presented with peri-mortem fractures (occurring at or just before the time of death).

Table 6.6: Size and Location of Healed Depressed Fractures

Specimen No.	Sex	Age	Fracture	Location	Max. Length	Max. Width
25	Male	Young Adult	1	Right supraorbital	42mm	23mm
27	Female	Adult	1	Right supraorbital	25mm	19mm
38	Male	Adult	1	Right supraorbital	24mm	21mm
50	Male	Young Adult	1	Right maxilla	25mm	15mm
71	Male	Adult	1	Left supraorbital	24mm	14mm
74	Male	Adult	1	Left supraorbital	18mm	15mm
81	Male	Adult	1	Left supraorbital	5mm	5mm

6.5.1.1.3 Healed depressed fractures discussion

Seven (6%) of the 119 crania presented with healed depressed fractures, which did not cause death. The fact that the depression had fully healed indicated a significant period of time had elapsed between experience of the trauma, and eventual death of the animal. These healed depressed fractures are consistent with an animal being severely disciplined (Morey 2010: 127).[109] The frontal region of the head is a common area to suffer damage when dogs are disciplined by humans wielding sticks or staffs, an implement often used during management of large numbers of confined dogs (Baker & Brothwell 1980: 94). During the 2010 season at Saqqara, a Graeco-Roman burial of an adult male human (Hartley, Buck & Binder 2011: 21) was excavated and among the grave goods accompanying the burial was a wooden staff.[110] The shape of the end of the staff was consistent with the size and shape of the observed fractures (Figure 6.25), suggesting this staff, or one similar, may have been used to discipline the animals. Considering the force needed to fracture the parietal or frontal bones, the severity of the punishment must have been substantial (Baker & Brothwell 1980: 93).

Six of these seven healed crania belonged to male specimens, suggesting that males may have been more frequently disciplined. This may have been the result of the more aggressive behaviour of males when competing for food and/or reproductive dominance, increasing the likelihood of severe discipline being used to restore order.

The fact that 6% of the sample had been punished severely enough to cause a fracture indicates that other forms of discipline (not resulting in cranial fractures) were also likely to have occurred, as would be expected in a confined situation. Other likely disciplines would have only materialised in non-skeletal evidence on the body of the dog, or in skeletal damage to other parts of the body which were not available in this analysis due to disarticulation of individual skeletons.

[109] Healed depressed fractures on the frontal bone have been found on crania related to other ancient cultures where dog management was practised. At the Inugsuk site in west Greenland, five out of 13 complete dog skulls showed comparable healed injuries (Morey 2010: 127). Healed facial fractures found on dog crania from Van-Yoncatepe Castle in Turkey were considered by the researchers to be consistent with human management (Onar et al. 2002: 332).

[110] My thanks to Assoc. Professor Ockinga and Dr Binder for permission to use this unpublished material.

6.5.1.2 Perforations on the palatine process of the maxilla

Perforations to the palate are small punctures through the hard palate (roof of the mouth) caused by sharp force trauma (Figure 6.26), most likely occurring due to non-human sources.[111]

6.5.1.2.1 Perforations on the palatine process of the maxilla identification method

Sharp force traumas were identified through visual observation of the photographs of each crania and the number of perforations recorded.[112] Sharp force traumas were differentiated from post-mortem damage and/or vascular foramina by careful assessment of the nature of the margins and size, shape and placement of these apertures.

6.5.1.2.2 Perforations on the palatine process of the maxilla results

Forty of the 119 crania (34%) presented with small perforations on the palatine process of the maxilla indicating a sharp-force trauma had occurred during the animal's lifetime, but long enough before the time of death for the lesions to be completely healed (Figure 6.26). Thirty of the crania presented with a single perforation, seven of the crania presented with two perforations, and three crania presented with three perforations (Figure 6.27). Of the animals with perforations, 33 were male (83%) and seven (17%) were female (Figure 6.28).

6.5.1.2.3 Perforations on the palatine process of the maxilla discussion

Perforations on the palatine process of the maxilla are an indicator of trauma, likely to have been inflicted from non-human sources. During dog fights, when the muzzle of one dog is seized by another, the lower canines can be pressed up into the palate of the seized dog (Churcher 1993: 53) resulting in perforations to the palate.

If these animals were indeed kept in close confinement and fed in large groups, then competition for food, territory and sexual dominance would have resulted in aggressive behavior. Thirty-four percent of the Saqqara sample exhibited one or more perforations to the palate, suggesting that in their relatively short lives these dogs often fought for limited available resources. Eighty-three percent of the sub-sample that exhibited palatal perforations was male, again consistent with the theory that confined males are aggressive when competing for food and/or reproductive dominance. Many injuries caused by dog fights would not have resulted in skeletal evidence, however these palatal perforations are indicative that dog fights occurred frequently.

[111] Small perforations observed on the palatine process of the maxilla of two canid crania found in Turkey were concluded to be caused by a parasitic disease (Onar et al. 2002: 329, Figs. 8B, 10A).

[112] As outlined in §6.1 pathological assessment was restricted to photographs due to time and access constraints.

Another possible explanation for these observations is that during mastication, sharp pieces of bone could have pierced the palate region. Furthermore, it is also known for dogs to chew pieces of wood or sticks (Silver 1963: 256), which in some instances could also have caused perforations to the palate.

6.5.2 Dental Pathology

Dental pathologies were determined by visual examination of the photographs, independently by this author and then in consultation with physical anthropologist Dr Alanah Buck. Dental pathologies identified included periodontal disease, the presence of an abscess, and ante-mortem tooth loss. The photographs were also examined for non metric dental variations.

6.5.2.1 Periodontal disease

Periodontal disease is a collective term for a number of plaque-induced inflammatory lesions that affect the periodontium (Gorrel 2008: 31). The condition usually starts with gingivitis, an inflammation that affects the gingiva (soft tissue surrounding the tooth). If untreated the condition progresses to become periodontitis, a severe inflammation which involves all or some of the tooth support structures (Lobprise 2007: 172) and is irreversible. Different factors can exacerbate periodontitis, including a nonabrasive diet, periodontal trauma, foreign bodies and a genetic predisposition (Niemiec 2010: 164).

6.5.2.1.1 Periodontal disease identification method

Periodontal disease was assessed by observations of the degree of pitting and/or bone resorption around the dental arcade. The categorisation of periodontal disease was based on the following observations:

1. ‘None’ (no observable pitting);
2. ‘Mild’ (pitting restricted to intermittent areas) (Figure 6.29);
3. ‘Moderate’ (pitting located in regular areas) (Figure 6.30); and
4. ‘Severe’ (extensive pitting on both sides of the dental arcade) (Figure 6.31).

6.5.2.1.2 Periodontal disease results

In accordance with the above methodology, one individual could not be examined due to the absence of the dental arcade, 81 of the sample (69%) showed no evidence of periodontal disease, however 37 of the sample (31% or almost one third), presented with varying degrees of periodontal disease (Table 6.7). Of these, 22 (19% of the total sample)

presented with mild periodontal disease, 14 (12% of the total sample) presented with moderate periodontal disease and one presented with severe periodontal disease (Figure 6.32). For further analysis, the data was divided into respective age categories in order to consider the relationship between periodontal disease and age, and the results are presented in Table 6.7.

Of the group classified Young Adult, 42 (78%) presented with no periodontal disease, 10 (18%) presented with mild periodontal disease, and two (4%) presented with moderate periodontal disease (Figure 6.33).

Of the group classified Adult, 39 (62%) presented with no periodontal disease, 12 (19%) presented with mild periodontal disease, 11 (17%) presented with moderate periodontal disease and one (2%) was considered to have severe periodontal disease (Figure 6.34).

The only Old Adult, a female, presented with moderate periodontal disease.

Table 6.7: Distribution of periodontal disease of Saqqara sample canid crania (Σ=118)

	None	**Mild**	**Moderate**	**Severe**	**Total**
Young Adult	42	10	2	0	54
Adult	39	12	11	1	63
Old Adult	0	0	1	0	1
TOTAL	**81**	**22**	**14**	**1**	**118**

Of the group classified as No Periodontal Disease, 42 (52%) were Young Adult and 39 (48%) were Adult. No Old Adult presented without periodontal disease (Figure 6.35).

Of the group classified as Mild Periodontal Disease 10 (45%) were Young Adult and 12 (55%) were Adult. No Old Adult presented with mild periodontal disease (Figure 6.35).

Of the group classified as Moderate Periodontal Disease two (14%) were Young Adult, 11 (79%) were Adult, and one (7%) was an Old Adult (Figure 6.35).

Of the group classified as Severe Periodontal Disease the only cranium was classified as an Adult (Figure 6.35).

A strong correlation between periodontal disease and post mortem tooth loss has been proposed by Baker & Brothwell (1980: 155). A high degree of post-mortem tooth loss was

identified in the Saqqara sample, with the results presented in Table 6.8. Of the 119 crania, 118 exhibited post-mortem tooth loss of varying numbers. One specimen presented with no dental arcade, due to post mortem damage therefore no tooth loss could be counted. Fifteen specimens presented with a partial dental arcade, however a number of teeth lost post-mortem could still be identified. Two specimens had lost the entire arcade of 20 teeth post-mortem.

Table 6.8: Ante-mortem and post-mortem tooth loss

	Sample Size	**Teeth in occlusion**	**Total tooth loss**	**AM tooth loss**	**PM tooth loss**	**Average PM tooth loss**
Full Dental Arcade	103	576	1484	218	1,266	12.3
Partial Dental Arcade	15	90	210	1	209	13.9
TOTAL	**118**	**666**	**1694**	**219**	**1,475**	**12.5**

Each complete adult canid cranium should present with 20 teeth. When the 16 specimens with incomplete or missing dental arcades are excluded, a total of 2060 teeth in the remaining 103 crania (103 times 20) should be accounted for. Observations of this sample show that 576 teeth were found in occlusion and a further 218 teeth were lost ante-mortem, indicating that 1,266 teeth were lost post-mortem, representing an average loss of 12.3 teeth per cranium. Ante-mortem tooth loss is discussed in §6.5.2.3.

Teeth associated with periodontal disease during an animal's lifetime are known to fall out easily during excavation if not handled with great care (Baker & Brothwell 1980: 155). The excavation and sieving of the disarticulated mass of Saqqara canid bones would certainly be consistent with rough handling, and therefore must be given due consideration in an analysis of post-mortem tooth loss. Although the natural shrinkage of the gingiva and associated soft tissue after death and decomposition can leave teeth more vulnerable to post-mortem exfoliation, the high level of periodontal disease recorded above should be considered as a relevant factor contributing to the significant degree of post-mortem tooth loss observed.

6.5.2.1.3 Periodontal disease discussion

Periodontal disease in dogs is an indicator of poor health associated with poor oral hygiene. Thirty-one per cent of the Saqqara sample (37 of the 119) presented with varying degrees of periodontal disease.

Although 42 of the 54 of the group classified Young Adult (78%) presented with no periodontal disease, considering the time it takes for periodontal disease to progress to a degree that is observable on the alveolar process, it is significant that 12 (22%) presented with varying degrees of periodontal disease, at such a young age. These results substantiate the argument that the living conditions for these dogs were poor.

Of the group classified Adult, 39 of the 63 (62%) presented with no periodontal disease, while 24 (38%) presented with varying degrees of periodontal disease. From these results, 24 of 63 Adult (38%) compared with only 12 of 54 (22%) Young Adult presented with some degree of periodontal disease, substantiating the argument that the extent of observable periodontal disease increased with age.

The only Old Adult observed in this sample presented with moderate periodontal disease, which was most likely related to the 13 teeth lost ante-mortem (see §6.5.2.3). This is a logical extension of the above sex discussion where it was noted that females were maintained for their functional breeding purpose. This specimen adds weight to the hypothesis that female canids in a 'farming' context were more valuable in a breeding capacity.

6.5.2.2 Abscess identification

Abscess formation is the result of untreated infection, often emerging from a localised area of acute gingival disease or dental caries, resulting in alveolar destruction. An abscess can be initiated by pulp exposure, caries, calculus or periodontal disease and is identified as an area of bone destruction where a perforation through to the outer surface occurred allowing pus drainage from an abscess located at the apex of the root (Baker and Brothwell 1980: 154)

6.5.2.2.1 Abscess identification method

The presence of an abscess was determined by visual examination of the photographs which showed significant areas of bone destruction and resorption (for example, see Figure 6.31 and Figure 6.36).

6.5.2.2.2 Abscess identification results

Three specimens in the Saqqara sample exhibited evidence of an abscess.

Specimen #8, a Young Adult male with moderate periodontal disease, presented with a lesion on the lingual aspect between the maxilliary left third and fourth premolar, where considerable alveolar bone destruction and remodeling is consistent with the presence of an abscess (Figure 6.36).

Specimen #79, an Adult male with severe periodontal disease, presented with a lesion on the lingual aspect of the left fourth premolar consistent with the presence of a healed abscess (Figure 6.31). Additionally, this animal had also presented the loss of nine teeth ante-mortem.

Specimen #109, an Adult female with moderate periodontal disease, presented with a lesion on the lingual aspect of the maxillary right fourth premolar indicating the presence of a healed abscess. This animal had also presented the loss of six teeth ante-mortem.

6.5.2.2.3 Abscess identification discussion

The results show that abscesses were observed in only a small portion (2.5%, Σ=3) of the sample. All of these specimens had moderate/severe periodontal disease. Whilst the sample size makes it difficult to draw any firm conclusions, these results remain consistent with the aforementioned hypothesis that the degree of periodontal disease may reflect the likelihood of developing an abscess.

6.5.2.3 Ante-mortem tooth loss

Ante-mortem tooth loss, the loss of teeth prior to death, is often the result of destruction of the alveolus caused by a combination of periodontal disease and abscess formation. While this is most likely attributable to poor oral hygiene, it could also be attributed to trauma associated with insults including intra-group fighting and/or consequent discipline.

6.5.2.3.1 Ante-mortem tooth loss identification method

The evidence of ante-mortem tooth loss was provided by visual examination of photographs which showed the alveolus had remodeled, and to a lesser degree, a reduction in height of the alveolar process (Irinakis 2006: 918) (Figure 6.37).

6.5.2.3.2 Ante-mortem tooth loss results

Almost half (58, 49%) of the Saqqara sample presented with ante-mortem tooth loss. Incisors, canines, premolars and molars were all susceptible to ante-mortem tooth loss, with incisors appearing to be most commonly lost in this sample. Premolars also appeared to be prone to loss, which may be a reflection of diet and health issues rather than fighting. Identification of tooth type lost ante-mortem is illustrated in Table 6.9 below.

Table 6.9: Identification of tooth type lost ante-mortem

Tooth Type	**Number of Individuals with AM Tooth Loss (Σ=58)**	**Percentage of Total Tooth Loss (Σ=219)**
Incisors – Left	54	24.7%
Incisors – Right	52	23.7%
Canine – Left	3	1.4%
Canine – Right	5	2.3%
Premolars – Left	39	17.8%
Premolars – Right	26	11.9%
Molars – Left	21	9.6%
Molars – Right	19	8.7%
TOTAL	**219**	**100%**

Across the sample presenting ante-mortem tooth loss, the average ante-mortem tooth loss was 3.78 and the median tooth loss was 3.00, whereas the median of the total sample exhibited no ante-mortem tooth loss. Table 6.10 shows the range of ante-mortem tooth loss observed.

Table 6.10: Ante-mortem tooth loss

Number of Canids	17	6	10	5	4	5	4	5	1	1
AM Teeth Lost	1	2	3	4	5	6	7	8	9	13

When analysed by sex, males represented 80% (95) of the full sample, and 44% (42) of males exhibited ante-mortem tooth loss. Within the sub-sample of ante-mortem tooth loss, males represented 72% (42).

Females represented 20% (24) of the full sample, and 67% (16) of females exhibited ante-mortem tooth loss. Within the sub-sample of ante-mortem tooth loss, females represented 28% (16).

This data indicates that females were over-represented in the category of ante-mortem tooth loss.

Overall, male canids in this sample had lower average tooth loss ($\bar{x}$=3.62) compared with females ($\bar{x}$=4.19). It must be noted however that one old female exhibited the loss of 13 teeth, thereby introducing substantial bias to the data.

These 58 crania with ante-mortem tooth loss were then categorised into the age ranges set out in §6.4.1, which showed there were 20 Young Adults (34%), 37 Adults (64%) and only one (2%) Old Adult (Figure 6.38).

While Young Adults represented 45% (54) of the full sample, 37% (20) of Young Adults exhibited ante-mortem tooth loss. Young Adults represented 34% (20) within the sub-sample of ante-mortem tooth loss.

Adults represented 53% (63) of the full sample, and 59% (37) of Adults exhibited ante-mortem tooth loss. Adults represented 64% (37) within the sub-sample of ante-mortem tooth loss.

Of the 54 Young Adults in the complete sample, 20 (37%) exhibited ante-mortem tooth loss. The average tooth loss of all Young Adults was 0.88, with a median loss of 0. Of the 20 Young Adults that exhibited ante-mortem tooth loss, the average tooth loss was 2.40 with a median loss of 1.00. The maximum tooth loss was 7, and 34 (63%) Young Adults displayed no ante-mortem tooth loss.

Of the 63 Adults in the complete sample, 37 (59%) exhibited ante-mortem tooth loss. The average tooth loss for all Adults was 2.50, with a median loss of 1.00. Of the 37 Adults that exhibited ante-mortem tooth loss, the average tooth loss was 4.27 and the median loss was 4.00. The maximum tooth loss was 9, and 26 (41%) Adults displayed no ante-mortem tooth loss.

The only Old Adult in the complete sample showed an ante-mortem tooth loss of 13. Another Old Adult had no dental arcade due to post-mortem damage, so no analysis of this specimen was possible.

Ante-mortem tooth loss was then analysed by age and sex, and summarized in Table 6.11.

Table 6.11: Ante-mortem tooth loss by age and sex

Age	**AM Loss Male**	**AM Loss Female**	**AM Loss TOTAL**
Young Adult	(Σ=15) Mean=2.40 Median=1.00	(Σ=5) Mean=2.40 Median=1.00	(Σ=20) Mean=2.40 Median=1.00
Adult	(Σ=27) Mean=4.30 Median=3.00	(Σ=10) Mean=4.20 Median=4.50	(Σ=37) Mean=4.27 Median=4.00
Old Adult	n/a Mean=n/a Median=n/a)	(Σ=1) Mean=13.00 Median=13.00	(Σ=1) Mean=13.00 Median=13.00
TOTAL	(Σ=42) Mean=3.62 Median=3.00	(Σ=16) Mean=4.19 Median=4.00	(Σ=58) Mean=3.78 Median=3.00

When ante-mortem tooth loss results were analysed by age and sex, of the 95 males in the complete sample, 42 (44%) exhibited an average ante-mortem tooth loss of 3.62 teeth, a maximum loss of 9, and a median loss of 3.00. Fifteen of the 42 (36%) were Young Adults with average loss of 2.40 teeth, and a median loss of 1.00, while the remaining 27 (64%) were Adults, with an average tooth loss of 4.30 teeth and a median loss of 3.00. The average tooth loss of all males was 1.60 teeth, with a median loss of 0. The maximum tooth loss was 9, and 53 males displayed no ante-mortem tooth loss (Figure 6.39).

Of the 24 females in the complete sample, 16 (67%) exhibited ante-mortem tooth loss at an average of 4.19 teeth, a maximum loss of 13, and a median loss of 4.00. Five of the 16 (31%) were Young Adults with an average loss of 2.40 teeth and a median loss of 1.00, while 10 (63%) were Adults, with an average loss of 4.20 teeth and a median loss of 4.50. One Old Adult female had lost 13 teeth ante-mortem, and 8 females (33%) displayed no ante-mortem tooth loss (Figure 6.40).

Figure 6.41 demonstrates the increased tendency towards ante-mortem tooth loss with age (across the ante-mortem tooth loss sample of 58). Figure 6.42 and Figure 6.43 distinguish between the sexes and also include the individuals with no ante-mortem tooth loss. These two figures illustrate the relationship between age and ante-mortem tooth loss. The dramatic increase of ante-mortem tooth loss is most evident in the analysis of the female

subset, however with only one Old Adult specimen the results should be interpreted with caution.

Ante-mortem tooth loss was then analysed by periodontal disease and sex, and results summarised in Table 6.12.

Table 6.12: Ante-mortem tooth loss by periodontal disease and sex

	AM Loss Male	**AM Loss Female**	**AM Loss Total**
No Periodontal Disease	(Σ=16) Mean=2.19 Median=2.00	(Σ=8) Mean=2.88 Median=3.00	(Σ=24) Mean=2.41 Median=2.00
Mild Periodontal Disease	(Σ=14) Mean=3.64 Median=3.00)	(Σ=5) Mean=3.40 Median=4.00	(Σ=19) Mean=3.58 Median=4.00
Moderate Periodontal Disease	(Σ=11) Mean=5.19 Median=6.00	(Σ=3) Mean=9.00 Median=8.00	(Σ=14) Mean=6.00 Median=6.50
Severe Periodontal Disease	(Σ=1) Mean=9.00 Median=9.00	(n/a) Mean=n/a Median=n/a	(Σ=1) Mean=9.00 Median=9.00
TOTAL	(Σ=42) Mean=3.62 Median=3.00	(Σ=16) Mean=4.19 Median=4.00	(Σ=58) Mean=3.78 Median=3.00

When ante-mortem tooth loss results were analysed by periodontal disease and sex, of the 58 specimens in the ante-mortem tooth loss sample, 24 (41%) exhibited no evidence of periodontal disease, 19 (33%) exhibited limited periodontal disease and 15 (26%) showed signs of moderate or significant periodontal disease.

On the whole, as the degree of periodontal disease increased, the mean and median tooth loss also increased. Figure 6.44 shows median ante-mortem tooth loss relative to the degree of periodontal disease. Figure 6.45 and Figure 6.46 show median ante-mortem tooth loss relative to the degree of periodontal disease further distinguished within the sample by sex. As periodontal disease worsened the degree of ante-mortem tooth loss appears to have increased.

Of the 24 specimens within the ante-mortem tooth loss sub-sample of 58 which exhibited no signs of periodontal disease, 67% (16) were male and 33% (8) were female.

Of the 19 specimens within the ante-mortem tooth loss sub-sample of 58 which exhibited mild signs of periodontal disease, 74% (14) were male and 26% (5) were female.

Of the 14 specimens within the ante-mortem tooth loss sub-sample of 58 which exhibited moderate signs of periodontal disease, 79% (11) were male and 21% (3) were female.

The only specimen within the ante-mortem tooth loss sub-sample of 58 which exhibited severe signs of periodontal disease was identified as a male.

Of the 42 males which exhibited ante-mortem tooth loss, 16 (38%) had no periodontal disease, 14 (33%) had mild periodontal disease, 11 (26%) had moderate periodontal disease, and 1 (2%) had severe periodontal disease.

Of the 16 females which exhibited ante-mortem tooth loss, eight (50%) had no periodontal disease, five (31%) had mild periodontal disease, three (19%) had moderate periodontal disease, and none presented with severe periodontal disease. Thirteen of these 16 females (81%) exhibited mild to no periodontal disease, suggesting that a factor other than periodontal disease was also contributing to ante-mortem tooth loss for female canids.

6.5.2.3.3 Ante-mortem tooth loss discussion

The large number of canids in the Saqqara sample presenting with ante-mortem tooth loss (49%) could have resulted from several causes, with sex, age, nutritional, biological and environmental stress, and poor oral hygiene all contributing factors. Moreover, overcrowding could cause aggressive behavior with inevitable dog fights resulting in tooth breakage leading to eventual tooth loss. Such displays of aggression would likely have resulted in severe discipline, with blunt force trauma from kicks or sticks potentially also causing teeth to be broken or knocked out.

Although the sample studied was predominantly male, a higher proportion of females exhibited ante-mortem tooth loss. This is consistent with the assumption that females were kept for breeding purposes, thereby resulting in both a greater physical strain on their bodies [113] and a longer lifespan which allowed for the resorption of the alveoli to occur.

The results show a strong correlation between age and the extent of ante-mortem tooth loss, where the category of Adult is more frequently represented within the ante-mortem

[113] For a discussion on the effect of multiple pregnancies and prolonged lactation on female dogs see Bartosiewicz and Gál (2013: 158-160).

tooth loss sub-sample (64%) when compared with the Adult proportion of the total sample size (53%). This is reflective of:

1. Older canids living long enough to lose more teeth; and
2. Older canids living long enough for the alveoli to resorb to a visible extent, thus enabling the differentiation between ante-mortem and post-mortem tooth loss.

The results indicate that as both males and females continue to age, the extent of ante-mortem tooth loss increases, which is consistent with the understanding of younger canids not living long enough to lose many teeth.

The data is generally consistent with the hypothesis that some of these canids were mistreated and/or neglected, strengthening the hypothesis that these animals were viewed merely as a commodity, mass-produced to meet the demands of the votive trade.

The correlation between the extent of ante-mortem tooth loss relative to periodontal disease was observed in both sexes. While the limitations of the sex classification methodology are set out in §6.3, it appears that there is a stronger correlation between ante-mortem tooth loss and periodontal disease within the female sub-sample, which appears to be disproportionately represented. Females represented 28% of the total ante-mortem tooth loss sample, however based on the total Saqqara sample (n=119) females appear to represent only 20% of specimens.

The median tooth loss for females in each category of periodontal disease is higher than that of similarly affected males. Holding periodontal disease constant, the ante-mortem tooth loss is greater in females, likely due to the strain on the body from frequent gestation and lactation periods, which could be further exacerbated if their diet was deficient. The females in the ante-mortem tooth loss sample appear to have a disproportionately lower degree of periodontal disease, relative to the males, which may indicate a better level of care provided to the breeding stock.

The fact that 38% of males in the ante-mortem tooth loss category and 50% of females in this sub-sample had no periodontal disease highlights another key differentiation. It can be argued that for females the extent of ante-mortem tooth loss is more determined by age rather than periodontal disease, whereas for comparable males there are possibly several contributing factors including age, extent of periodontal disease and potentially a more aggressive disposition.

Fifty-nine percent of the ante-mortem tooth loss sample had some degree of periodontal disease severe and chronic enough to present in the skeletal remains. The more relevant comparison then is the degree of ante-mortem tooth loss and its relationship with the extent of periodontal disease. Figure 6.44 highlights the relationship between the extent of ante-mortem tooth loss and the degree of periodontal disease.

On the whole, the extent of ante-mortem tooth loss observed was determined by different factors for the different sexes, with age being the most dominant factor. Results indicated that these 'farmed' canids were often mistreated and neglected to varying degrees.

6.5.3 Dental variations

A complete investigation of dental variations is beyond the scope of this thesis, however when variations were observed they were noted. Abnormalities could be considered inherited, that is abnormalities that manifest at anytime of life, or congenital, abnormalities that manifest at birth (Baker & Brothwell 1980: 32).

6.5.3.1 Dental variations identification method

Cranial photographs were examined for dental variations. Dental variations were limited to asymmetrical palate and hyperdontia. Hyperdontia is a condition typically exhibited in the form of a supernumerary root or a supernumerary cusp or crown located in the dental arcade (Niemiec 2010: 50). Hyperdontia in dogs is usually unilateral, and usually occurs in the superior arcade (maxillary) more frequently than the inferior arcade (mandible) (Evans & de Lahunta 2013: 289).

6.5.3.2 Dental variations results

One specimen presented with an asymmetrical palate. Examination of the palate of Specimen 20 showed that the left side was shorter than the right side (Figure 6.47). This condition can be caused by dogs with two different snout lengths breeding, resulting in asymmetrical growth of the jaw (Baker and Brothwell 1980: 137).

Two specimens presented with hyperdontia. Specimen 35 presented with post-mortem tooth loss of a supernumerary tooth on the right side of the dental arcade between the right canine and first premolar (Figure 6.48). Close examination of the opposite side between the left canine and first premolar showed a resorbed alveolus which is suggestive of a possible bilateral supernumerary tooth. Specimen 69 also presented with the post-mortem tooth loss of a supernumerary tooth on the left side between the canine and first premolar.

This animal suffered moderate periodontal disease and possible ante-mortem tooth loss to the right maxillary arcade.

6.5.3.3 Dental variations discussion

There were too few observations to carry out any statistical analysis on these variations. As such, no implications can be drawn from this data, however they could form the basis for future comparative studies.

6.6 Saqqara Sample and Farming

The Anubieion, a religious complex of temples devoted to Anubis located at north Saqqara (Smith & Jeffreys 1978, 1980; Hawass 2010; Nicholson et al. 2015) is in close proximity to the Teti Cemetery where the Saqqara sample case study was excavated. The large scale of the canid cultic practice associated with the temple has recently come to light with the discovery of more than 7,000,000 animals, "mostly canids", all believed to have been ritually interred in the nearby catacombs (Ikram et al. 2013; Nicholson, Ikram & Mills 2015). It is probable that the Teti cemetery, because of its proximity, was also considered a 'sacred space' where votive mummies could be stored after their functional purpose was complete. A large deposit of Saite period canid remains found in the Teti cemetery by Firth and Gunn (1926: 31) has been interpreted as the storage of votive canid mummies, and along with the canid remains found by Macquarie University, supports the premise that the Teti cemetery was re-used in later times for the storage of votive mummies.

In order to supply the considerable demand for canids required by Anubis temples during the Late/Ptolemaic/Roman Periods in Egypt, large numbers of canids would have been specifically bred. Although it has been documented that jackals and foxes have been found in Late/Graeco-Roman cemeteries indicating that during this time they were used as votive canids, albeit to a lesser extent (Lortet & Gaillard 1903: 17, 264; Haddon 1914: 40, 44; Ikram et al. 2013: 56; Kitagawa 2013: 347; Dunand, Lichtenberg & Callou 2015: 174-175; Nicholson, Ikram & Mills 2015: 656), the successful breeding of such large quantities of canids would point toward the use of the dog *(Canis lupus familiaris)* (Ikram & Dodson 1998: 136; Charron 2001: 9; Ikram 2005: 12; Dodson 2009: 4). As a domesticated animal, more docile in temperament relative to its wild counterparts, the dog would have been easier to control in confined areas (Tchernov & Horwitz 1991: 65).

From a physiological perspective, female dogs reach sexual maturity from as young as ten months and have the capacity to produce litters twice a year (Tchervov & Horwitz 1991:

Tab. 2; Nowak 2005: 108). In comparison, jackals and foxes may have been captured, but are more difficult to keep in captivity. Both species reach sexual maturity later than the dog, and both produce only one litter a year (Nowak 2005). The fact that jackals and foxes appear in a votive capacity may indicate an opportune kill or perhaps a specific kill for a specific requirement, or to meet increased demand when insufficient dogs were available. However, the process required for the mass-production necessary to meet prevailing demands for votive canids was the controlled farming of dogs. It is important to note that ancient DNA studies would greatly enhance our understanding of breeding programmes and strategies including species selection. However, due to time, financial, sampling and facility constraints such studies were beyond the scope of this thesis.

The breeding of dogs for the votive trade is believed to have been an important industry administered by the priesthood of the Anubis temples found throughout ancient Egypt (Charron 2001: 10; Kessler 2005; Dodson 2009: 4; Ikram et al. 2013: 62; Ikram 2016). It was not until the third century BC that textual evidence occurred for a profession possibly related to dog breeding/farming. A Greek text inscribed on a stele under a representation of Anubis translates as "For Appolonios and Zenon: Pasos, feeder of sacred dogs, to Anubis as an offering" (Pestman 1980: 274-275; Charron 2001: 10). The Greek word *κυνοβοσκός* has been translated as 'feeder'[114] and because the stele is dedicated to Anubis, the assumption is that Pasos, the author of the inscription, was responsible for the feeding and care of sacred dogs associated with the Anubis cult.

A Greek papyrus dated to the third century AD, *P. Vindob.* G 24.913 (Figure 6.49), now in the Vienna Papyrus Museum (Froschauer 2007: 21), is known for its 'Account for the funeral' *(λόγος κηδείας)*. The list includes raw materials for embalming the corpse, various items used in the funeral, the transportation of the body and the funeral meal. Line 22 translates as 'for the dog, 8 drachmas'.[115] Montserrat's (1997: 40) discussion of the text does not mention a dog, however Horak's (1998: 190) translation includes 'for the dog', and explains this item as either a statuette of a dog (Anubis) or a mummified dog.

The inclusion of the dog on this itemised list makes it highly likely that it was a standard funerary item, reaffirming the hypothesis that there was a high demand for dogs, necessitating their controlled farming.

[114] My thanks to Dr Trevor Evans of Macquarie University for his assistance and input into the translation of the Greek text on this stele.
[115] My thanks to Dr Malcolm Choat of Macquarie University for his translation of the list.

The number of dogs bred in these 'farms' may have occasionally been inadequate to meet demand. A number of 'dog mummies' have been found to contain a canid bone or artificial substitute related to a canid, and on occasions human skeletal remains (McKnight et al. 2015). Although this could represent fraudulent behavior on behalf of the priesthood[116], Kessler (2005: 48) argues that these 'fake' mummies were indicative of a shortage of complete animals thereby validating the use of partial animals or an object associated with the animal.

Details regarding dog breeding farms, particularly how the animals were maintained during their lives, are sparse. The limited evidence available indicates that the dogs did not have an easy life, and were treated as a mere commodity.[117] The Saqqara sample provides a valuable insight into the life and living conditions of regional dog farms during the Late/Ptolemaic period.

Finally, it was not possible to determine how the canids in the Saqqara sample were killed, as all the skeletons were disarticulated, and even if articulated skeletons were available, the cause of death may not have been manifest in skeletal evidence. Several general theories have been suggested for the dispatching of canids used in the votive trade. Lortet & Gaillard (1903: 2) proposed that canids were probably strangled or poisoned, and also suggested that the animals may have been placed in sacks along with stones and drowned in tanks of natron. Radiographic examination performed on 500 mummified dogs by Dunand and Lichtenberg (2005b) at El-Deir revealed the cause of death for two of the 500 dogs. One dog had suffered a fracture of the cranium, believed to be the cause of death as it had not healed, and the other showed evidence of dislocation of the cervical vertebrae consistent with strangulation (Figure 6.50a-b).

6.7 Conclusion

The Saqqara sample represents a homogenous group of dogs consistent with the pariah or common dog, with three outliers indicating the possible presence of jackals. This confirms that the Saqqara sample was almost entirely the dog (*Canis lupus familiaris)*, and is consistent with the assertion that the dog was most commonly used in the votive practice of the Late/Ptolemaic periods in Egypt. This in turn is most likely because of their ability

[116] Zivie and Lichtenberg (2005: 114-115) identified what they considered to be 'fake' cat mummies containing mud, clay and pebbles, and also a number of mummies containing only a few cat bones. These mummies represented 35% of the cat mummies found at Bubastis.

[117] For further evidence of the lack of care experienced by these canids, see the paper on the study of a large quantity of ectoparasites found on a Roman mummified dog (Huchet et al. 2013).

to breed more frequently (twice as often as other canids) and their relative degree of domestication which makes control easier.

The estimated age of the canids at death illustrates that the animals rarely reached old age, the majority being killed after attaining early adulthood. The presence of one Old Adult female suggests she was used for her breeding capabilities before eventually being dispatched. How the dogs were treated during their relatively short lives cannot be fully determined, however pathologies present in the crania are consistent with the effects of animal husbandry and management suggesting the animals were a part of a large-scale breeding program.

The high rate of ante-mortem tooth loss and evidence of periodontal disease indicates that oral pathologies affected a large proportion of the dogs, and this was likely the result of biological and environmental stresses, compounded by poor maintenance.

According to this research, sex estimation indicates a high propensity for the use of male dogs over female dogs in the votive trade. This is consistent with the practical advantage to dispatch males before reaching full sexual maturity and the onset of aggressive behavior, and also the fact that females were kept longer before being dispatched due to their breeding ability. Interestingly, this may also be attributed to the preference for the use of male dogs as a more desirable votive offering in connection with the male god Anubis.

Overall, it would appear that dogs were an important part of the funerary paraphernalia of the Late/Graeco-Roman Period, however they were bred and raised as a commodity, and little affection went into their upkeep.

CHAPTER 7: DISCUSSION

The central objective of this thesis has been to analyse the use of canids in the ancient Egyptian funerary practice, with the intention of providing an adequate interpretation for both their functional purpose and also to examine how these funerary processes changed over time. This has been completed initially using a review of evidence outlined in Chapter 3, detailing members of the Canidae family present in ancient Egypt, particularly the dog, illustrating characteristics that may have led to their initial inclusion in a burial. The quantitative analysis of a corpus of canid burials detailed in Chapters 4 and 5, together with the analysis of a case study of votive canid crania detailed in Chapter 6, will be juxtaposed against the prevailing perceptions of the functional purpose of canids in a funerary context, as outlined in the literature review of Chapter 2. It will be argued that while the funerary practices evolved over time and across regions in ancient Egypt, the significance of the functional purpose of the canid in the burial remained constant. The canid acted in a protective capacity. Finally, the adoption of how this canid burial idea developed will be compared and contrasted with our current understanding of human adoption and innovation diffusion.

Canid burials did not *suddenly* appear in the mortuary culture and their adoption clearly emerged from a specific concept. The root of the practice most likely lies in early Neolithic societies, well before the advent of the first canid burial. Our understanding of the implementation of canid burials and their significance benefits from the entanglement theory concept initially proposed by Hodder (2012).[118] Hodder and Mol (2015) point out that the interrelationship of humans and 'things' is a defining characteristic of human history and culture. A collective set of dependencies between humans and things create a formal network or entanglement with each transformation tracked through network methods that chart the changing interactions. This theory can be applied to canid burials in ancient Egypt and how the canid/human interaction and significance evolved together.

Early artistic representations fashioned in Egypt, some dated to before the concept of writing, show that canids (particularly the dog) were firmly entangled in early societies. For example the important hunt scene first depicted on rock art frequently included images of the dog participating in the hunt (Figure 7.1), clearly illustrating that the activity was a vital component of community life at this early time. Through association and

[118] Entanglement is the interconnected development and evolution of two separate 'things' (Hodder 2012)

entanglement with the hunter, the dog provided food for sustenance and protection against dangerous wild animals (Hendrickx & Eyckerman 2015). It is argued that the protective function of the dog expanded further from real life experience into the conceptual application of this function in both the Afterlife and in ritual. Hence we observe early iconographic evidence prior to the earliest examples of the physical burial of a dog in the Predynastic Period, which provides important insights into the context giving rise to this important practice.

7.1 Early Iconography

There are multiple examples of early iconographic depictions of dogs used in hunting scenes, the earliest of which are found on rock art. It is generally accepted that scenes preserved in rock art are a representation of preoccupations and realities of the communities at a given time, and the social, economic and political organisations that existed (Pérez Largacha 2008). Although early rock art scenes, like those found at el-Hosh and Qurta [119] do not depict dogs, they do represent an array of wild animals, birds, and fish (Huyge & Claes 2012: 45), and skeletal remains identified from Late Palaeolthic and Epipalaeolithic sites (*ca.* 23,000-6000 BC) in the Nile valley substantiate the idea that the animals represented were actually eaten (Linseele & Van Neer 2009: Tab. 1).

Therefore, by extension we can argue that representation of the dog participating in desert hunt scenes is an accurate reflection of this activity in daily life.[120] Initially the primary objective of the hunt would have been to provide food to sustain the communities, and then expanded beyond the procurement of food into the realm of social status and hierarchy (Hendrickx 1992; 2010; 2011a; Hendrickx & Eyckerman 2012; 2015). Hunting success represented a strategy for the generation and reproduction of power, with the skill and courage needed to hunt wild animals, elevating the hunter *and* the dog to a higher social level than the non-hunting members of the community (Hamilakis 1996: 163; Hendrickx 2011a: 256). As the communities became more sedentary, the procurement of food became a less important outcome of the hunt, and the need for protection against dangerous animals capable of killing humans and destroying vital crops increased (Hendrickx & Eyckerman 2015: 198). The hunt became more a protective aspect of daily life, and it is this protective function that became synonymous with the hunter and the dog. The

[119] AMS-dating of organic material trapped in the rock varnish covering the drawings gives a minimal date of 5900-5300 BC (Huyge & Claes 2012: 45).

[120] For a discussion regarding the dog in early rock art scenes, see §3.2.2.1, and for early decorated pottery hunt scenes see §3.2.2.2.

elevation of the hunter to elite status was most likely attributed to this protective function achieved together with the dog. Additionally the importance of the dog in its own right is frequently observed in hunt scenes which only included a dog in pursuit of wild animals, without an accompanying hunter.[121]

The hunt scene also presented as an important motif on decorated pottery found placed in human graves from around Naqada I-II (Hendrickx 1992; 2010; Graf 2009).[122] These hunt scenes now incorporated the aquatic hunt (Figure 7.2), including dangerous animals such as crocodiles and hippopotami. The aquatic hunt symbolised the protection for communities provided by the elite hunter and dog against dangerous animals and unwelcome intruders (Hartung 2010: 112; Hendrickx and Eyckerman 2015: 198). The iconography of the hunt developed further during the Naqada Period, combining motifs of the desert hunt, the hippopotamus hunt and also the depiction of bound captives (Figure 7.3). Hendrickx (2011a: 247) interprets these three motifs as symbolic of order over chaos. The hippopotamus is understood to be the enemy in the natural environment and the captives presented as the enemy in the social environment. By association with the hunter and a protective function, the dog was incorporated with scenes of war, and the capture of prisoners, which from a socio-political elite context is a clear expression of power (Hendrickx & Eyckerman 2015: 199).

The established relationship between dog and power continued during the unification of autonomous regions and the establishment of the kingship. A rock art scene from Nag el-Hamdulab, north of Aswan (Darnell 2015: 21) portrays a festival associated with early kingship, a scene dated iconographically and stylistically to around Dynasty 0 – 1st Dynasty. The scene contains three groups of human figures, including the image of an early ruler and his entourage (Figure 7.4). The dog is depicted in a prominent position, walking near the ruler free of restraint, and can obviously be understood as an important element in royal proceedings. The dog in this scene has been considered by Darnell (2015: 23) to be "the late survival of the canid image of human order", however the most striking aspect of this depiction is the dog and the king together, with the dog included as a symbol of order over chaos, and as a likely protector of the king.

[121] It has been pointed out by Hendrickx & Eyckerman (2015: 197) that the hunt scene on decorated pottery representing only the dog or weapons is an abbreviated version of the entire hunt scene restricted by the size of the vessel.

[122] Decorated pottery remains have also been found in a domestic environment (Midant-Reynes & Buchez 2002; Tristant 2004: 85, Figure 92).

7.2 The Dog Associated with Wild Fauna and Ritual

As the funerary ritual practices of the ancient Egyptians developed, the capture and retrieval of wild fauna for use in a funerary context also impacted the priorities of the hunt. Zooarchaeological evidence from cemetery HK6 at Hierakonpolis shows that wild animals were hunted, captured and brought back to the community alive, where they were kept in captivity until later inclusion in ritual burials (Friedman 2004; 2010; Linseele, Van Neer & Friedman 2009; Linseele & Van Neer 2009; Friedman et al. 2011; in press). The performance of a public sacrifice and the probable ensuing feast would have been an indication of power and prestige. Therefore the capture and control of wild animals would have represented both an expression of a successful hunt and a display of power. Knife handles depicting rows of wild animals[123] have been interpreted as an abstract expression of their capture, frequently with a dog depicted at the end of the row (Figure 7.5) (Cialowicz 1992; Hendrickx 2010: 119-123). Hendrickx (2006a: 724) considers this row-style depiction as simply a variant of the more explicit hunt scene found on rock art and decorated vessels. Through its role in the hunt and its connection with the elite hunters, the dog had consolidated its significance and become an established symbol of protection, power and control.

This established protector function was also extended in a ritual capacity. Locality HK29A at the Predynastic site of Hierakonpolis (Linseele, Van Neer & Friedman 2009), has been identified as a ceremonial centre for ritual activity.[124] Large quantities of faunal remains, both wild and domestic, have been excavated from areas on the north-east side of the complex. These animals are believed to have been consumed and/or utilised in a ritual activity in the complex, and a large proportion of these remains were the domestic dog (Linseele, Van Neer & Friedman 2009: 124). Among the canid bones examined, cut marks were noted on a talus from a dog, consistent with the pelt being removed, and cut marks were observed on the distal end of a scapula from a fennec, also consistent with having been skinned. These canid skins may have been part of the regalia used in ritual acts, such as garments, shields or symbols of power, and may have been used in the construction of the *imy-wt* fetish (Linseele, Van Neer & Friedman 2009: 134). It is conceivable that canid skins may have been worn as headdresses or costumes, a phenomenon observed in a number of early cultures around the world.[125] It is this

[123] For a discussion on the representation of rows of animals on Predynastic knife handles see §3.2.2.3.

[124] Evidence for ritual activity can also be found at South Town, Naqada (Di Pietro 2011: 59-79) and El-Mahasna (Anderson 2011: 3-29).

[125] For example, the Lycaon-men represented on rock art from Libya (Le Quellec 1998), the dog-men from China (White 1991), the 'wolf-hat headdresses' represented in Indian rock art from North America (Keyser 2007) and dog-headed warriors in Asia (Olsen 2000: 80-81). In such examples canid skins with

physical incorporation of canid skins into ritual activities that was likely adopted in a display of power and protection.

7.3 Canids and the *imy-wt* Fetish

The earliest depiction of the *imy-wt* fetish appears on a vessel from Hierakonpolis dated to *ca.* Naqada II (Logan 1990: 67; DuQuesne 2005: 102). By the 1st Dynasty the iconography of the *imy-wt* was established, consisting of a pole set in a container, with the headless skin of a canid attached to the pole, usually with two streamers, and set up in front of a sanctuary (Figure 7.6). Two seals from the reign of Den show an additional small mammal, believed to be a canid, standing on top of the animal skin (DuQuesne 2005: 102).

Logan (1990) argues the *imy-wt* fetish should be viewed as a standard, as it was never represented held by a person but always planted. As such Logan proposes a threefold interpretation of its significance: as a commemoration of the king's appearance in public where it could be seen as a possible protective emblem; as a commemoration of the opening or dedication of an important building; or to indicate its association with an important building and kingship (Logan 1990: 69). Until the 3rd Dynasty, the *imy-wt* fetish was closely associated with the king as the fetish was frequently depicted in close proximity to the royal *serekh*, sometimes combined with a standard bearing images of Wepwawet (DuQuesne 2005: 104). As the epithet *imy-wt* is virtually exclusive to Anubis (DuQuesne 2005: 74) DuQuesne argues that the combination of the *imy-wt* fetish and Wepwawet shows that the king was effectively protected by the two complementary canid deities, one to revivify him and the other to protect him from his enemies (DuQuesne 2005: 104). Furthermore, it has been proposed that a connection exists between the *imy-wt* and a third canid god, Khentyimentiu, who is understood as the dedicated protector god of the royal cemetery at Abydos (Baines 1993: 68; DuQuesne 2005: 102). However, if the canid representing the fetish was a dog, it may have been sacrificed and used because of its established association with the elite and its protective qualities observed in association with the hunt, extended to provide protection for the king.[126]

the crania *in situ*, were draped over the head and shoulders of a human who then participated in a ritual act.

[126] A text found on Papyrus Chester Beatty V vs V10 identifies the justified soul with "the threads of Geb which are bundled in the skin of a dog", could possibly be interpreted as the *imy-wt*.

The pre-cursor to the *imy-wt* may have been one of the canids represented atop standards depicted on palettes, maceheads, seals and other objects closely linked to elite individuals from Naqada III onward (Figure 7.7).

7.4 The African Wild Dog (*Lycaon pictus*) and Protection

In the later part of the Predynastic and the early part of the Early Dynastic (*ca.* Naqada III), a number of palettes took on a specific canid-related iconography (Fischer 1958). These palettes, believed to have belonged to the elite members of the communities (Baines 1993: 64), include the representation of a different member of the Canidae family, the African wild dog. The Two Dog Palette from the main deposit of Hierakonpolis is framed by two African wild dogs (Figure 7.8) identified by their large round ears, and in the centre is the depiction of a hunt with numerous wild animals. The African wild dogs on this palette, and others like it,[127] are indicative of the extremities reached and the capture of live wild animals depicted within. The position of the African wild dogs on both sides of the palette is considered to be 'heraldic', dominating the chaos of the wild animals within (Kemp 1989: 47-53; Baines 1993: 65; Hendrickx & Eykerman 2015: 202). This theme is also present in a slightly different form on the Hunters' Palette, which is bordered by a row of hunters (Figure 7.9), all wearing identical regalia including what is believed to be African wild dog tails attached to their waists (Figure 7.10) (Fischer 1958: 81; Hendrickx 2006a: 741). Hendrickx and Eykerman (2015) see a parallelism in the composition between these two palettes with the bordering hunters replacing the African wild dogs, the link being the tails they wear. Both the African wild dogs and the hunters are seen as representations of a barrier-style protection of boundaries (Baines 1993: 62). Therefore, these palettes likely present another member of the Canidae family with important protective qualities, perhaps based on strength or the status of the animal in the early iconography of the ancient Egyptians.

In summary, the concept of the dog being synonymous with power, protection, significant people and significant events in daily life continued to evolve. Iconographic representations, the *imy-wt* fetish, the totemic-style inclusion in ritual and the palette depictions naturally progressed into a continuation of the functional purpose of the canid into the Afterlife. The physical incorporation of canid burials are first observed in the Predynastic Period and the evolution of this funerary practice in ancient Egypt will now be reviewed.

[127] For a discussion of the representations African wild dogs on palettes see §3.5.2.

7.5 Dog Burials during the Predynastic Period

By far the largest number of documented dog burials occurred during the Predynastic Period, providing the largest sample to study the implementation of the practice and its initial variations. The majority of documented Predynastic dog burials occurred within human cemeteries with only a small number located in settlements.[128] Geographically, dog burials occurred throughout Egypt from the Delta in the north to Lower Nubia in the south (see Figure 1.1), with a slight bias towards Upper Egypt, suggesting that the practice may have been more common in the south.[129]

A large proportion of Predynastic dog burials were not directly associated with a human burial (Figure 7.11), however their location either within human cemeteries or surrounding human cemeteries indicates a close link with funerary practice at the time. As the incorporation of a dog burial commenced in the funerary processes, its initial popularity appears to have been strong given the number of observations dated to this period. There was a considerable degree of variation in terms of burial content and styles, however the overarching protector theme remains constant.

7.5.1 Predynastic Dog Burials and Elite Protection

The corpus presents a strong link between dog burials and the elite during the Predynastic Period, given a large number were found in elite cemeteries. For example, Cemetery U at Abydos (Hartung 2010: 108) and cemetery HK6 at Hierakonpolis (Friedman 2010) are cemeteries dedicated to elite individuals, with single and multiple canid burials found within both sites (Flores 2003: 57). These two cemeteries represent a combined 27 entries in the corpus.

Additional graves provide evidence of the elite status of directly or indirectly associated human burials. For example the excavators at Badari [DRN 1] noted that the area of cemetery 5100 where the dog burial was located, also held the burials of more important individuals when compared to seven other contemporary cemeteries (Brunton & Caton-Thompson 1928: 7). The quantity and quality of the grave goods associated with the human/dog burial at El Mahasna [DRN 3] reflects the burial of a high status person (Ayrton & Loat 1911: 7, 21, 32), and the forty ceramic pots found with the human/dog

[128] This may be due to a lack of settlement archaeology compared with an abundance of cemetery archaeology.

[129] This bias may be due to the extensive, well published archaeological excavations undertaken in Upper Egypt compared with the difficulties of excavations undertaken in Lower Egypt, exacerbated by modern urbanisation.

burial at Matmar [DRN 16] also suggests the interment of a prominent person (Brunton 1948: 16, 17, 22, Plate X).

In the Predynastic period, the adoption of dog burials in the funerary process seems to have been more closely associated with the protection of elite individuals, whether through direct association with specific individuals, or indirectly through one or more people buried within proximity.

7.5.2 Predynastic Dog Burials and Barrier-style Protection

The deliberate placement of dog burials at the extremities of a cemetery or mortuary complex arguably serves the functional purpose of the protection of those buried within. Whether or not canid burials were placed on all boundaries of a cemetery is difficult to ascertain in most instances, as many Predynastic cemeteries were heavily denuded, looted or destroyed in antiquity, as well as being affected by modern urbanization.

The careful placement of a dog burial at the extremities of a human cemetery appears to be a significant and deliberate act, arguably with the functional purpose of protection for the humans buried within.

One example of such a dog burial observed in the corpus is a dog buried at Badari [DRN 1] which was located on the eastern boundary of the cemetery (Figure 7.12). Also a dog buried at Maadi [DRN 6] was placed on the north-western boundary of the cemetery (Figure 7.13). In a further example five individual dogs buried at Heliopolis [DRN 2, 32, 33, 34, 35] were placed in five separate graves on the northern boundary of the cemetery (Figure 7.14). A further example is a triple canid burial at Shellal [DRN 12] which was placed on the north-eastern boundary of the cemetery (Figure 7.15) similar to a triple canid burial at Khor Bahan [DRN 23] which was placed on the southern boundary of the cemetery (Figure 7.16).

This concept of burying protective canids at the extremities of a cemetery has also been observed at the extremities of a mortuary complex at Hierakonpolis. The important Tomb 16 complex in elite cemetery HK6 (Van Neer et al. 2004; Friedman et al. 2011) included four different multiple dog burials incorporating a total of 23 dogs. These burials were located to the north (Tomb 48, ten dogs [DRN 68]), to the south (Tomb 44, four dogs [DRN 67), to the east (Feature D, two dogs [DRN 38]), and to the west (Tomb 14, seven

dogs [DRN 40]).[130] The careful placement of each grave creates an impression of a protective circle surrounding the inner important Tomb 16 and the ring of subsidiary tombs (Figure 7.17).

A further example of this protector hypothesis is seen at each of the four boundaries of a cemetery at the Late Neolithic site of Kadruka KDK21 located south of Egypt in the Sudan (Reinold 2005). Although this cemetery lies beyond the geographic bounds of Egypt (and hence is not included in the corpus), its timeframe is directly comparable with Predynastic Egypt. KDK21 is a cemetery with borders still defined, and found on the boundaries at cardinal points to the north, south, east and west were four burials each containing two dogs (Reinold 2005: 118). The discovery of these intact dog burials at such specific locations strengthens the hypothesis that dogs were in certain instances deliberately placed at the boundaries of a cemetery to function as protectors for those buried within.

Many of these cemeteries with dog burials at their extremities also contained dogs buried within the cemetery near one or more humans. These burials within cemeteries are not inconsistent with the hypothesis that certain dogs were buried at the boundaries to protect many or all of those buried within the cemetery,[131] and the individual dog burial was to provide protection to the humans buried in close proximity.

7.5.3 Predynastic Dog Burials and Direct Human Protection

When an individual dog was found buried in direct association with a human, this is consistent with the hypothesis of the dog functioning as a direct protector. There also appears to be a propensity for the canid in many of these burials to be placed at the feet of the human. For example, in a burial found at Naga ed Dêr [DRN 19], the dog is buried facing the human at the foot end of the burial (Figure 7.18). In a burial found at Matmar [DRN 16] the dog was buried in its own wooden coffin placed at the foot end of the human, and in a burial found at Mediq (Gerf Husein) [DRN 202] the dog had been placed in a small niche cut 35 cm above the floor at the foot end of the grave. Furthermore, the two dogs accompanying a human burial found at El Mahasna [DRN 3] were recorded as placed to the west of the coffin which indicates the animals were located at the foot end of the grave.

[130] Tomb 14 is the only tomb of the four reported to contain the remains of a juvenile human. These remains were found deep within the tomb and excavators reported that the human may have originally been placed in Tomb 14, but was not necessarily beyond doubt (Friedman et al. 2011: 173).

[131] For a more detailed analysis of Predynastic canid burial placement examples on the boundaries of cemeteries, see Hartley (2015).

7.5.4 Predynastic Dog Burials and Child/Female Protection

There also appears to be an association between the burial of dogs and the burial of children and/or female individuals. It is these particular burials that have a correlation that is stronger than mere coincidence. One potential explanation is that the social beliefs of this time may have seen these groups of individuals as more vulnerable and therefore the canid protector function was even more important in the Afterlife. Examples of this burial style include Cemetery HK6 at Hierakonpolis where Tomb 71 contained 12 canids and the body of a young child [DRN 169]; Tomb 5 [DRN 190] held at least six canids and the remains of two humans, an adult and a child (Hoffman 1982); Tomb 14 held six canids and the scattered remains of a juvenile human [DRN 40]; and Tomb 18 held a canid and the remains of four partially articulated individuals, two female adults and two juveniles [DRN 195].

This burial style was also observed at Cemetery U at Abydos which held two burials associated with children and/or female individuals. Burial U-179 contained the incomplete skeleton of a dog [DRN 174], and was associated with a child aged between six and eight years. U-181 held the remains of a dog [DRN 175] and was associated with an adult female and a child.

A dog burial was recorded among the unregistered graves in area 3500 at Mostagedda [DRN 180] and while details regarding the burial are extremely limited, it was noted that four unregistered graves in the same area contained children, and six other registered graves contained children. Area 3500 was described as a continuation of area 2200 (Brunton 1937: 41), and the proportion of child/infant burials in area 2200 was also noted to be high.[132]

A dog burial found in Cemetery 17 at Khor Bahan, Lower Nubia [DRN 25], was an individual burial, and in close proximity positioned in a semi-circle to the north were three separate infant burials. Reisner recorded Graves 13, 14 and 87 as the burial of new-born infants (Reisner 1910a: 133, 134, 136), and each burial was accompanied by grave goods. Cemetery 7 at Shellal, Lower Nubia, held a number of canid burials, among which were three dog burials all in close proximity but set apart from other burials in the cemetery. The most southern burial of the group was an individual dog burial [DRN 13], and slightly north-east was a dog and a goat burial [DRN 14], and slightly north again was burial 254,

[132] See Brunton (1937: 40-43) for description of area 2200.

the burial of an infant accompanied by a significant amount grave goods (Reisner 1910a: 41).

Although the five dog burials found at the settlement site of Adaima [DRN 48, 49, 50, 51, 53] were individual burials, their proximity to five contemporary burials,[133] including four containing infant/child burials (Midant-Reynes & Buchez 2002: 533-534; Bohac 2013) indicates a strong connection with children, but in this case, in a settlement based mortuary practice, rather than a cemetery (Figure 7.19). A pot burial containing a child found in the Eastern cemetery of Adaima dated to Naqada IIIA2 (Midant-Reynes 2007: 12), presented with a bracelet *in situ* made with two pieces of a canid mandible and other shells and beads. This canid related bracelet may have been placed on the child's arm in a protective capacity similar to the placement of a complete dog with a child burial.

Also of interest, is the Predynastic burial of a child at Mostagedda (Brunton 1937: 71). Grave 1757 held the remains of a small child covered with cloth, with two bone canid amulets placed on the chest (see Figure 3. 19). These amulets are among the earliest canid amulets and whether they represent a dog, jackal or fox, it is significant that the child was buried with a representation of a canid, which seemingly held protective qualities similar to a dog placed in a burial.

7.5.5 Predynastic Dog Burials and Indirect Human Protection

Of the dog burials that are located in cemeteries, and not associated directly with a human, it is frequently observed that these canids were placed at a location with a family or group of burials around them.[134] In a similar vein, when multiple dogs were found in a burial, they may also have been placed at a specific location to provide protection for a cluster of surrounding graves, with the presence of multiple canids emphasising or strengthening the degree of protection. For example, in Cemetery 7 at Shellal, three canid burials were grouped together at the centre of a cluster of human burials. Two of the burials held individual dogs [DRN 7, 8] and the third burial held two dogs [DRN 11]. Also in this group was the burial of a complete sheep or goat, and the surrounding group of ten human burials included three males, two females, three undetermined, one child and one infant (Reisner 1910a: 33-42). Sitting on the northern perimeter of the group were two separate

[133] The five dog burials and the four child burials all occurred in the Period I deposits of the settlement (Bohac 2013: 13), with radiocarbon dating Period I to the end of Naqada I into Naqada II (Bohac 2013: 11) indicating the burials were contemporary.

[134] Hartung (2010: 108) considers that the Naqada I tombs of cemetery U at Abydos were arranged in several groups and these groups most likely corresponded to different families or clans.

dog burials [DRN 9, 10], creating a northern boundary consistent with the protection of a group. Additionally, at Cemetery 17 at Khor Bahan the dog burials appear to be more scattered around the cemetery, but when a dog burial occurs, there is always a cluster of human graves surrounding it (Reisner 1910b: Plan XIV).

Although not within Egypt (and hence outside the scope of this corpus) but within a comparative timeframe as the Early A-Group, two sites in the Sudan, Esh Shaheinab and El Kadada, have also yielded dog burials, providing evidence of the funerary customs of the local people between 5500–4500 BP (Bonnet et al. 1989: 26). Single, double and triple dog burials found in cemetery C at Kadada were all dogs accompanying a human, buried with sheep, goats or with bovid bucrane. In eight cases the dogs had been placed directly at the bottom of the pit with the human above them, while others were located above the head of the deceased, pressed against the wall of the pit (Bonnet et al. 1989: 27). Excavators were tentative in their interpretation of the role of the dogs in these burials, because of the lack of comparative documentation at the time of publication, however the specific placement of the dog beneath a human, or at the extremities of the grave (facing out), is consistent with the hypothesis that the dog had been placed there in a protector capacity.

In summary, the positioning and placement of the majority of Predynastic dog burials appears to be deliberate, albeit with considerable variation in style. Many dogs were wrapped in matting and carefully placed in the ground, usually without grave goods but on some occasions with similar grave goods found in contemporary human graves. Dog burials are always associated with elite individuals in the Predynastic Period. They also appear to be closely related to the burial of children and/or females, suggesting a protective function for those considered more vulnerable. Individual dog burials were often deliberately placed at the boundaries of cemeteries, suggesting their function was to protect the entire cemetery in the Afterlife. Individual and multiple dog burials were often found with clusters of human graves surrounding them, suggesting a protective function of the group of burials in proximity. The use of multiple dogs appears to amplify the degree of protection or emphasise the importance of those buried nearby, or both. Furthermore, when dog burials accompanied a human burial, the dog was regularly placed at the foot end of the grave, suggesting a protector function for the significant/important associated individual.

Towards the end of the Predynastic Period the dog through its affiliation with the hunt had consolidated its symbolic association with power and control. This symbolic representation

transferred into the Afterlife through canid burials, a funerary process that continued in the Early Dynastic Period, albeit in a slightly modified form.

7.6 Dog Burials during the Early Dynastic Period

The Early Dynastic Period is defined by the emergence of a unified state and the development of kingship. The development and control of an official iconography and syntax were fundamentally important for the elite to confirm their privileged position. This process resulted in animals such as the bull and the falcon frequently displayed as symbols of royal power (Hendrickx & Eyckerman 2015: 201). The incorporation of canids in this iconography is not synonymous with royal power, however the canid is depicted as serving a functional role which is consistent with protecting the King.

The symbolic role of the dog as a protector in the funerary practice of the elite continued during the Early Dynastic Period, with a total of 14 canid burials documented, all associated with mastabas or tombs of elite and high ranking officials. Whilst not a part of the corpus, a number of stelae were found at Abydos in proximity to the royal burial complexes. No physical dog remains were found with these stelae, however the standard practice of burying a person with an associated stele, almost certainly indicates dogs would have been initially buried despite no record of their remains being found.

7.6.1 Early Dynastic Dog Stelae Implying Royal Protection

Although only one dog burial was documented with all the burial complexes associated with 1st Dynasty Kings at Abydos [DRN 92],[135] dogs appear to have played a larger part in the funerary processes of the time. This is evident in a number of small stone stelae attributed to dogs found in the vicinity of the tomb of King Den (Martin 2011: Stelae 173, 178, 192, 206, 283). Each stele was inscribed with a dog's name, and each name was determined by the prestigious hound-type dog with a short curled-up tail (Figure 7.20). Each stele would have been erected to accompany a dog burial, and their close proximity to King Den's tomb implies that dogs were likely originally buried in the complex. During excavations undertaken by the German Institute during the 1990's, Dreyer and associates recorded a series of southern and eastern side chambers, of various sizes, associated with King Den's burial complex (Dreyer et al. 1996). These side chambers had residual marks of coffins indicating human burials had occurred within these chambers. It has been

[135] This burial was one of about 154 subsidiary burials associated with King Djet's burial complex (Petrie 1925: Pl XXI).

proposed that a number of smaller sized chambers measuring 0.7–1.0m x 1.0–1.2m, located to the north of the stairs, may have initially held dogs and their stelae (Dreyer et al. 1996: 59). If this hypothesis is correct then the interpretation of the functional purpose of the canids as protectors to the entrance to the king's tomb could be considered highly likely. Regardless, these stelae indicate that dogs were incorporated in the burial of kings of the 1st Dynasty suggesting a stronger relationship than otherwise represented by the statistics in the corpus.

7.6.2 Early Dynastic Dog Burials

The Early Dynastic dog burials retained the Predynastic preference of not burying humans and dogs in the same grave, however the closeness of the connection with a specific human increased considerably through the incorporation of additional funerary architecture such as mastabas (for example 10 of the 12 entries in the corpus have an associated mastaba and the remaining two are associated with elite tombs). It appears that the utilisation of canid burials in this period was restricted to and accessible to the elite only.

One example of this close indirect human association with a dog burial was Mastaba 3507 [DRN 96] found at Saqqara. This complex was the burial place of Her-Neith, dated to the 1st Dynasty. The mastaba was surrounded by an enclosure wall with a corridor linking the two structures, and under the paved area at the eastern entrance of the wall, was a dog burial (Figure 7.21). Emery interpreted this dog burial as that of a guardian of the tomb based on its specific placement at the complex entrance (Emery 1958: 78), and this is consistent with the dog functioning in a protective capacity for an associated human.

Seven individual dog burials were found associated with Mastaba 3035, the tomb of Hemaka at Saqqara. Within this mastaba complex was a series of eleven smaller subsidiary graves. Seven of these graves each contained the remains of a dog, wrapped in fine material and placed in a wooden coffin, each with a terracotta vase [DRN 101, 207, 208, 209, 210, 211, 212]. Three further burials each contained a bird wrapped in fine material, placed in a wooden coffin also with a terracotta vase, and the final grave in the series contained a human skeleton. Whilst the presence of the birds and human complicates the interpretation of these burials, the quantity of dogs placed under the paved area surrounding the mastaba, is consistent with the dogs functioning in a protective capacity (similar to DRN 96). Additionally, the presence of the dogs and birds could represent an early example of the increasing importance in religious ideology for both animals, with the dog still retaining its protector function.

The other form of indirect association between dog burials and humans in the Early Dynastic Period was observed in the form of two separate dog burials found at Helwan in close proximity to tombs of elite individuals [DRN 73, 78]. Flores suggests that DRN 73 appears associated with a small elite tomb to its south west (Flores 1999:163), suggesting the dog and the human grave were connected. There was evidence that the dog had initially been placed in a wooden coffin (Figure 7.22) indicating a higher degree of importance for the dog and the significance of its functional purpose. DRN 78 was located in a dense area of graves a short distance from the large Tomb 40. The burial contained a dog with two cylindrical jars (Figure 7.23), once again indicating a higher degree of importance for the dog and the significance of its functional purpose.

These close connections with elite mastabas and elite tombs illustrate both a restriction of access to dog burials and a closer connection between the human burial and the indirectly associated dog burial, when compared to the Predynastic Period.

Sadly, many probable dog burials from the Early Dynastic period remain ephemeral. With over 10,258 tombs excavated in the Early Dynastic cemetery at Helwan (Saad 1969: 5), only two dog burials were recorded, and both were cursorily dealt with by the excavators as 'pets' of the deceased (Saad 1969: 80). Only briefly does the report mention "some tombs to the south of Tomb 40 were found containing skeletons of dogs" (Saad 1947: 166). An additional excavation report by Schweitzer (1948: 119-122) went only marginally further to report that tombs with dogs were 'often' found near a human tomb. How many tombs 'often' denotes, and how many dog burials were part of this important Early Dynastic cemetery remains an enigma.

7.7 Dog Burials during the Pharaonic Period (Old Kingdom, FIP, Middle Kingdom, SIP, New Kingdom, TIP)

The periods from the Middle Kingdom to the TIP have been combined given the small number of observations, which in turn are likely a reflection of the social changes interspersed with periods of turmoil. The total 19 burials across these middle periods represent a combined 13.5% of the corpus, and often there is doubt over the accuracy of the dating in excavation reports. However there are specific examples regarding the incorporation of the dog in the funerary process which remain worthy of discussion.

7.7.1 Old Kingdom/FIP Dog Burials

Dog burials continued during the Old Kingdom, and whilst the limited number in the corpus suggests the practice was less popular, it is possible that some burials were overlooked or ignored in archaeological records. The six Old Kingdom burials in the corpus illustrate how the adoption of the practice had expanded to include not only the elite but those of slightly lower, but still significant, social status. They also illustrate a closer proximity of the canid burial with a stronger preference for associated human burials.

The continued employment of dog burials by elite individuals in the Old Kingdom is seen in DRN 185. The prominent location of the mastaba of Ankh-haf at Giza indicates the tomb owner was a close relative of the king (Reisner 1942). The remains of a dog were found in the burial chamber of this tomb facing west (Figure 7.24), consistent with a more direct protective functional purpose hypothesis.

The expansion of the accessibility of canid burials to a further level of the social strata is seen in the dog burial found in the tomb of Shedu, at Abusir [DRN 155]. This family tomb included 12 individual shafts arranged in rows. Each shaft contained a member of Shedu's family and grave goods. In the courtyard (the cult chapel) was a further shaft which held the remains of a single dog (Figure 7.25). The deliberate placement of the dog at the entrance of the tomb is consistent with a protective function for the entire family, rather than the published idea that the dog was simply a pet buried with its owner (Bárta 2011: 186).

Collectively, DRN 102 and DRN 131 are examples of the continuation of the Early Dynastic style of incorporating dog burials within a mastaba complex. These two dog burials were excavated from the mastaba complex of Medu-nefer located in Balat, Kharga Oasis. The remains of a hound-type dog (Chaix & Olive 1986: 201-213) were found in the base of the east wall surrounding the mastaba [DRN 102] (Figure 7.26). Additionally, placed under the paved area of the courtyard of the complex was a pariah-type dog burial, in a lidless clay coffin [DRN 131] (Chaix & Olive 1986: 201-213) (Figure 7.27). The placement of DRN 102 in the wall surrounding the mastaba is difficult to interpret, particularly as this burial style was only otherwise observed from the Late Period onwards. DRN 131, placed in the courtyard implies a protective function more consistent with Old Kingdom practice. However, the factor that links these two burials to the same period is that both dogs had the remains of similar shell/faience collars near their heads.

Whilst not incorporated into the corpus, additional supporting evidence associating the burial of a dog in a protective capacity with Old Kingdom royalty comes in the form of a fragmentary limestone block, found west of the pyramid of Cheops at Giza (Reisner 1936b; 1938) (Figure 7.28). The translation of the inscription on the block (DuQuesne 2005: 290) described the burial of a dog:

> "The hound who would keep watch over his Majesty, Abutiu by name:
> His Majesty ordered that he be buried,
> And ordered a sarcophagus from him from the treasury.
> And his Majesty gave him a considerable amount of fine linen and aromatic oil,
> And had a tomb erected for him by a crew of tomb-builders.
> His Majesty did this for him to make him a revered one (*im3h*)".

Although the text does not make it clear who the dog belonged to, the first line states unambiguously that the dog was buried specifically to watch over the king. This is a clear example of the protective capabilities of the dog continuing to protect the king in the Afterlife (DuQuesne 2005: 290).

A further example that illustrates a particular placement of the dog at the feet of the human in a burial is seen in an Old Kingdom/FIP burial at Elephantine [DRN 188] (Figure 7.29). This placement is consistent with a protective function on a one to one basis and is an important shift in the Old Kingdom funerary processes with the first example of the canid and the human being buried together in the same grave.

7.7.2 Middle Kingdom Dog Burials

The eight Middle Kingdom burials in the corpus illustrate how the adoption of the practice had further expanded in accessibility to a wider range of social levels. The protective function of the dog burial continued during this period with the style shifting towards the protection of groups of people within the same burial chamber.

An example of the direct association of dog burials with groups of humans can be seen in a cemetery at Edfu, Upper Egypt. Three individual vaulted chambers within this cemetery each contained the remains of multiple humans, and a dog in a vessel, placed either on a human sarcophagus or in one case at the entrance to the chamber [DRN 137, 138, 139]. Another example includes a burial in a rock-cut chamber at Thebes, Upper Egypt, which contained six adults, three children, and a single dog in a wooden coffin [DRN 108]. The single dog burial so closely associated with a group of people is consistent with the

collective protection hypothesis, previously only observed on an indirect basis. It is also interesting to note the incorporation of three children in this burial.

7.7.3 Second Intermediate Period, New Kingdom and Third Intermediate Period Dog Burials

Dog burials are extremely rare during the SIP, which is recognised as a period of division and turmoil (Bourriau 2000).The entry in the corpus worthy of specific consideration is a human with a dog placed at the foot of the grave found at Tell el-Maskhuta [DRN 182] (Figure 7.30). Again, this placement at the foot of a human is consistent with the dog providing protection for the human.

Dog burials with direct human association are completely absent in the New Kingdom possibly due to a significant increase in personal piety, resulting in preferred access to the canid gods through prayer (Ockinga 2001). Furthermore, as previously discussed there was a total absence of canid burials during the TIP, which could be attributed to factors such as the renewed social turmoil (Lloyd 2000a: 364-365; Taylor 2000), or a lack of accurate archaeological recording.

7.8 Dog Burials during the Late Period

The Late Period is particularly important as it represents a re-emergence in the popularity of dog burials and also a significant shift in the style and accessibility of the protector function of the dog. The Late Period saw the consolidation of the concept of using canids in a votive capacity in addition to concurrently retaining several of the burial styles and methods observed in previous periods. It is non-votive dog burials which will be considered first.

7.8.1 Late Period Non-votive Dog Burials and Child/Female Protection

Generally, the non-votive Late Period dog burials accompanied one or more humans, and these burials were typically observed in clustered groups at specific sites. This direct protector functional purpose is consistent with the observations noted in earlier periods.

The most striking factor with dog burials that take place during the Late/Ptolemaic Period is the high propensity to be associated with child burials, especially at the site of Qasr

Allam.[136] To date, 25 dogs have been documented and excavators note that complete dog skeletons were frequently deposited in close association with children (Adam & Colin 2012). Specifically, of the 30 human skeletons recorded, 12 were adult, three were adolescent and 15 were children. There is a high degree of variation in the funerary style and burial methods incorporated in these dog burials with children at Qasr Allam, several of which will be discussed separately.

The burial of a child (QA 5020) approximately 12-18 months old, oriented south/north was 33cm away from a dog burial (QA 5024) oriented north/south [DRN 157]. Although technically two separate burials, the orientation and placement of the two burials (Figure 7.31) are indicative of the dog having direct association with the child in a protective capacity.

DRN 132 contained two dogs and a child (QA C413.107) (Figure 7.32). The child is believed to have been buried first in a cavity, and after a period of time long enough for decomposition to have occurred, the body was pushed back and a dog was also placed within the same cavity. After a further period of time, the dog was also pushed back to make room for a second dog. These three burials were not simultaneous, however the addition of one or both dogs after the initial child burial could indicate a perceived need to provide protection and or to reinforce the protective function of the dog and ensure its continuation.

DRN 213 was a dog buried together with a child in a corner of Cell 401 (Figure 7.33). Also present within this cell were the remains of an adult and six other children. Interestingly, another dog had been placed within a cavity in the wall of the same cell [DRN 46] (Figure 7.34), likely providing a protector function for the group of people buried within.

Although excavation of Cell 418 was not fully complete at the closure of the corpus (Colin, Adam & Pranjic 2014), it had been revealed that a cluster of at least 12 dogs were all associated with a single child estimated to be nine years of age [DRN 215]. Final publication may provide additional information as to the significance of the quantity of dogs in this burial, however it is likely there will be some connection with the barrier-style protection hypothesis.

[136] The protective function of a dog burial with a child was also observed in other regions including the Teti cemetery north, at Saqqara, where a pit burial contained the remains of a least one neonate and several dog bones [DRN 163]. Additionally, DRN 159, at Giza included eight dogs (two adult, two sub adult and four juveniles), which had been wrapped in linen, with initial reports stating the dogs had been placed above the burial of a child (Kaiser 2009a: 6).

7.8.2 Late Period Non-votive Dog Burials and Barrier-style Protection

Cell 413 at Qasr Allam is particularly important because it not only incorporates a child burial, but it also exhibits elements of the barrier-style protection theory observed in the Predynastic Period when certain dog burials were placed at the extremities of the site at one or more of the cardinal points. This burial of an adult and a child (placed side by side, head to toe) was accompanied by three separate dog burials to the east, south and west [DRN 214] (Figure 7.35). The dog in the west (at the head of the adult) had been buried with one *wadjet-eye* amulet, and the dog at the east (at the head of the child) had been buried with two *wadjet-eye* amulets, indicating these dogs were significant enough to be buried with their own protective amulets (Colin, Adam & Pranjic 2014: 38-39). This protective amulet may also have acted in the capacity of guaranteeing the longevity of the dog to ensure continued protection. Additionally, the placement of these two particular dogs at the respective heads (or feet) of the two humans, suggests the protective requirements of these dogs were amplified, given the directness of their association. The third dog buried at the south did not present specifically with an amulet, however the placement appears purposeful and consistent with a protective function at that cardinal point. The previously mentioned dual dog and child burial [DRN 132] was located in the wall of the Cell 413 directly to the north of this human burial, and it is possible that one of these two dog burials may have actually been associated with the individuals buried with DRN 214. If one of the dogs deposited in the northern wall was simultaneous with the three dogs to the east, south and west [DRN 214], then it would present an even stronger case for the hypothesis that dogs were buried in a barrier-style protective capacity at the four cardinal points.

The barrier-style burial is also evident in the Teti cemetery north, at Saqqara, with the undisturbed mostly articulated bodies of eight dogs found in a pit with the remains of two humans [DRN 165]. This burial contained six dogs in their original position with their backs against the edge of the pit (Figure 7.36). This placement is indicative of a barrier at the edge of the grave, likely functioning to protect the humans within. Furthermore, two juvenile dogs were also placed in the centre of the grave specifically with the humans, in a more direct protective function.

7.8.3 Late Period Non-votive Dog Burials and Direct Human Protection

Several of the burials observed in the Late Period were dogs with direct human association, and these burials incorporated styles and placement similar to those observed in earlier periods.

For example, in the Teti cemetery north, at Saqqara, three dogs were found specifically placed at the foot of a coffin on the northern side [DRN 160] (Figure 7.37). Similarly, several dog bones were found on the north side at the foot of a human burial in a coffin [DRN 162]. This protective placement of each dog is similar to those discussed previously, particularly those that occurred during the Predynastic Period, and in these examples, both were specifically buried to the north.

An example which reflects the group-protection dog burial style observed in the Old Kingdom and Middle Kingdom, was a rock-cut chamber at Gisr Al-Mudir, Saqqara. DRN 167 contained a single dog and approximately 30 individuals including a number of children. The single dog had been placed at the heads of four human bodies (Figure 7.38), and although the excavator described the dog as a family pet, its role as a protector is considerably more plausible given the large number of humans involved, and the similarities with other group-protection style burials discussed earlier.

7.8.4 Late Period Dog Burials with Votive Elements

During the Late Period we see the concurrent use of dogs in both a traditional burial style and also in a votive capacity. The dual dog burial from Thebes [DRN 216] exhibits certain votive features incorporated into the traditional directly associated human burial (Figure 7.39). The votive elements can be seen in the inclusion of additional mummified fauna, giving this burial a strong votive connection,[137] however the dogs likely retain their protective function, albeit through their connection to the canid god Anubis. This burial may represent the transition from distinct dog burials into the canid votive practice that increased significantly in popularity and accessibility during the Late and Ptolemaic Periods (Nicholson et al 2015: 647).

[137] DRN 216 contained two mummified dogs, one mummified cat, two mummified falcons (with crowns of upper and lower Egypt respectively), and two mummified ibis (Bietak & Reiser-Haslauer 1982: 190 & 288-289)

7.9 Votive Canids

Votive canid burials were identified in large quantities, typically in pre-existing shafts or chambers, or specifically identified areas such as the catacombs at Saqqara. Evidence is frequently observed in these mass re-burials that the canid had been processed and wrapped to varying degrees, in order to manufacture the mummy.

The significant increase in the votive practice during the Late Period coincided with an increased interaction between the people and the gods, which is particularly noticeable for the more accessible gods (Ikram 2016: 406) including Anubis. This increased accessibility meant the use of a votive canid became available to every man and his dog. The sheer scale of the canid votive practice becomes evident with the discovery of more than 7,000,000 votive animals, 'mostly canids', at Saqqara, believed to have been ritually interred in the nearby catacombs (Ikram et al. 2013; Nicholson et al. 2015). Other large deposits (albeit smaller than 7,000,000) have been found throughout Egypt, located in various cemeteries (see Figure 1.3), including the deposit of approximately 1,300 canids found in the Teti cemetery north, which formed the basis of the Saqqara sample case study in this thesis.

It is generally accepted that votive canids would have been prepared in a cult centre, purchased from priests and then offered to the canid god Anubis in conjunction with a prayer and a request (Ikram & Dodson 1998: 135; Charron 2001; Taylor 2001: 254-260; 2010: 132; Ikram 2005: 10-11; 2007: 419; 2016: 406). Anubis, the god of embalming with a close association with the necropolis, was responsible for taking the deceased safely from this world to the next (Ikram et al. 2013: 49). It is this protective function in the Afterlife that most likely influenced the offering of a votive canid. Once the mummified canids were offered, they would have remained in the temple for some time before being taken to a 'sacred space' for storage. This may have occurred sporadically or at specific times of the year to coincide with festivals related to Anubis (Kessler 1989: 300; Charron 2001: 11). Once the canid was wrapped, specific species identification is near impossible, therefore votive canids may have been dogs, jackals, foxes, or as occasionally observed, a human bone wrapped in the shape of a canid mummy (Dunand & Lichtenberg 2005b: Fig 14; McKnight et al. 2015: Fig. 2a-b). Results from the Saqqara sample case study of crania indicate that the majority of canids used in the votive practice were indeed dogs.[138]

[138] This is consistent with the study of canids found in the Saqqara catacombs, which identified 5,574dogs, compared to 70 jackals and 22 foxes (Ikram et al. 2013).

When the popularity of the votive practice reached its peak during the Late and Ptolemaic Periods (Nicholson et al. 2015: 647) vast quantities of canids were required to meet the demand. Therefore, a systematic form of production and distribution must have been involved, accomplished by a methodical farming process where dogs were raised, before being dispatched and processed. The dog was the logical candidate for farming given their ability to breed more frequently (twice as often as other canids) and their relative degree of domestication making control easier. The religious cults controlled the promotion and distribution of the votive practice, which would have led to the expansion of the power of the religious institutions as the practice became a crucial part of the economy (Ikram 2016). Whilst there is no primary evidence to substantiate this canid farming hypothesis, a papyrus dated to the Roman Period documents the requirements and prices of items for a funeral and the list includes a dog (Horak 1998: 190; Froschauer 2007: 21). This clearly indicates an economic transaction, being the sale of a canid, and as a standard element in funeral paraphernalia, it implies a production method for supply to meet demand.

Pathologies present in the Saqqara sample case study crania are consistent with the effects of animal husbandry and farming management indicative of a large-scale breeding program. For example, the presence of healed depressed fractures in a number of the frontal region of the crania is consistent with dogs being disciplined by humans wielding sticks. Also 40 crania presented with small perforations to the palatine process of the maxilla, most likely inflicted during dog fights. Both these traumas are consistent with large numbers of dogs confined in small areas, with fights occurring over breeding priorities and food. The high rate of ante-mortem tooth loss and evidence of periodontal disease observed also indicates that oral pathologies affected a large proportion of the dogs, most likely the result of biological and environmental stresses, compounded by poor maintenance of large numbers of dogs.

Sex estimation of the Saqqara sample crania showed a higher propensity for the use of male dogs over female dogs in the votive trade.[139] This is consistent with the practical advantage of dispatching males before reaching full sexual maturity (and the onset of more aggressive behavior). Also females may have been kept alive longer due to their breeding capabilities. This preference for males may also be attributed to a male dog being more desirable as a votive offering in connection with the male god Anubis. As the majority of

[139] A male female ratio of 37:4 was observed in a sample from the Saqqara catacomb dogs (Ikram et al. 2013: 59).

dogs were young adult or adult at death, this implies they were dispatched once they reached a suitable size.

In certain instances, votive dog burials also occurred in a non-temple context, indicating that some people chose to bury their offering in an area that held personal sacred significance. Two Late Period burials in the corpus, DRN 183 and DRN 184 were both individual dogs placed in large vessels then buried in a pre-existing funerary enclosure at Abydos,[140] their burial style consistent with that of a votive offering (Figure 7.40). Also at Abydos, in an area almost exclusively devoted to mummified ibises during the Roman Period (Peet & Loat 1913: 43), five separate canid burials were found interspersed among these bird burials. One vessel contained two dogs [DRN 147], one vessel contained one dog, a number of birds and two sheep [DRN 148] (Figure 7.41), while a third vessel contained two dogs [DRN 149]. DRN 150 was a bricked enclosure set up between two bird vessels, which contained one dog, and DRN 151 was also a bricked enclosure, containing a single dog and a single sheep (Figure 7.42). These dog burials by their style and nature are indicative of votive burials, with a connection to the respective god.

The extent to which the votive practice spread throughout Egypt can be seen in places as remote from the Nile River as Berenike on the Red Sea coast, dated to the Graeco-Roman Period [DRN 217]. The burial of a dog was discovered wrapped in a mat and covered by a large broken amphora. Approximately 20cm away a cat had also been buried, in a similar placement and style indicative of a votive burial (Figure 7.43). A further example is found at Debod, Lower Nubia [DRN 45], where the burial of a sheep and a dog together was found in an area of the cemetery designated to animal burials.

In summary, the votive preference in the Late/Graeco Roman period presents as a considerable difference in style, providing a dramatic increase in accessibility to the gods by the general population. This increased accessibility appears to have been adopted with a high degree of enthusiasm to the extent that a system of farming and processing was likely required to supply the increased level of demand. Despite these significant changes in both funerary processes and accessibility, it appears that the protective functional purpose of the canid remained constant throughout.

[140] These two container dog burials were found in the south-east corner of the Shunet ez-Zebib along with several vessels containing birds and a large deposit of animals and birds without containers (Ikram 2013a).

7.10 Graeco-Roman Period Non-votive Burials

Whilst the majority of dog burials during the Graeco-Roman Period were votive in nature, there remained a small minority of human associated dog burials that appeared to continue the funerary processes observed in earlier periods. For example, the direct association of multiple dogs with a human is found in DRN 166 at Deir el Banat, Lower Egypt. The burial contained a child, partially covered in sacking, and placed in a semi-circle around the child's feet were at least five crudely mummified dogs (Figure 7.44). The deliberate placement of the dogs around the feet is consistent with both the direct protection style and the protective barrier-style hypothesis. Furthermore, the presence of multiple dogs suggests an amplification of the protection, perhaps considered necessary because of the young age of the human, also consistent with the child-protection hypothesis.

In a further example, a rock-cut chamber found in the Teti cemetery north at Saqqara contained the disturbed remains of numerous humans, with a separate burial pit under the limestone flooring of the chamber. A human had been placed in the pit and the post-cranial bones of a dog were found at the entrance to the pit [DRN 168], the cranium found among the disturbed human remains in the chamber (Figure 7.45). This burial is consistent with protection being provided by the dog at the entrance to the burial, similar to that observed in earlier periods.

DRN 161 was another dog burial with direct human association, and this burial was found in a rock-cut chamber in Thebes. The burial consisted of a human in a large sarcophagus, and placed at the head of the sarcophagus was a dog, wrapped in reeds. Also present was a mummified ibis, a model of a hawk and a ball of bitumen embedded with a snake. Rhind saw the significance of these 'animals' as a reflection of the religious funerary beliefs of the time, with the dog being connected to Anubis, the ibis connected to Thoth, the model hawk connected to Horus and the snake connected to Amun (Rhind 2002: 77-123). Therefore, the dog in this burial takes on a very votive nature, and was most likely placed in the chamber with the other animals as votive offerings to the relevant gods to engage their respective functions. It must be emphasised that these examples of dogs buried directly with humans are the exception to the more popular votive practice at this time.

When we combine each of the periods discussed, the evolution of the style and accessibility of dog burials is evident, as is the consistency of the protective functional purpose of the dog in the funerary practice. The degree of accessibility of the dog burial to

different social groups, was a significant factor influencing the level of adoption, and the pattern observed across the collective time periods is consistent with the contemporary idea of innovation diffusion.

7.11 Innovation Diffusion and the Adoption of Dog Burials

In an attempt to understand the evolution of the funerary processes incorporating canid burials in ancient Egypt it was decided to compare the cultural context with the diffusion of innovations theory proposed by Everett Rogers (1995). Rogers provides a detailed analysis of the patterns and definitions associated with innovation diffusion, including discussion of the elements of diffusion, attributes of innovations, their rate of adoption, adopter categories and diffusion networks.

The adoption of an innovation, such as the physical incorporation of a canid body in a burial as part of the funerary practice in ancient Egypt, shares many similarities with the modern adoption of technological innovations and social changes as discussed by Rogers.

Rogers (1995: 10) proposes four main elements that influence the spread or diffusion of a new idea including:

1. The innovation;
2. Channels of communication;
3. Time; and
4. A social system.

The *innovation* is defined as an idea or practice perceived as new by the individuals in the social system (Rogers 1995: 11). The innovation in this context was the human associated canid burial (whether direct or indirect association), likely as an extension of the protector function of a canid transferred into the Afterlife. This innovation appears to have been proposed in the Predynastic Period when canid burials were first observed and are frequently recorded.

The *channels of communication* are defined as the process where participants create and share information (Rogers 1995: 17). Specifically, for ancient Egyptian canid burials, this process was likely to have commenced as an interpersonal channel involving individuals in a face to face exchange. The dispersal of communication throughout ancient Egypt was likely aided by travel and trade along the Nile River. Rogers who analysed more modern innovation diffusion, notes that potential adopters who visit cities are more likely to adopt

an innovation, and there is no reason why this could not apply to large important communities in ancient Egypt. The basis for this higher degree of diffusion is that cities provide a meeting point for many people and ideas in a single place which allows for the diffusion of the innovative idea more widely and efficiently.

Time is defined by Rogers as the period from when an individual first becomes aware of an innovation through to either its adoption and implementation, or rejection (Rogers 1995: 20). The initial adoption of the canid burial, and all its variations/nuances was likely communicated over a lengthy period of time among the participants of the prevailing broad and disparate social systems. Hence the specifics regarding the funerary process, the contents and the style, all varied over time and across location, whilst the overarching protector function of the canid remained constant.

The concept of a *social system* is defined as "a set of interrelated units that are engaged in joint problem solving to accomplish a common good" (Rogers 1995: 23). Over the various periods studied the social systems changed considerably. The earlier periods were smaller, autonomous communities dispersed mostly along the Nile River. The Early Dynastic period saw the emergence of a unified state under the rule of a king. Thereafter the social system witnessed the emergence of a unified religion, closely affiliated with the king. The presence of multiple intermediate periods is reflective of a social structure that was more unstable due to turbulence and shifts in power or control. The Late period reversion to earlier funerary practices was reflective of the return of stability and order. The resurgence of canid burials transitioned into a practice that could be adopted by the general population in the Graeco-Roman period associated with the mass communication of religious ideology.

While individuals in a social system do not adopt an innovation simultaneously, there are five stages of innovation adoption each individual must complete (Rogers 1995: 20) and these are relevant to all societal groups:

1. Knowledge (awareness);
2. Persuasion (interest, whether favourable or unfavourable);
3. Decision (evaluation and activities that accept or reject the innovation);
4. Implementation (trial and putting the innovation to use);
5. Confirmation (whether or not the innovation decision is reinforced).

On the whole, individuals are classified into adopter categories based on when they first used the new idea (Rogers 1995: 252). The categories of adopters are innovators (Predynastic cultures), early adopters (Early Dynastic Period), the early majority (Late Period) and the Late Majority/Laggards (from the Graeco Roman Period on). The Pharaonic period was not consistent with adopter periods, but rather is similar to a deferment given the extremely low and intermittent levels of employment of the dog burial practice.

1. *Innovators* are defined as those willing to take risks, who generally have a high social status and the ability to absorb any loss from unprofitable innovations (Rogers 1995: 264). As the canid transitioned from a protector in life, to a protector of the deceased in the Afterlife, it is this symbolic value that appears to have encouraged broader adoption by the elite, in the Predynastic Period.
2. *Early Adopters* have the highest opinion leadership of all adopter groups, with a higher social status. They selectively adopt innovations to maintain both their credibility and a strong communication position (Rogers 1995: 264). The burials of elite individuals in the Early Dynastic took the protective canid burials and linked them specifically to a significant individual by association with a mastaba/burial complex. The innovation had been trialled in the Predynastic Period and the elite opinion leaders of the Early Dynastic selectively embraced the canid burial in their funerary process.
3. *Early majority* have above average social status and often have contact with the early adopters. Rogers notes that these people rarely hold opinion leadership positions in society (Rogers 1995: 265). This group is seen in Egypt potentially from the Old Kingdom but to a greater degree in the Late Period, where individuals chose to adopt the practice before the average member of the social system.
4. *Late Majority* includes individuals who may initially be sceptical about an idea or be below average social status, with low levels of opinion leadership. Rogers particularly notes that adoption may result from increasing network pressures from peers (Rogers 1995: 265). This is potentially the perfect scenario for religious expansion into the promotion of the canid protector functional purpose and more broadly into mass production/distribution of the physical canid as a method of access to the canid god. Hence the expansion and dominance of animal cults particularly during the Graeco-Roman Period, where the use of votive canids became available to the general population.

5. *Laggards* are the last to adopt an innovation and they may perceive their resistance to innovation as rational particularly if resources are scarce (Rogers 1995: 265). They generally have low social status and no opinion leadership. Additionally they may never adopt the idea due to it being replaced by competition from further innovations. Given the estimated 8,000,000 canids found at Saqqara alone, dated to the Late/Graeco Roman periods (Nicholson et al. 2015) this indicates an extremely high level of adoption of this practice, likely extending to this adopter category.

Rogers notes that opinion leaders have the most influence during the initial evaluation stage of innovation adoption and then again with the late adopters. This is consistent with the Predynastic Period when the hunters were the equivalent opinion leaders and then later in the Graeco-Roman Period when the religious institutions acted in the opinion leader capacity.

Rogers notes that opinion leaders typically have greater exposure to the mass media, greater contact with those classified as change agents, and often a higher socioeconomic status (Rogers 1995: 202). This is consistent with both the hunters in the Predynastic and the religious mass broadcast of the votive trade, offered to the general public. This would have facilitated increased adoption of the votive canid, to generate wealth for the religious institution and expand their power. Rogers notes that mass media channels (such as religious institutions) are typically the primary knowledge creators, useful in increasing awareness, whereas interpersonal networks (for example, peer pressure) are more relevant in whether an individual selectively adopts and trials an innovation.

There are three types of innovation decision which have been proposed by Rogers (1995: 29-29) and each is relevant to different time periods in ancient Egypt:

1. *Optional innovation* – made by specific individuals freely and implemented voluntarily, albeit likely influenced to a degree by the norms of the social system and interpersonal networks. In context, this is reflective of the selective adoption of canid burials in the Predynastic Period by significant individuals.
2. *Authority Innovation* – made by individuals in a position of power or influence and communicated to the whole social system, for example canid funerary practices in the Early Dynastic, when people of higher social status and influence selectively embraced the process, partly as a conspicuous display to the rest of society.
3. *Collective Innovation* – made collectively by groups with some degree of social pressure. In ancient Egypt, this is analogous to the Graeco-Roman votive trade

where the adoption decision was made by the religious institutions and then the application encouraged for the general public with the aid of social pressure.

When graphically depicted, these adopter categories and types of innovation decisions are represented by what has been termed the S-curve. Rogers notes that most innovations have an S-shaped rate of adoption but there is variation in the slope of the 'S' for each innovation (Rogers 1995: 23). The archetypal S-curve depiction is illustrated in a chart,[141] overlayed with the proposed ancient Egyptian equivalents of the relevant stages of adoption (Figure 7. 46).

7.12 Summary

In summary the historical context in the lead up to the Predynastic period saw the emergence of the protector function of the dog and the subsequent incorporation into the funerary practices. The variations observed in the funerary processes and degrees of accessibility, across time and region are crucial to our understanding of the importance of the canid, however the functional purpose of the canid in a burial as a protector, remains consistent throughout.

The adoption of the canid burial innovation idea and its dispersal throughout ancient Egypt appears consistent with the innovation diffusion theory and the S-curve methodology. It was the additional elements of widespread distribution by religious authorities together with mass production in a farming-like system that resulted in the extremely popular votive variation of the canid burial and its economic significance.

[141] S-curve chart derived from: https://en.m.wikipedia.org/wiki/Diffusion_of_innovations#/media/File%3ADiffusion_of_ideas.svg (accessed 30/8/16).

CHAPTER 8: CONCLUSION

This chapter will reflect on the extent to which this thesis has fulfilled the research aims and purpose outlined in Chapter 1. This chapter will also propose opportunities for further research which may continue to expand our understanding of the significance of the canid in the funerary practices of the ancient Egyptians.

8.1 Research Aims

This thesis has collated, reviewed and analysed publications of ancient Egyptian canid burials found within human cemeteries, settlements and funerary enclosures. In addition, a detailed review and analysis of a case study of votive canid crania from Saqqara was completed. Together, the results and analysis of these studies were juxtaposed in order to illustrate patterns and variations that broaden our understanding of how canids were used in the mortuary culture in ancient Egypt.

Canid burials occurred in the funerary practice from the Predynastic Period through to the Graeco-Roman Period (*ca*. 4400 BC – 395 AD) with the votive use of canids occurring predominantly from the Late Period onwards, when the two practices ran concurrently. Canid burials were located at sites within Egypt between the Mediterranean coastline in the north and the second cataract of the Nile in the south.

To assist the analysis of the significance of the canid burials it was necessary to review the existing body of literature outlining the perceptions of how canid burials from around the world have been interpreted. This was followed by a detailed review of the current perceptions of how canid burials in ancient Egypt have been interpreted (Chapter 2). Although the perceived significance of different canid burial styles varied, this thesis proposed a single and consistent functional purpose for Egyptian canid burials that was applied across time and region. It was proposed that despite variations in the form of burial the purpose of the dog remained constant, acting as a protector in the Afterlife.

The comprehensive examination of documented canid skeletal remains and specific canid related iconography, assisted in the identification of various members of the Canidae family present in ancient Egypt. (Chapter 3) The precursor to the appearance of the first canid burial (observed during the Predynastic Period) was a protective concept illustrated by iconographic and artefactual evidence. The notion of the elite status of both the dog and

hunter transformed over time into a protective role that confirmed the significance of these two parties. The natural progression of the dog's protective function in life was seen in the employment of the same protective capacities in the Afterlife, through the incorporation of a canid burial in association with a human burial. From the first occurrence of documented canid burials, the style and accessibility of the canid in the funerary process evolved in accordance with the different social beliefs across the different periods. However evidence remains consistent that the functional purpose of the canid was to provide protection in the Afterlife. That protection was provided for elite or significant individuals, groups, families, children, women and entire cemeteries up to and including the Late Period. The Late Period saw the emergence of the competing style of votive canids which dramatically increased accessibility to the canid protective function and changed the method of access to a votive offering to the canid god Anubis.

8.1.1 The Corpus of Canid Burials

The compilation of a corpus of available published canid burials in ancient Egypt identified 141 separate canid burials, observed at 39 different sites, with an MNI of 271 canids. The results of the corpus provided the basis for analysis which was completed in Chapters 4 and 5.

Chronologically, the Predynastic Period dominated the corpus, accounting for more than half of the total entries. The Predynastic/Early Dynastic Periods and the Late/Graeco-Roman Periods produced the largest sample sizes, indicating that the practice was most popular initially, with a mild resurgence in popularity in the later periods. Whilst eight of the nine periods produced documented canid burials, the samples were typically small, making comparative analysis challenging. Geographically, there was a fairly even distribution of canid burials across the specified regions with the exception of the Oasis Region which produced a smaller sample.

The earliest documented canid burials appear to be associated with high-status individuals. Thereafter, in the Early Dynastic canid burials were associated with royalty and/or the high-ranking elite. From the Old Kingdom onwards, the practice is less frequent and expanded accessibility to lower ranked officials. Despite these changes in style and accessibility, the canid clearly retained its protective function through its purposeful placement in association with these human burial complexes. The Late Period saw a resurgence in the number of canid burials, and at this time the burials were clearly associated with humans of differing social status. During the Late Period the use of canids

in a votive practice became the most popular method to imbue protection and this continued into the Graeco-Roman Period, with both canid burials and votive canids used in a protective capacity.

A review of the entire grave contents recorded canids, humans, faunal remains and associated grave goods. This analysis was complemented by a review of the canid bodily treatment before burial, together with positioning and placement of the canid body in the grave. A limited review of species identification, and estimated age and sex of the animals was provided when made available in initial reports.

The overwhelming majority of canid burials were found in a cemetery context, indicating that the practice was an established element of the funerary culture at all times and in all regions. A limited number of canid burials were documented in a settlement context, and a smaller number were documented in a temple/funerary enclosure context. These results suggest that the practice was predominantly funerary in nature, however it was also adapted and adopted in different mortuary contexts. Furthermore, it should be noted, the construction of canid graves within cemeteries consistently mirrored the construction of human graves at comparable times and in comparable regions.

The overarching preference across the entire corpus was for an individual canid burial, however a considerable number of multiple canid burials were also observed. What appears to be consistent across all time periods and all regions, was that individual and multiple canid burials both acted in a similar protective capacity, with the multiple burials amplifying the degree of protection, whilst also indicating the importance of the human burial.

As the majority of canid burials were single canids in isolation and contained no direct associated human burial, this suggests that their functional purpose was that of an indirect protector of human burials in proximity. This also provides a sound basis for refuting any claims that the canid was often buried as a pet dog. The indirect protector role was strongest in the earliest and the latest periods of the study, however there was a significant difference in the context surrounding the canid burials in each of these periods. During the Late/Graeco Roman Periods a notable shift in the method of accessing the protector function provided by the canid, was incorporated into the votive process linking the canid with the protective qualities of the canid god Anubis. Engaging the god in a request to provide spiritual protection in the Afterlife, transformed the burial of a canid into the offering of a canid body to the god without direct association with a burial.

The incorporation of additional faunal remains was only observed in a small sample of canid burials. When this occurred, each of the different animals most likely served their own specific functional purpose. Potentially these included: its role as a food offering, or to amplify the significance of the human burial, or used as a votive offering to a related god. A definitive conclusion relating to their relevance, remains beyond the scope of this paper.

Additionally, the small number of canid burials with grave goods once again is consistent with the level of incorporation of grave goods with comparable human burials. The disturbed state of many of the graves may have also impacted the initial recording of the presence or absence of grave goods. When grave goods were located in canid/human burials, the attribution of ownership of the grave goods was difficult to determine. It was concluded that grave goods were most likely placed in the grave to highlight the significance of the grave occupants, whether the human, the canid or both.

Elements such as wrapping and/or mummification of the canid bodies were observed in only a small minority of burials and the use of a container, in the form of a coffin or vessel was even rarer. The use of containers was most prevalent in the Early Dynastic Period however a small number still occurred during the other periods. These aspects of the canid burial reflect the prevailing funerary practices applied to humans at that time and did not impact the functional purpose of the canid within the burial. The bodily placement and orientation of the canid does not appear to be of particular significance and this was evident when multiple burials occurred in the same cemetery. When this occurred canids had been deposited lying on their right or their left sides, with heads oriented in different directions, indicating it was the presence of the canid rather than the specific placement that was most relevant.

With the advent of zooarchaeology, current researchers are providing reports of excavations which include more accurate osteological results of canids found in burials. From these results it is evident that canid burials consistently incorporated the use of the dog rather than other canids, while the later votive practice continued to predominantly use dogs, however it also incorporated jackals and foxes to a relatively lower degree.

8.1.2 The Case Study of Votive Crania

The detailed analysis of a case study of 119 crania found at Saqqara provided insights into the votive practice and the use of canids in a funerary process which was different in nature to the burial (Chapter 6). By far the most common species used in the votive practice was the common dog. The sheer quantity of canid remains recorded in different areas of Egypt

demonstrates that at its peak, the votive practice demand for canids was enormous. This demand could have only been met through a large scale breeding program, consistent with farming. Cranial evidence revealing paleopathologies found in the crania of the case study are consistent with pathologies resulting from large numbers of dogs living in confined spaces, providing considerable support for the farming hypothesis.

Finally, a comparison of the results from the corpus with the results from the case study were examined to determine the style of burial, the accessibility of the process, and the functional purpose of the canid in the prevailing funerary practice (Chapter 7). The common theme running through the emergence and development of the use of canids in the mortuary culture of the ancient Egyptians was that of protection.

8.2 Research Purpose

The purpose of this research was to broaden our current understanding of the use of canids in the funerary practice of the ancient Egyptians, and to substantiate or refute existing perceptions of the functional role of a canid within a burial. By outlining the significance of the earliest recorded canid burials, and following the development of the practice within the mortuary culture to the Late Period, when the additional votive practice emerged, a common theme was established that illustrated a progression of the protective function of the canids. This purpose was achieved by establishing a corpus of documented canid burials to determine variations in the practice and how the process developed over time. This was supplemented by a case study of canid crania, including photographs and measurements taken in the field, that assisted in determining the extent and use of canids in a votive context.

8.3 Opportunities for Future Research

This thesis represents the first comprehensive research into canid burials in the ancient Egyptian mortuary culture. The database of documented canid burials compiled would undoubtedly benefit from the addition of any further canid burials, either pre-existing or those yet to be discovered. Having established this extensive database, its on-going expansion is essential to our understanding of how, when, where, and why canids were incorporated and used in a mortuary context.

It is also important that documentation of any future canid remains found in burial sites, includes detailed reports regarding the grave contents, burial style, the status of any associated human, and the degree of that association. This type of detail was lacking in

many earlier reports, and its future inclusion will undoubtedly enhance our current understanding.

Further research possibilities regarding the votive use of canids are vast and wide-ranging. For example, a return to Saqqara to re-examine the bones of the 1,300 canids excavated by Macquarie University (Hartley, Buck & Binder 2011; Ockinga 2011) would be highly beneficial. The case study may be expanded by analysis of the remaining incomplete crania and all post cranial bones that were stored at the original site. Although the majority of these post cranial bones were disarticulated, their examination and osteological review could reveal evidence of paleopathologies and age related details that would extend our knowledge of both the conditions in which these animals were kept, and when they were dispatched for use in the votive process.

There is enormous potential for international cooperation regarding other votive canid studies and any such subsequent combination of results would be prodigious. The combination of results of current work undertaken in different regions of Egypt by various international teams engaging the fields of history, archaeology, physical anthropology and philosophy, could create a database of huge proportions and value. From this we could understand for example, if the votive practice was standardised throughout Egypt, or if elements differed regionally.

Current research regarding votive canids is being undertaken at numerous sites across Egypt. Paul Nicholson, Salima Ikram and Steve Mills, Louise Bertini and Delyth Hurley are currently working at the site of the dog catacombs at Saqqara (Nicholson 2005; Ikram et al. 2013; Nicholson et al. 2015). Françoise Dunand, Roger Lichtenberg and Cécile Callou continue their research into large numbers of canid mummies found at el Dier (Dunand, Lichtenberg & Callou 2015). Additionally, Chiori Kitagawa's work on the Tomb of the Dogs at Asyut produced large numbers of canid mummies (Kitagawa 2013). Christiana Köhler is currently working at El-Sheikh Fadl, a site which served as an animal necropolis, especially for canids (personal communication 13/7/2015). These represent a small number of examples from the various international teams, however the combination of results from these and other sites would form a more detailed central database of information regarding the votive canid.

Future archaeological work is needed at specific sites where dog catacombs were reported at the beginning of the 20th century and have since been lost. Petrie's archaeological work included the site of Dendera, where his report only briefly mentions a series of catacombs

dedicated to sacred animals (Petrie 1900: 30). Two long chambers were recorded as part of the complex and these two chambers were "full of dogs". These catacombs are now lost, but if they could be located as part of the work presently being undertaken at Dendera by the joint French Institute/Macquarie University,[142] then an extensive study of the skeletal remains could complement the hypotheses discussed within this thesis.

Furthermore, the crania stored at Saqqara could also be incorporated into broader international research projects which are currently using geometric morphometric studies in an attempt to unravel the history of dog domestication. Scientific research using modern genetic data are attempting to elucidate these origins. By contrasting genetic signatures of a substantial number of breeds of dogs with a worldwide archaeological assessment of the earliest dog remains, scientists are expanding the understanding of this domestication. At the commencement of this thesis, contact was made with Keith Dobney, from the Durham Evolution and Ancient DNA, Department of Archaeology, University of Durham in the UK. Dobney indicated at the time that the sample of 119 crania from ancient Egypt would contribute to the geometric morphometric study continuing to reveal insights into dog domestication and evolution. The retrieval of the crania and the inclusion in this program would assist the understanding of Egyptian dogs in a broader biocultural system.

8.4 Conclusion

To understand a funerary culture is a crucial objective for many historians and archaeologists, as it provides an extraordinary insight into the functions and fundamental beliefs of a specific social group.

The canid burial in the mortuary processes of the ancient Egyptians was an extremely valuable element that was closely associated with elite and highly significant individuals. Traditionally there have been many hypotheses proposed for the functional purpose of such a canid burial however none can consistently and logically be broadly applied across time period, geographic region and burial style. The protective function is the strongest hypothesis now proposed and employed in identifying a common theme in the functional purpose of the canid burial. While contemporary cultures value the material objects and precious metals located in certain burials, we must recognise that for the prevailing ancient

[142] For current reports on joint excavations undertaken at Dendera by the French Institute and Macquarie University, see Tristant (2015), Tristant (in press [a]), and Tristant (in press [b]).

cultures these canid burials were extremely valuable, based specifically on their important function in the Afterlife.

Historically it has been negligent to ignore and disregard (without record) many earlier canid burials. Sadly, we will never know to what degree this corpus has consequently suffered.

There will undoubtedly be further opportunities to document, review and analyse canid burials as they are discovered. In future instances when canid remains are found at burial sites it must be recognised that this represents something significant, important and worthy of both our investigation and analysis. It is at these very moments that we must pause in the sand, when confronted by paws in the sand.

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Paws in the Sand

The Emergence and Development of the Use of Canids
in the Funerary Practice of the Ancient Egyptians
(ca. 5000 BC – 395 AD)

Volume II: Appendices

A thesis submitted for the degree of Doctor of Philosophy

by

Mary Louise Hartley

B.A., M.A. (Egyptology)

Department of Ancient History
Macquarie University
Sydney Australia

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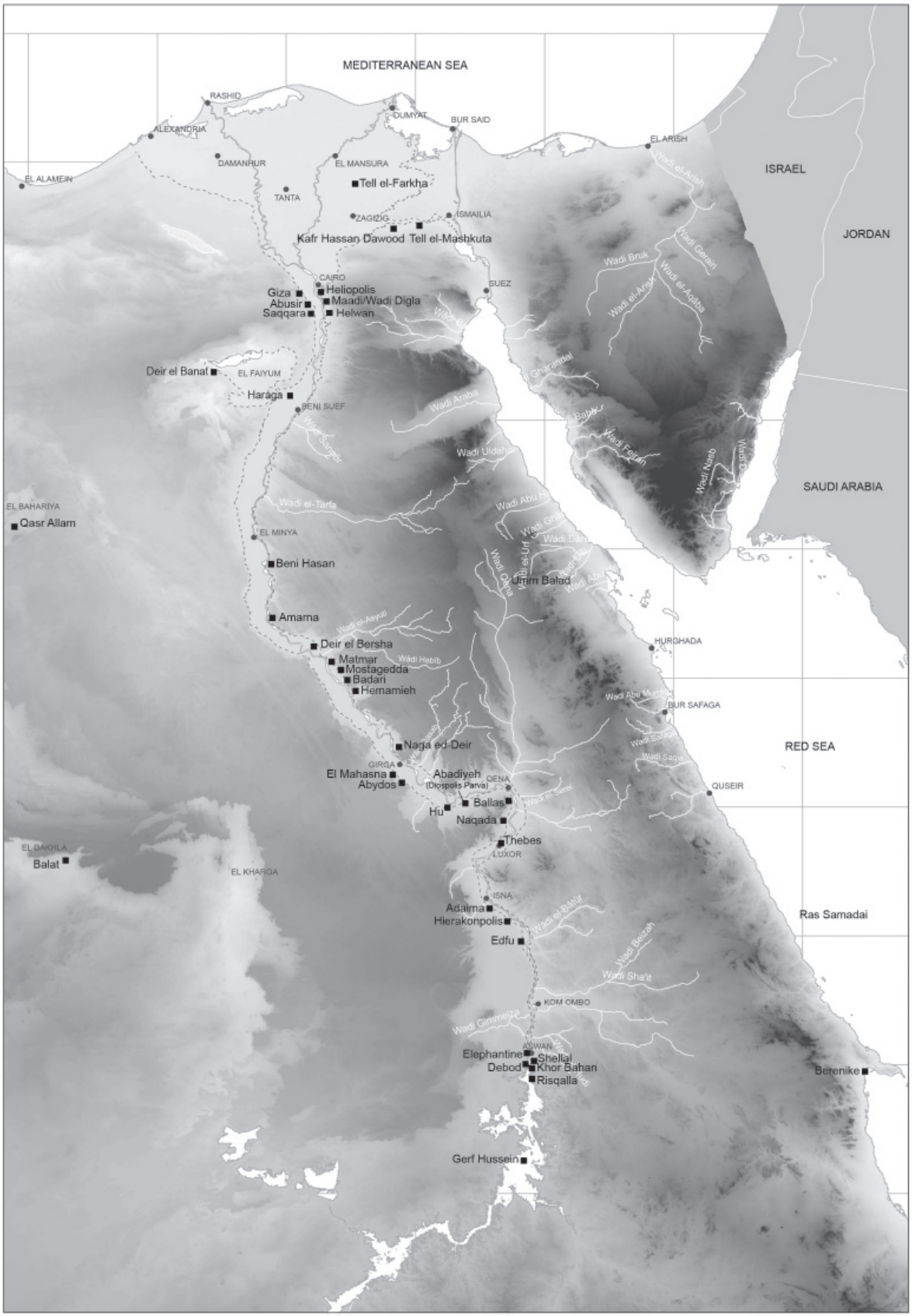

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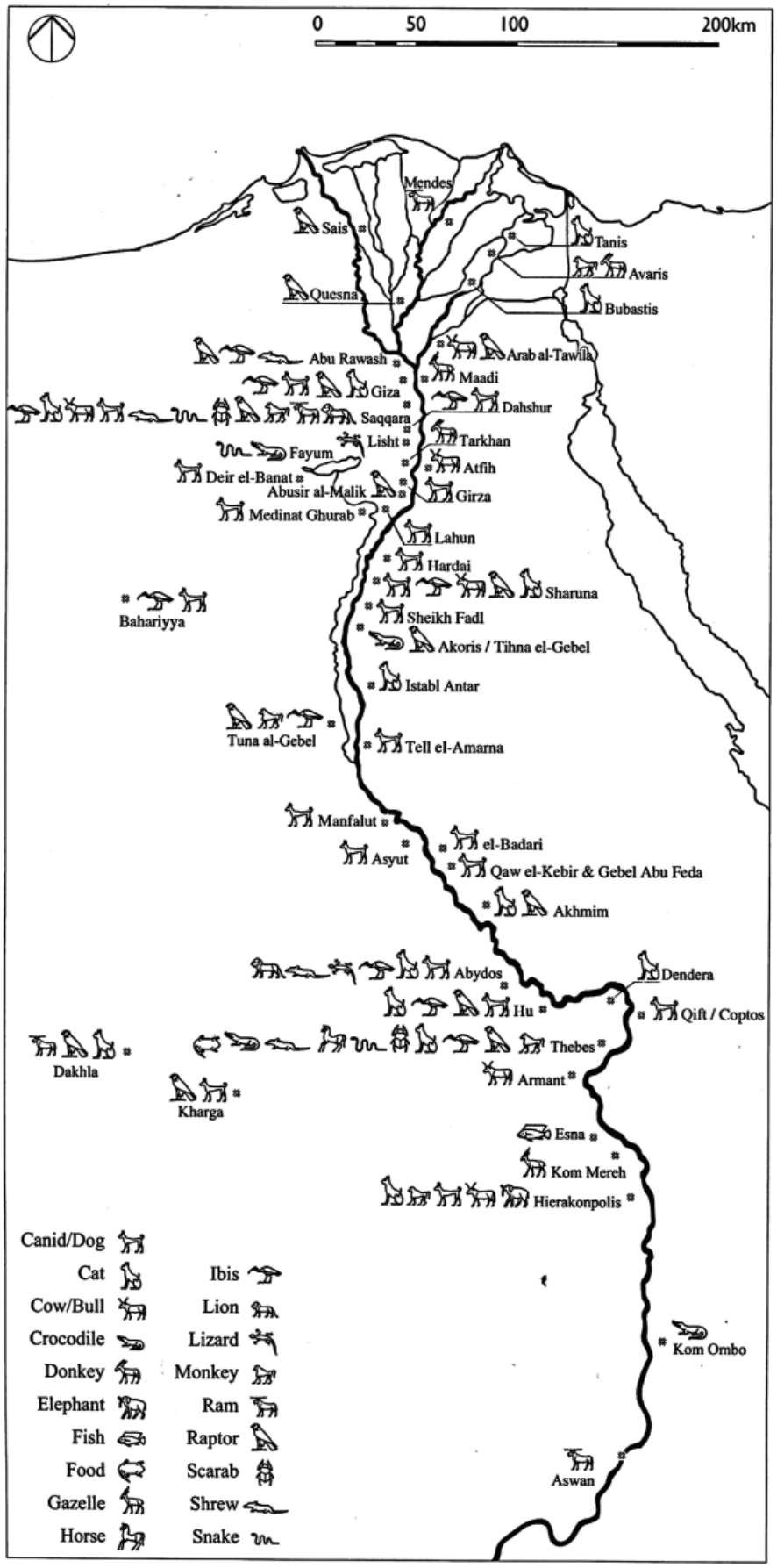

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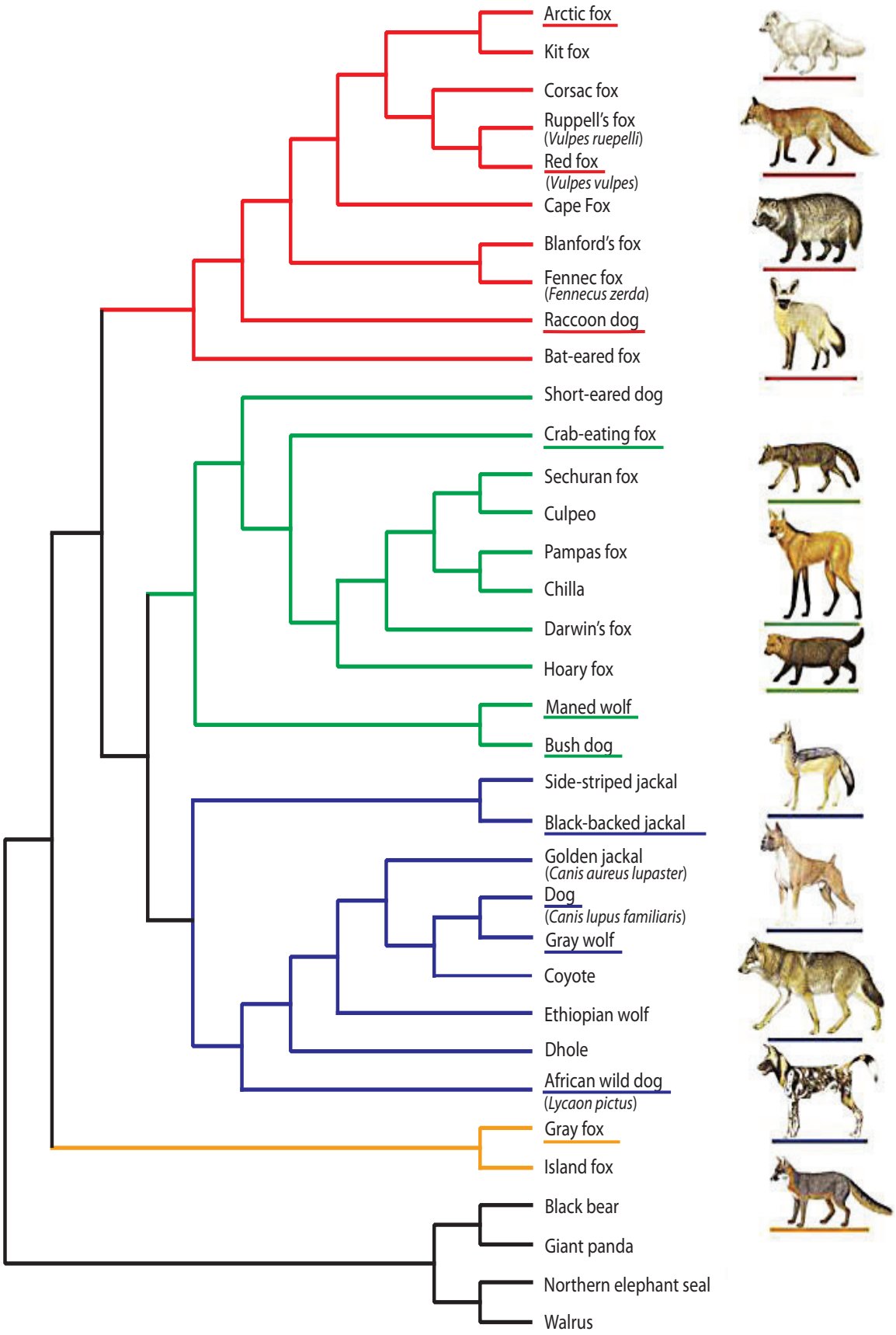

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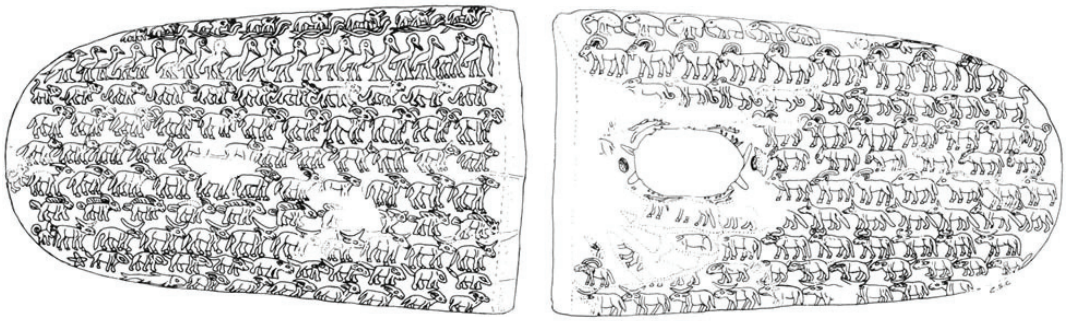

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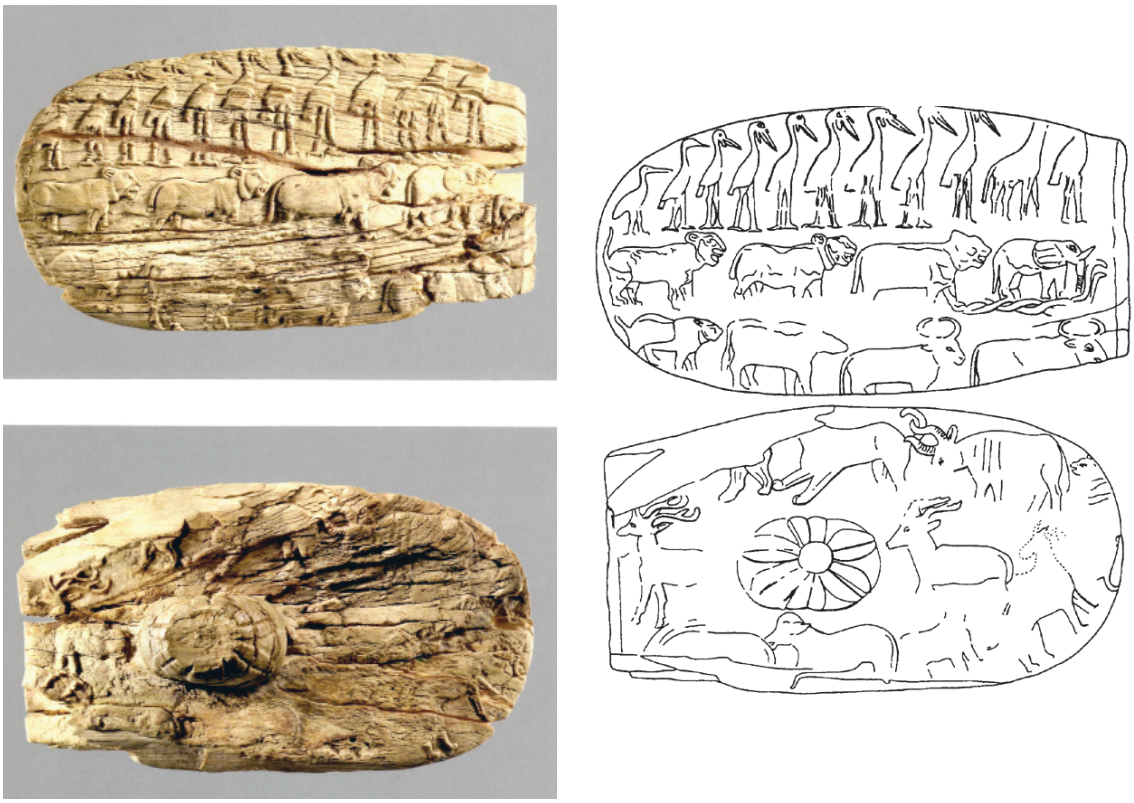

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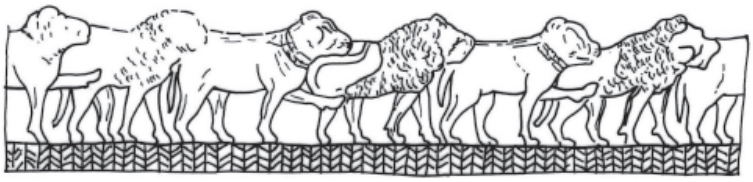

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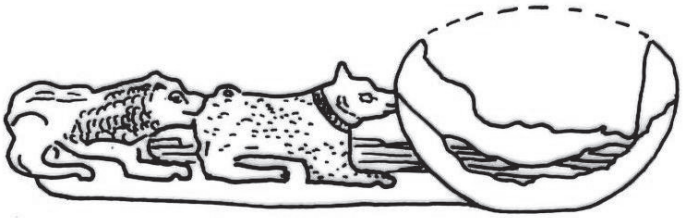

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Figure 3.23: Representation of two African wild dogs bordering the Four Dog Palette, Louvre E. 11052, Patch (2011: Cat. 118).

Figure 3.24: African wild dogs and mythical creatures represented on the Metropolitan Museum of Art Palette 28.9.8, Patch (2011: Cat. 120).

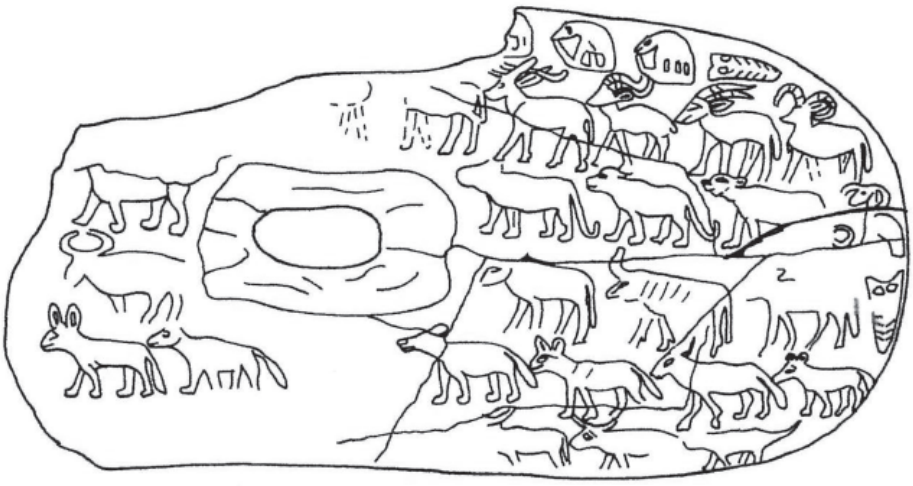

Figure 3.25: Representaions of jackals in fifth row found on the Pitt-Rivers Knife Handle, BM EA 68512, Cialowicz (1992: Figure 3).

Figure 3.26: Figure of a Lycaon-man represented on rock art as part of the hunt scene, from the site of Messak, Libyan desert, line drawing M. Hartley, after Le Quellec (1998: Figure 29).

Appendix
Chapter 4

Analysis of the Corpus of Canid Burials Part I

Figures 4.1 – 4.18

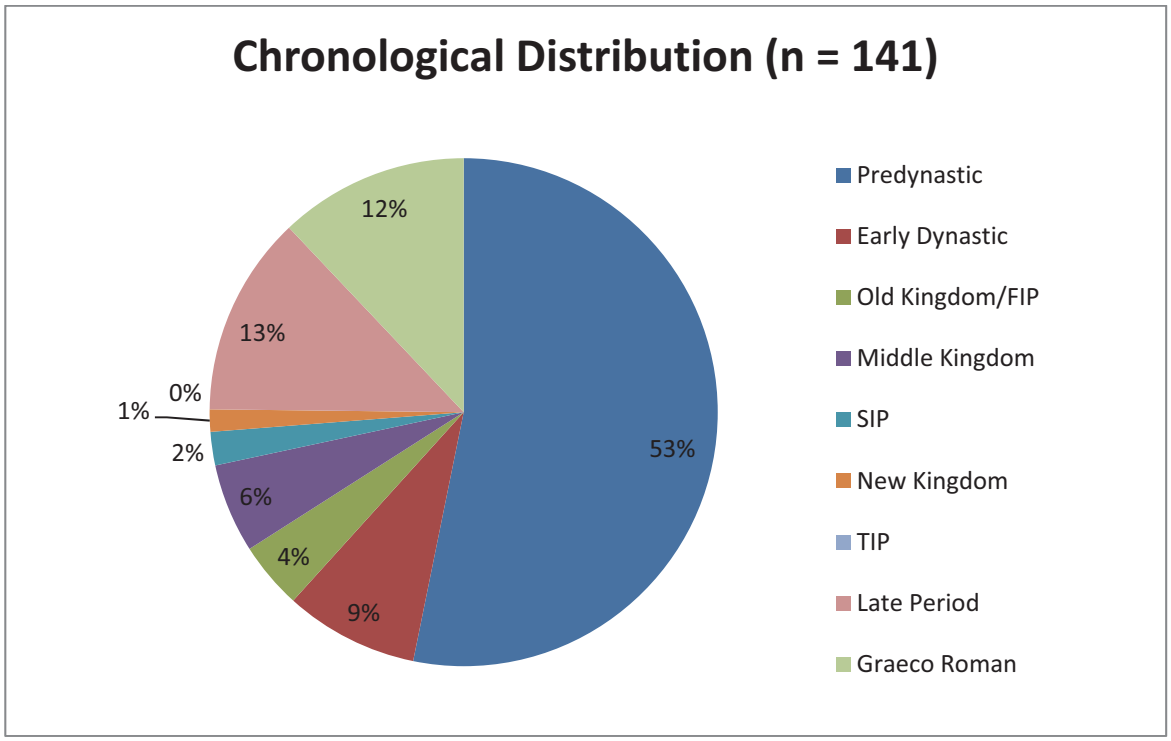

Figure 4.1: Frequency distribution of canid burials at specified time periods.

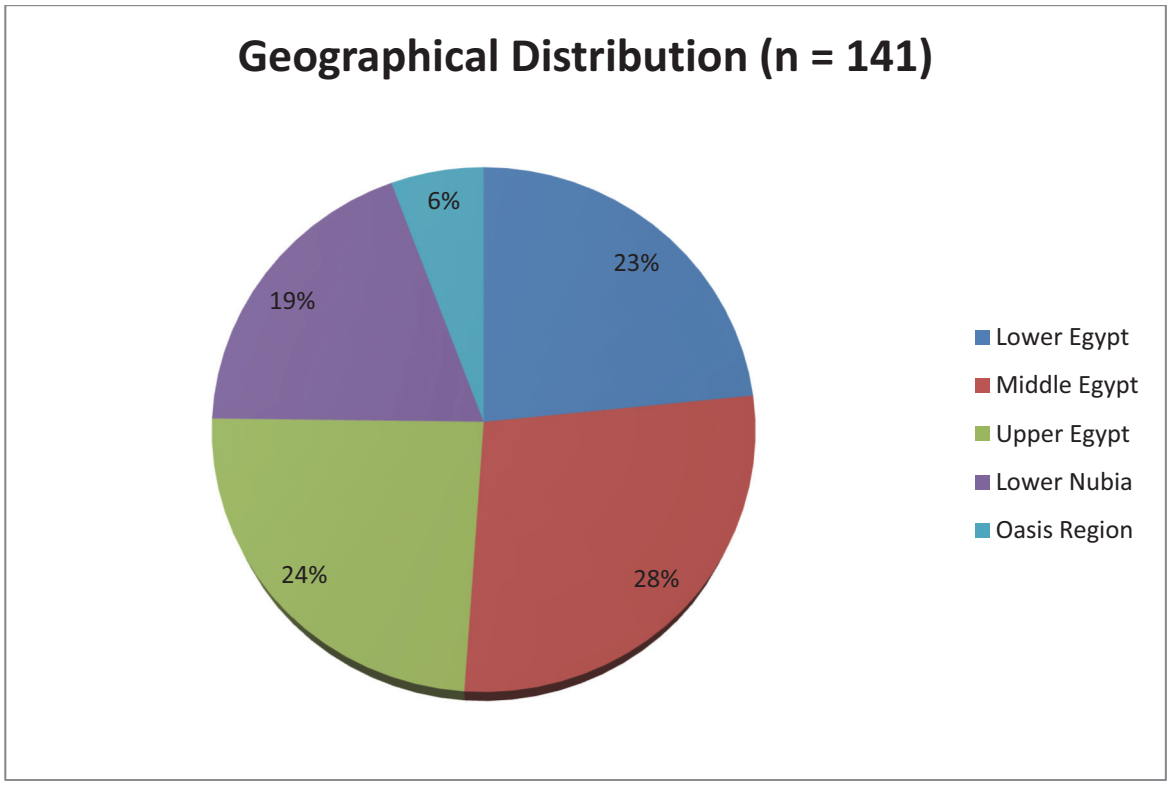

Figure 4.2: Frequency distribution of canid burials in specified geographic regions.

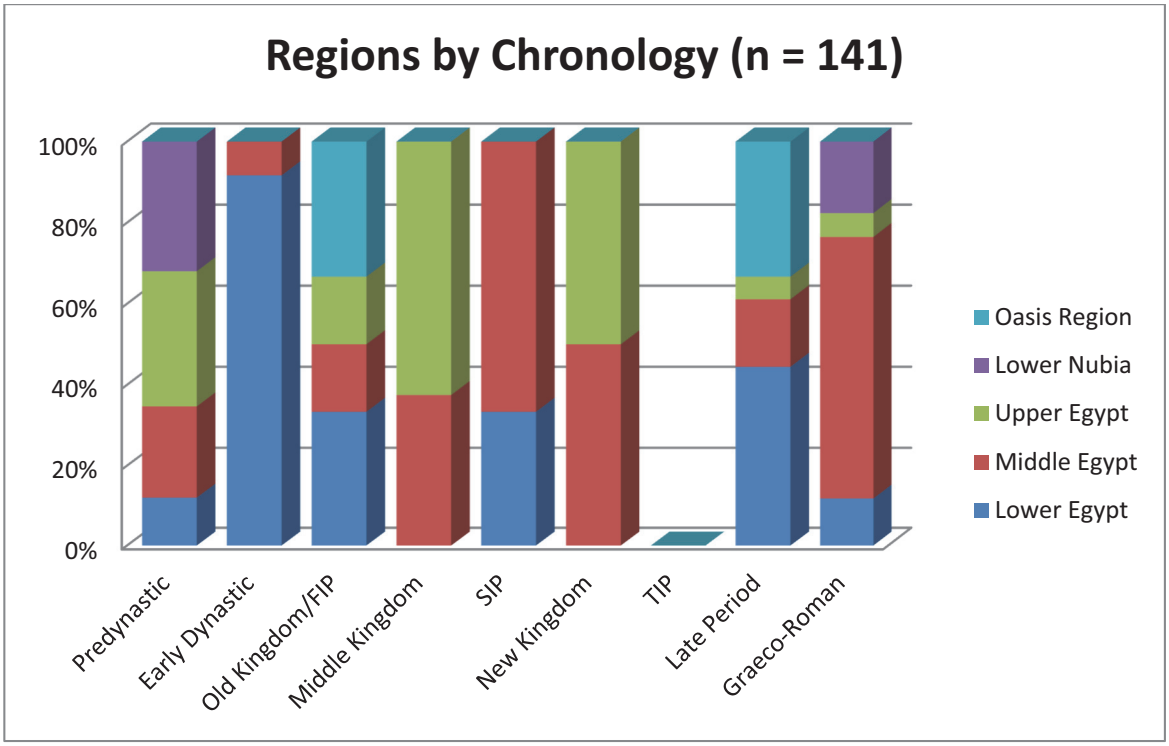

Figure 4.3: Geographical distribution of canid burials by relative chronology.

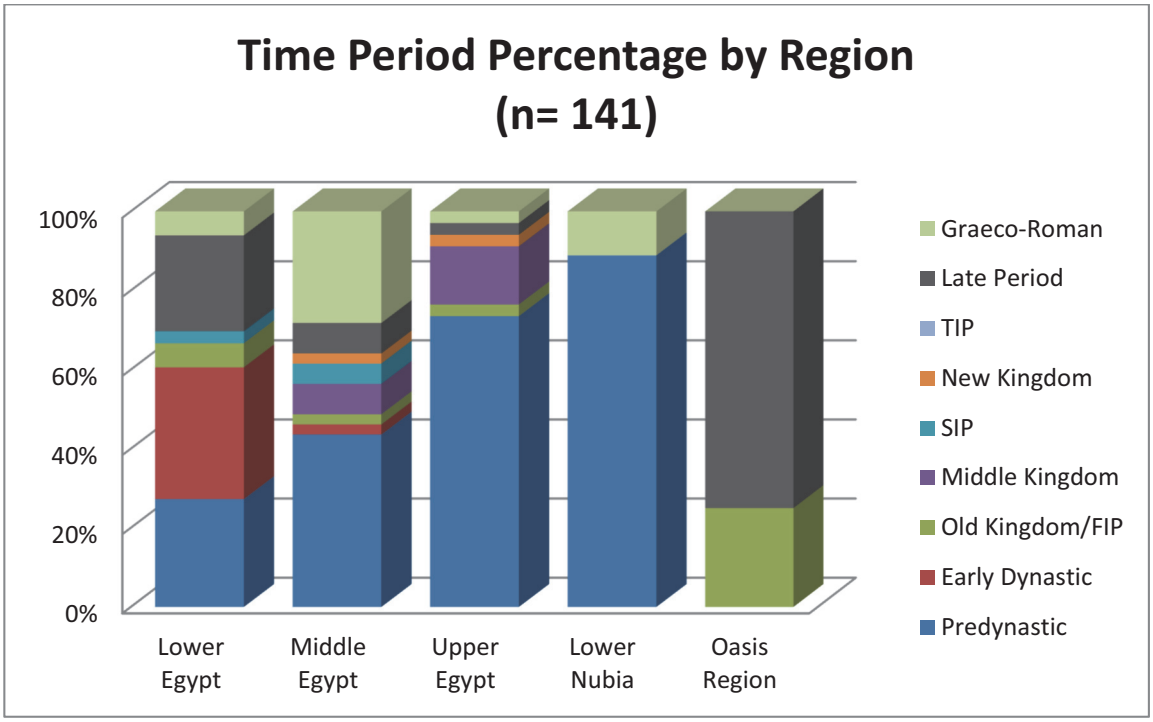

Figure 4.4: Percentage of regional burials by chronology.

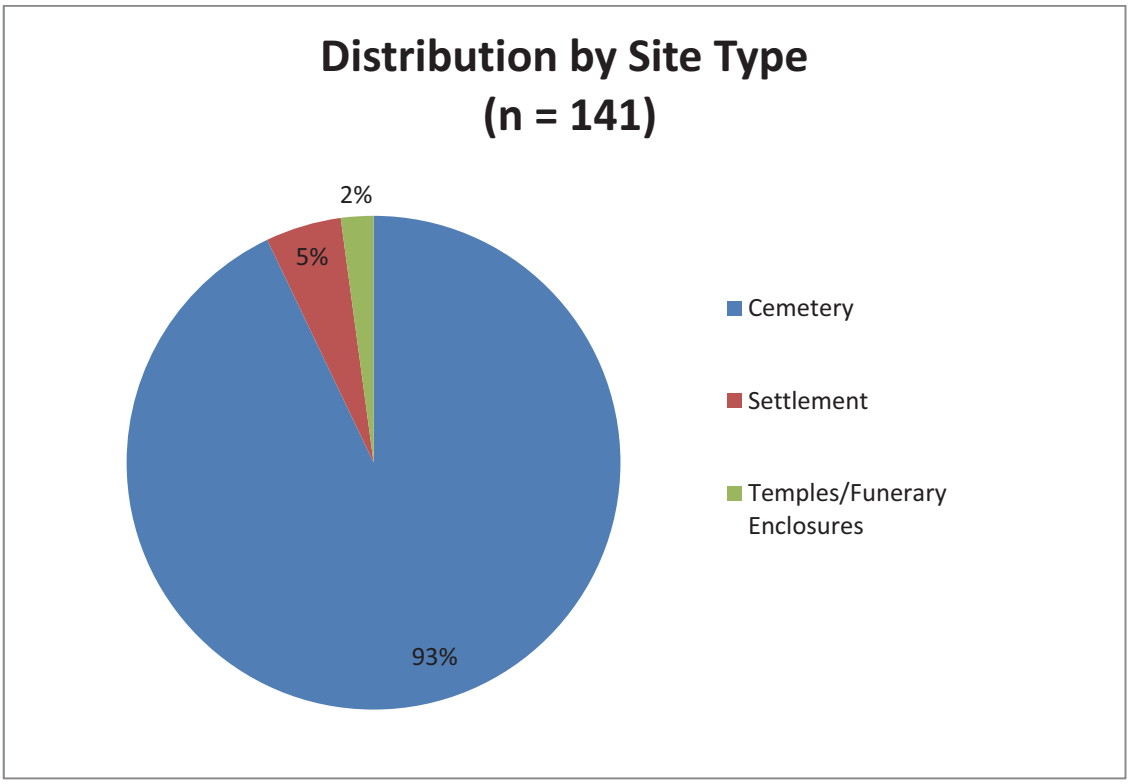

Figure 4.5: Distribution of canid burials by site type.

Figure 4.6: Bracelet found on the arm of a child, Eastern Cemetery, Adaima. Midant-Reynes (2007: 12).

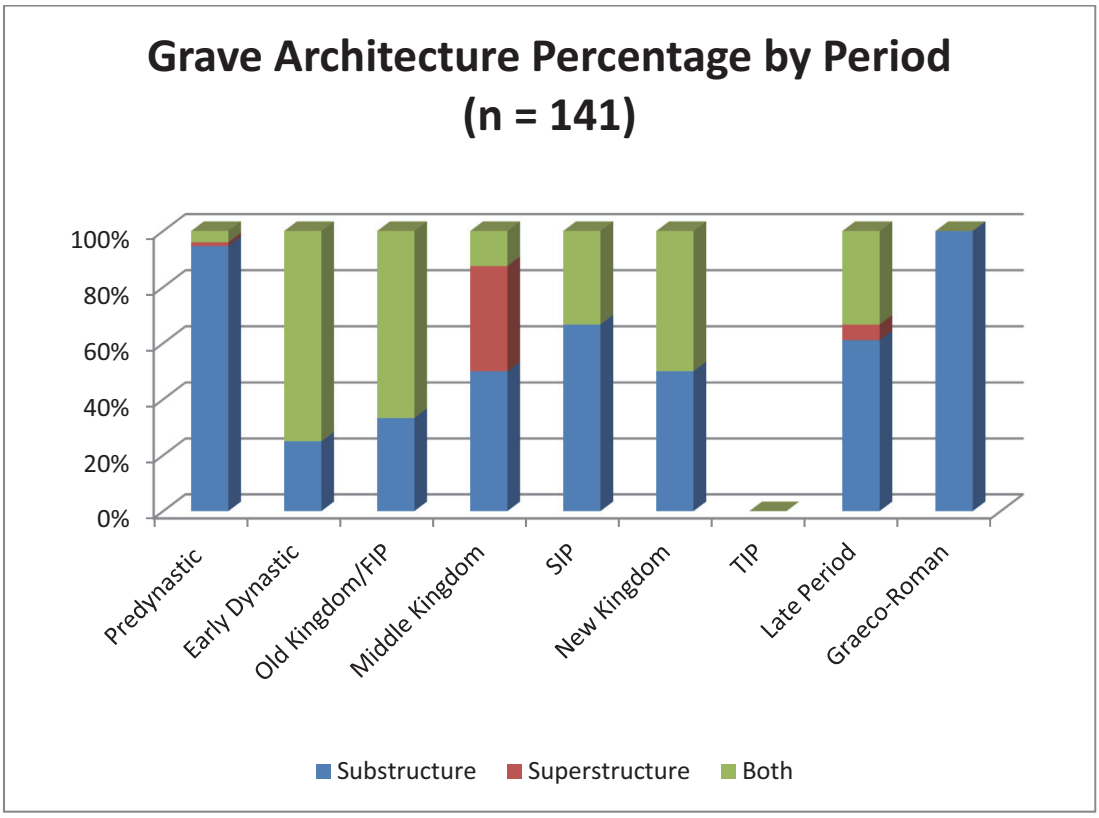

Figure 4.7: Grave architecture percentage by period.

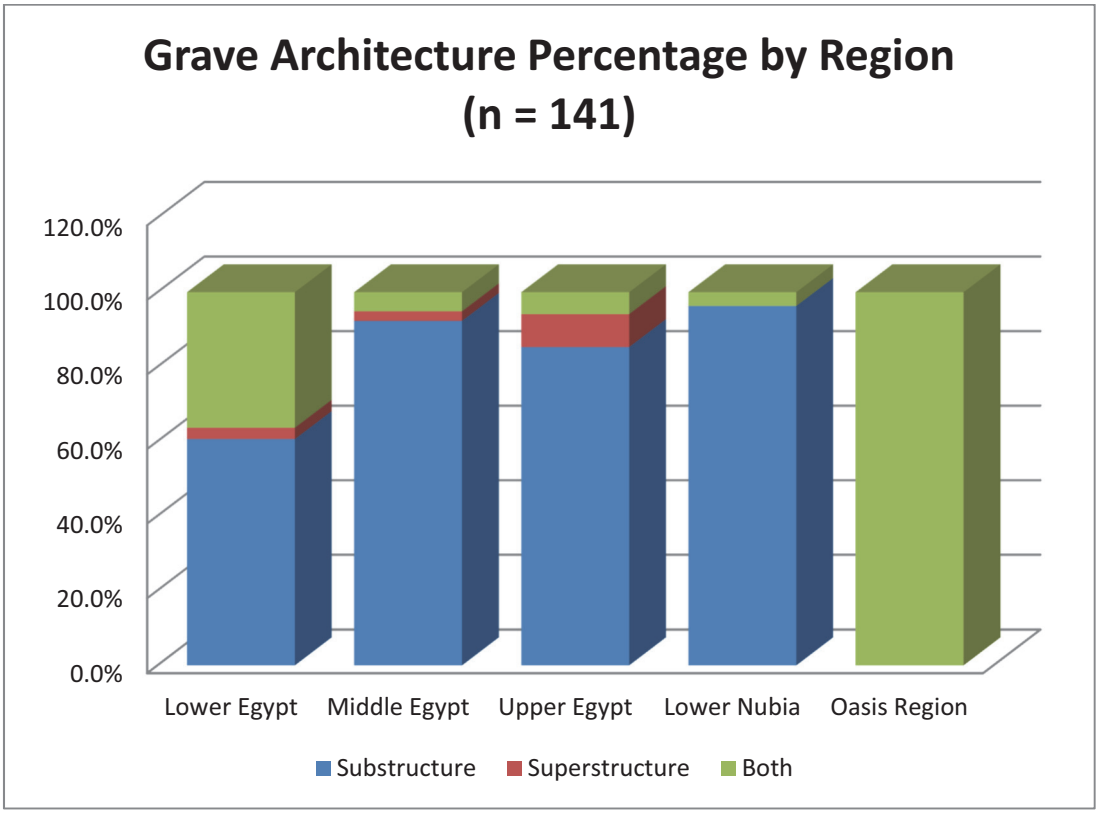

Figure 4.8: Grave architecture percentage by region.

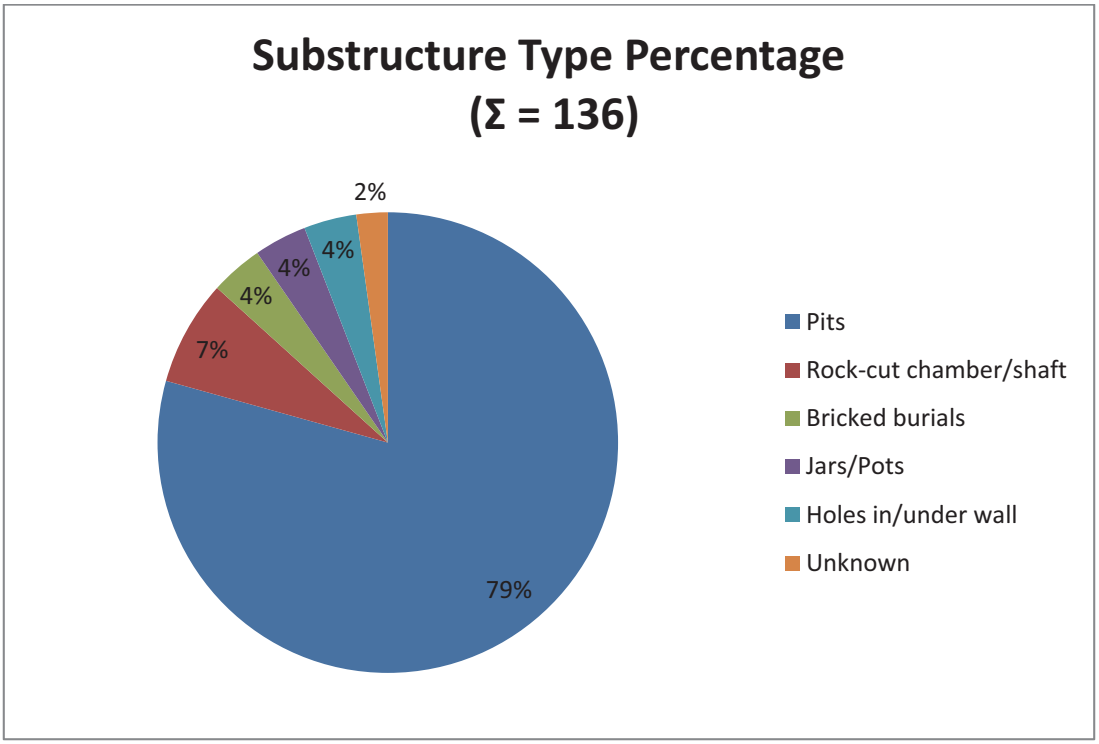

Figure 4.9: Percentage of substructure type.

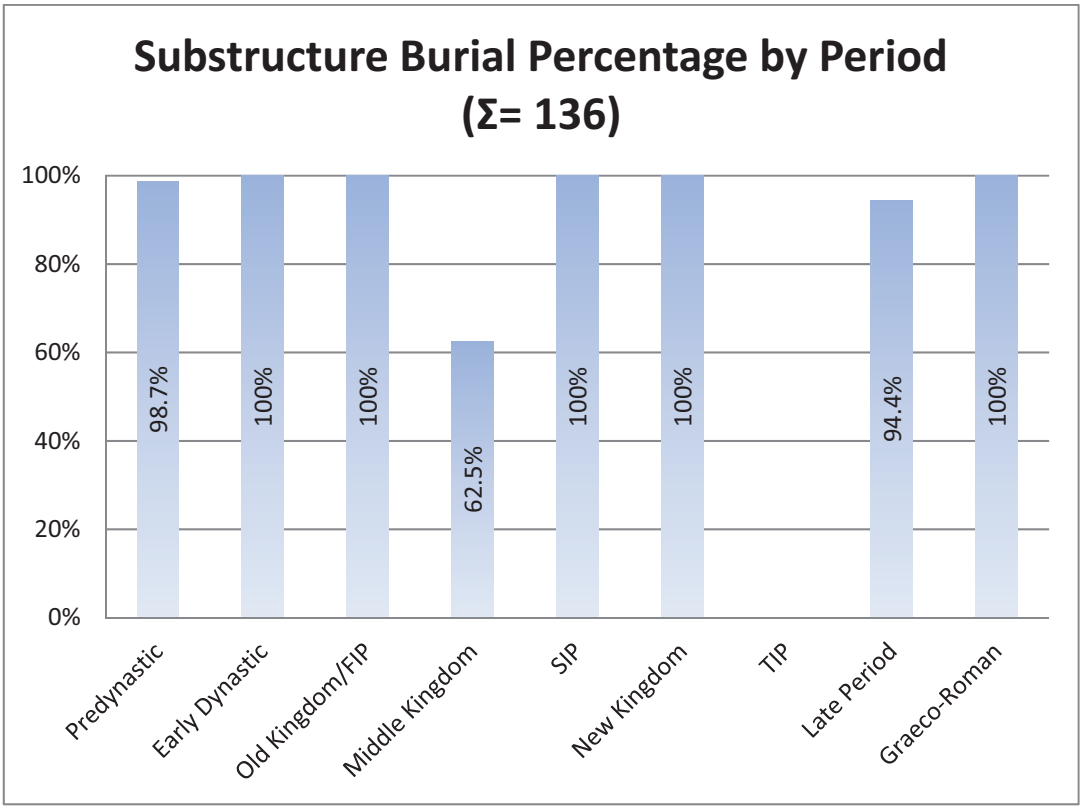

Figure 4.10: Percentage of substructure burial by period.

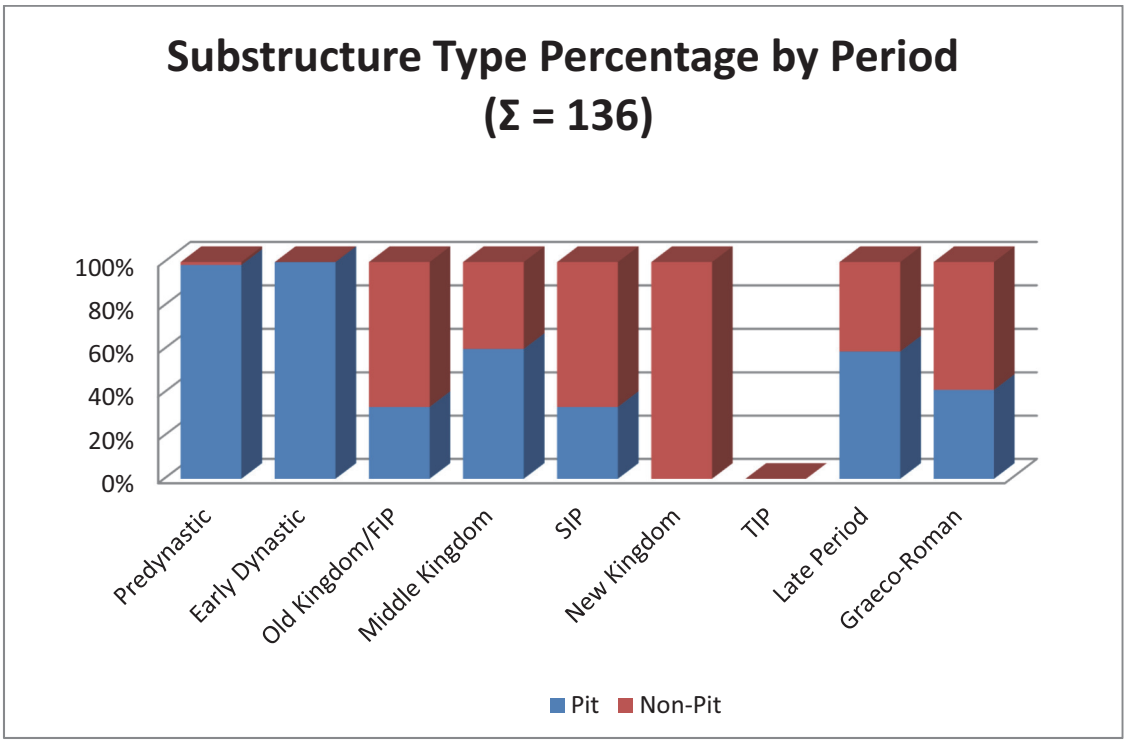

Figure 4.11: Percentage of substructure type by period.

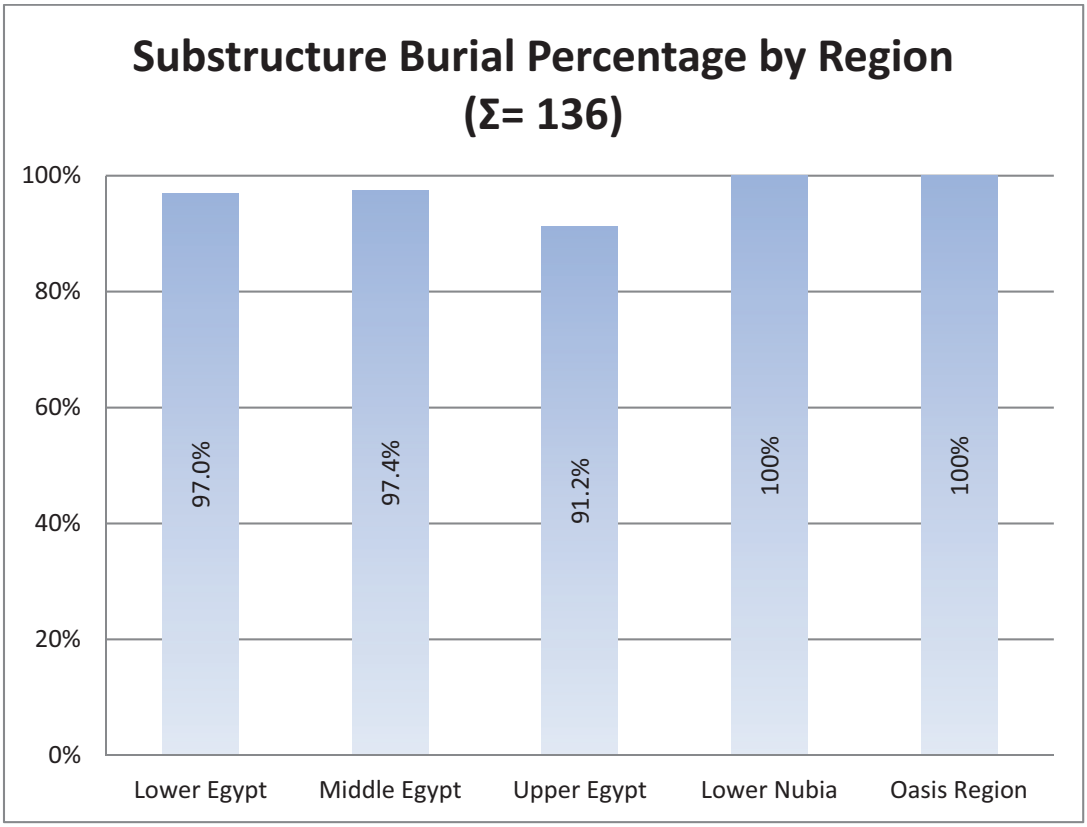

Figure 4.12: Percentage of substructure burial by region.

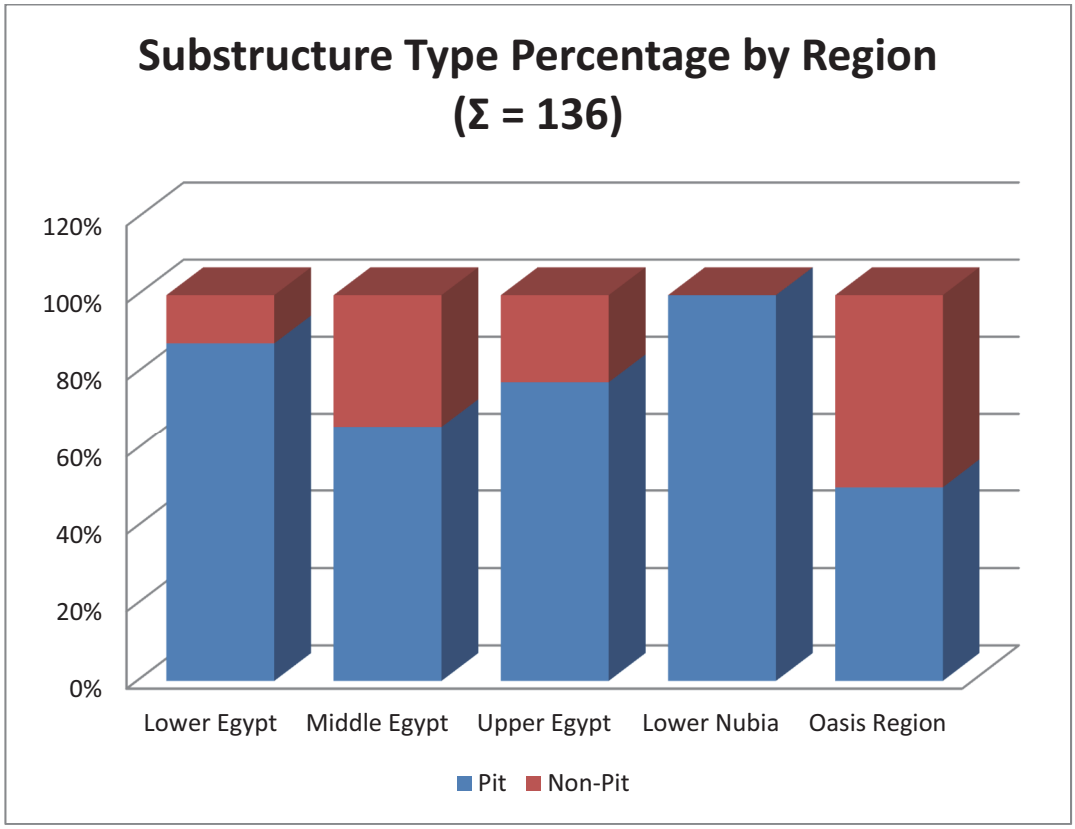

Figure 4.13: Percentage of substructure type by region.

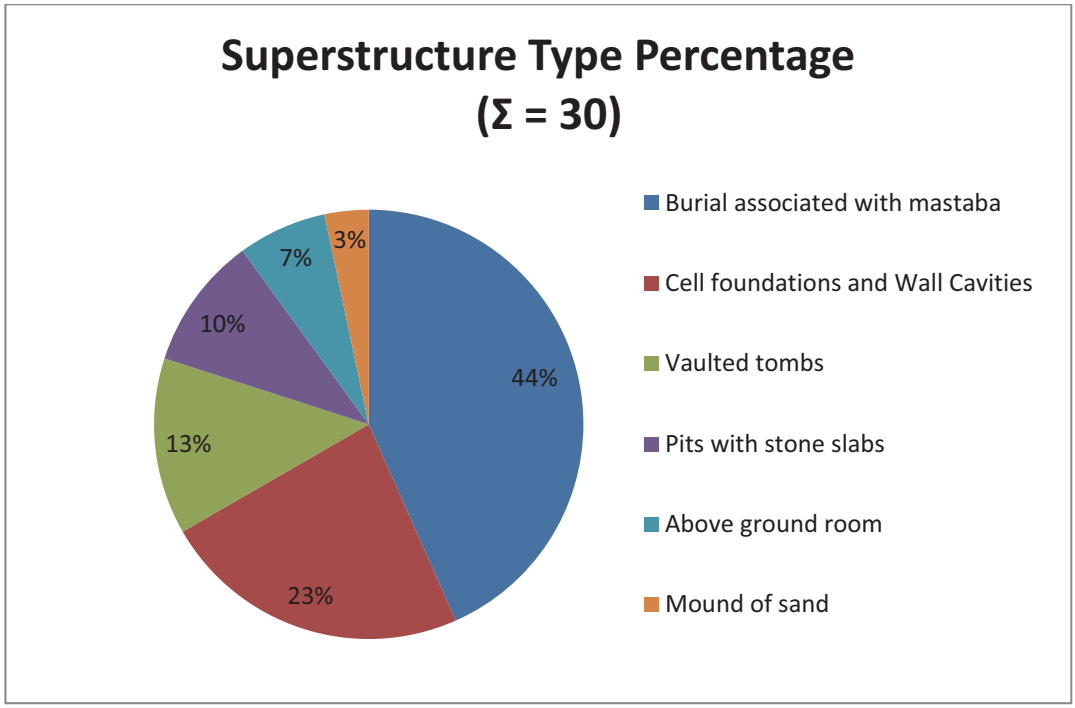

Figure 4.14: Percentage of superstructure type.

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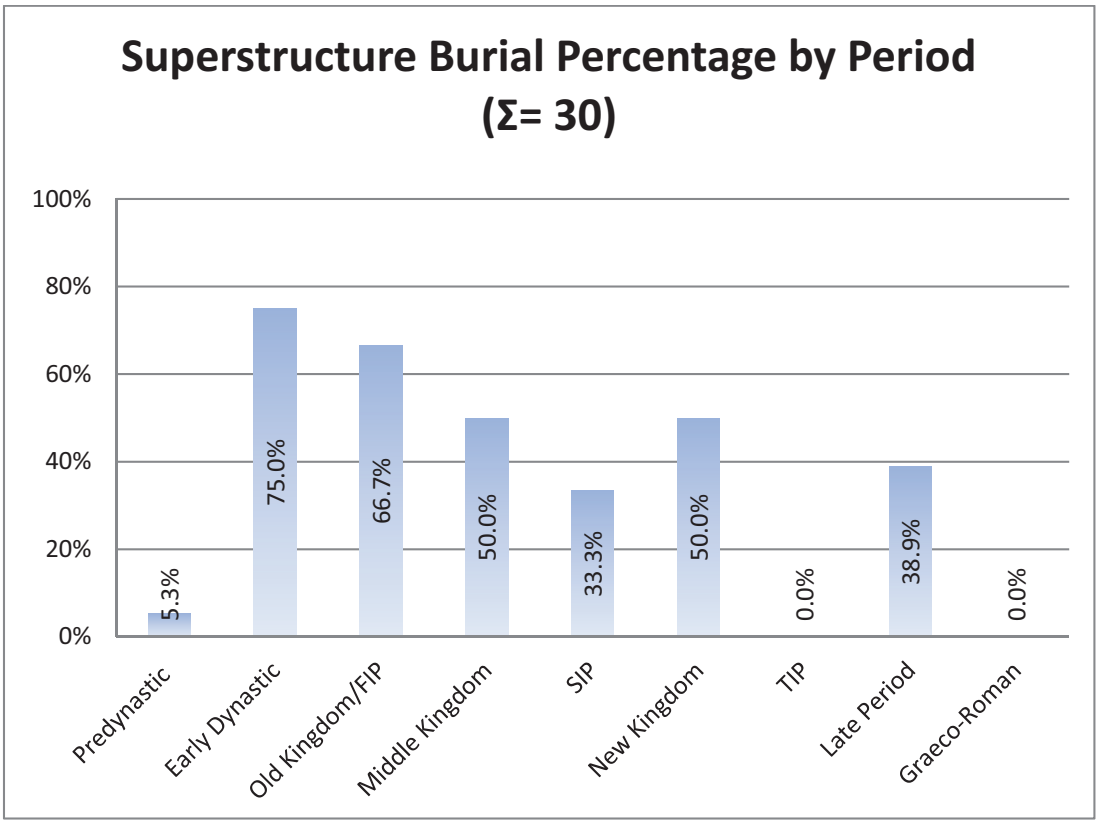


Figure 4.15: Superstructure burial percentage by period.

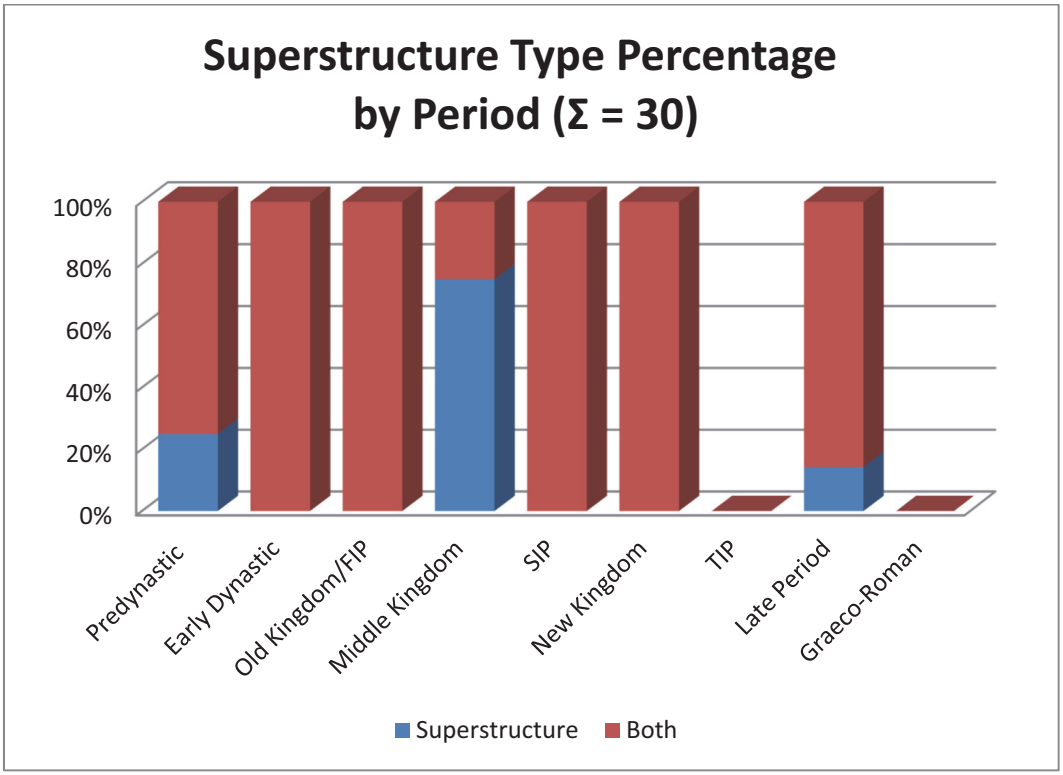


Figure 4.16: Superstructure type percentage by period.

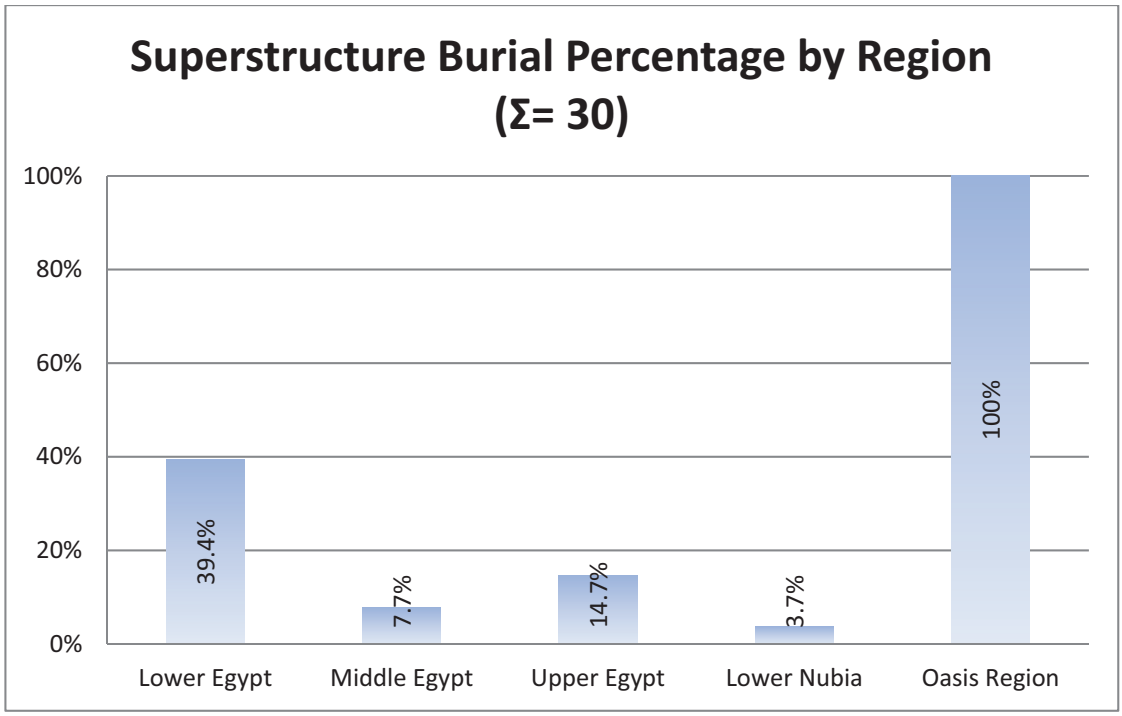


Figure 4.17: Percentage of superstructure burial by region.

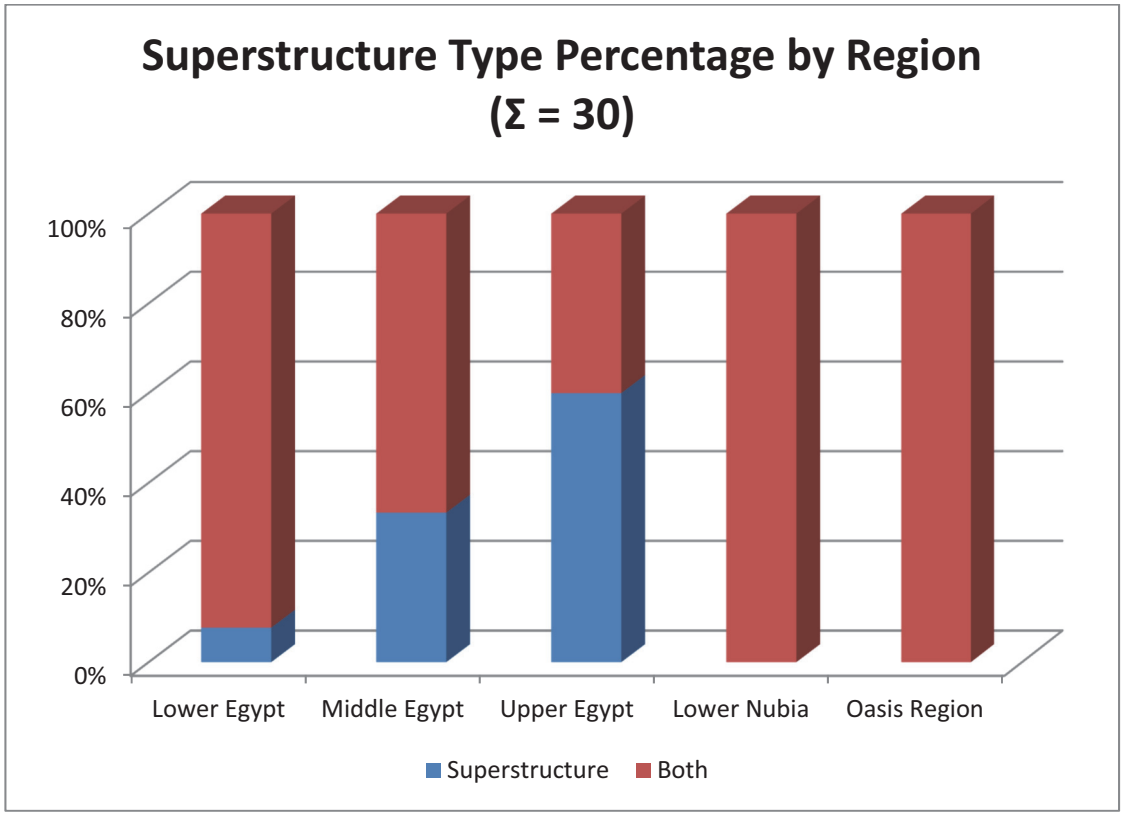


Figure 4.18: Percentage of superstructure type by region.

Appendix
Chapter 5

Analysis of the Corpus of Canid Burials Part II

Figures 5.1 – 5.37

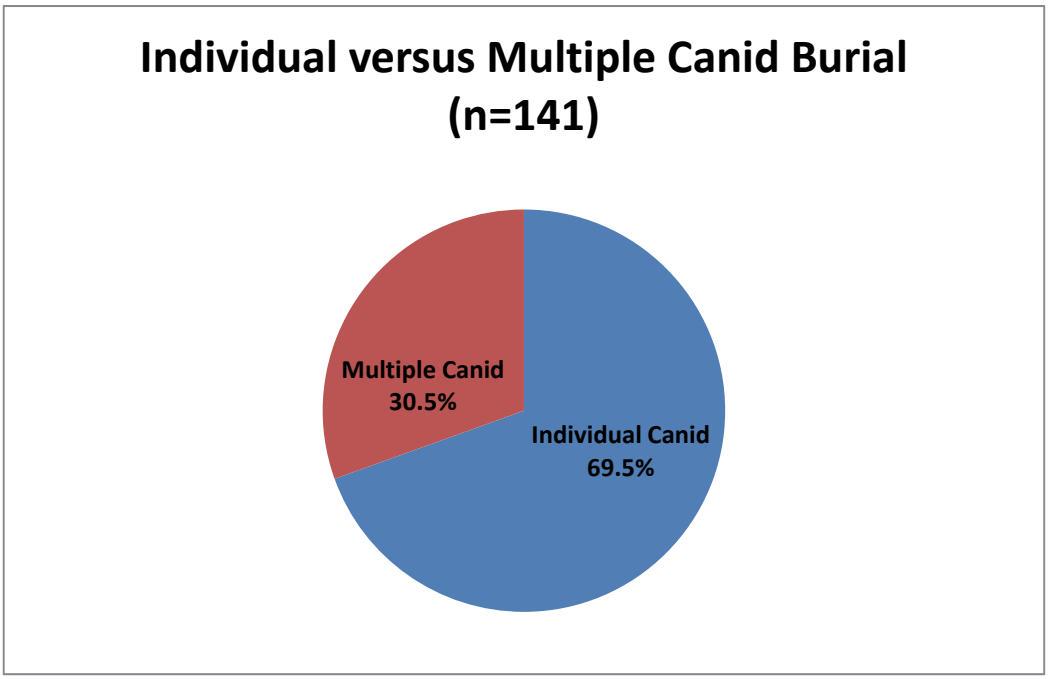


Figure 5.1: Comparative percentages of individual and multiple canids in a burial.

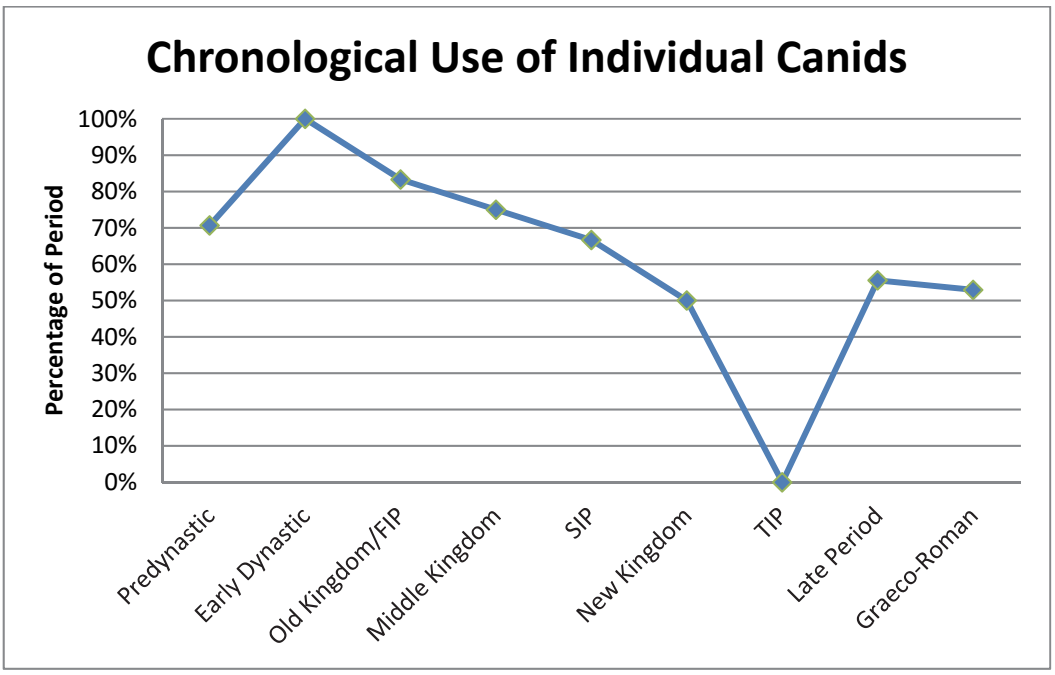


Figure 5.2: Chronological percentage of the employment of single canids in burials.

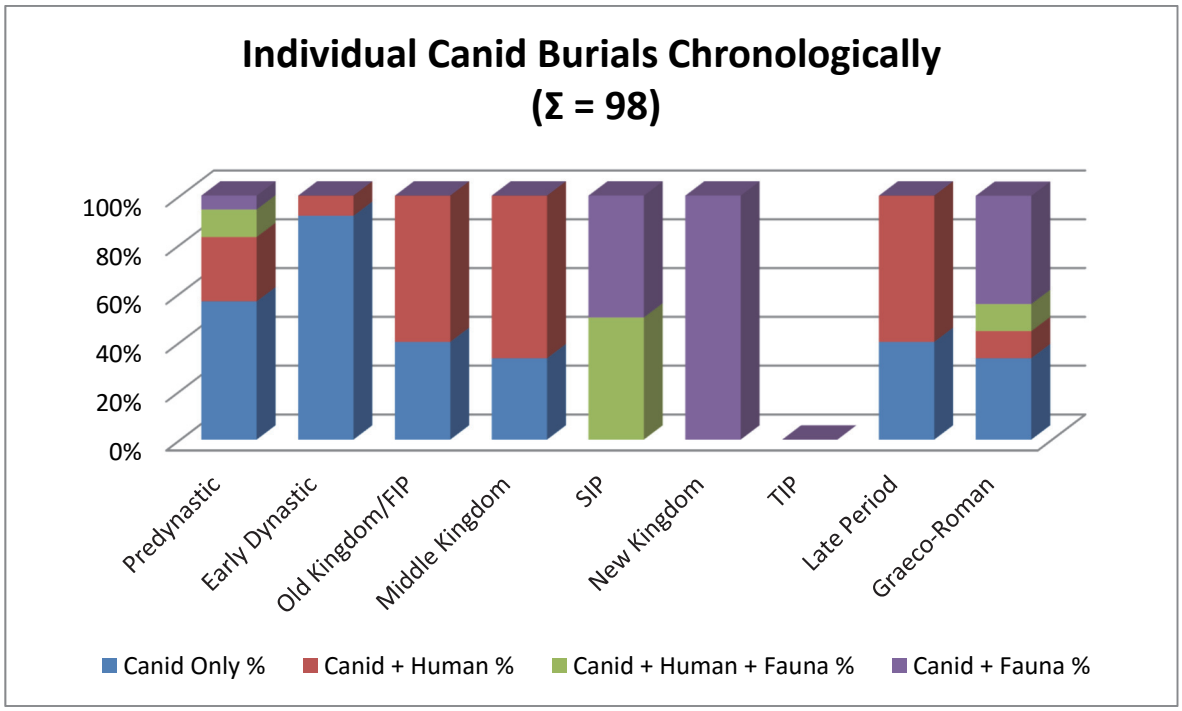


Figure 5.3: Percentage of individual canid burials chronologically.

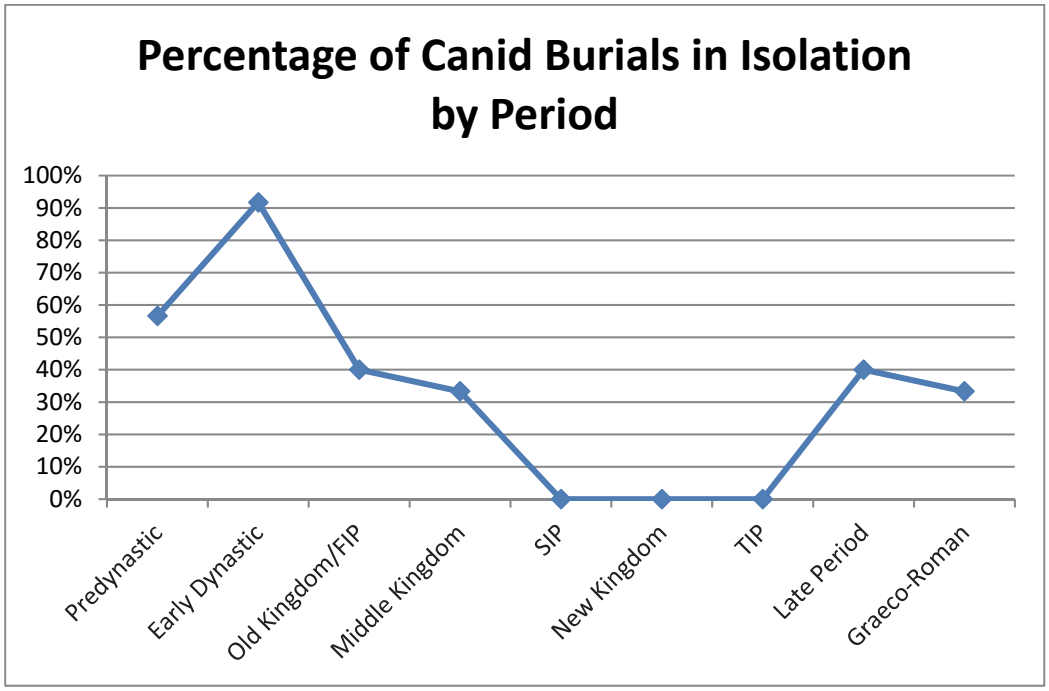


Figure 5.4: Individual canids buried in isolation chronologically.

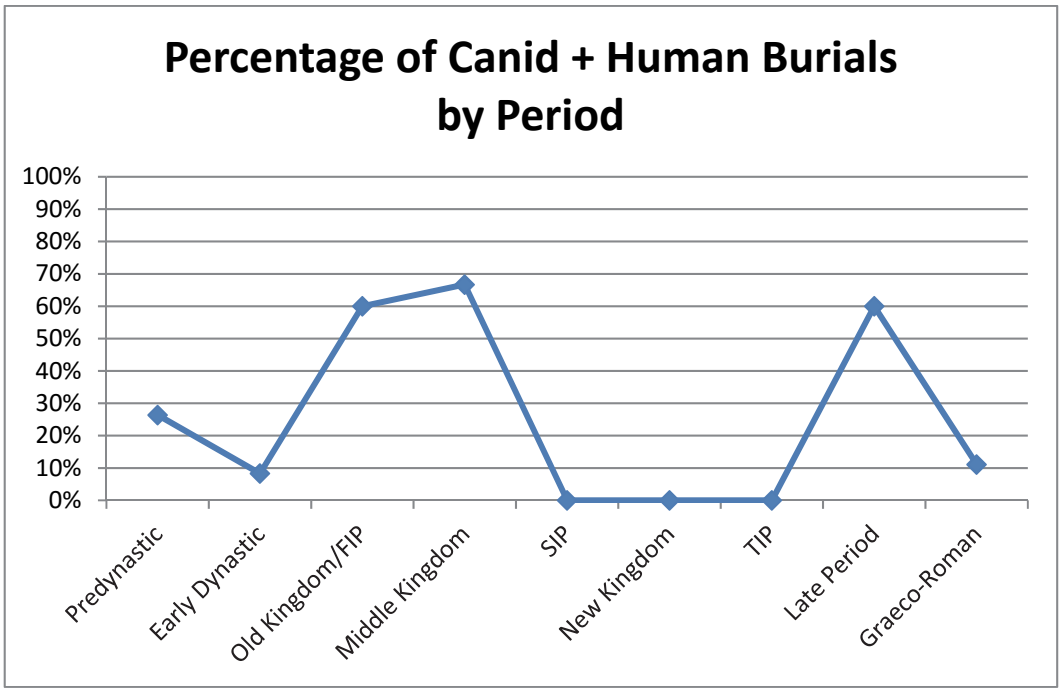


Figure 5.5: Individual canids buried with human association.

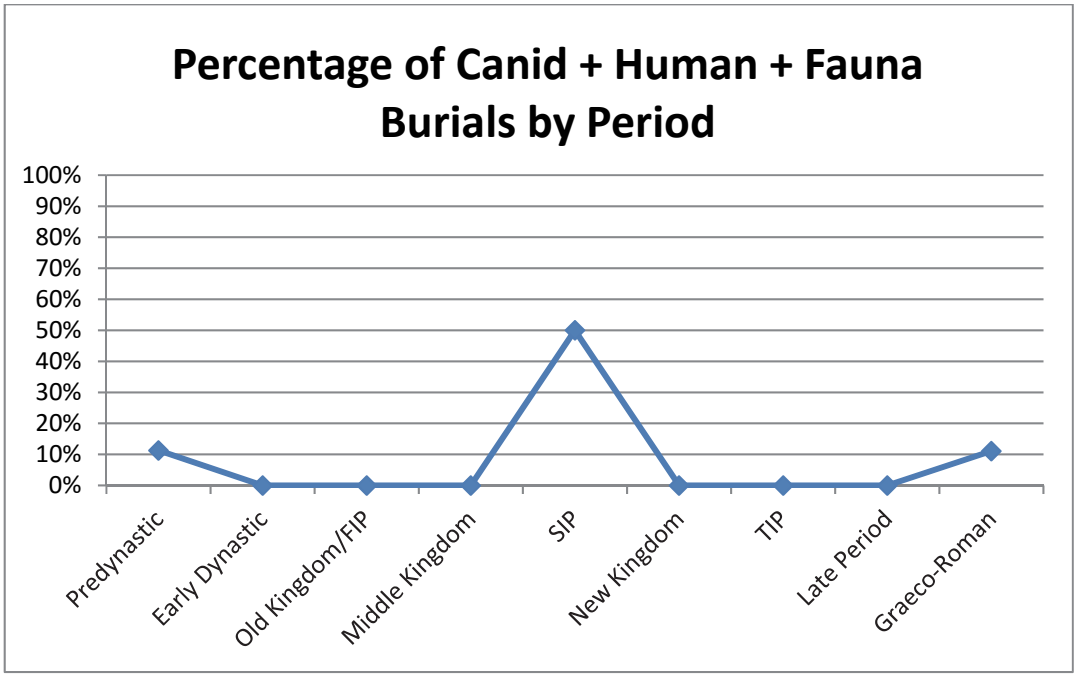


Figure 5.6: Individual canids buried with associated human and faunal remains.

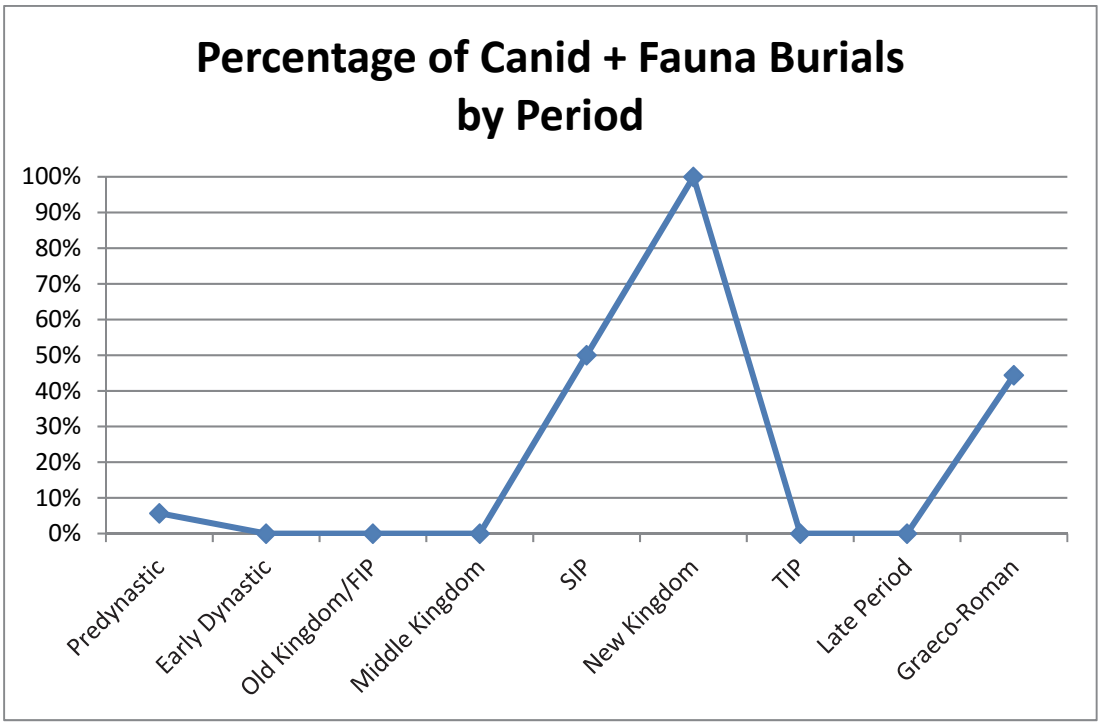


Figure 5.7: Individual canids buried with associated faunal remains.

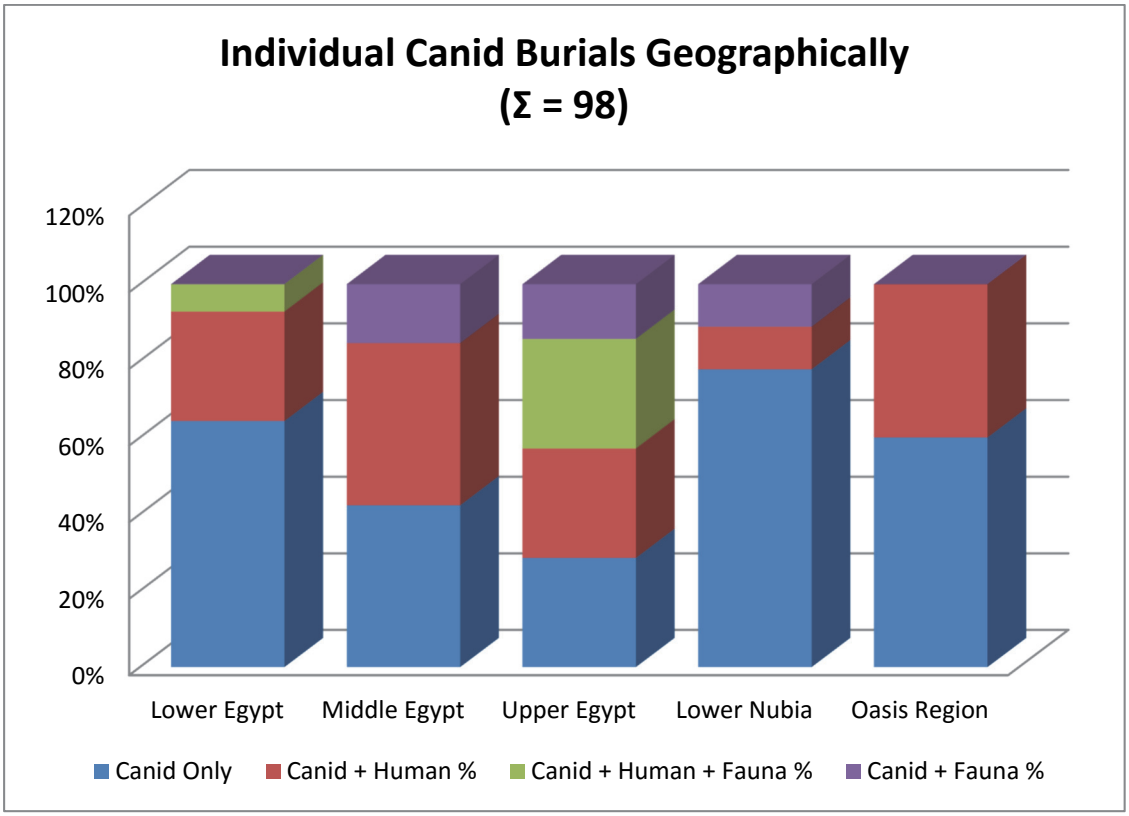


Figure 5.8: Percentage of individual canid burials geographically.

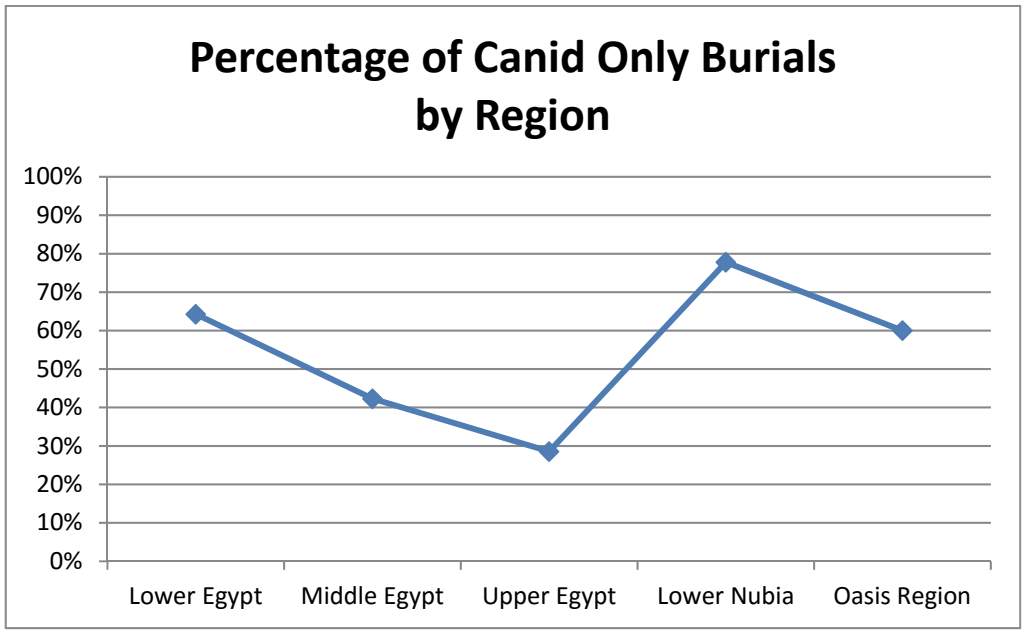


Figure 5.9: Individual canids buried in isolation.

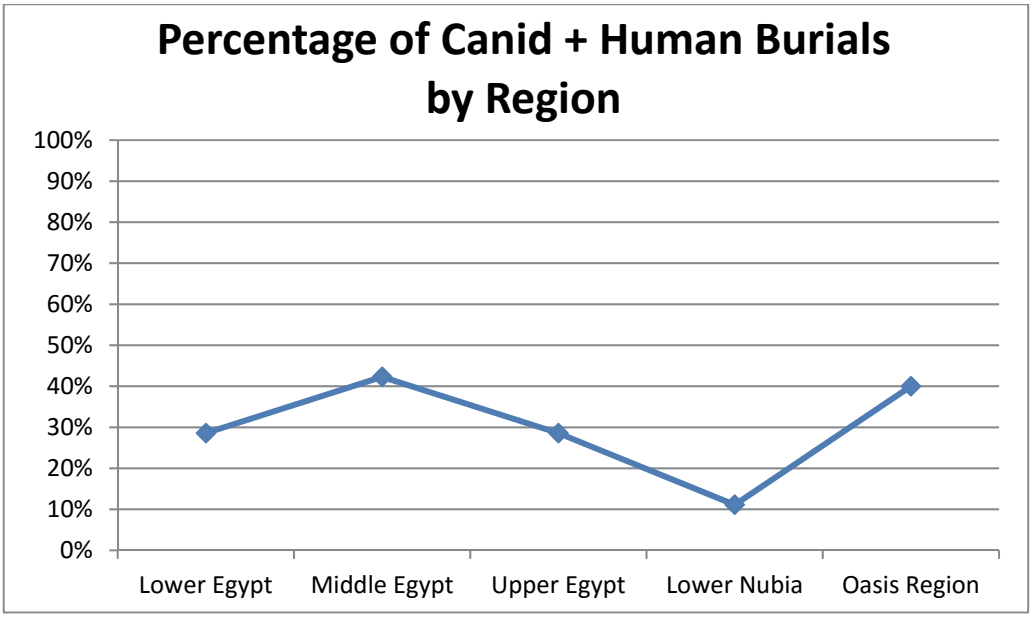


Figure 5.10: Individual canids buried with human association.

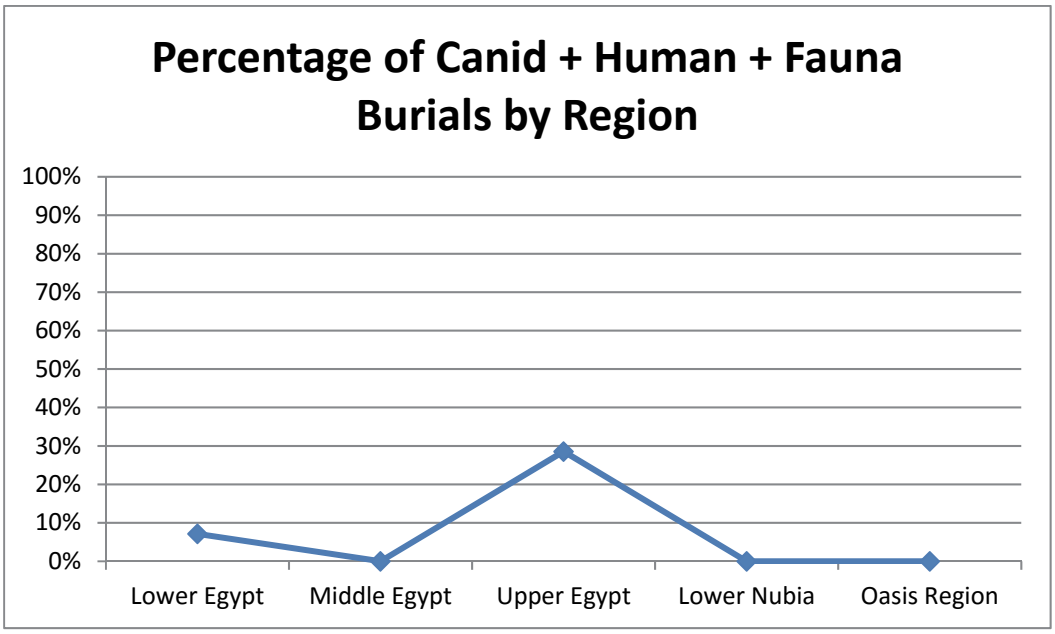


Figure 5.11: Individual canids buried with associated human and faunal remains.

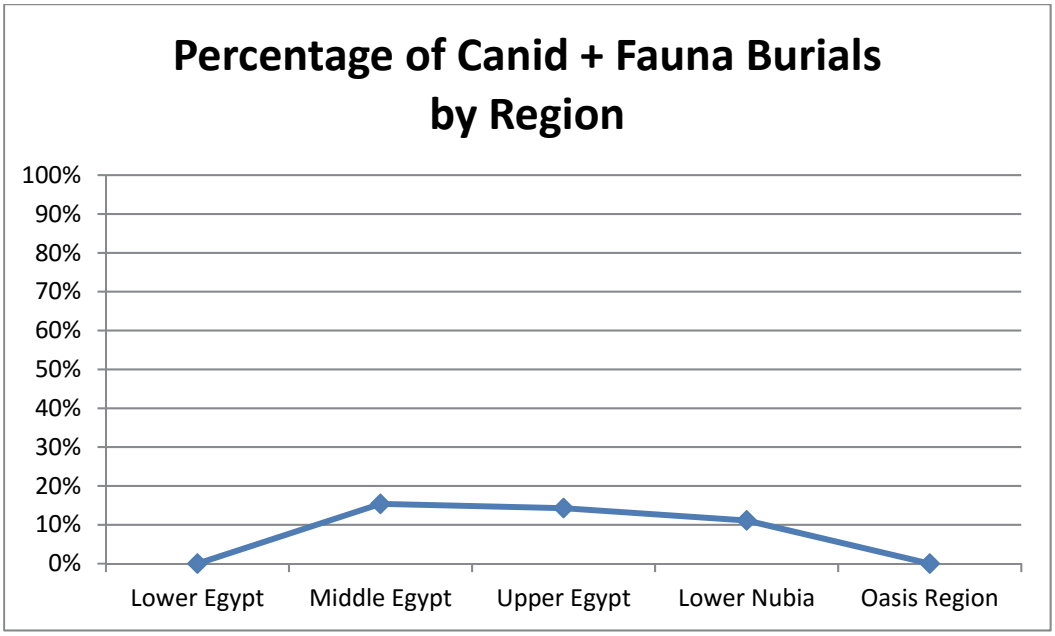


Figure 5.12: Individual canids buried with associated faunal remains.

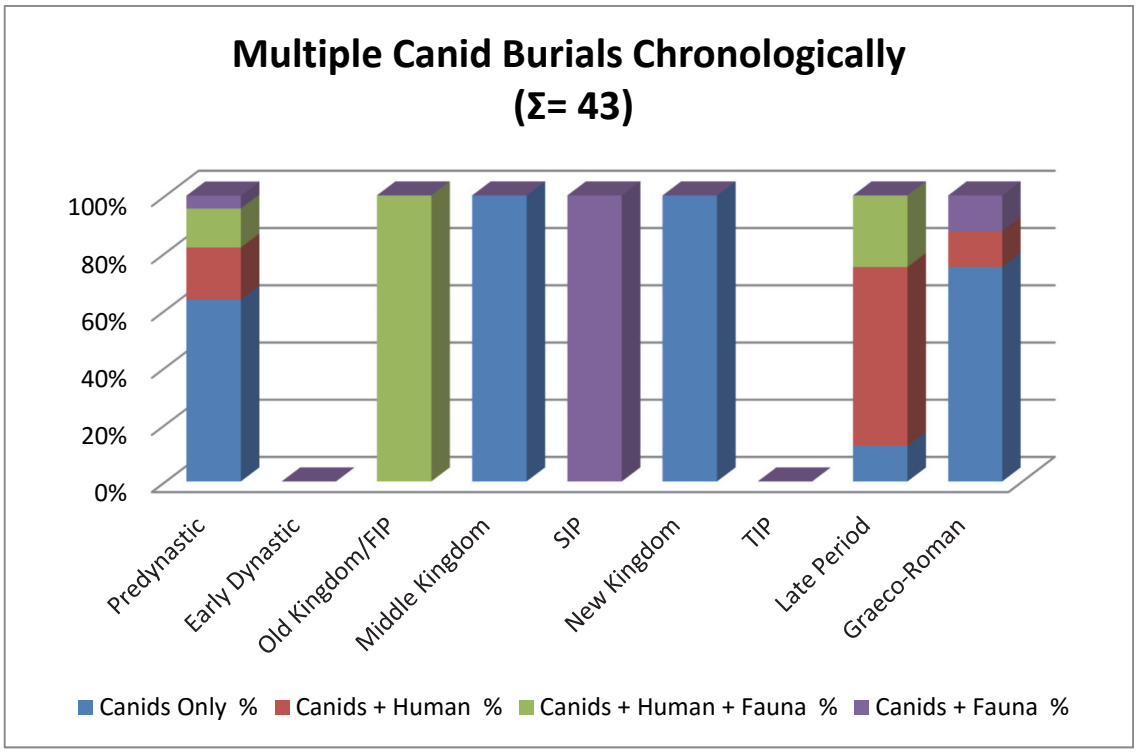


Figure 5.13: Percentage of multiple canid burials chronologically.

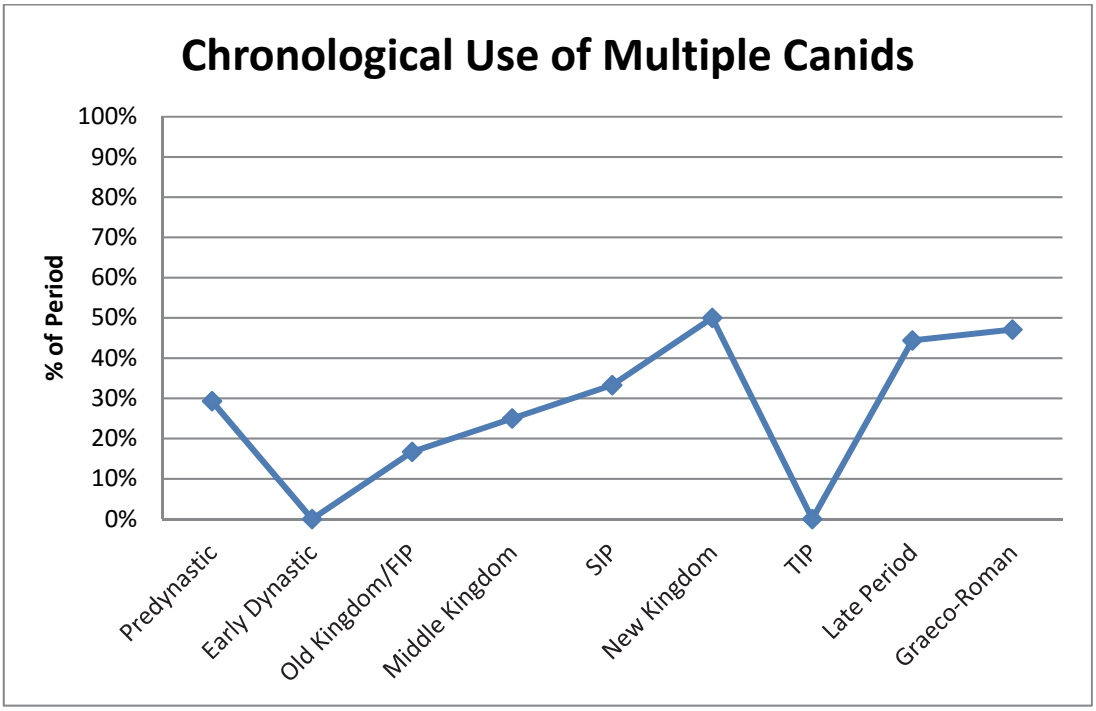


Figure 5.14: Chronological popularity of multiple canid burials.

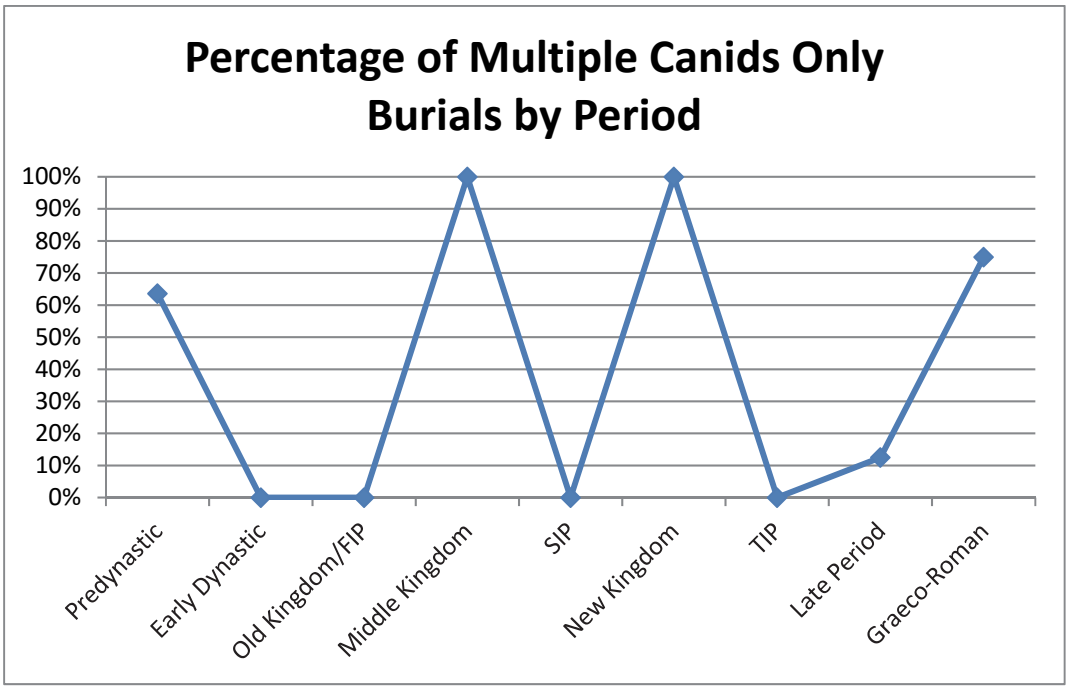


Figure 5.15: Multiple canids buried in isolation.

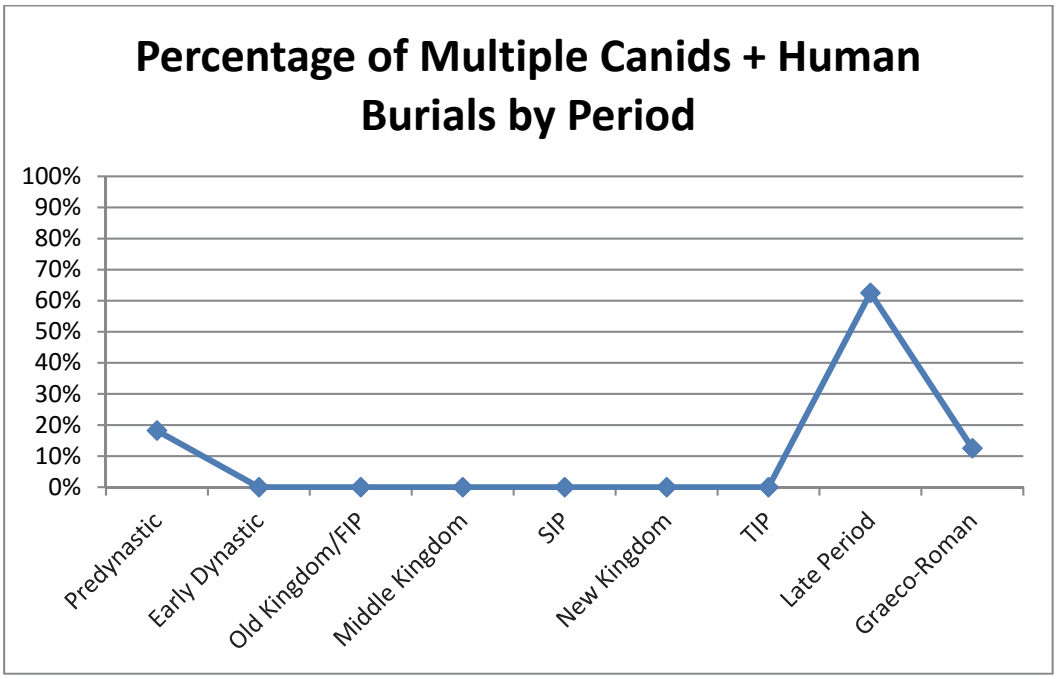


Figure 5.16: Multiple canids buried with human association.

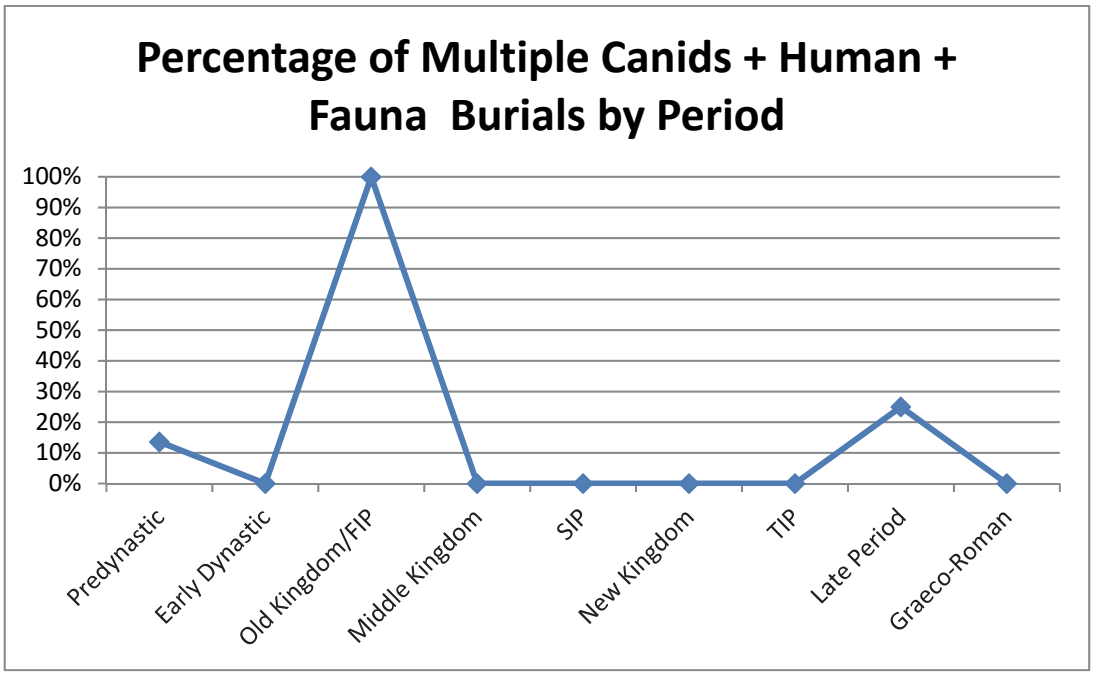


Figure 5.17: Multiple canids buried with associated human and faunal remains.

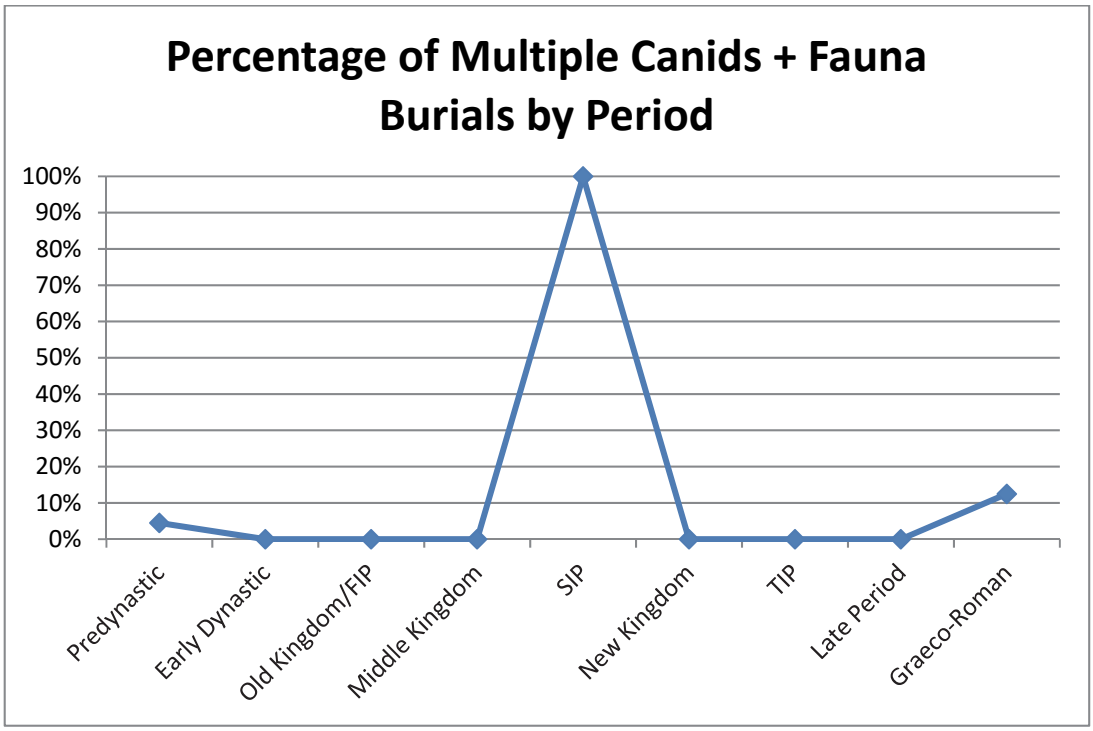


Figure 5.18: Multiple canids buried with associated faunal remains.

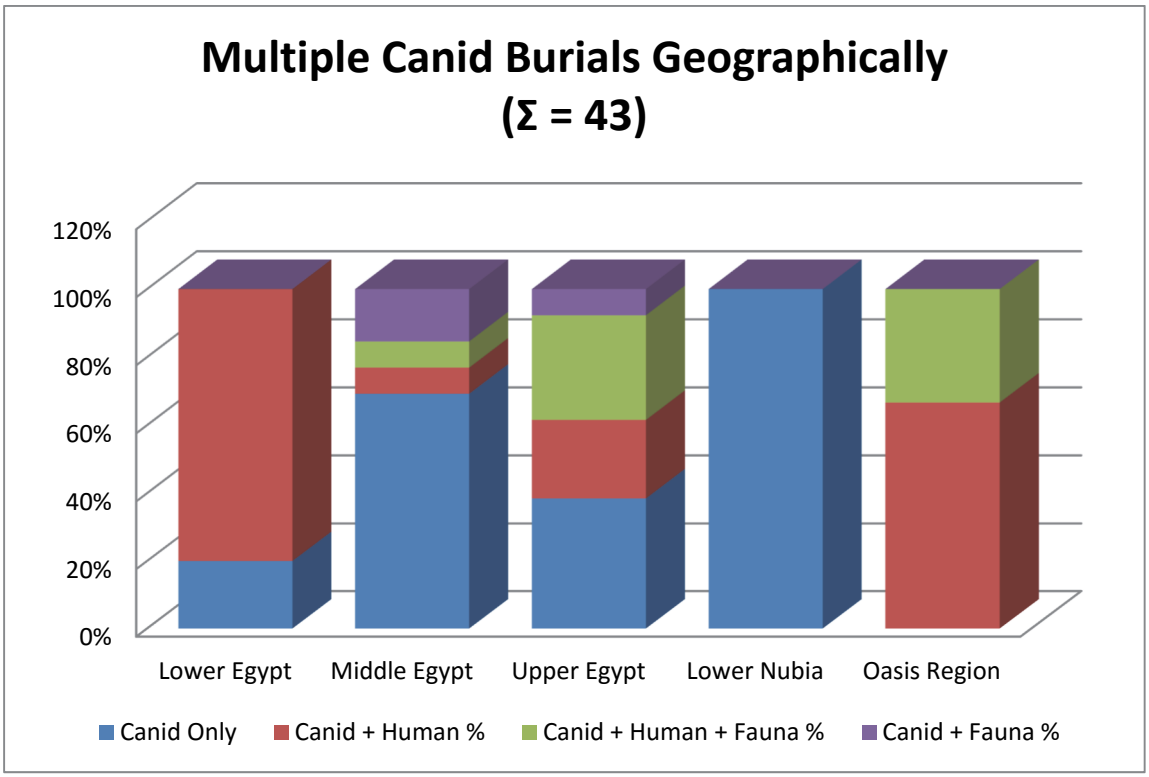


Figure 5.19: Percentage of multiple canid burials geographically.

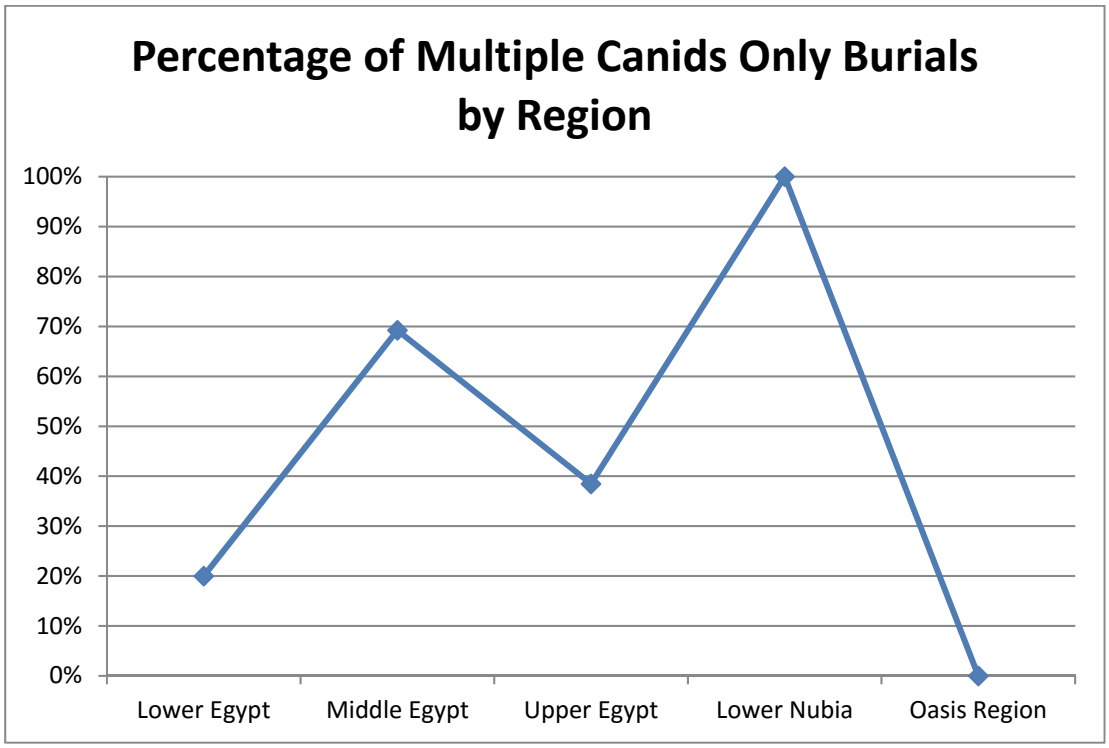


Figure 5.20: Multiple canids buried in isolation.

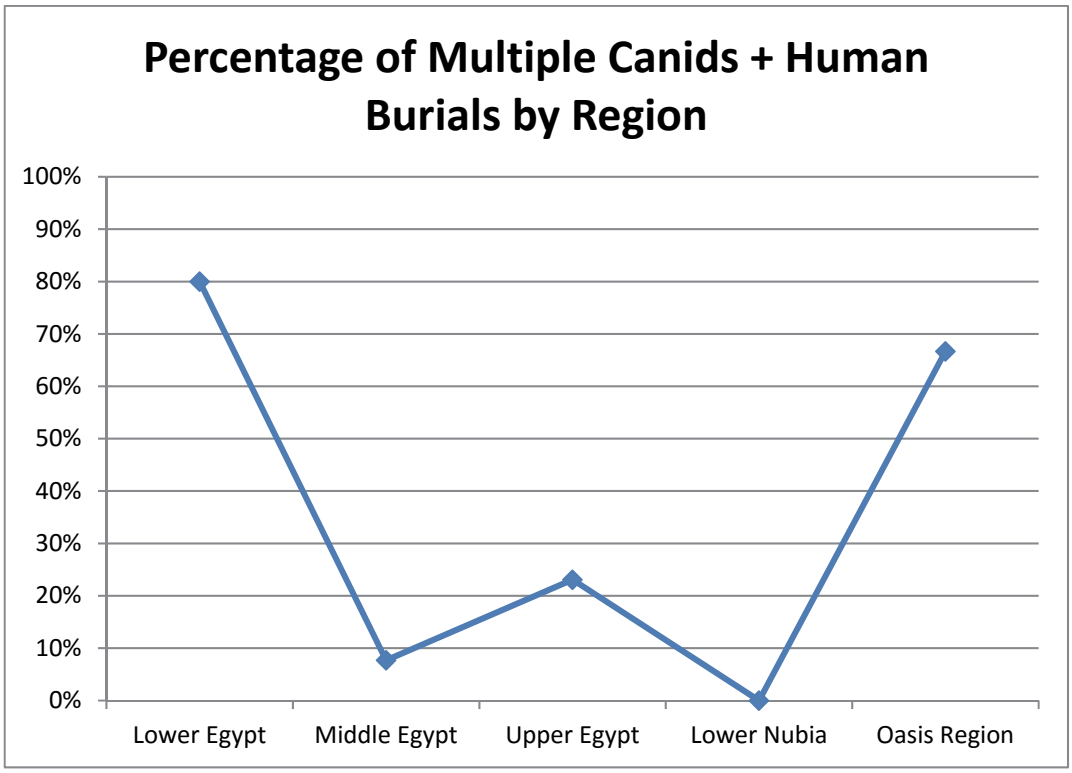


Figure 5.21: Multiple canids buried with human association.

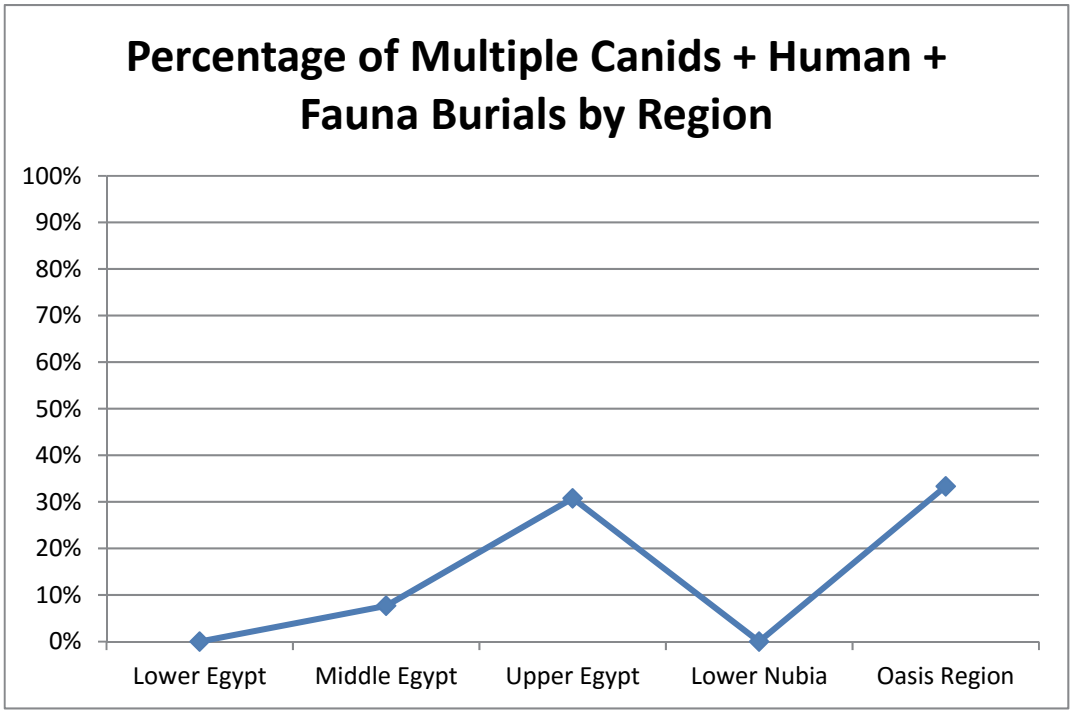


Figure 5.22: Multiple canids buried with associated human and faunal remains.

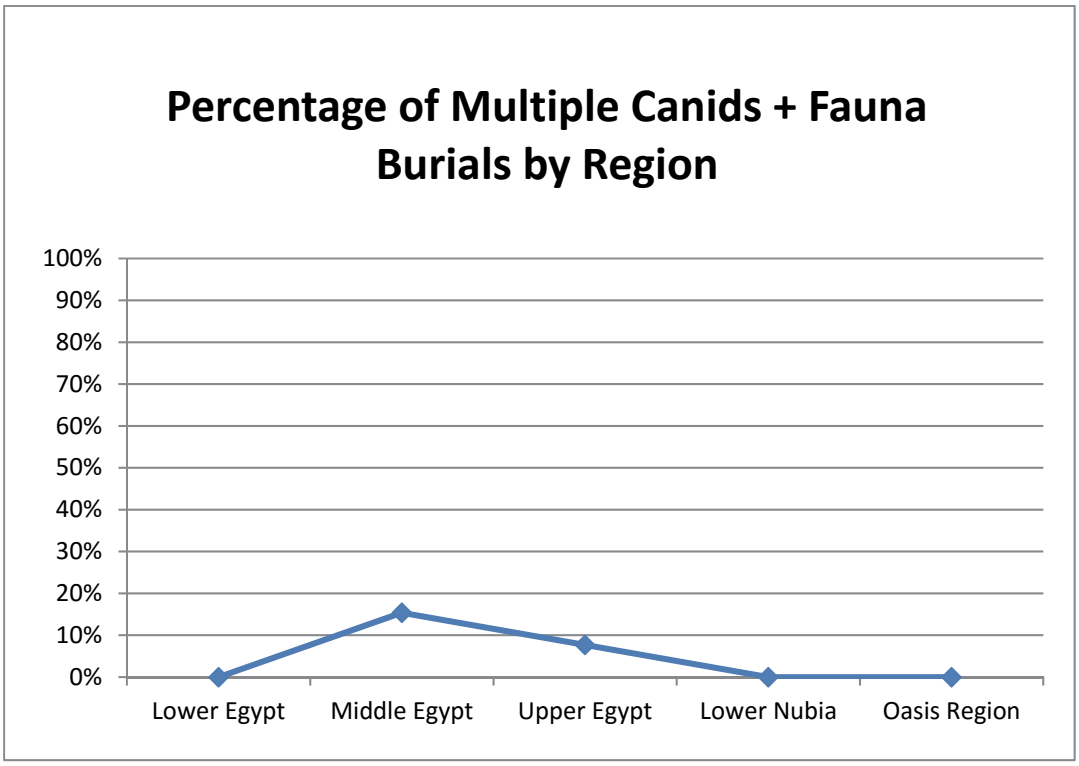


Figure 5.23: Multiple canids buried with associated faunal remains.

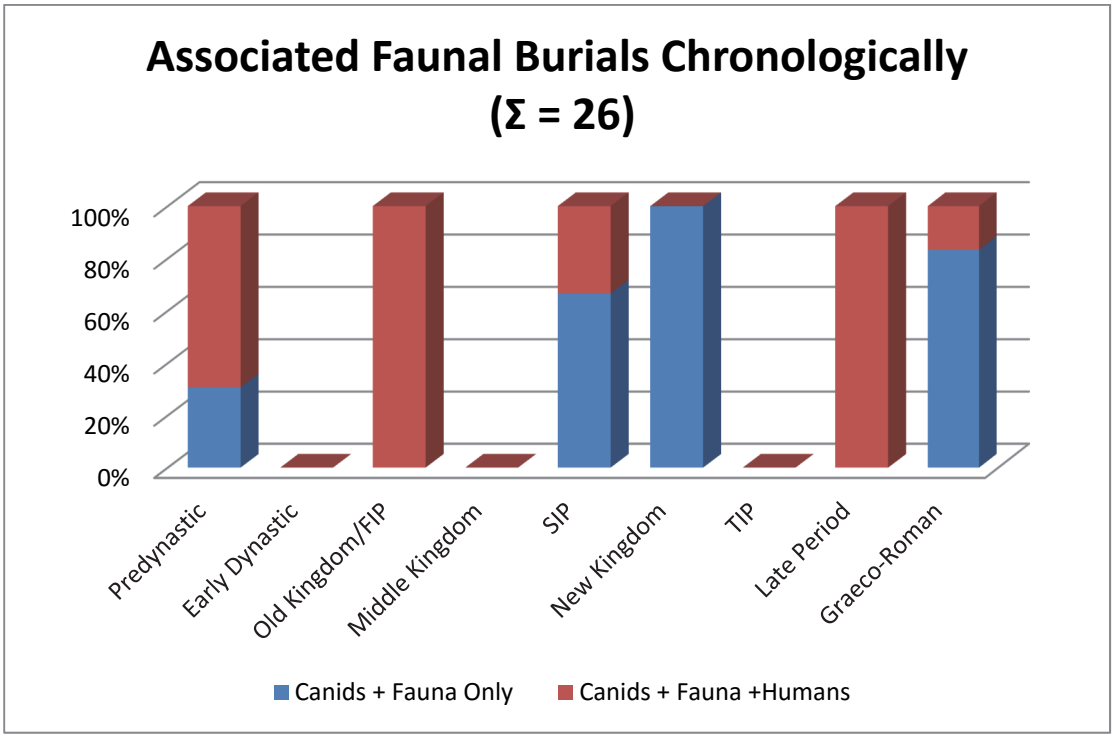


Figure 5.24: Canid burials with associated faunal remains chronologically.

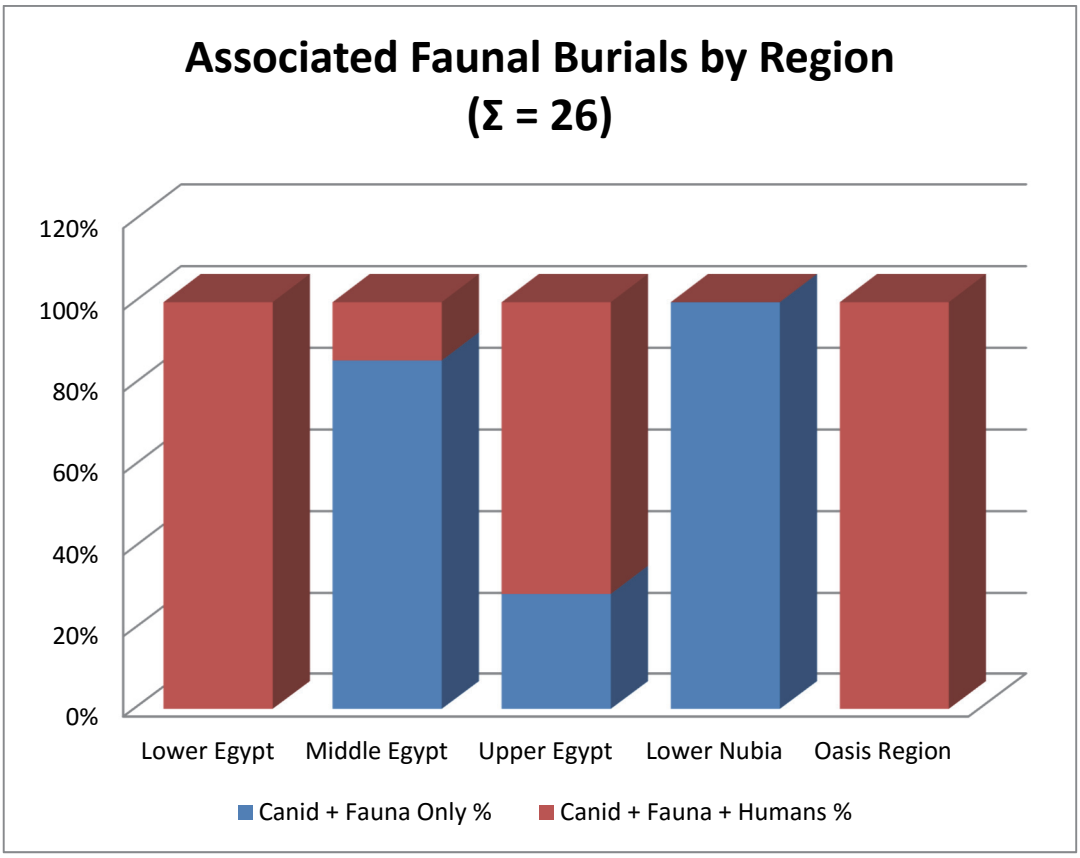


Figure 5.25: Canid burials with associated faunal remains geographically.

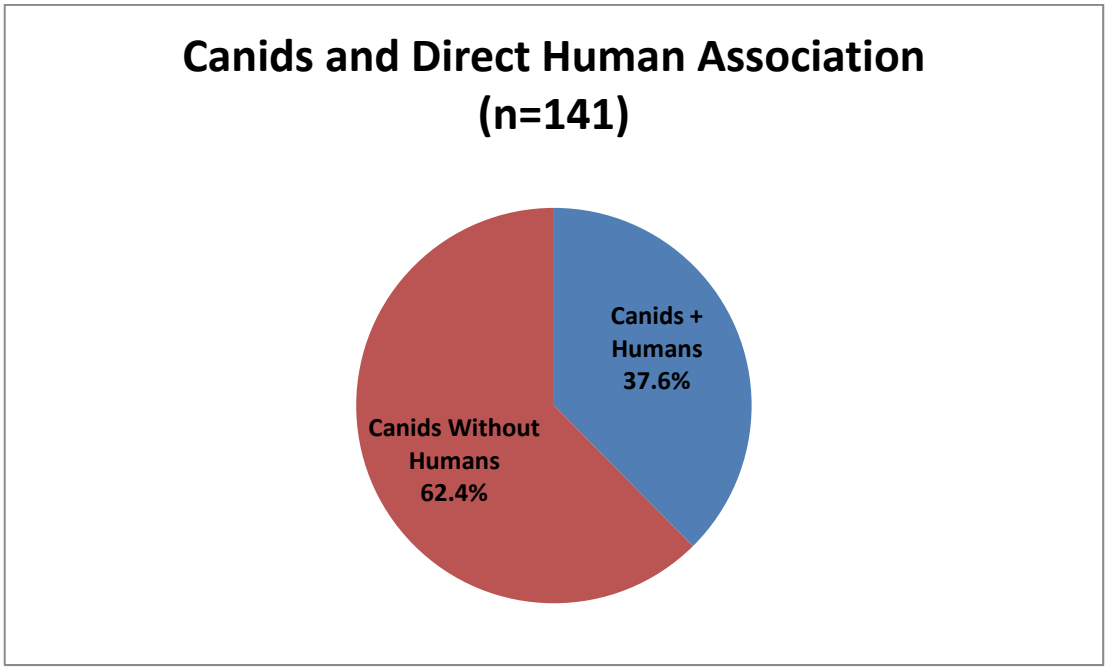


Figure 5.26: Canids buried with direct human association.

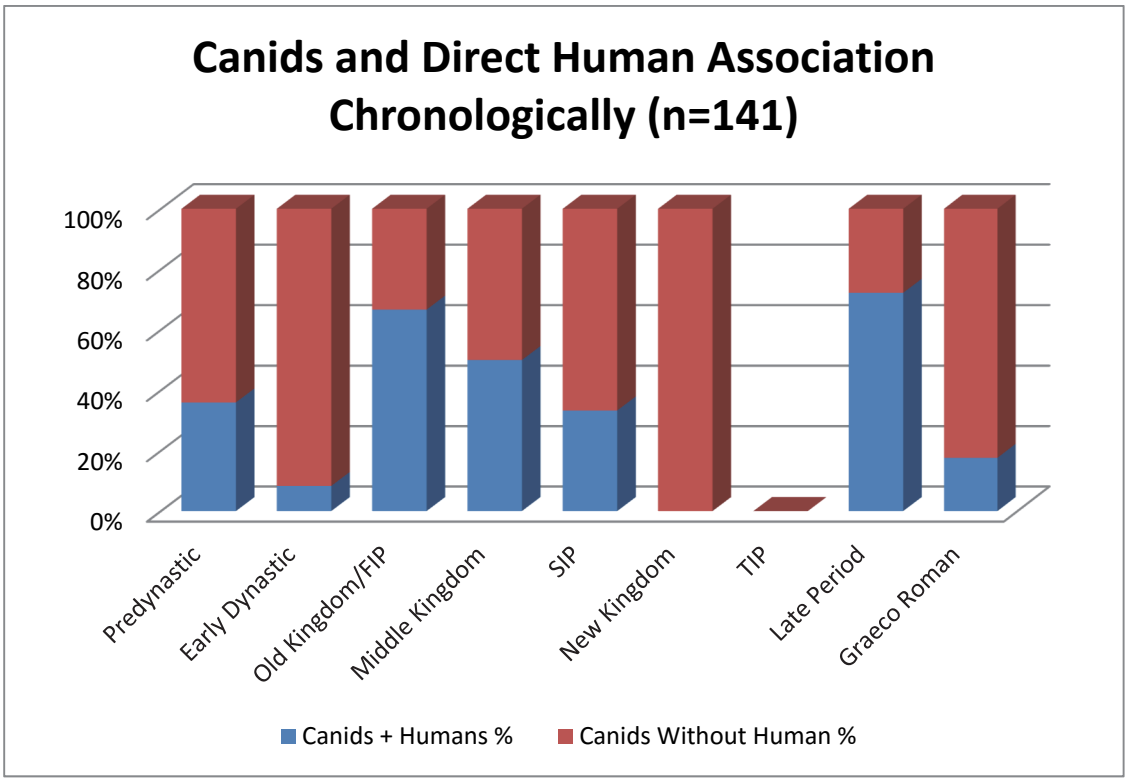


Figure 5.27: Chronological distribution of canids buried with human association.

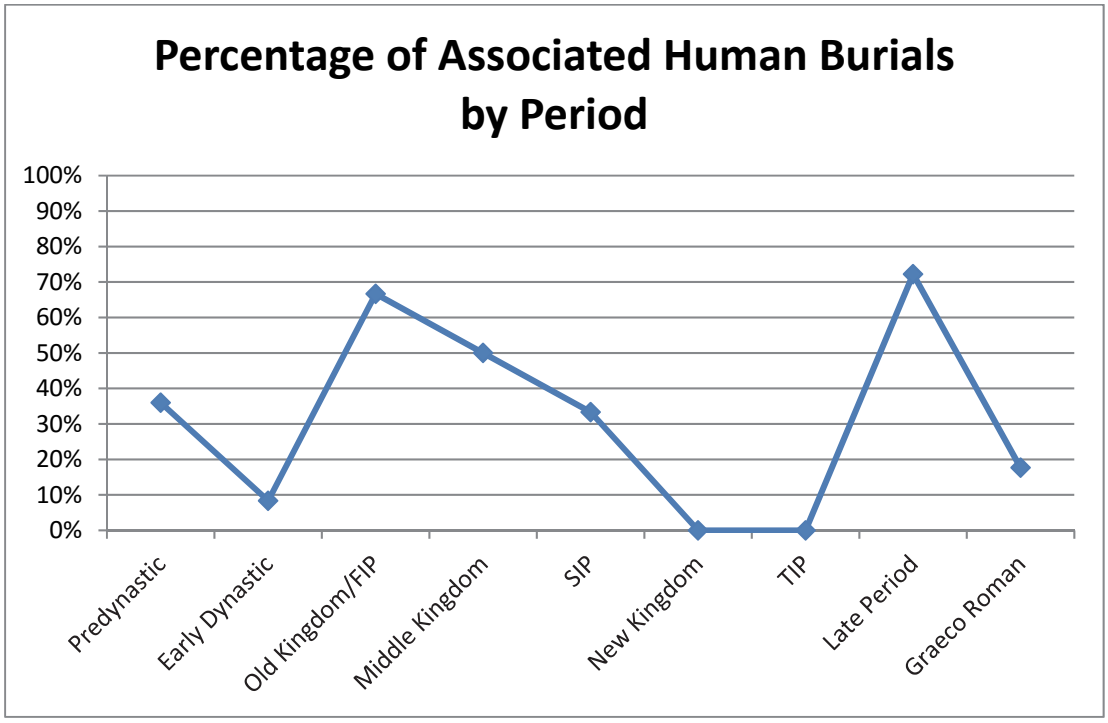


Figure 5.28: Percentage of canid burials with human association by period.

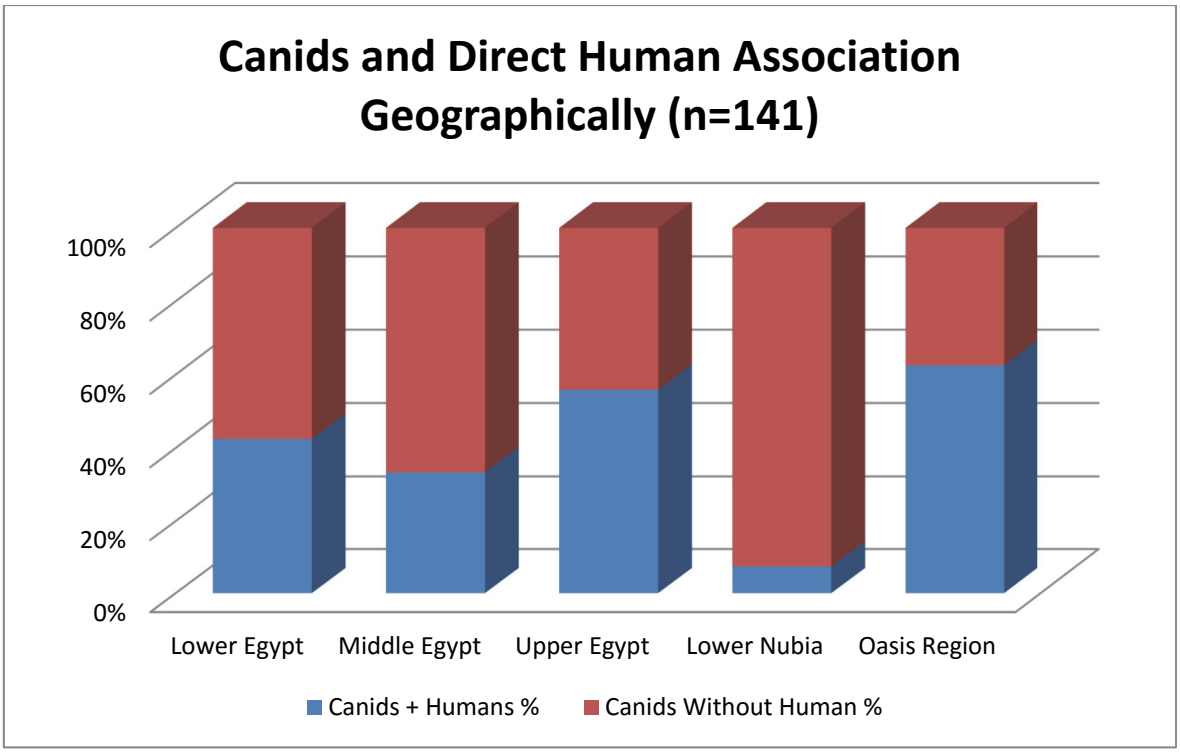


Figure 5.29: Geographical distribution of canids buried with human association.

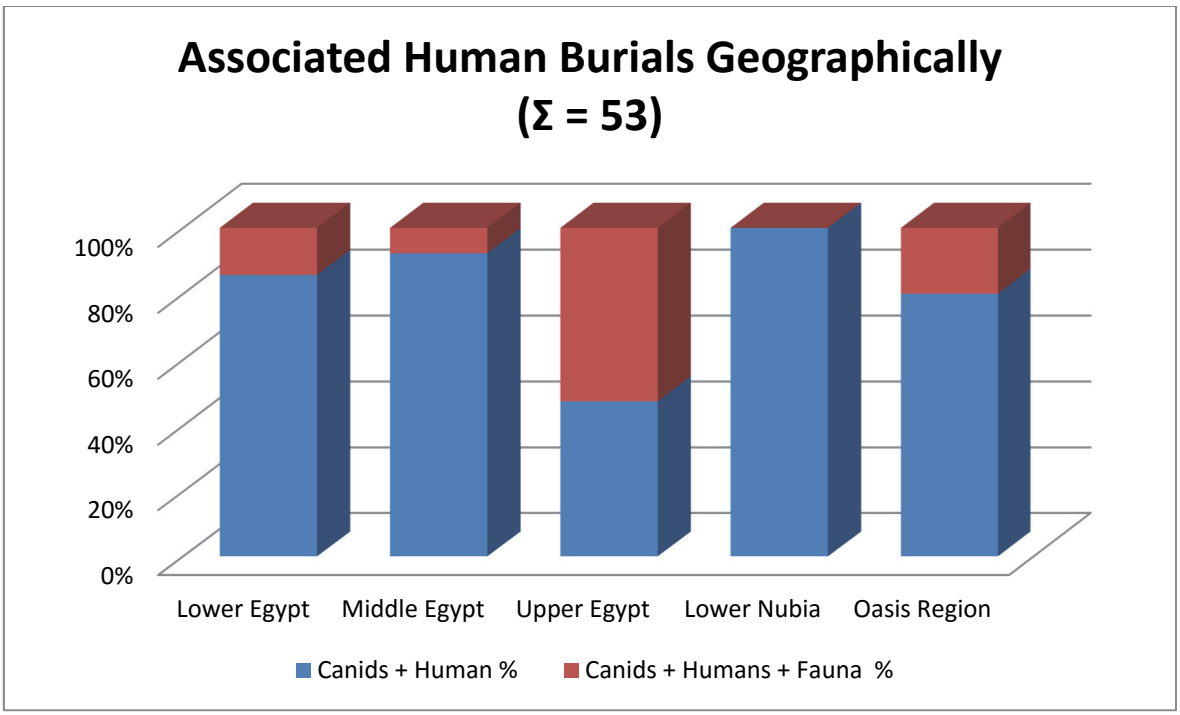


Figure 5.30: Geographical distribution of canids buried with human association.

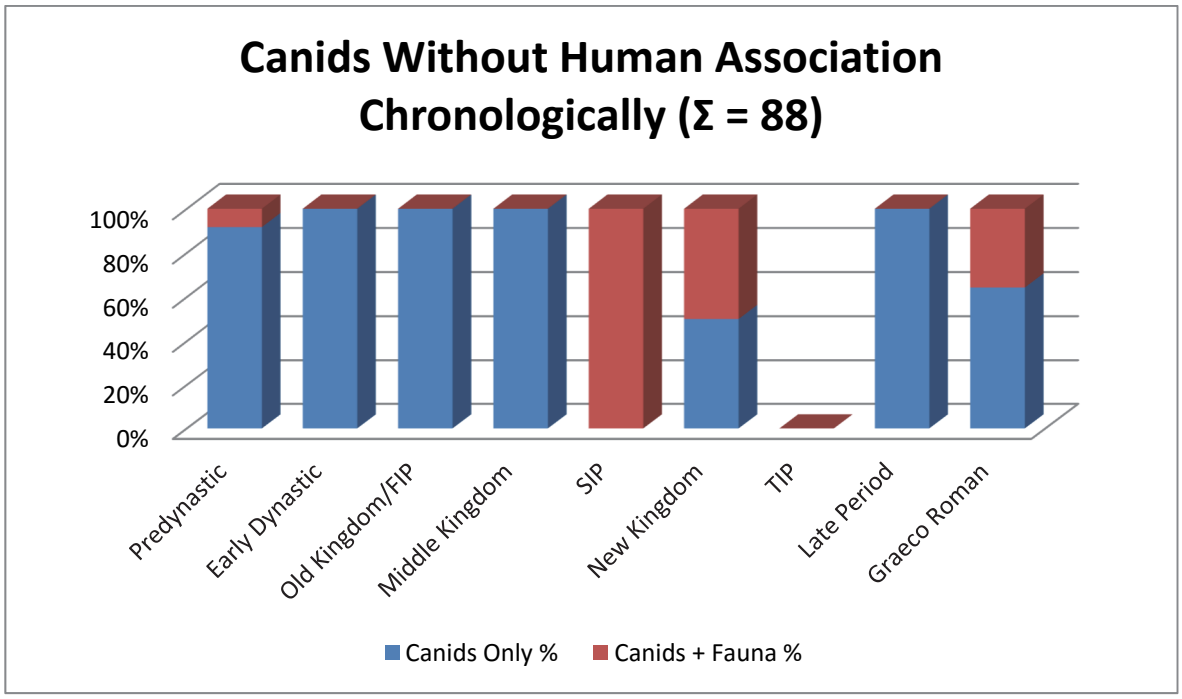


Figure 5.31: Chronological distribution of canids buried without human association.

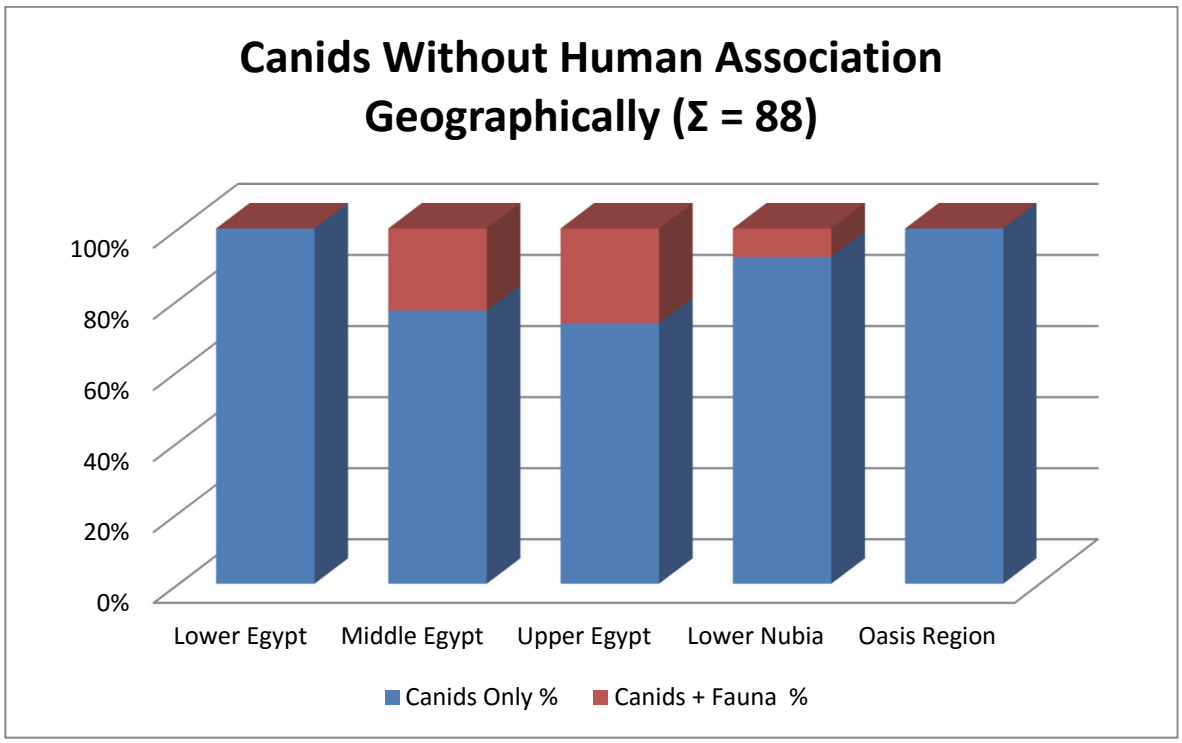


Figure 5.32: Geographical distribution of canids buried without human association.

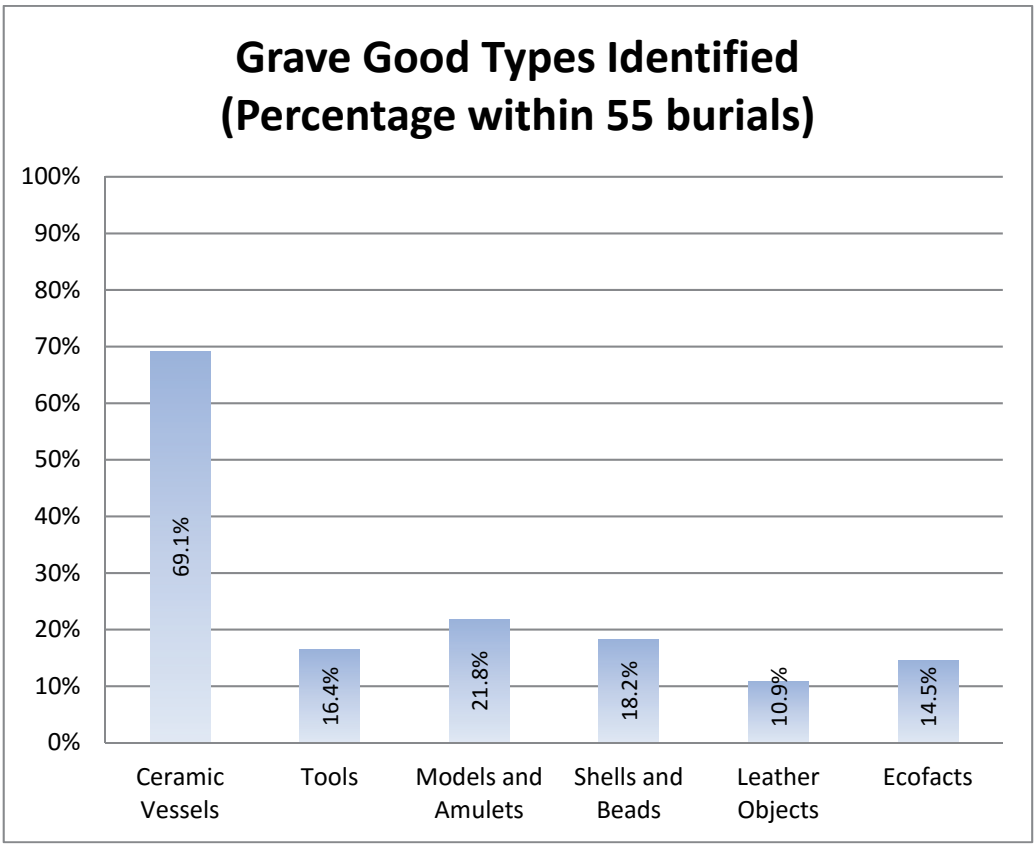


Figure 5.33: Distribution of grave good type.

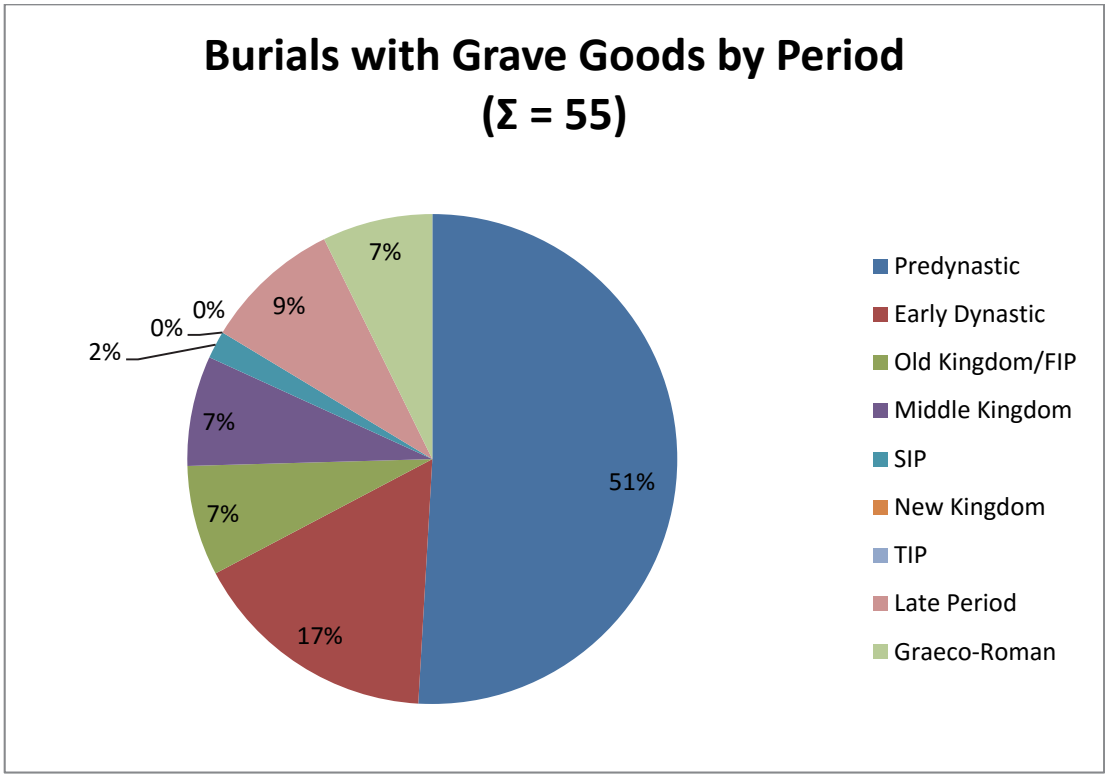


Figure 5.34: Chronological distribution of canid burials with grave goods.

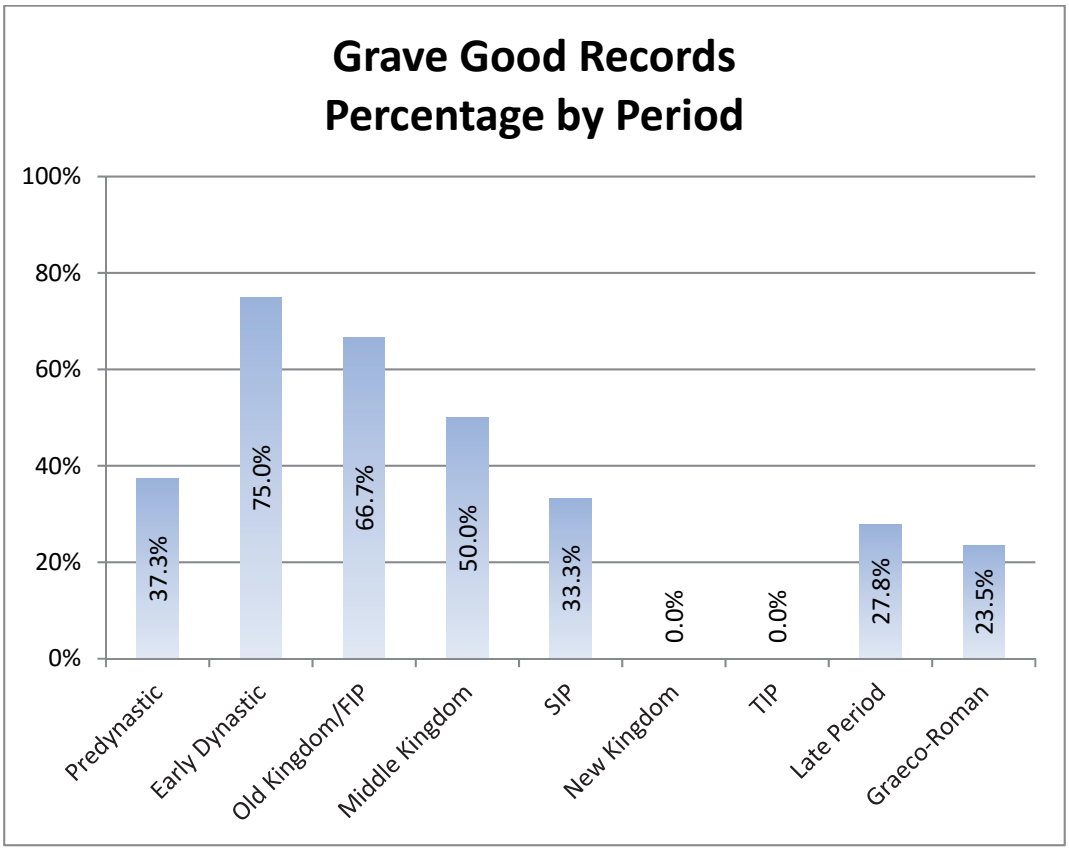


Figure 5.35: Percentage of canid burials containing grave goods by period.

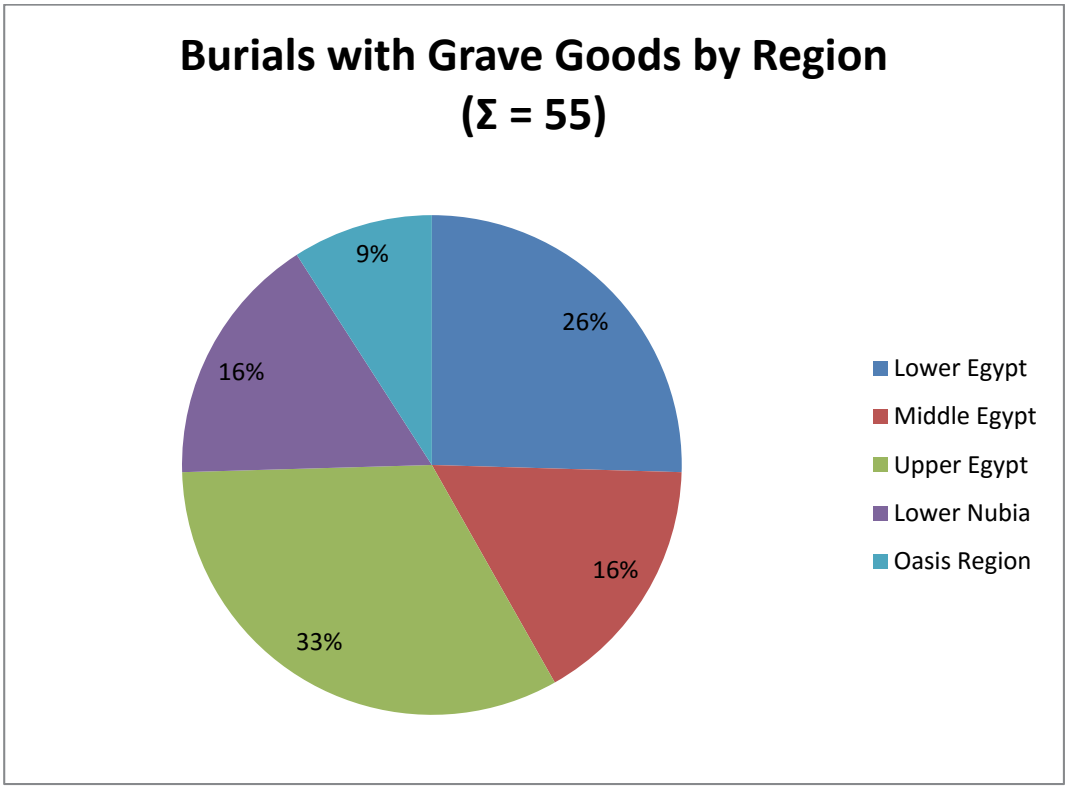


Figure 5.36: Geographical distribution of canid burials with grave goods.

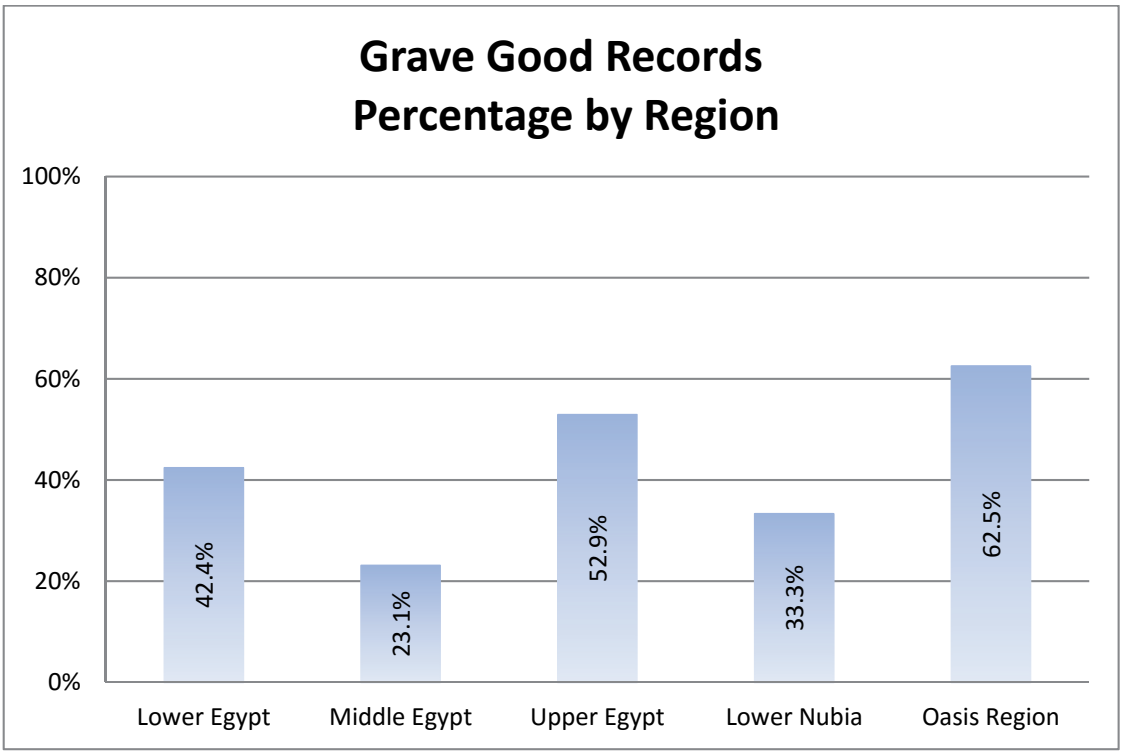


Figure 5.37: Percentage of canid burials containing grave goods by region.

Appendix
Chapter 6

A Case Study of Saqqara Canid Crania

Figures 6.1 – 6.50

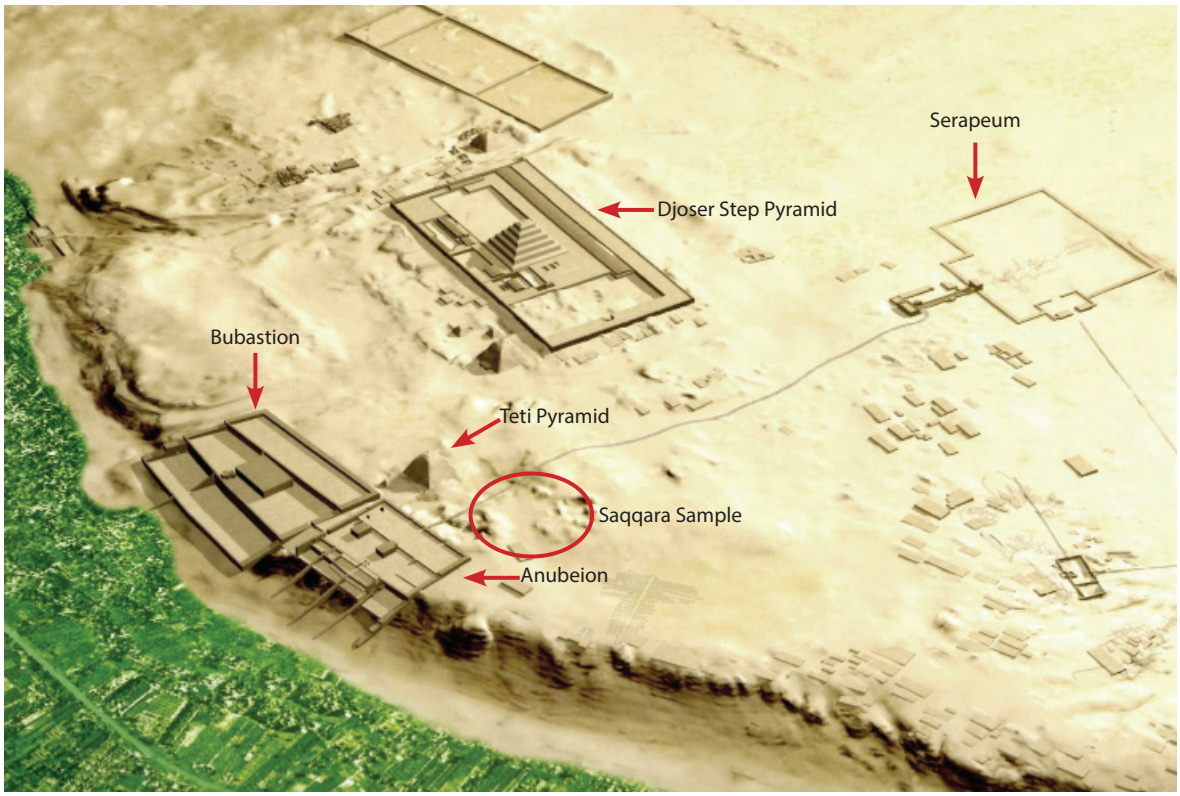


Figure 6.1: Map of Saqqara indicating Teti Cemetery and adjacent sites, after Ago, Bresciani & Giammarusti (2003: Map page 85).

Figure 6.2: Disarticulated canid remains found in one burial chamber at the bottom of a New Kingdom shaft in the Teti north cemetery, Saqqara, photo L. Donovan.

Figure 6.3: A sample of the excavated Saqqara crania, photo L. Donovan.

a) superior (dorsal) b) inferior (ventral) c) laterial

Figure 6.4: Photographic views of cranium, photos L. Donovan.

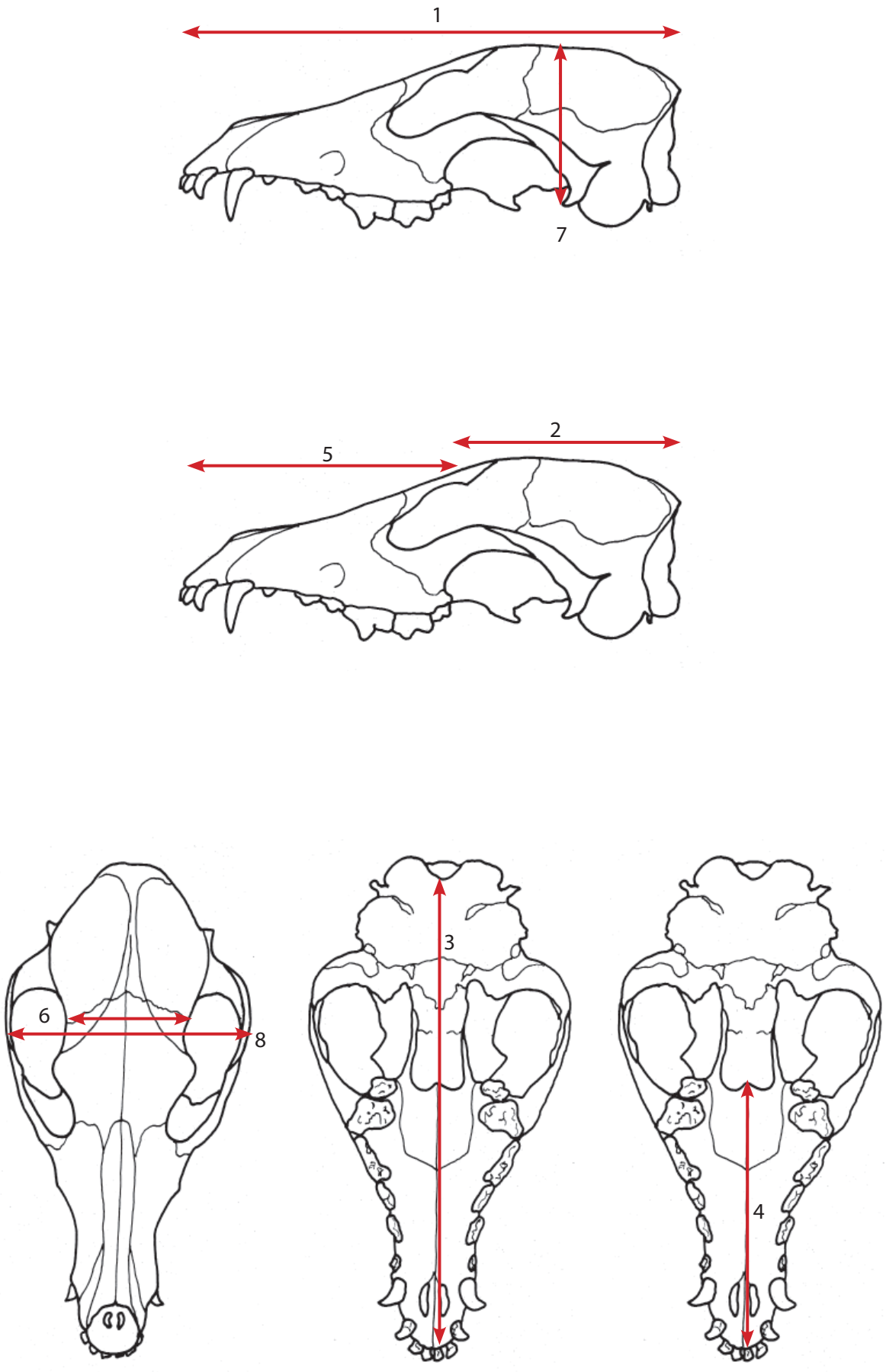


Figure 6.5: Illustrations of the 8 cranial measurements.

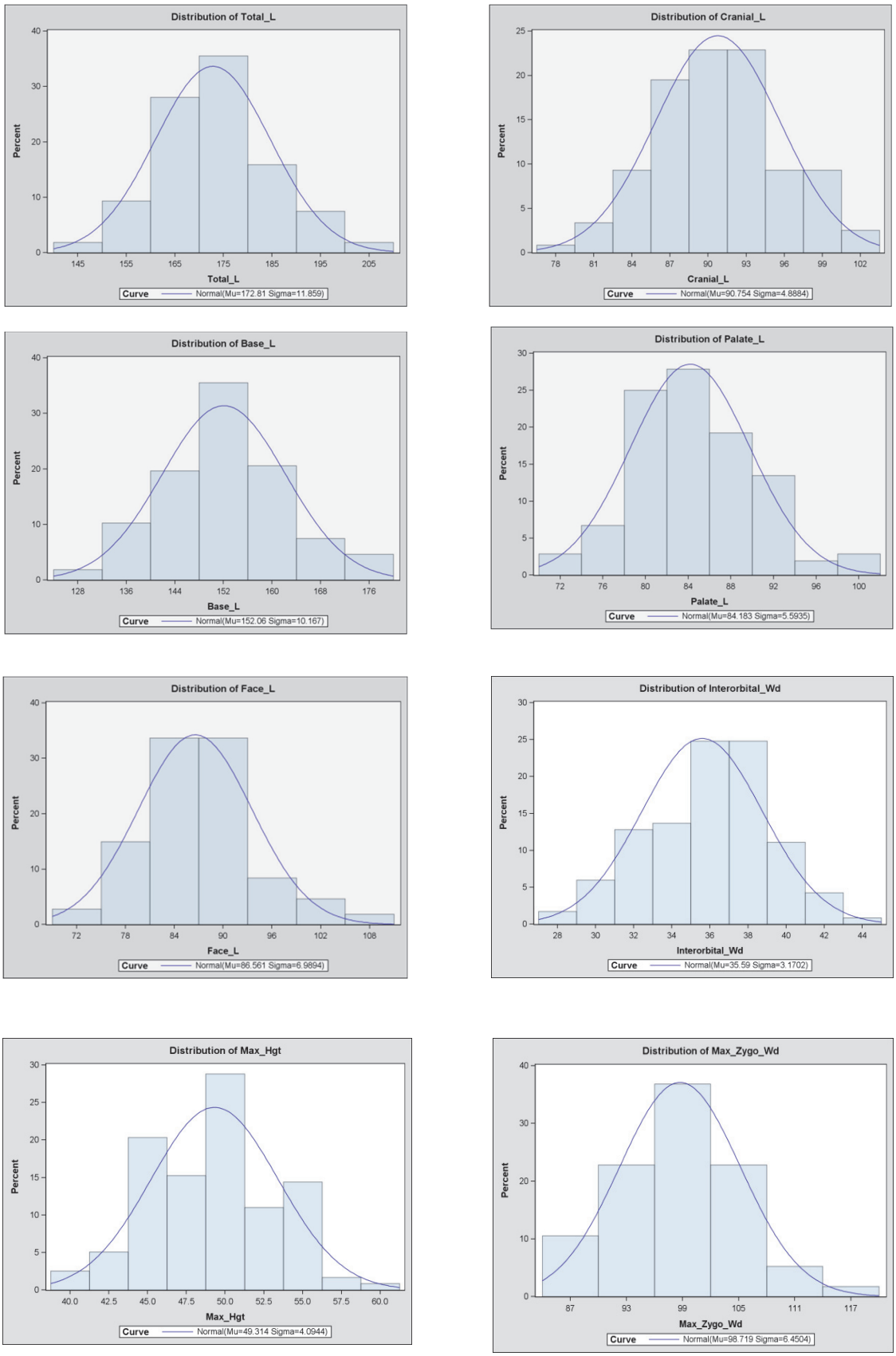


Figure 6.6: Graphs demonstrating normal distribution of each measurement. Authors: Dr Helen Atkinson and Dr Alanah Buck.

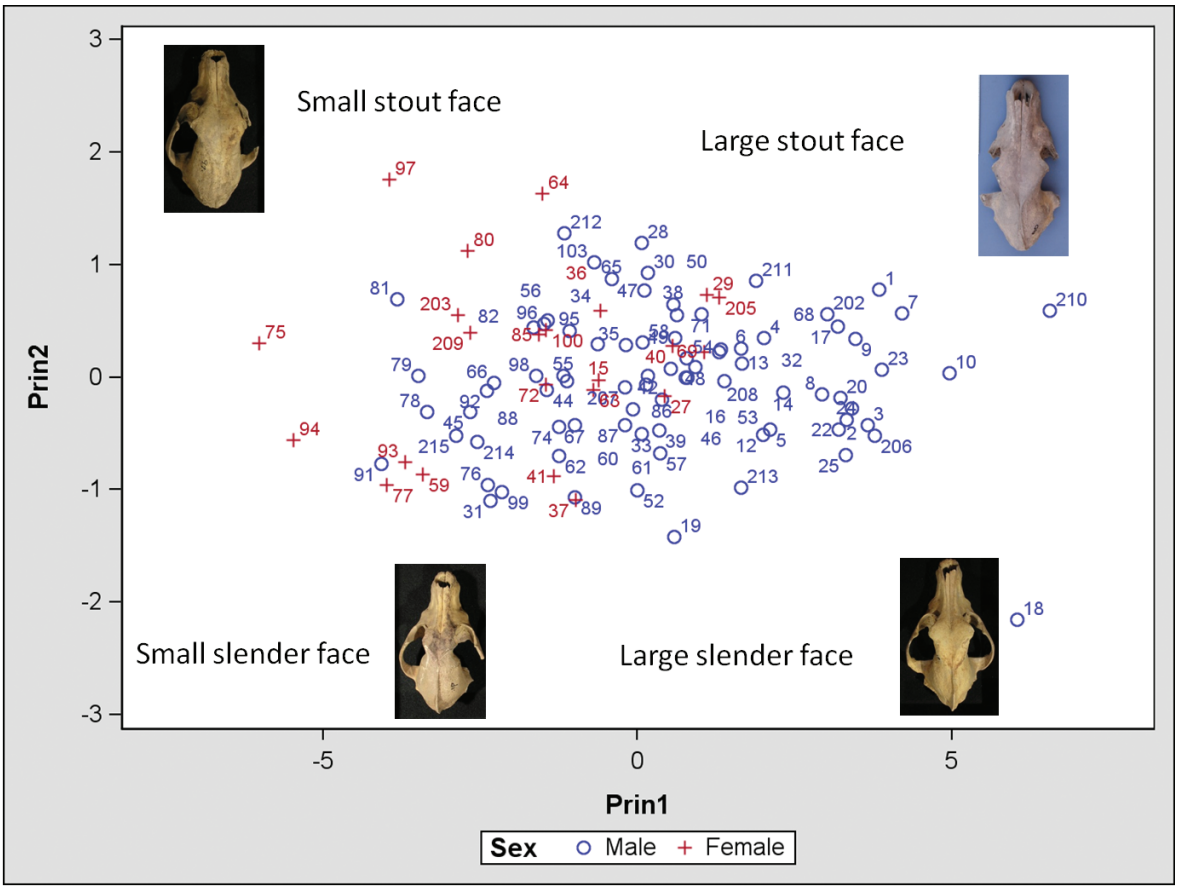


Figure 6.7: Scatter plot of head length and snout width demonstrating possible sex and species with examples of head shape included.
Authors: Dr Helen Atkinson and Dr Alanah Buck.

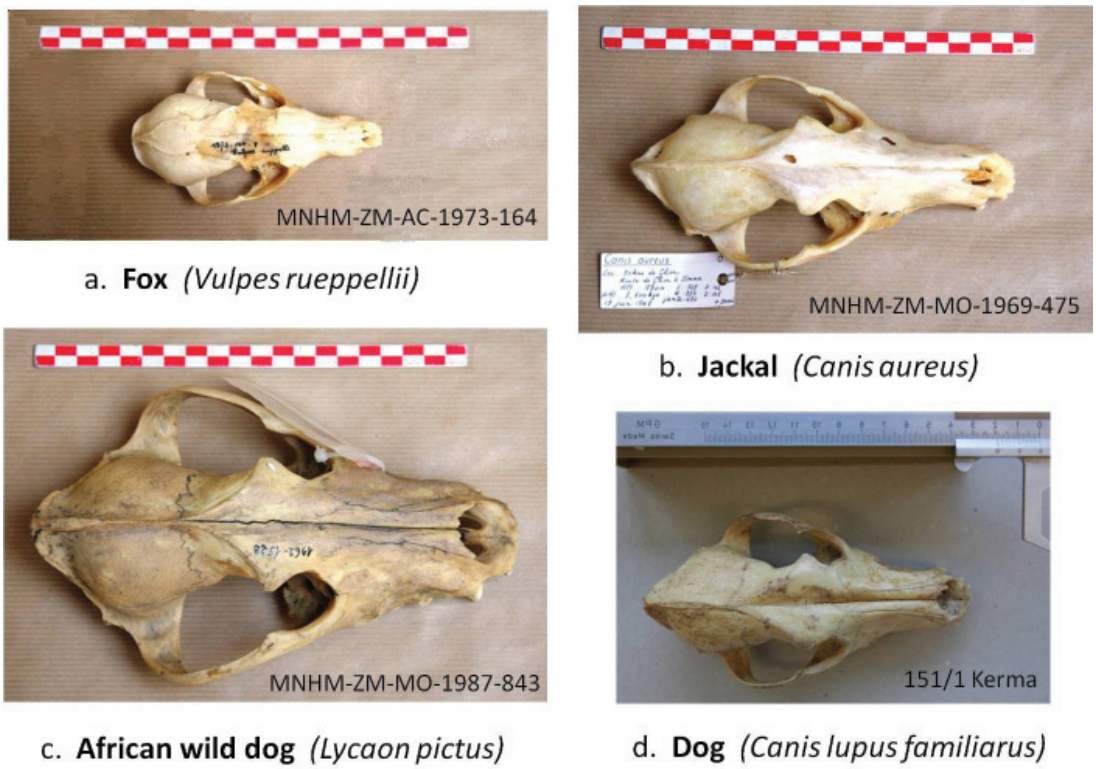
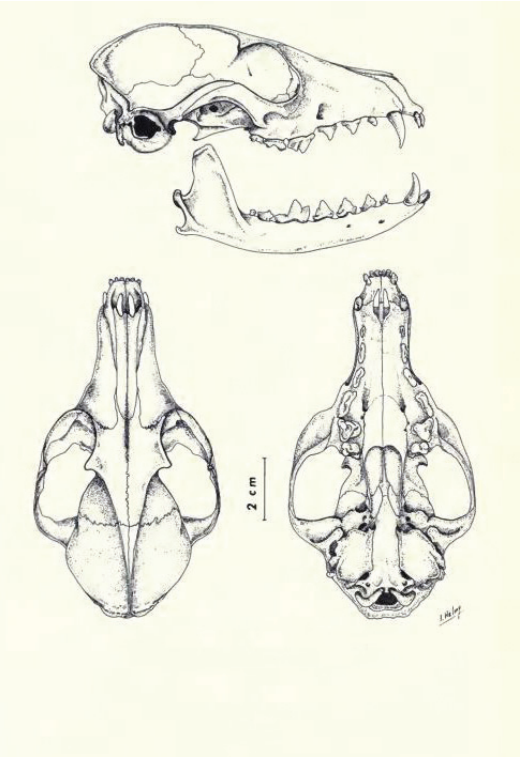
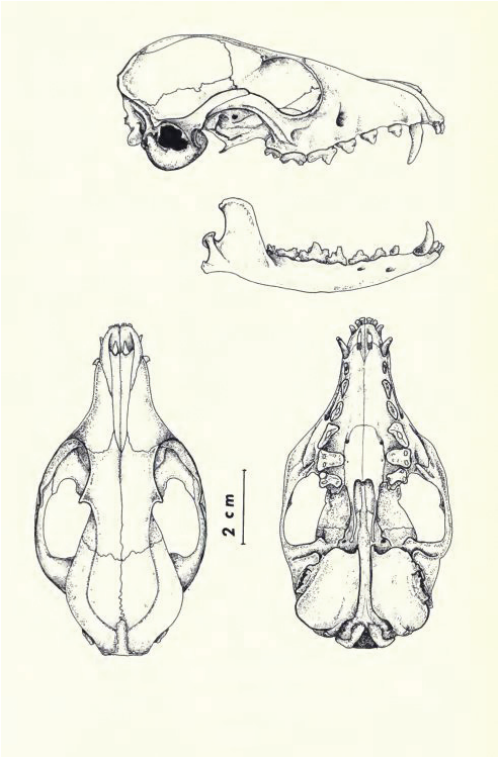


Figure 6.8a-d: Four canid crania comparison, photos M. Hartley.

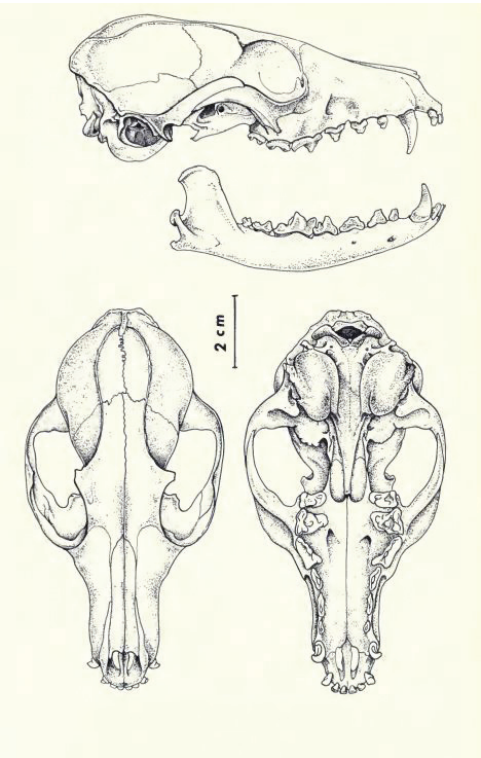
a) Red fox (*Vulpes vulpes*)



b) Fennec (*Vulpes zerda*)



a) Rüppell's sand fox (*Vulpes ruppellii*)



b) Jackal (*Canis aureus lupaster*)

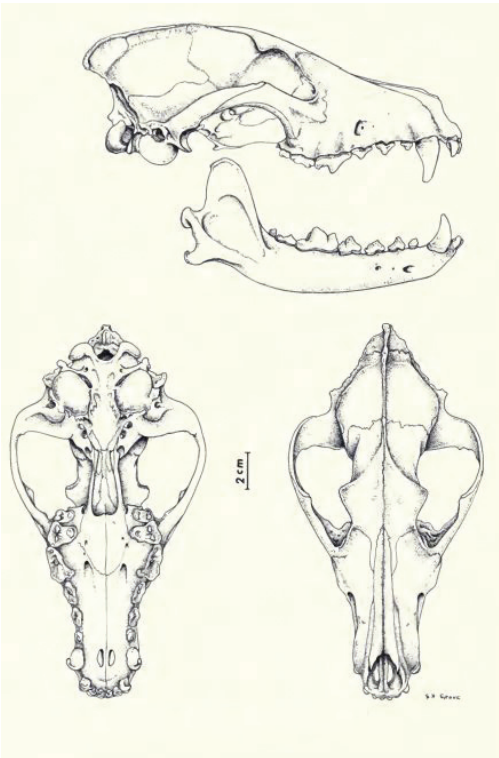


Figure 6.9a-d: Diagrams of three different breeds of fox and jackal skulls, Osborn & Helmy (1980: figs. 110, 114, 117, 120).

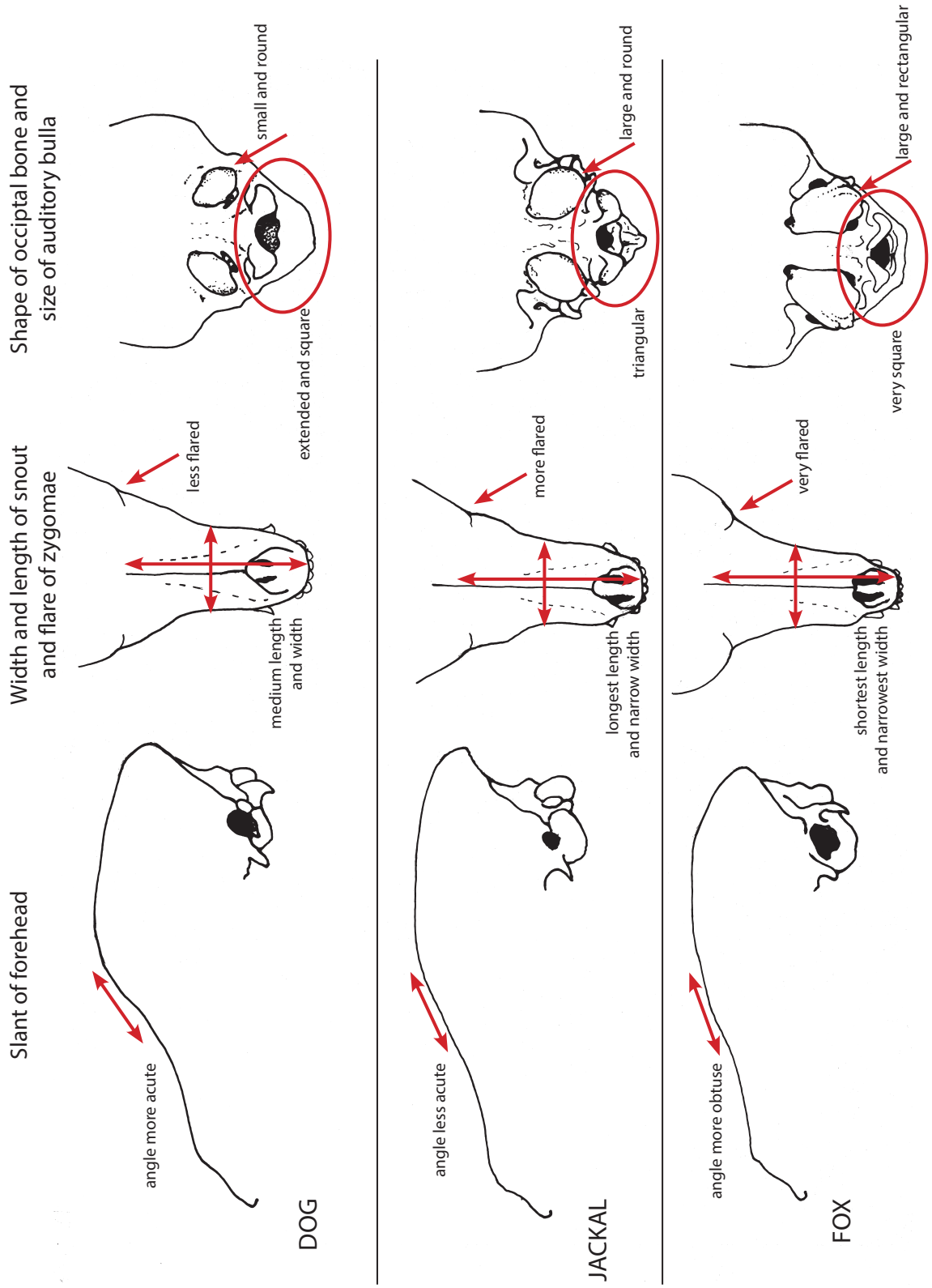


Figure 6.10: Diagrams illustrating the morphological differences of the dog, jackal and fox crania.

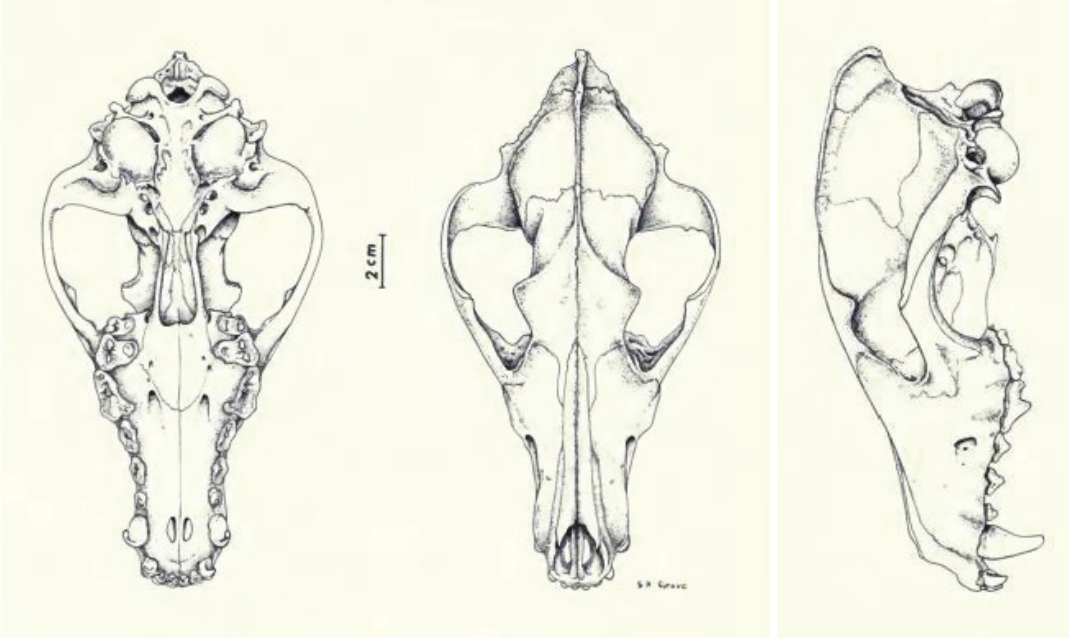


Figure 6.11a-b: Comparison of jackal cranium diagram (top) with photograph (bottom) of Saqqara Specimen 18 showing similarities in size and shape. Diagram of jackal (*Canis aureus lupaster*), after Osborn & Helmy (1980: fig. 110), photos L. Donovan.

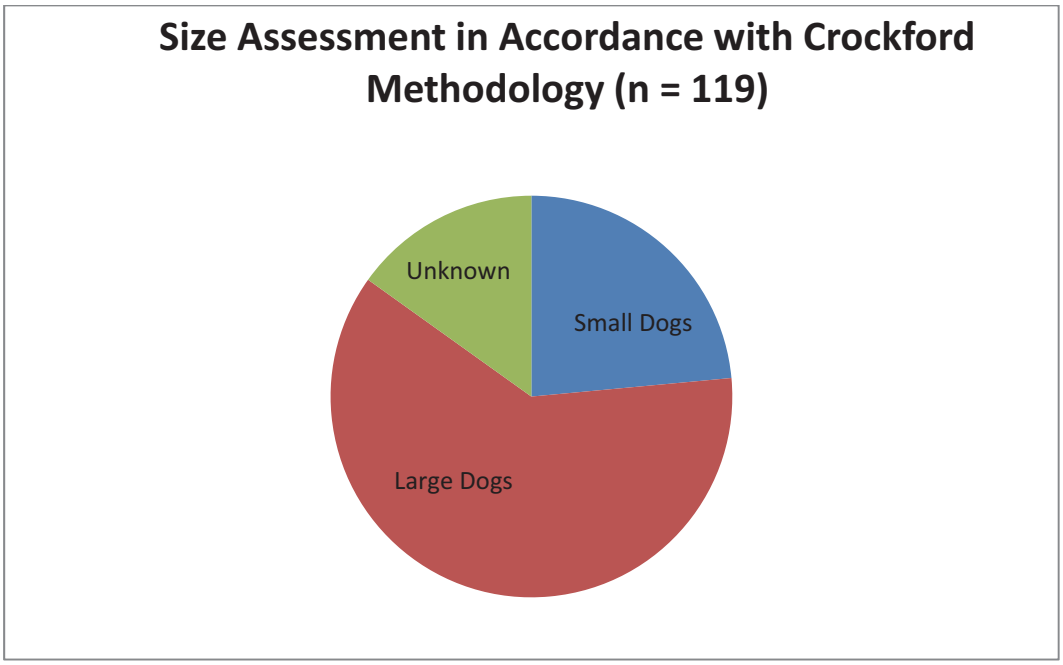


Figure 6.12: Size assessment of Saqqara crania according to Crockford method, indicating percentage of small dogs, large dogs and unknown.

Figure 6.13: Morphological indicators for sex assessment demonstrating size differentiation. Left: Specimen 59, female; Right: Specimen 58, male, photo L. Donovan.

Figure 6.14: Morphological indicators for sex assessment.
Sexual dimorphism in the dog basioccipital region.
Left: I, male; Right: II, female, The and Trouth (1976: Fig.1).

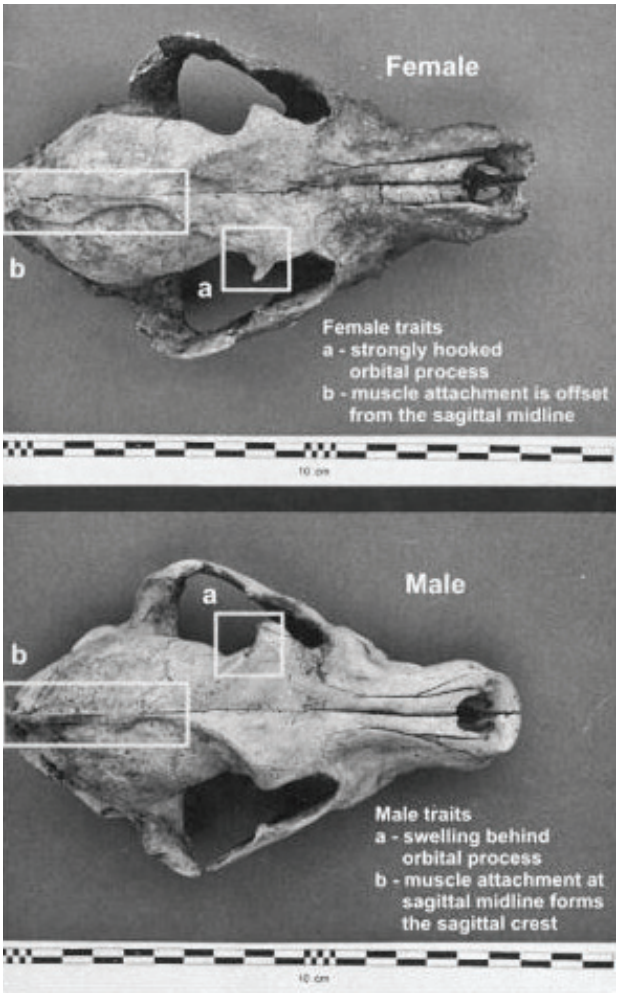


Figure 6.15: Morphological indicators for sex assessment.
Female vs. male – orbital process and sagittal crest, after Crockford (2009: 49).

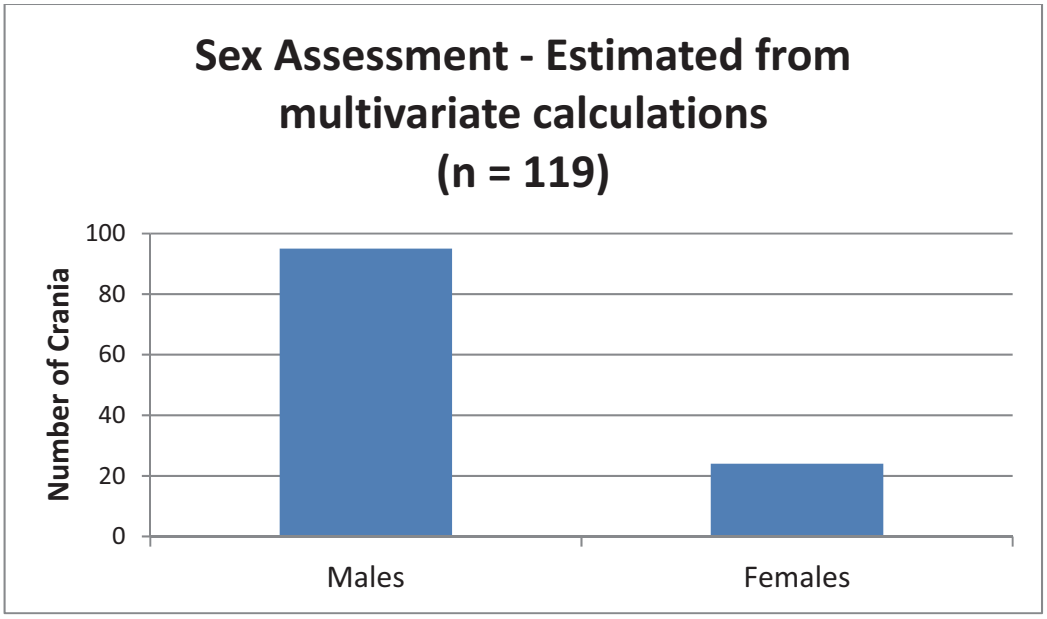


Figure 6.16: Sex assessment of Saqqara sample crania showing proportion of male and female. Categorisation in accordance with §6.3.

Figure 6.17: Canid cranium showing (top) unfused sutures and (bottom) deciduous dentition
2-4 month old dog, after Crockford (2009: 38).

Figure 6.18a:
Young Adult detailing no tooth wear; Specimen 4.

Figure 6.18b:
Young Adult detailing unfused cranial sutures; Specimen 43.

Figure 6.19:
Adult detailing moderate tooth wear; Specimen 31.

Figure 6.20:
Old Adult detailing ante-mortem tooth loss; Specimen 63.

Photos L. Donovan

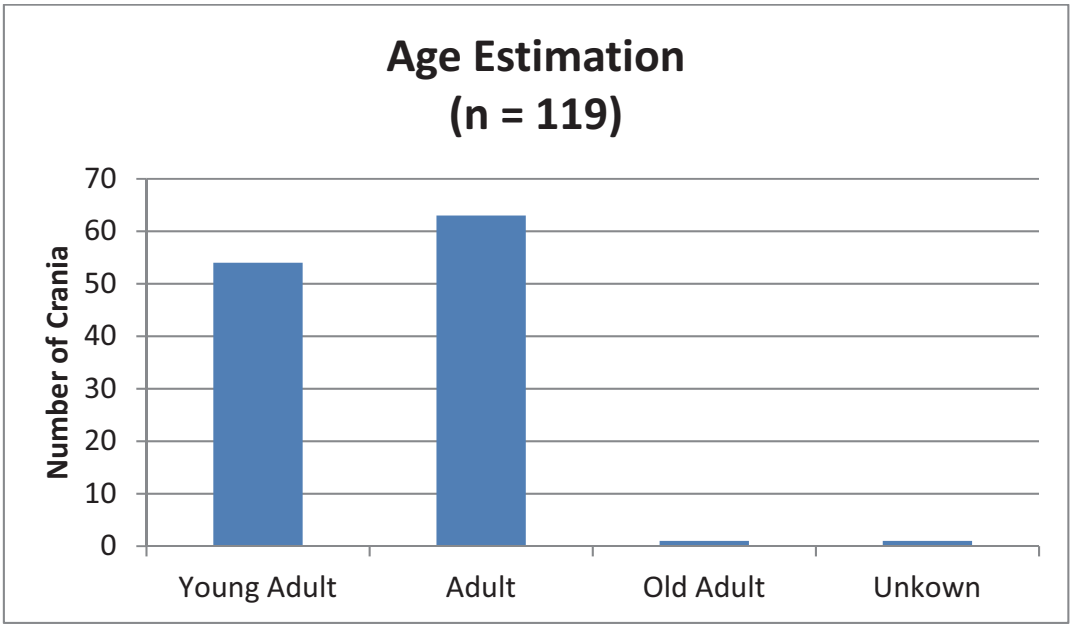


Figure 6.21: Age estimation of Saqqara canid crania indicating number of Young Adult, Adult, Old Adult and Unknown.

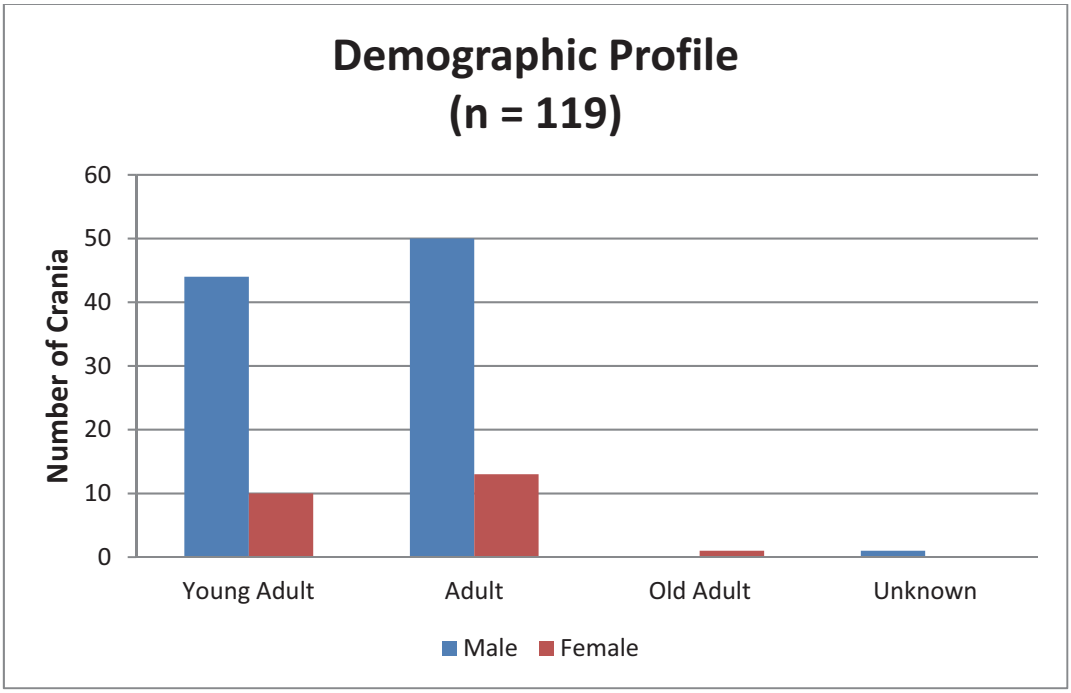


Figure 6.22: Demographic profile illustrating the division of the crania by sex and age.

Figure 6.23a-c: Old Adult female detailing a) superior: b) lateral left: c) inferior, showing severe tooth ante-mortem loss and a greater degree of development of ridges, crests and processes of the basiocciput; Specimen 63, photos L. Donovan.

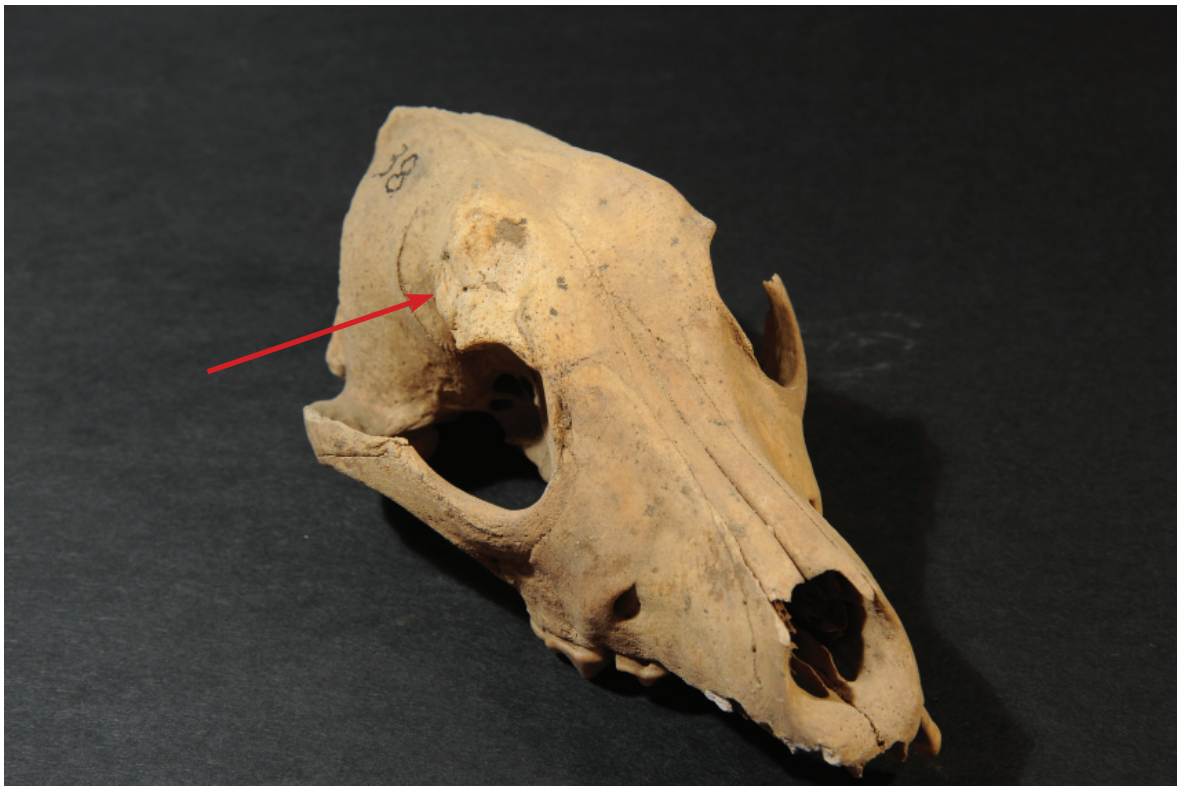


Figure 6.24: Healed depressed fracture to the right supraorbital region; Specimen 38, photo L. Donovan.

Figure 6.25: Healed depressed fracture with wooden stick that possibly caused the fracture; Specimen 71, photo L. Donovan.

Figure 6.26: Perforations on the palatine process of the maxilla as indicated by arrow; Specimen 49, photo L. Donovan.

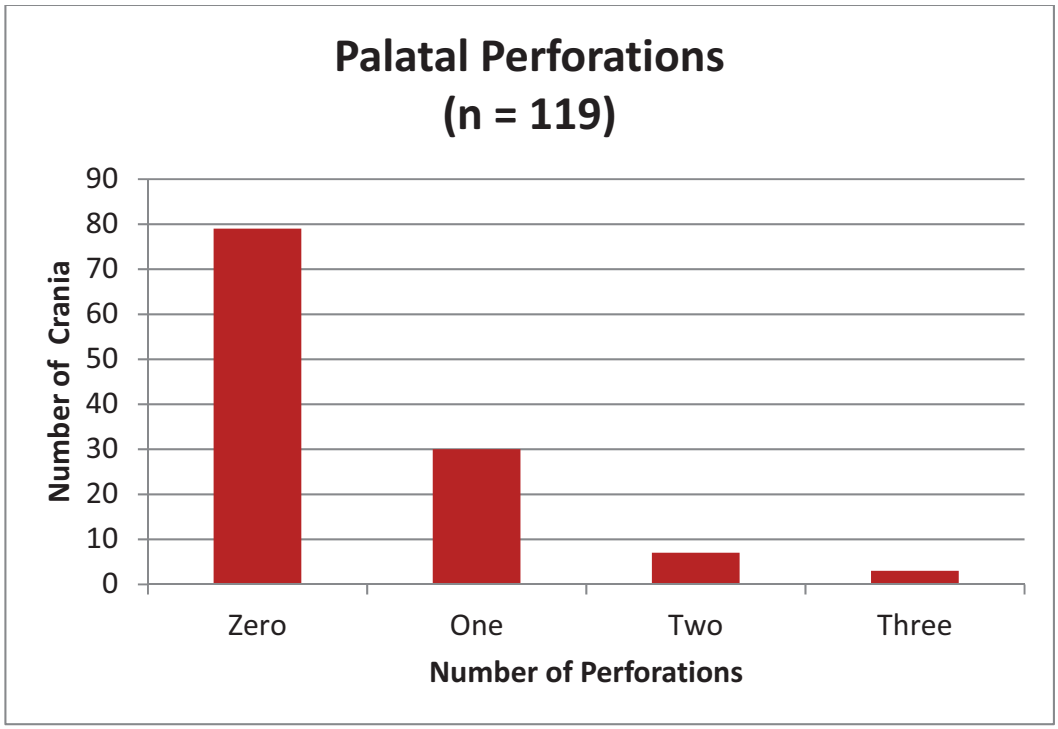


Figure 6.27: Number of perforations on the palatine process of the maxilla.

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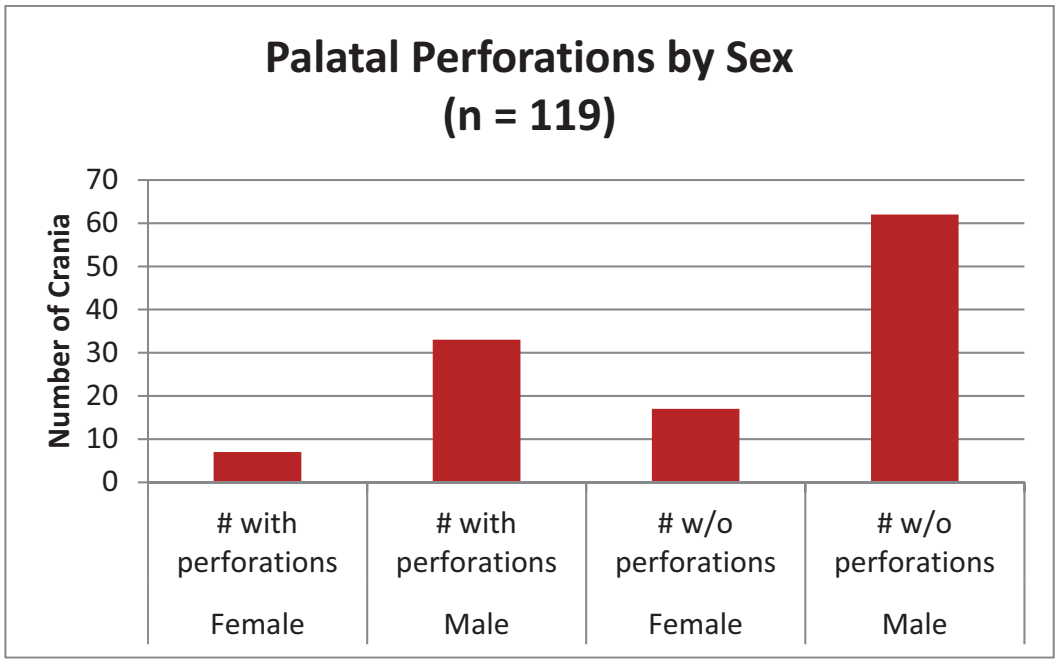


Figure 6.28: Number of perforations on the palatine process of the maxilla observed on each cranium by sex.

Figure 6.29: Mild periodontal disease as indicated by arrow; Specimen 25, photo L. Donovan.

Figure 6.30: Moderate periodontal disease as indicated by arrows; Specimen 35, photo L. Donovan.

Figure 6.31: Severe periodontal disease/abscess as indicated by arrows; Specimen 79, photo L. Donovan.

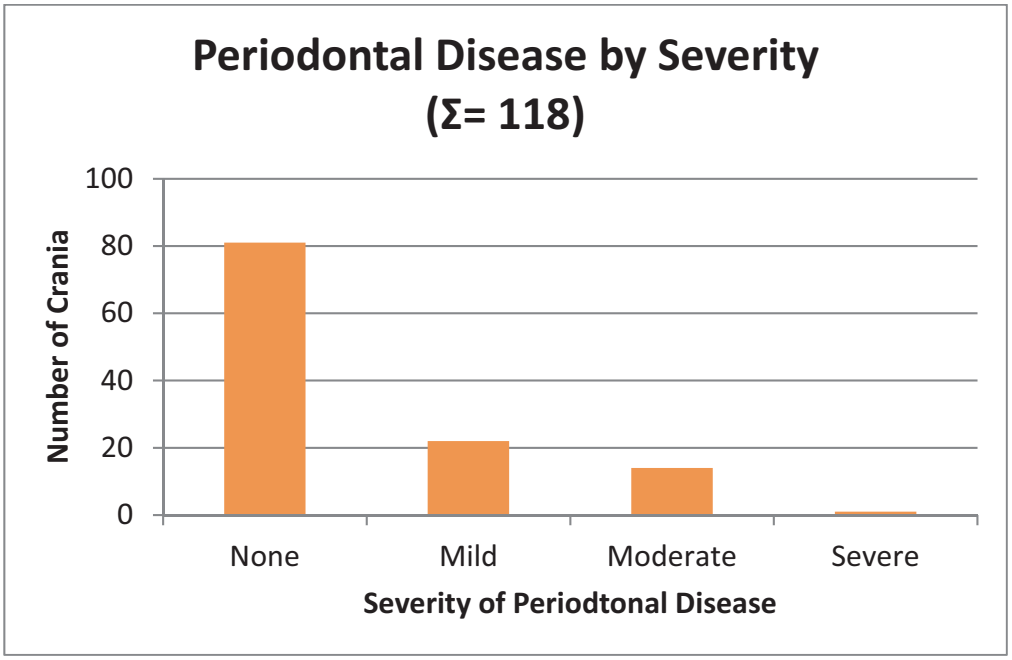


Figure 6.32: Number of crania showing the severity of periodontal disease observed.

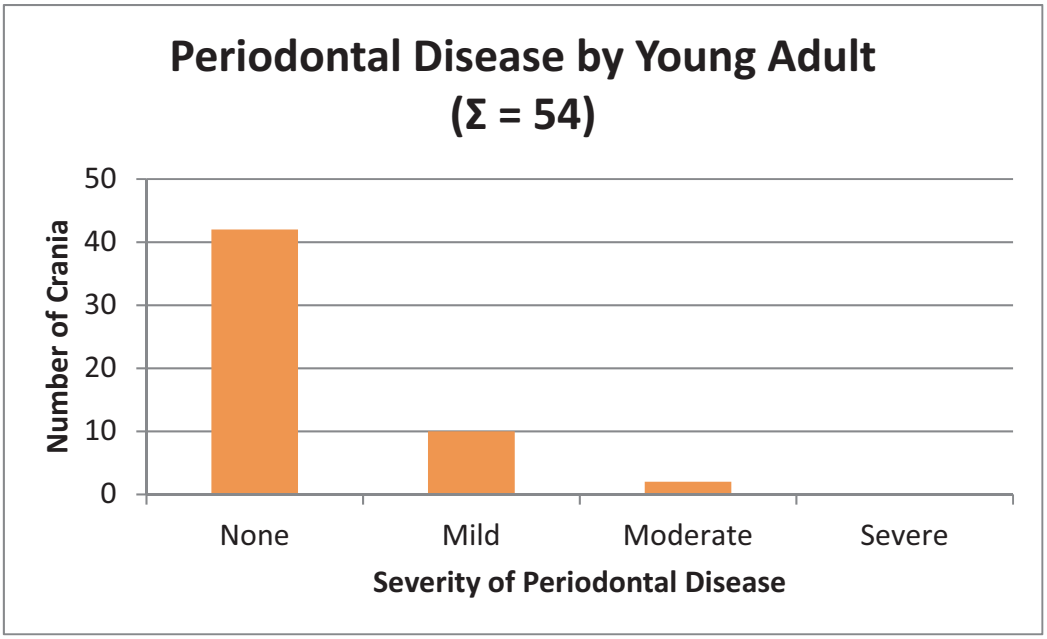


Figure 6.33: The number of Young Adult crania showing severity of periodontal disease.

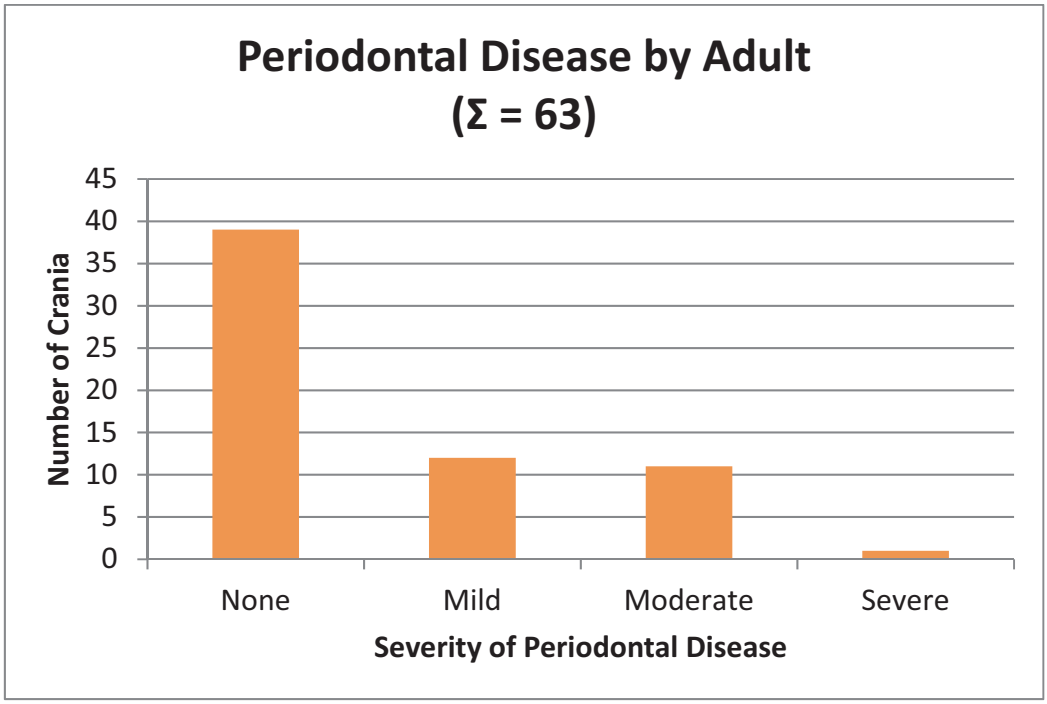


Figure 6.34: The number of Adult crania showing severity of periodontal disease.

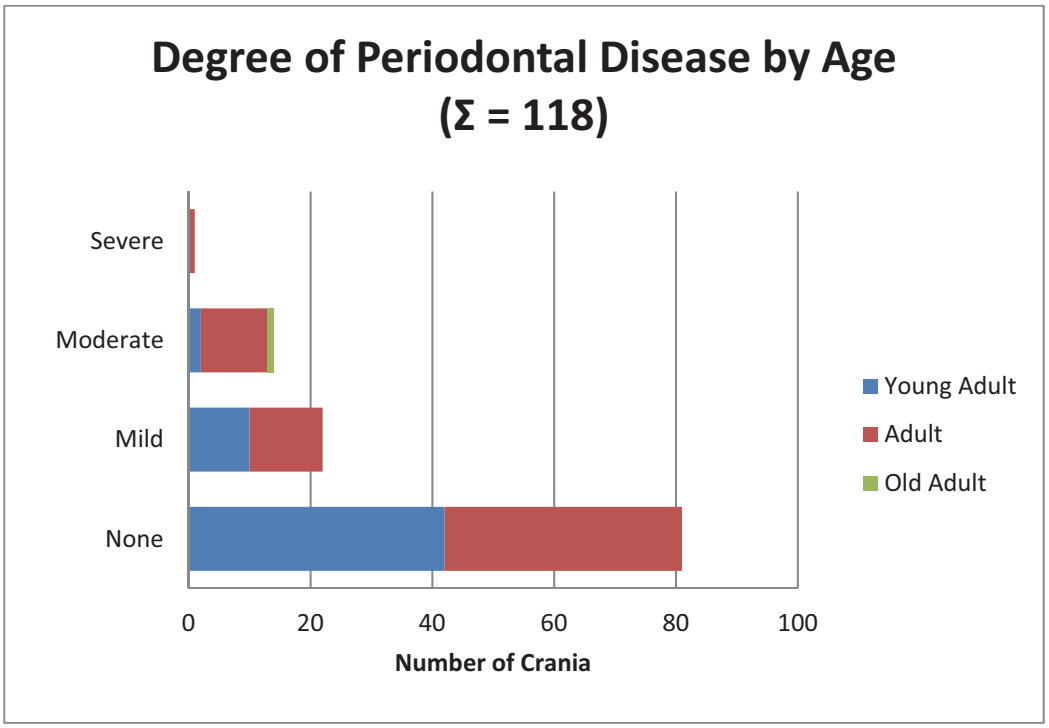


Figure 6.35: Degree of periodontal disease by age of 118 crania.

Figure 6.36: Evidence of considerable alveolar bone destruction and remodeling consistent with the presence of an abscess as indicated by arrow; Specimen 8, photo L. Donovan.

Figure 6.37: Ante-mortem tooth loss showing remodelling of the alveolus as indicated by arrow; Specimen 1, photo L. Donovan.

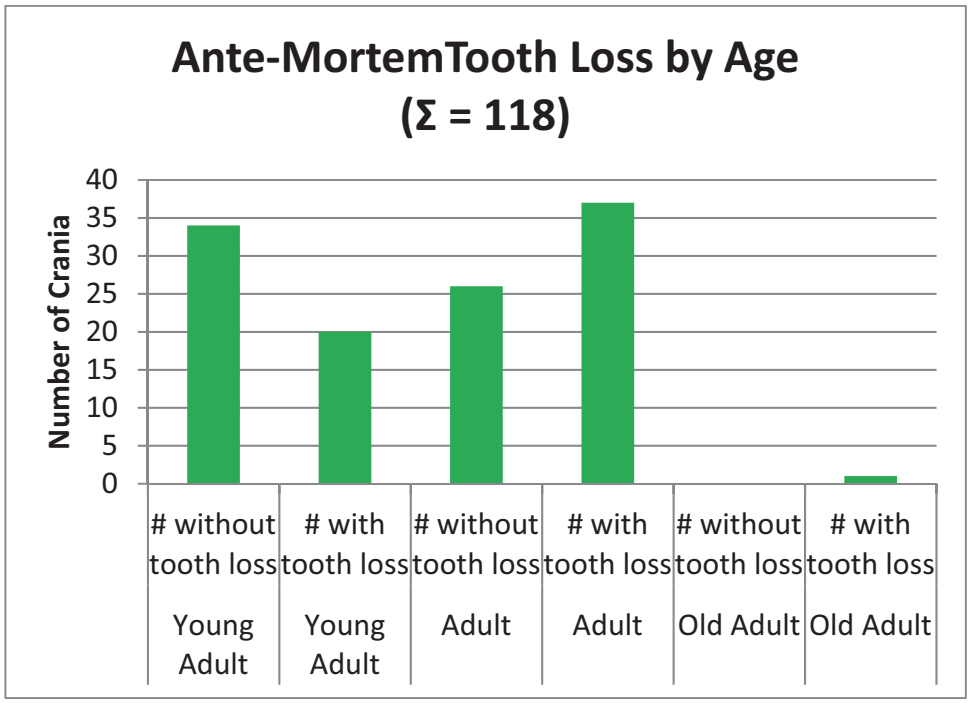


Figure 6.38: Age categories divided into crania with ante-mortem tooth loss and without ante-mortem tooth loss.

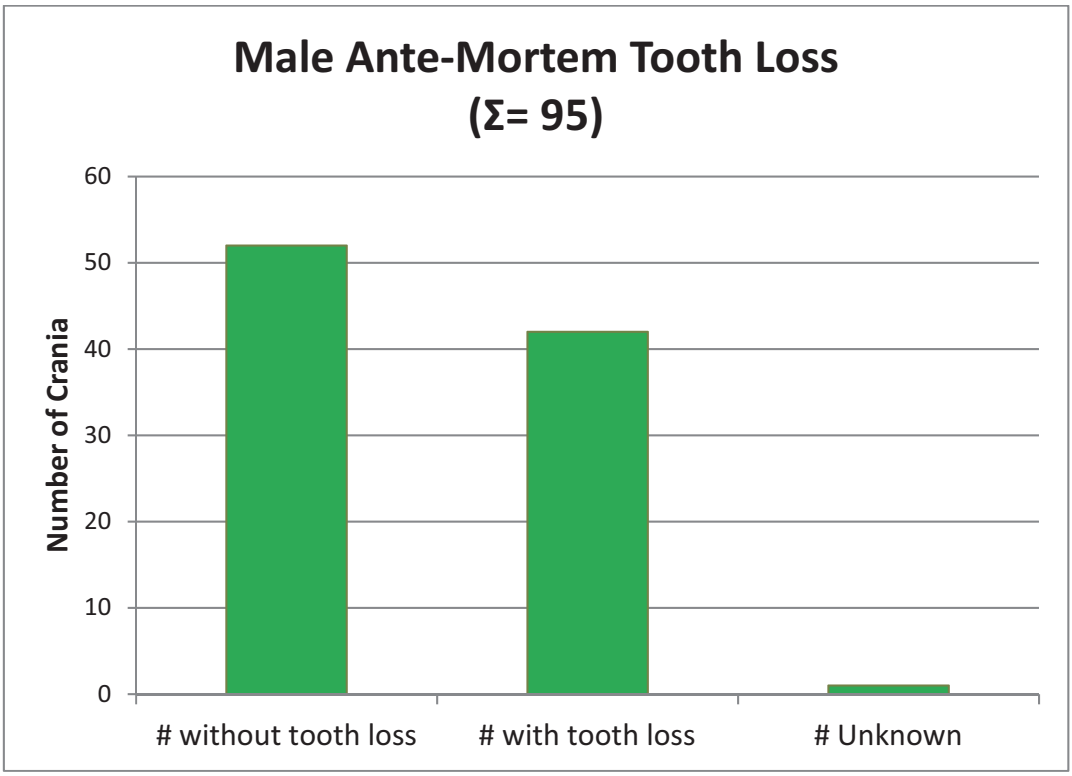


Figure 6.39: Number of male crania displaying ante-mortem tooth loss.

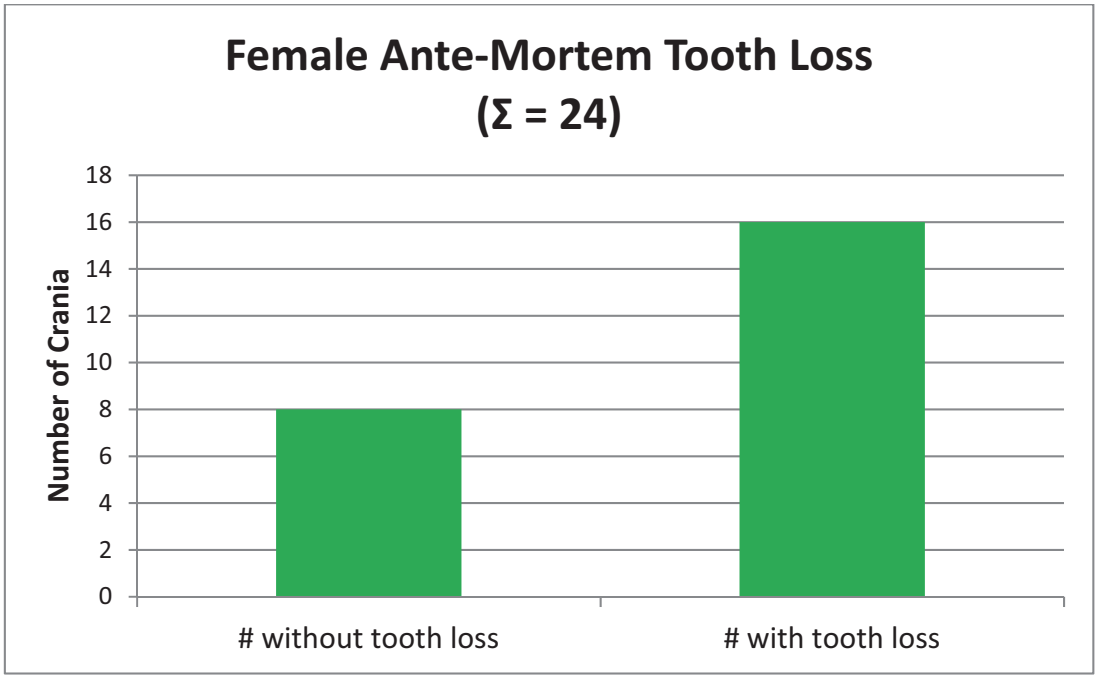


Figure 6.40: Number of female crania displaying ante-mortem tooth loss.

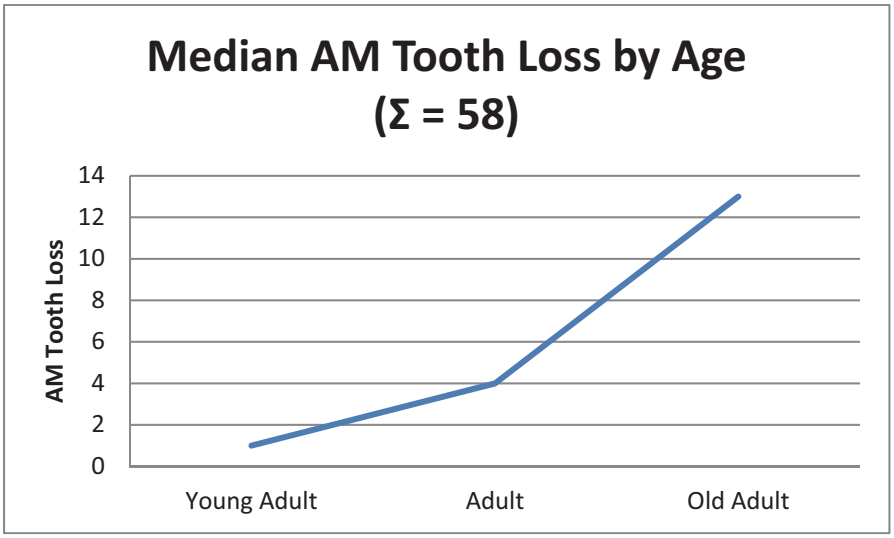


Figure 6.41: Median ante-mortem tooth loss observed in the crania by age.

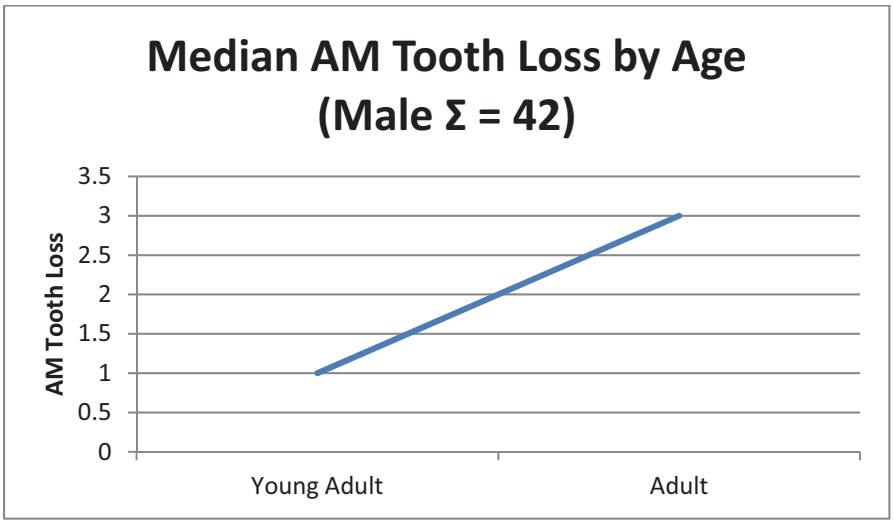


Figure 6.42: Male median ante-mortem tooth loss in the crania by age.

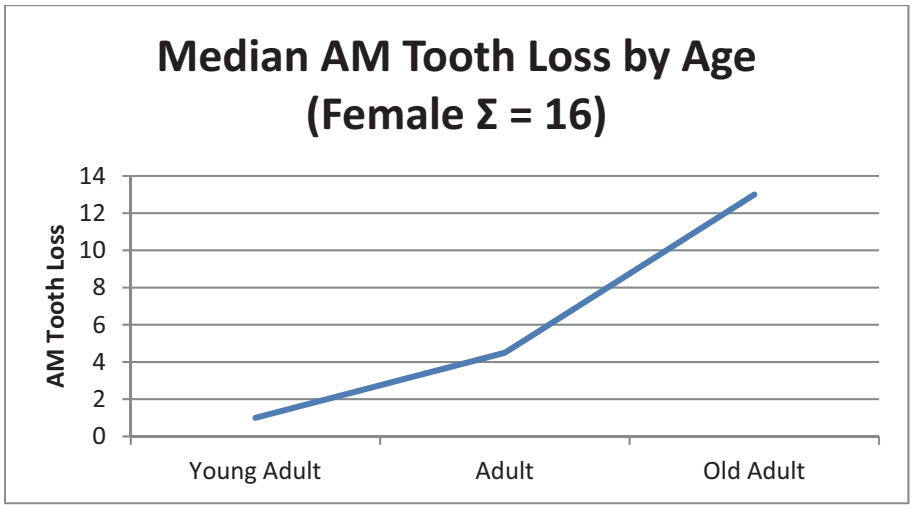


Figure 6.43: Female ante-mortem tooth loss in the crania by age.

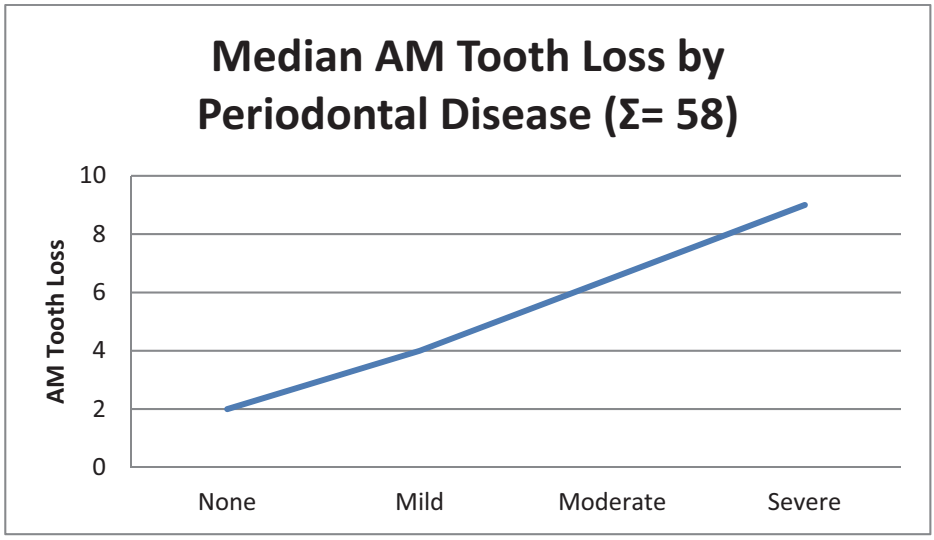


Figure 6.44: Ante-mortem tooth loss by periodontal disease.

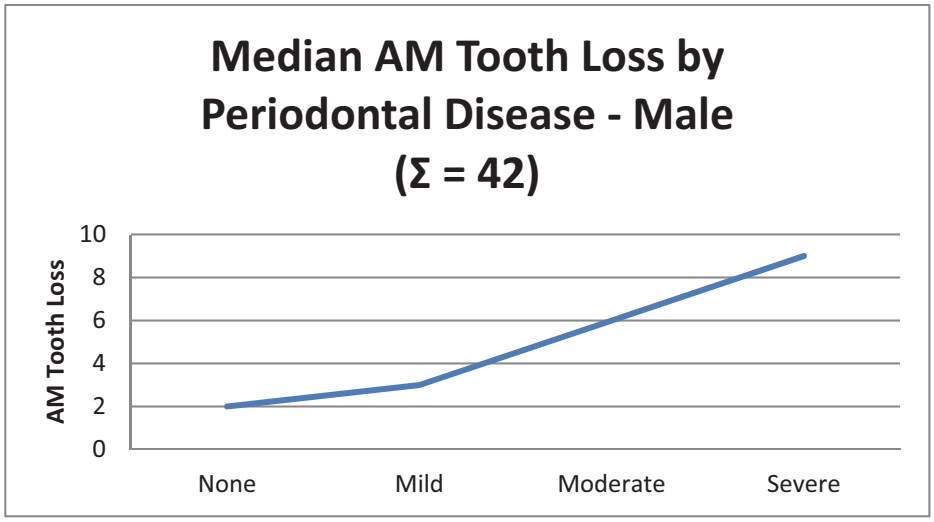


Figure 6.45: Male ante-mortem tooth loss by periodontal disease.

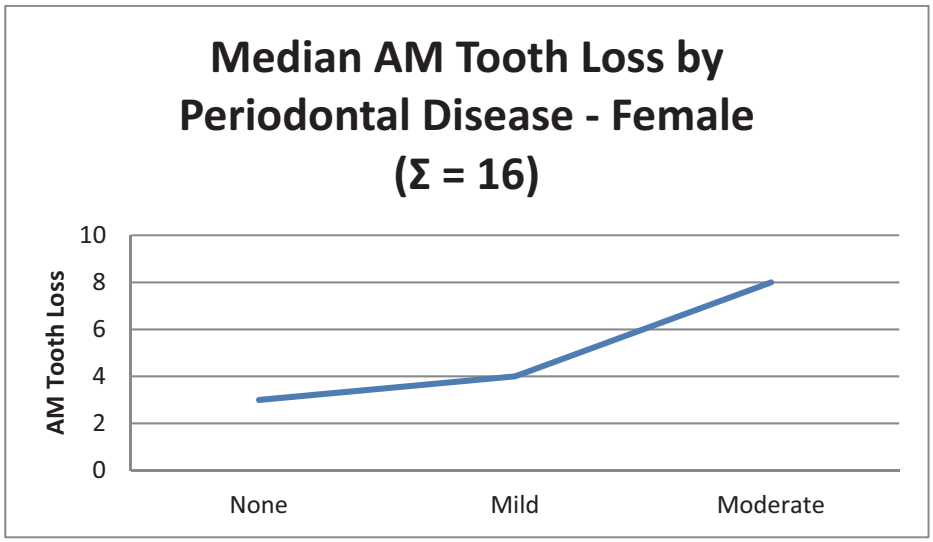


Figure 6.46: Female ante-mortem tooth loss by periodontal disease.

Figure 6.47: Asymmetrical palate showing the left side of the palate shorter than the right side; Specimen 20, photo L. Donovan.

Figure 6.48: Post-mortem tooth loss of a supernumerary tooth (Hyperdontia as indicated by arrow; Specimen 35, photo L. Donovan.

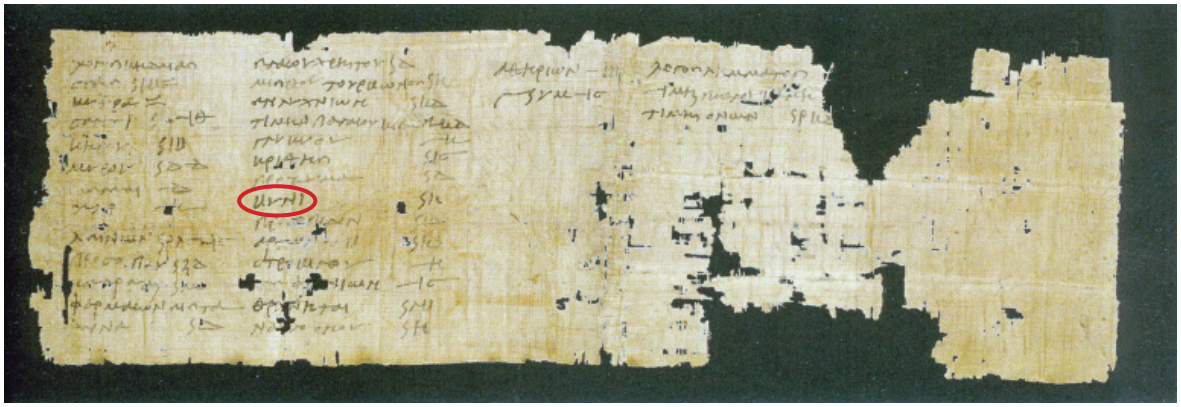


Figure 6.49: List of funerary expenses including a dog. P. Vindob. G 24.913 Vienna, after Froschauer (2007: 21, Fig. 1).

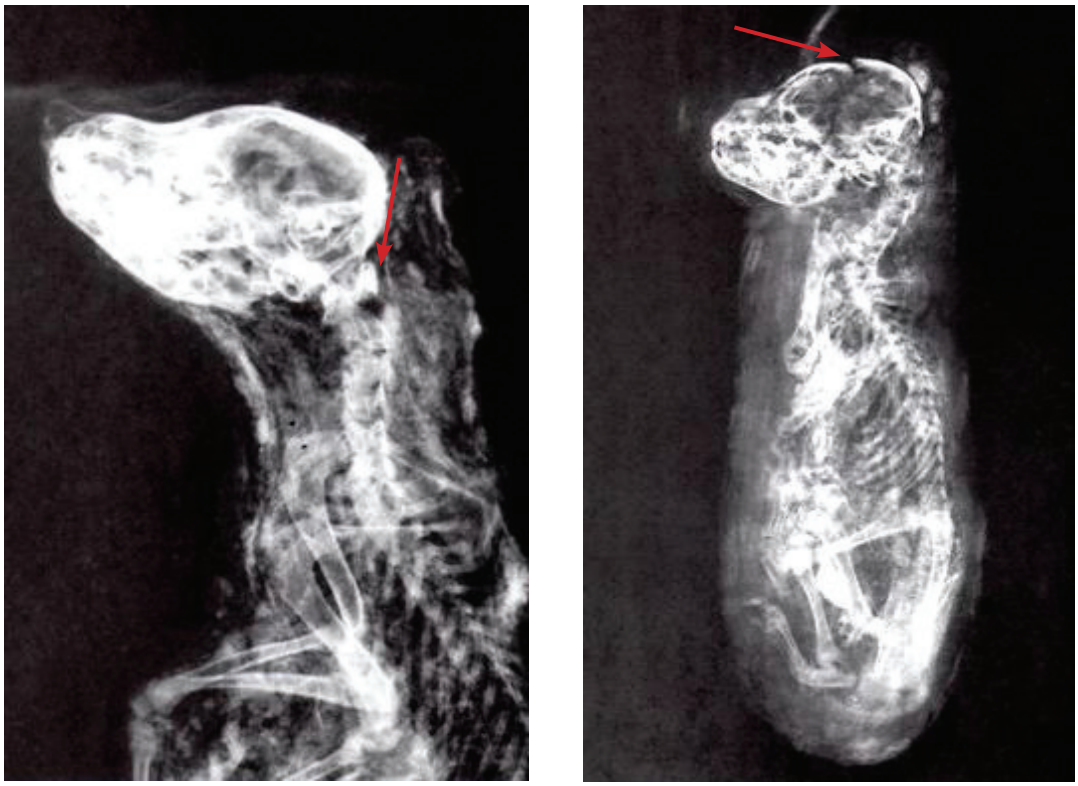


Figure 6.50a-b: X-rays of dog mummies showing possible cause of death.
Left: strangulation;
Right: peri-mortem cranial fracture, as indicated by arrows, after Dunand & Lichtenberg (2005: Figure 12-ED.C.P5.0.06 and Figure 10-ED.C.P5.0.01).

Appendix
Chapter 7

Discussion

Figures 7.1 – 7.46

Figure 7.1: Rock art depicting dogs taking part in a desert hunt scene, Morrow, Morrow, Judd and Phillipson (2010: Min-OS web BL-1 MM0605.jpg).

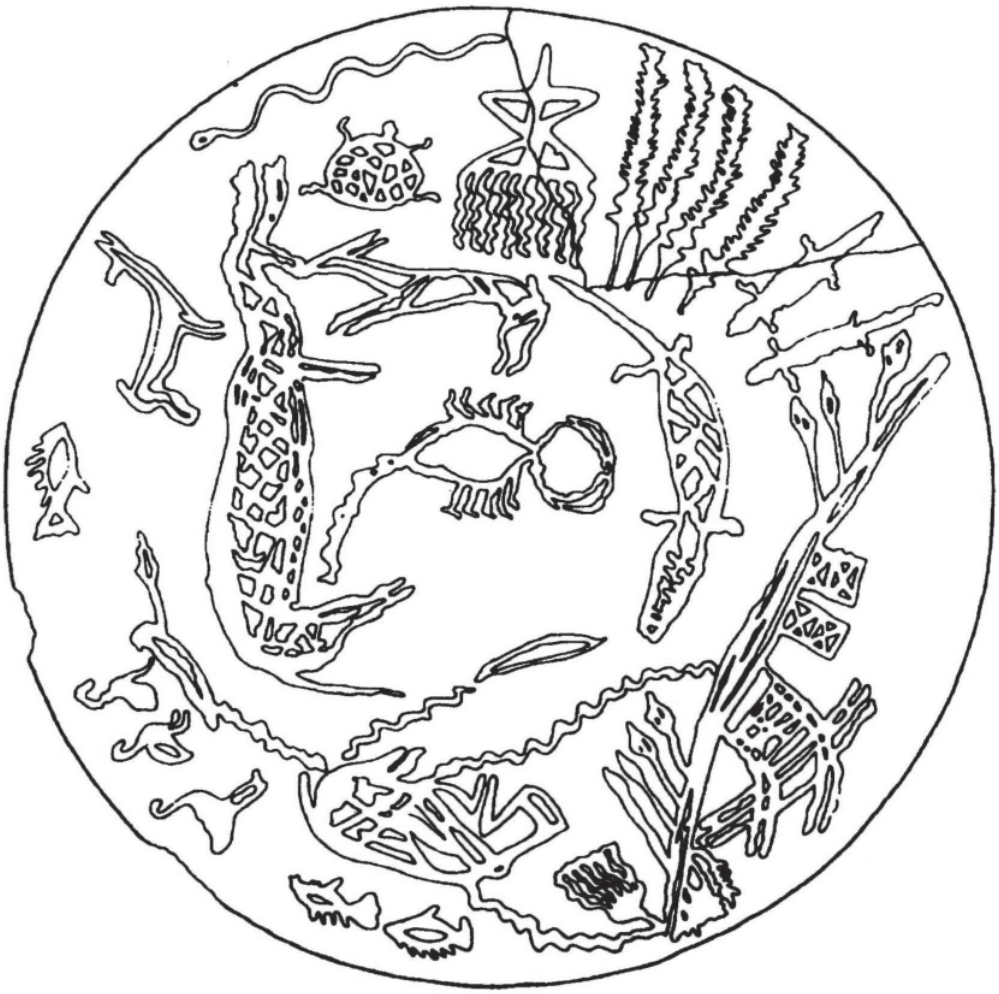


Figure 7.2: White cross lined bowl with combined desert and aquatic hunt scene including a dog, Hendrickx (2011a: Figure 7).

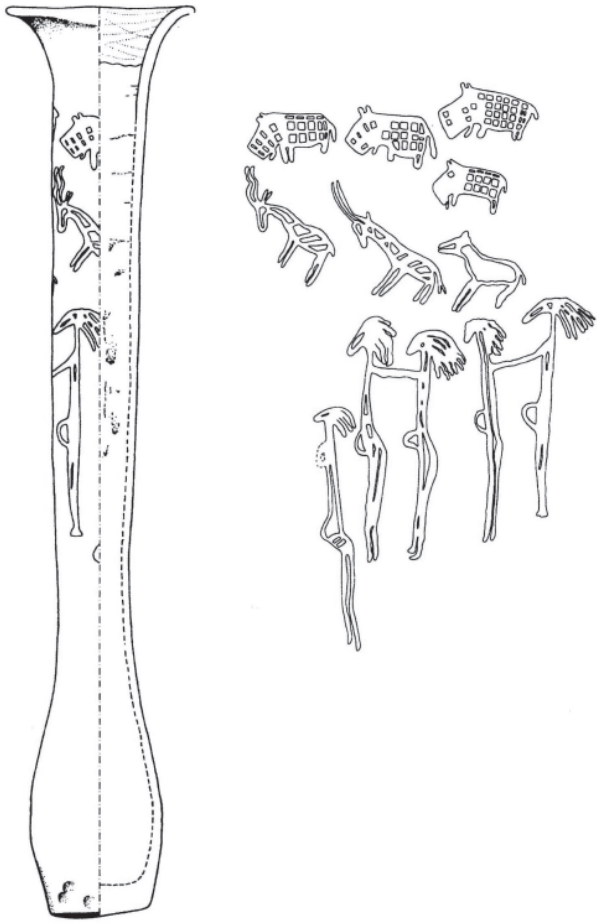


Figure 7.3: Decorated vessel with the combined scenes of the desert hunt depicting a dog, the aquatic hunt and scenes of military victory, Hendrickx (2011a: Figure 3).

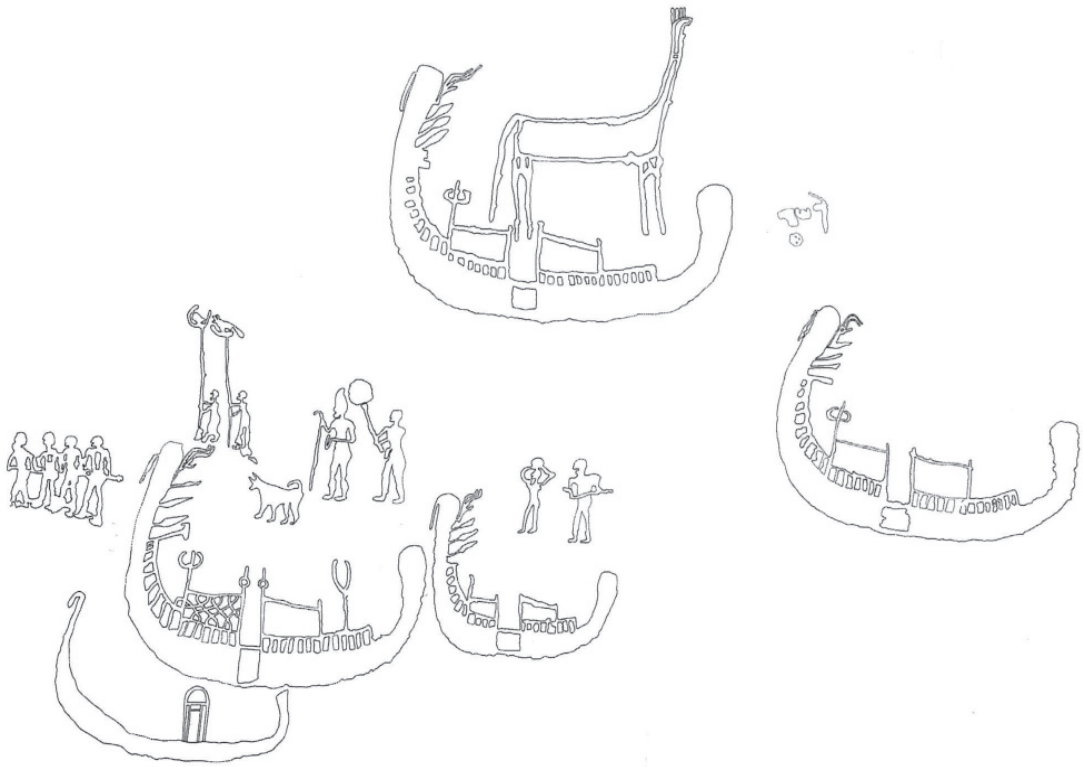


Figure 7.4: Early Ruler with entourage accompanied by a dog, Darnell (2015: Figure 5).

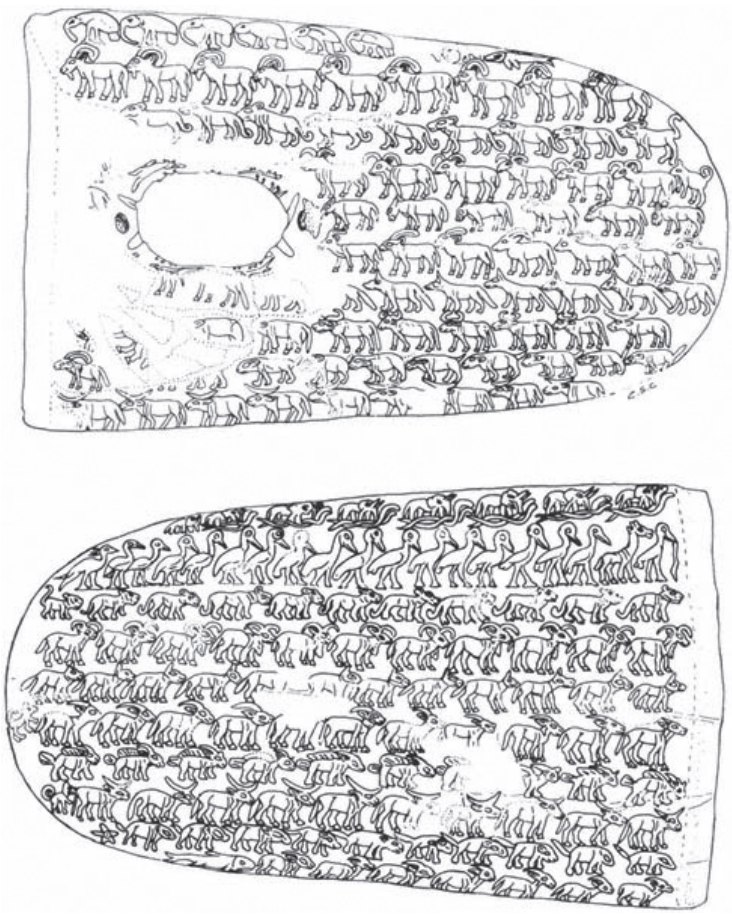


Figure 7.5: Abu Zaidan knife handle depicting rows of wild animals with the dog represented at the end of the several rows, Cialowicz (1992: Figures. 1 & 2).

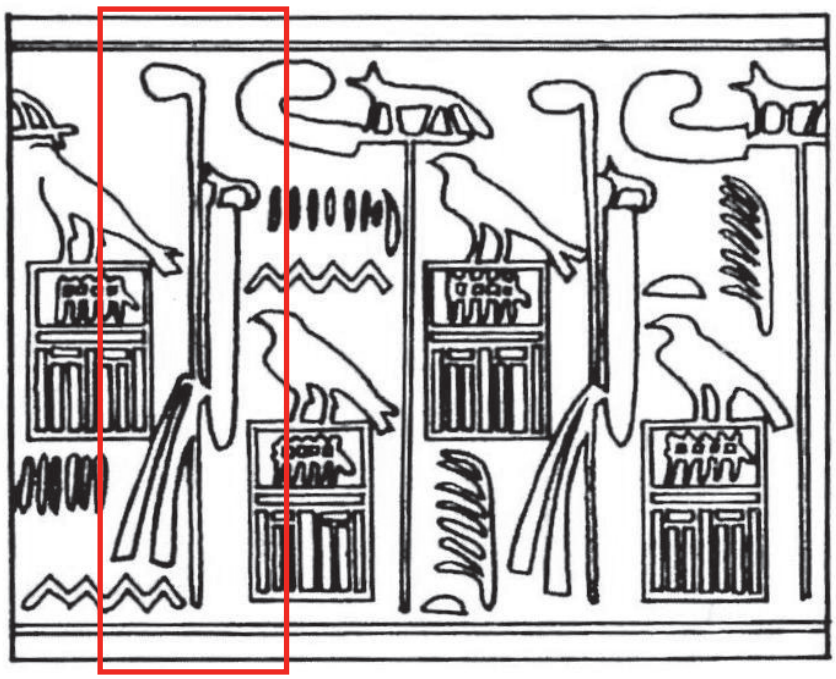


Figure 7.6: Representation of the *imy-wt* fetish on a seal of King Djer, 1st Dynasty, Baines (1993: 68, Figure 5).

Figure 7.7: Obverse and reverse of the Narmer Palette illustrating four separate standards, one of which depicts a canid, Patch (2011: Figures 6a-b).

Figure 7.8: Obverse of the Two Dog Palette with representation of African wild dogs on the edges of the palette creating a barrier-style protection, Patch (2011: Figure 37a).

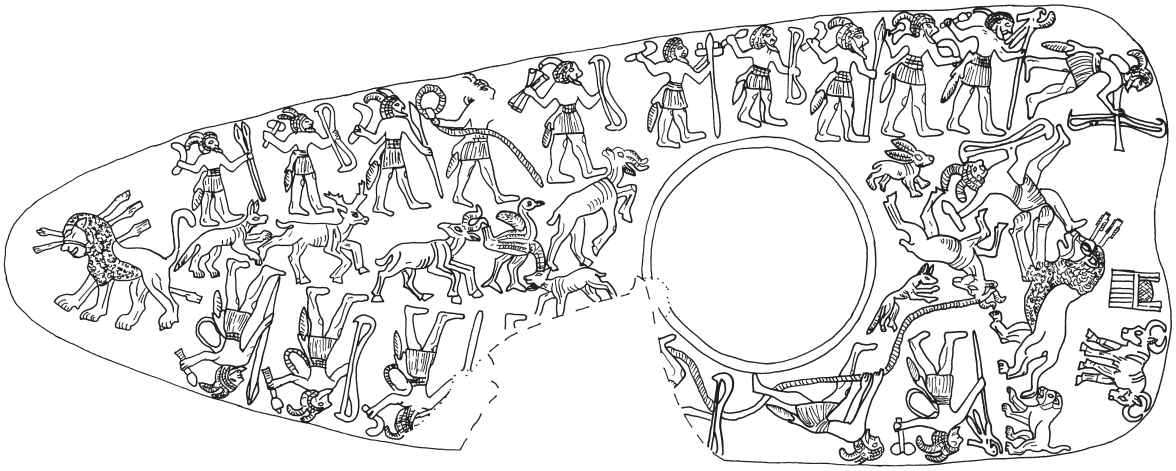


Figure 7.9: Hunters' Palette with the reprentation of hunters wearing African wild dog tails, providing a border at the edge of the palette, line drawing M. Hartley, after Smith (1949: 25).

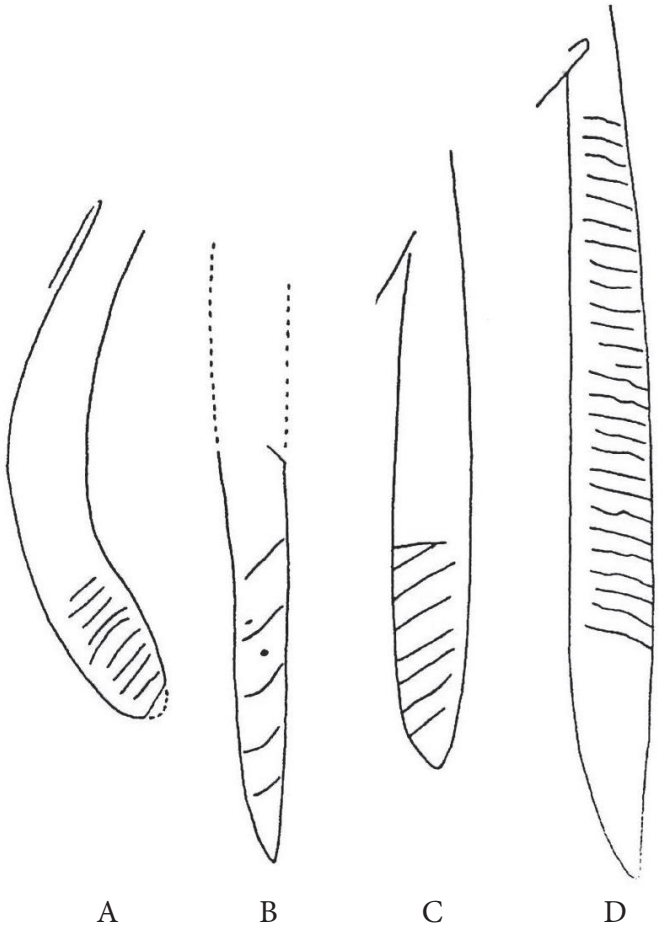


Figure 7.10: Lycaon tails as depicted on different palettes, providing evidence for the identification of tails worn by hunters on the Hunters' Palette as African wild dog tails A) Munagat fragment, B) Louvre fragment, C) Louvre palette, D) Ashmolean palette, Fischer (1958: 81, Figure 18).

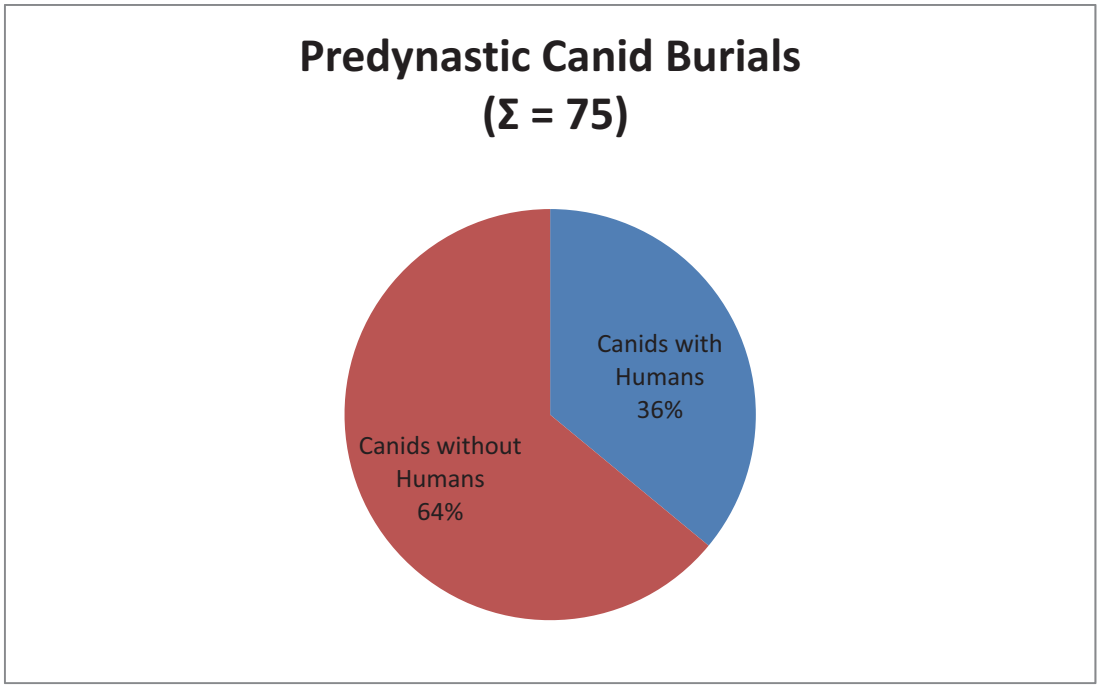


Figure 7.11: Pie chart indicating percentage of Predynastic canid burials with associated human burials and without associated human burials.

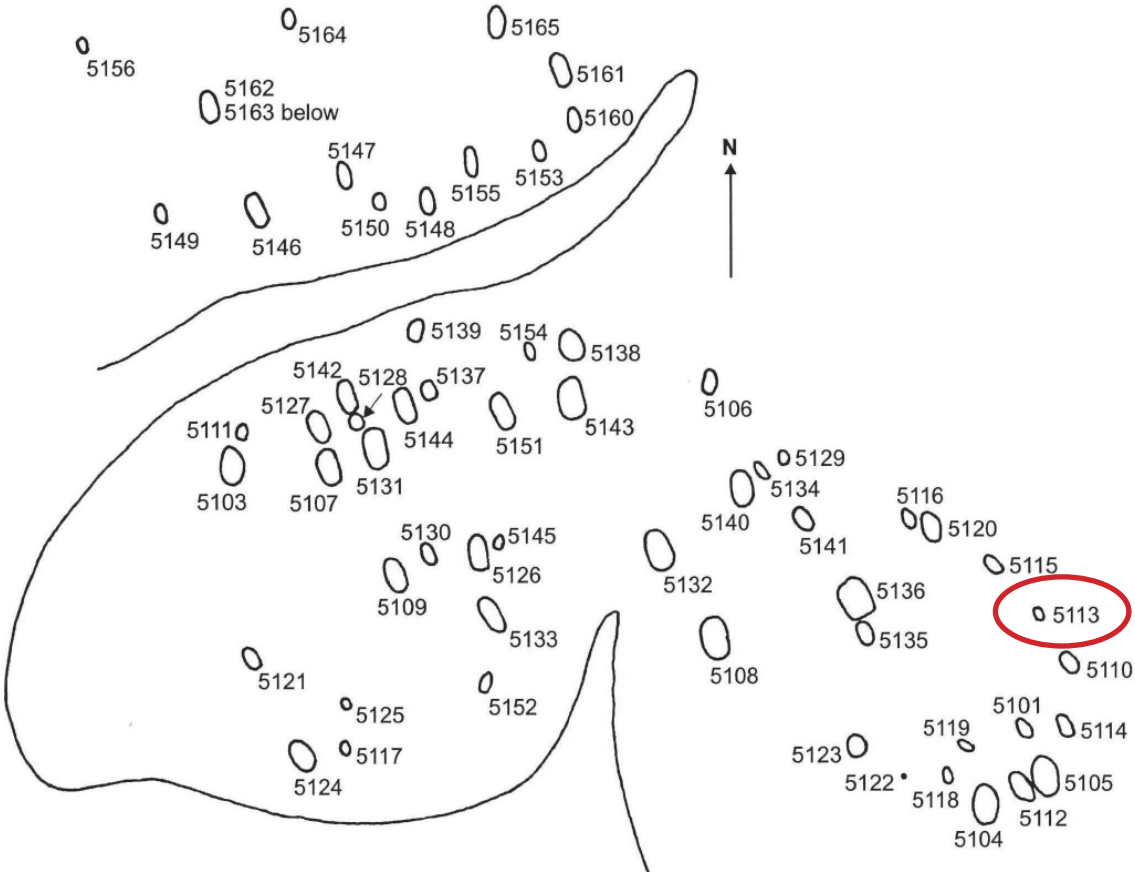


Figure 7.12: DRN 1, dog burial at Badari located on the eastern boundary indicative of the barrier-style protection, Flores (2003: Figure E.1).

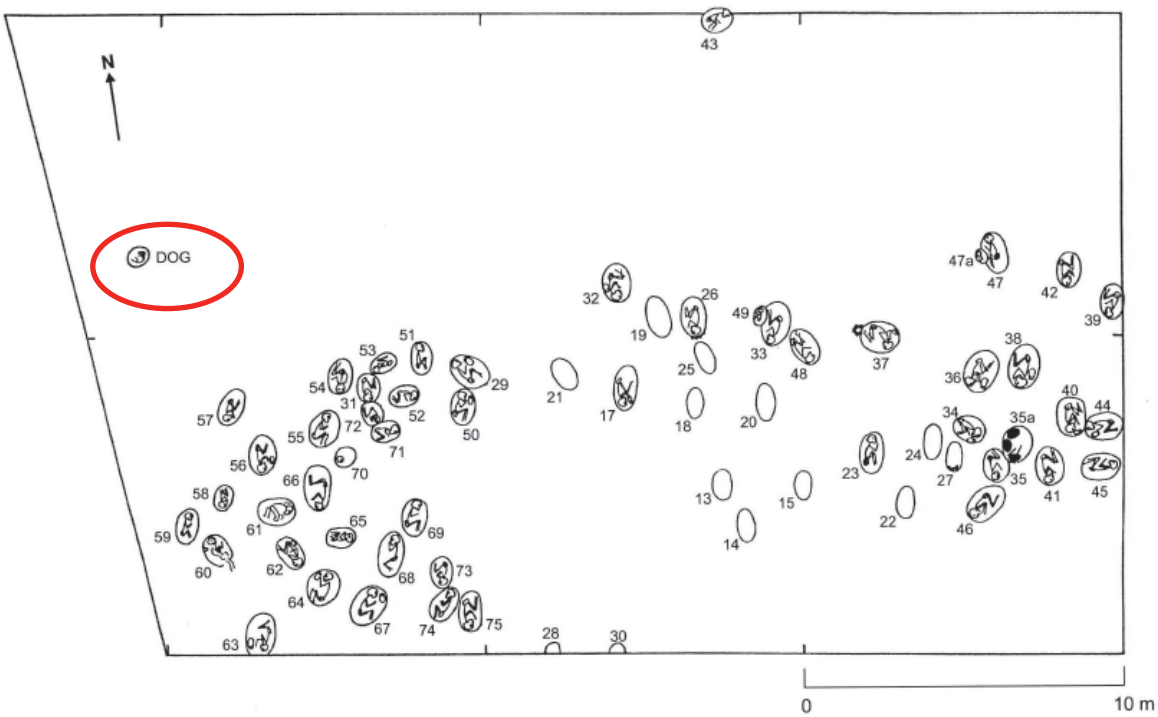


Figure 7.13: DRN 6, a dog burial at Maadi located on the north-western boundary indicative of the barrier-style protection, Flores (2003: Figure E.4).

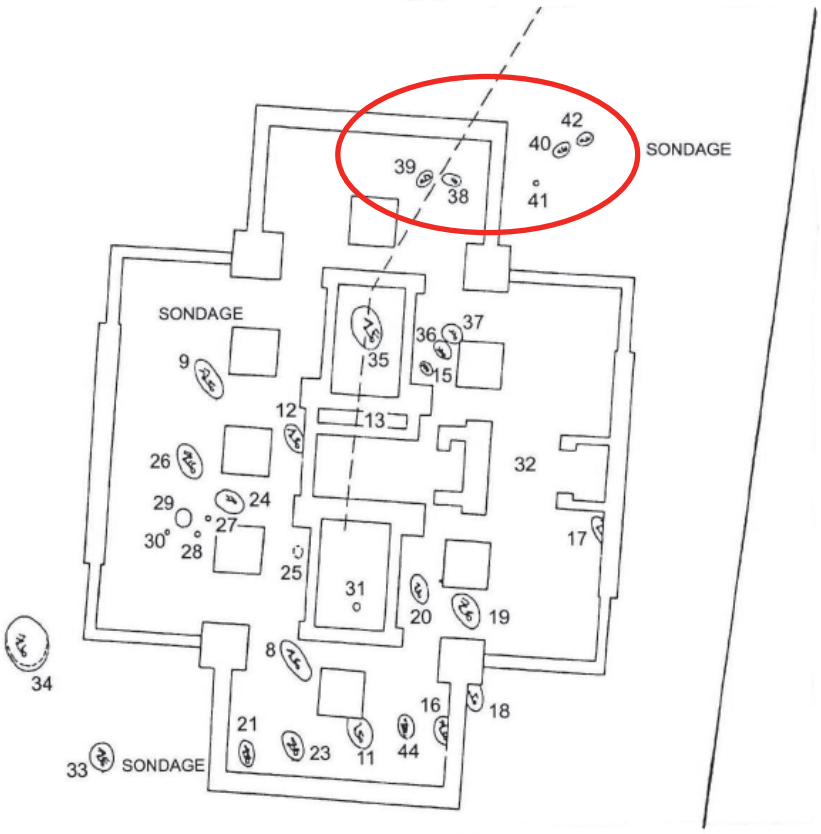


Figure 7.14: DRN 2, 32, 33, 34, 35, individual dog burials at Heliopolis located on the northern boundary indicative of the barrier-style protection, Flores (2003: Figure E.3).

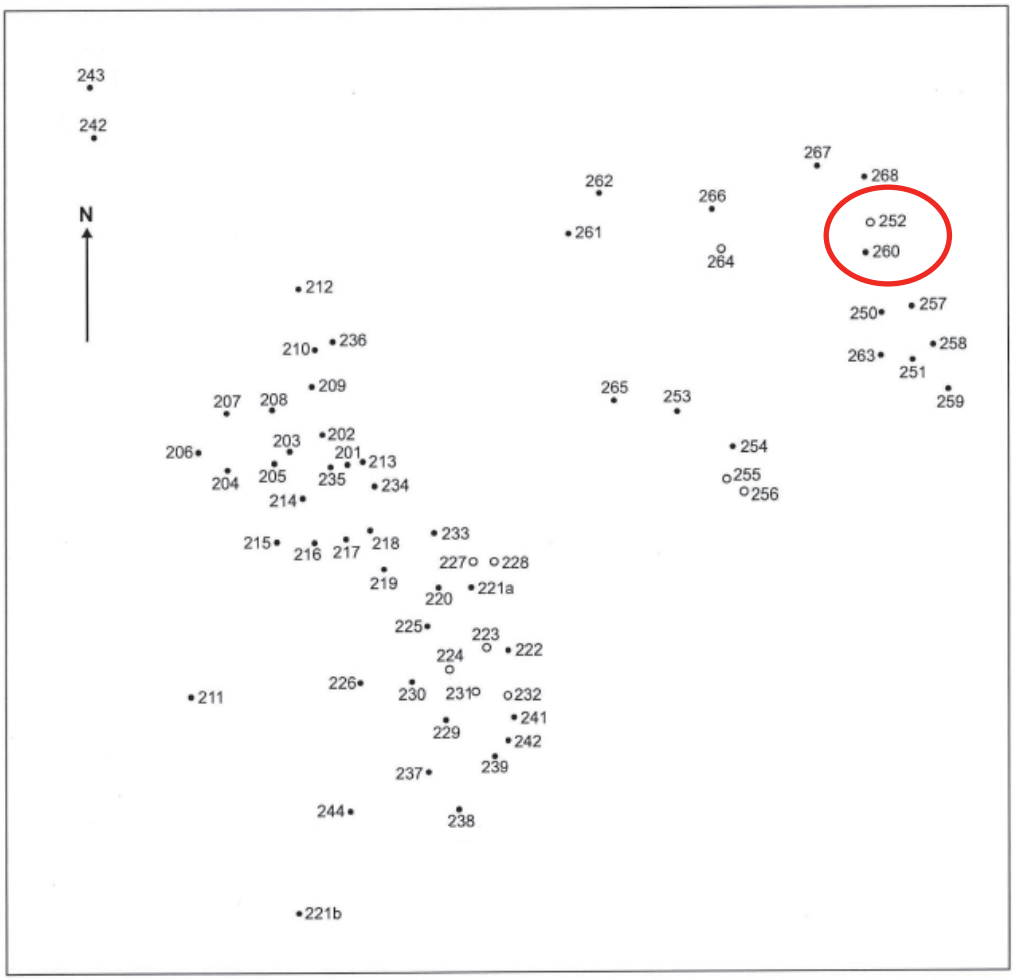


Figure 7.15: DRN 12, triple dog burial at Shellal, cemetery 7 located at the north-eastern boundary indicative of the barrier-style protection, Flores (2003: Figure E.11).

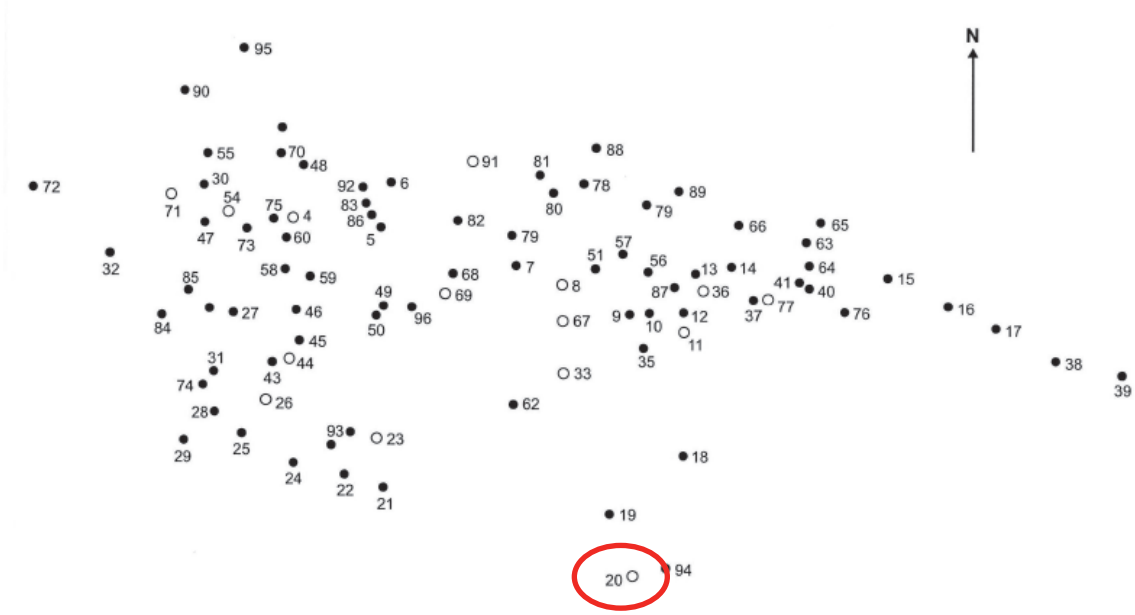


Figure 7.16: DRN 23, triple dog burial at Khor Bahan, cemetery 17 located on the southern boundary indicative of the barrier-style protection, Flores (2003: Figure E.13).

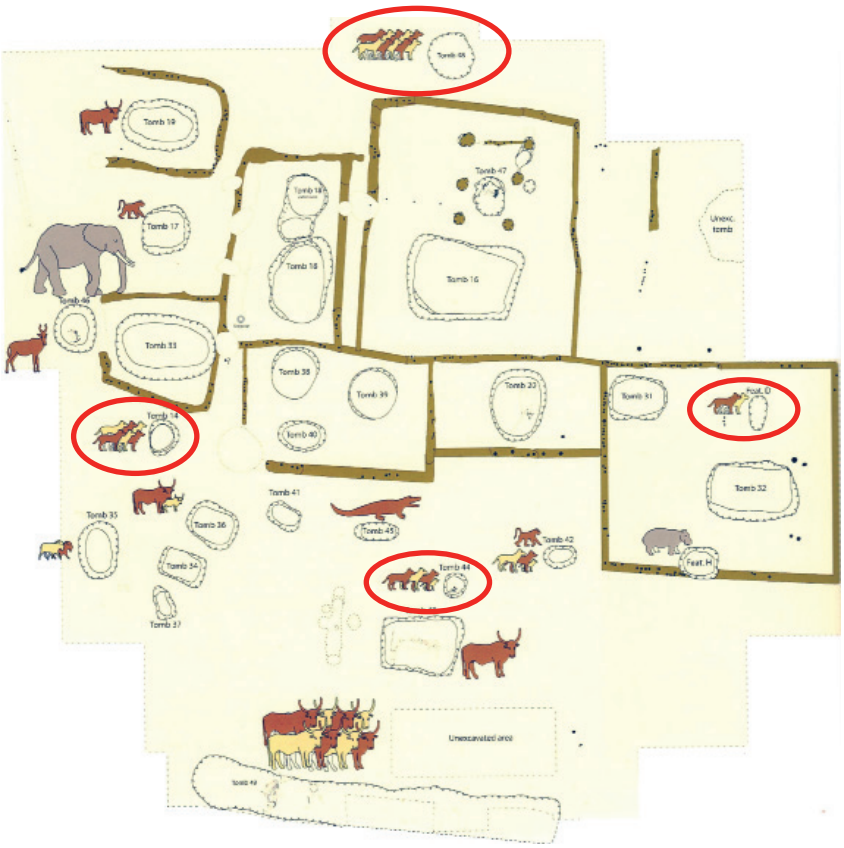


Figure 7.17: Tomb 16 complex at Hierakonpolis, Cemetery HK6 with placement of dog burials to the north [DRN 68], south [DRN 67], east [DRN 38] and west [DRN 40], providing barrier-style protection For Tomb 16, Patch (2011: Figure 17).

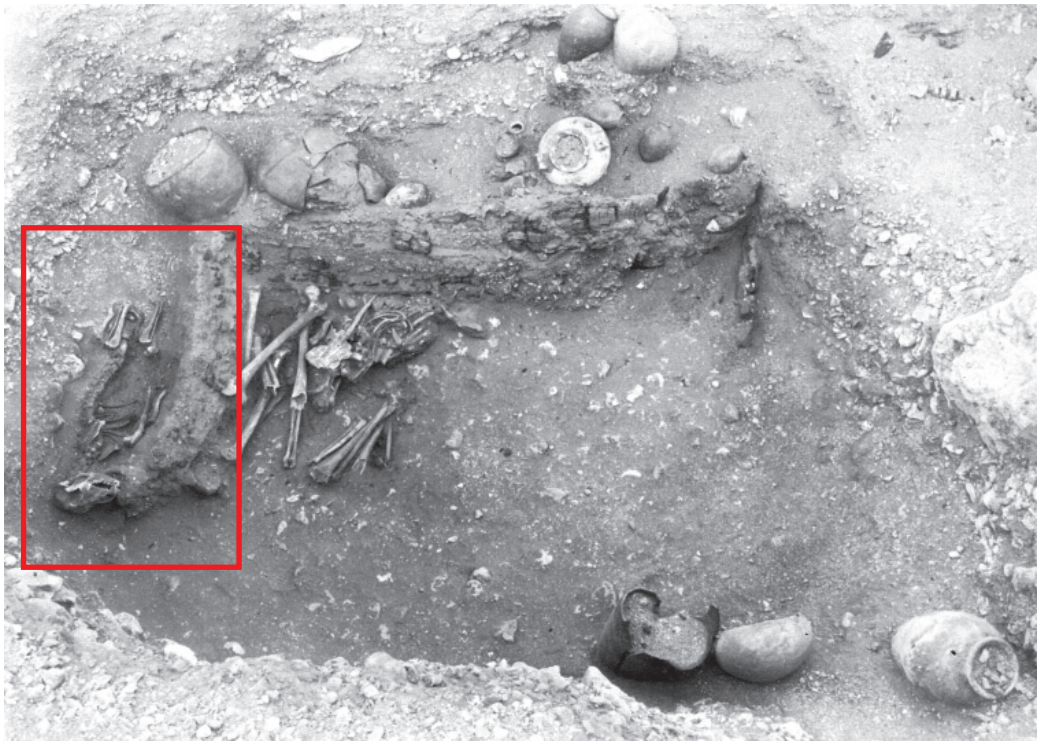


Figure 7.18: DRN 19 dog burial at Naga ed Dêr located at the foot end of the human burial, indicative of protection for an important individual, Lythgoe (1965: Figure 113a).

Figure 7.19: Four of the five dog burials in the settlement site of Adiama indicated in red [DRN 48, 49, 51, 53]. Approximate location of four child burials indicated in green, showing a close association between dogs and children, after Midant-Reynes & Buchez (2002: Plan 3).

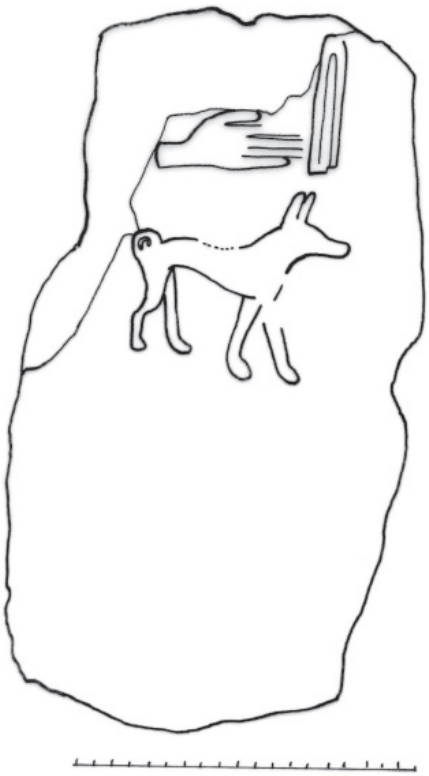


Figure 7.20: Stele inscribed with the name of a dog found in the vicinity of King Den's burial complex in Abydos. This stele was most likely buried with a dog, Paris Musée Du Louvre E. 21702, line drawing M. Hartley, after Martin (2011: Stele 206).

Figure 7.21: DRN 96, dog burial found associated with Mastaba 3507, the tomb of Her-Nieth at Saqqara. The burial was located at the entrance to the tomb enclosure, indicative of protection of the burial complex and the important human within, Emery (1958: Plate 91).

Figure 7.22: DRN 73 dog burial found at Helwan cemetery with the remains of a wooden coffin, indicating similar burial practices for humans and dogs, Saad (1951: Plate XLVI).

Figure 7.23: DRN 78 dog burial found at Helwan cemetery with two cylindrical vessels burial indicating similar burial practices for humans and dogs, Saad (1947: Plate LXXIII).

Figure 7.24: DRN 185 dog burial located in the burial chamber of Ankh-haf at Giza indicative of a dog providing protection for an important individual (www.gizapyramids.org accessed 1/4/14)

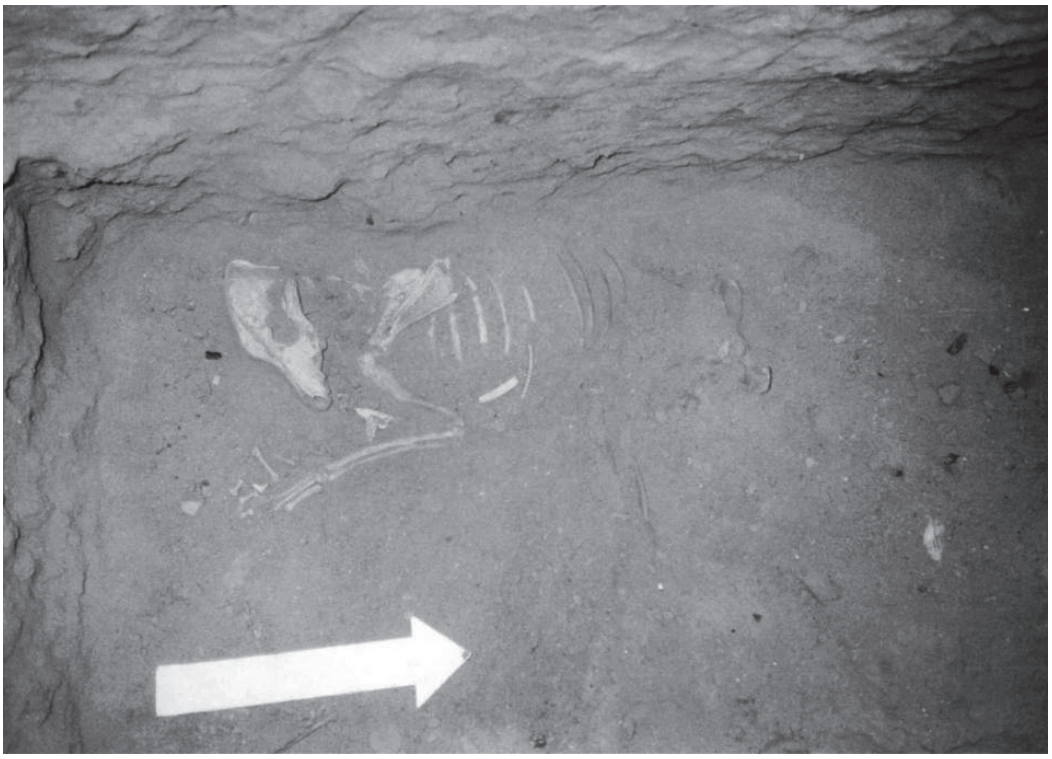


Figure 7.25: DRN 155 dog burial found at Abusir in the family tomb of Shedu, indicative of a dog providing protection for a group burial, Bárta (2001: Plate XXb).

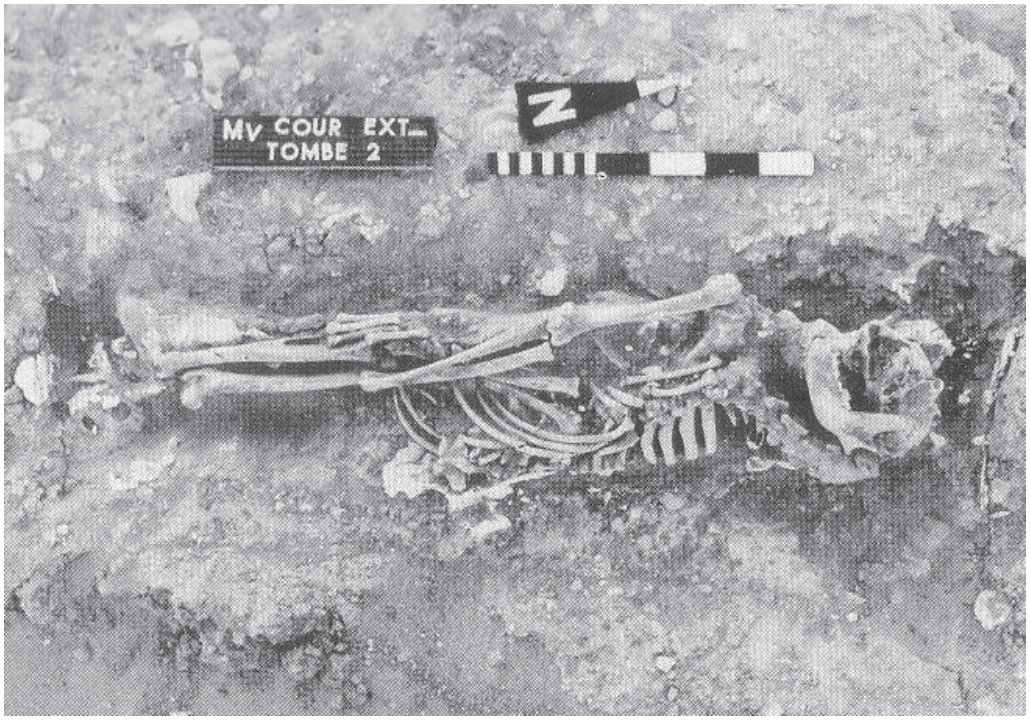


Figure 7.26: DRN 102 dog burial found in the base of a wall of the mastaba complex of Medu-nefer at Balat, Kharga oasis, indicative of dog providing protection for an important individual, Chaix & Olive (1986: Figure 17).

Figure 7.27: DRN 131 dog burial in a coffin found under the paved area of the courtyard of the Medu-nefer mastaba complex at Balat, Kharga oasis, indicative of a dog providing protection for an important individual, Chaix & Olive (1986: Figure 21).

Figure 7.28: Limestone block found west of the Giza pyramid of Cheops with an inscription dedicated to a dog burial, Reisner (1936b: 96).

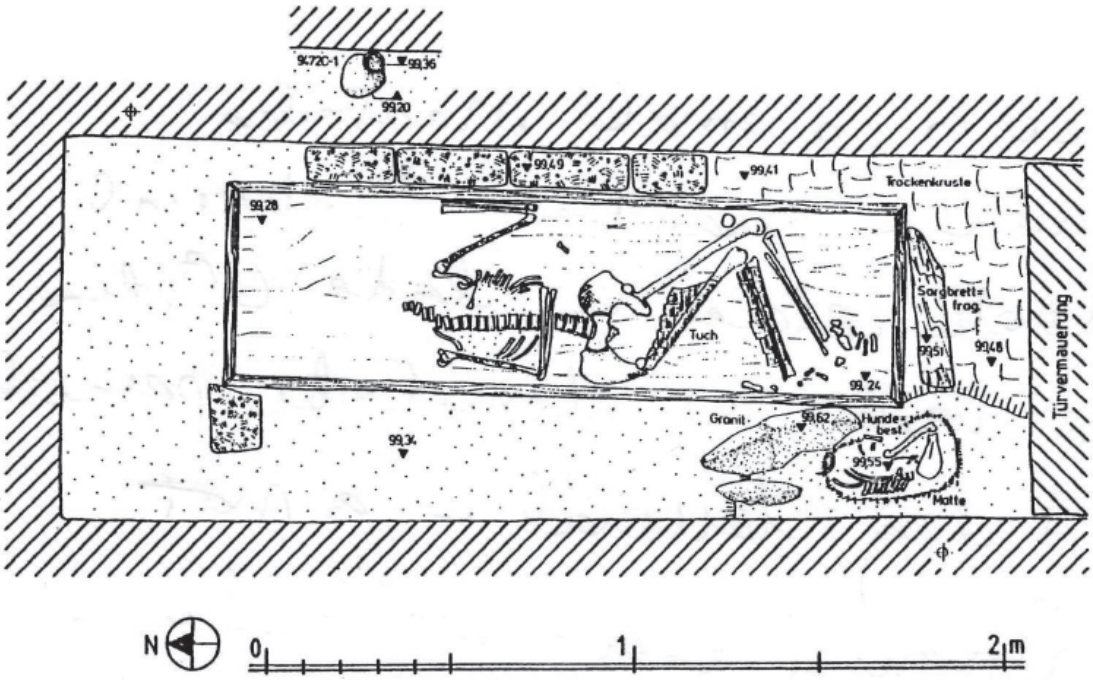


Figure 7.29: DRN 188 dog burial at Elephantine with the dog located at the foot end of the human coffin, indicative of protection for an individual, Zahradnik (2009: Figure 169).

Figure 7.30: DRN 182 dog burial found at Tell el-Maskhuta directly associated with a female human and a caprid (goat or sheep), the dog providing protection for an individual, and possibly the other fauna in the grave, Holladay (1982: Figure 72).

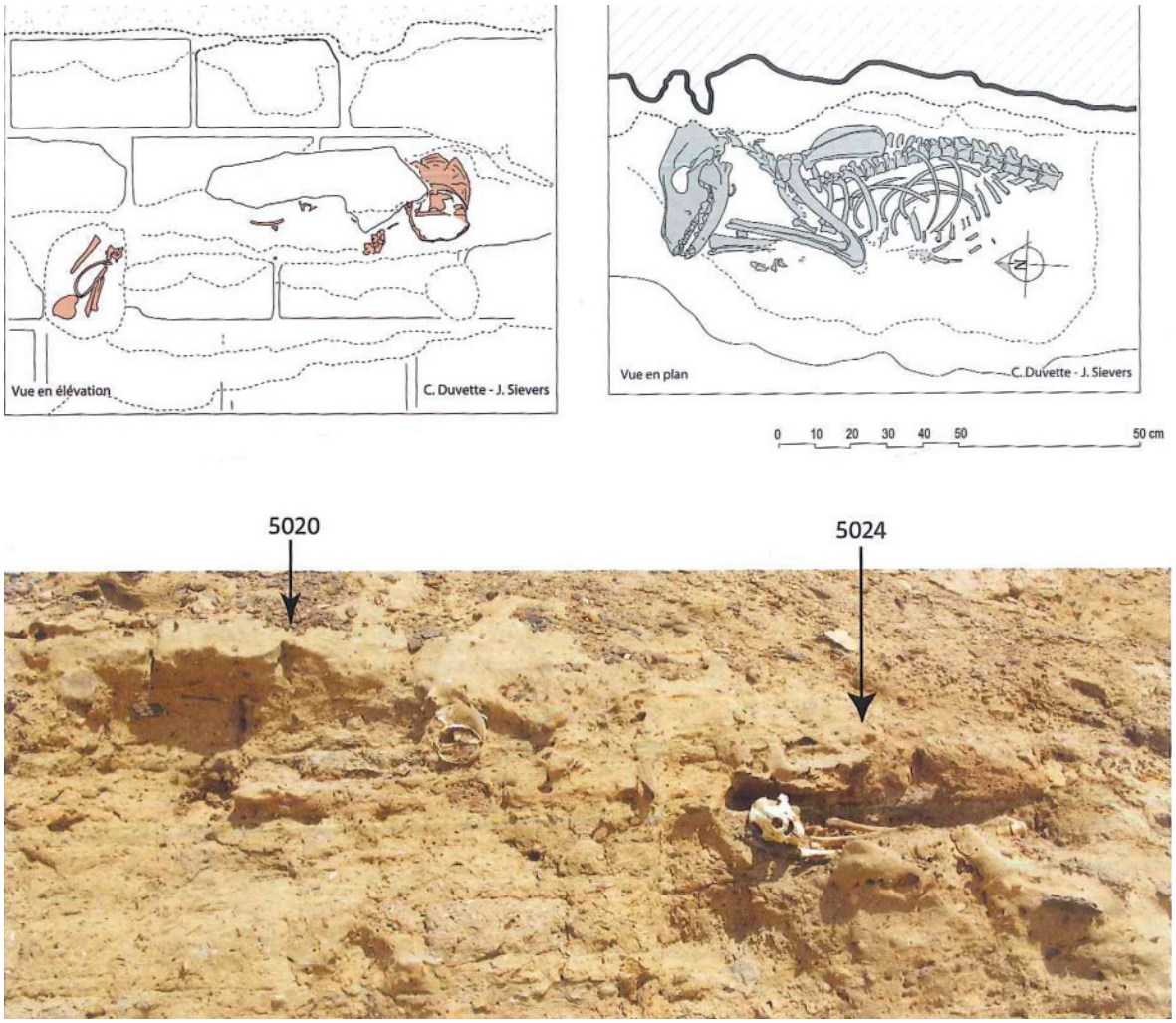


Figure 7.31: DRN 157 dog burial found at Qasr Allam located 33cm from a child burial indicative of a dog providing protection for the child, Adam & Colin (2012: Figures 3a-c).

Figure 7.32: DRN 132 two dogs buried with a child at Qasr Allam. Each interment occurred at a different time however the dogs may have been used to amplify the protection of the child, Colin (2010: Figure 11).

Figure 7.33: DRN 213 dog burial directly associated with a child in the north-west corner of Cell 401 indicative of a dog providing protection for the child, Colin, Adam & Pranjic (2014: Figure 2).

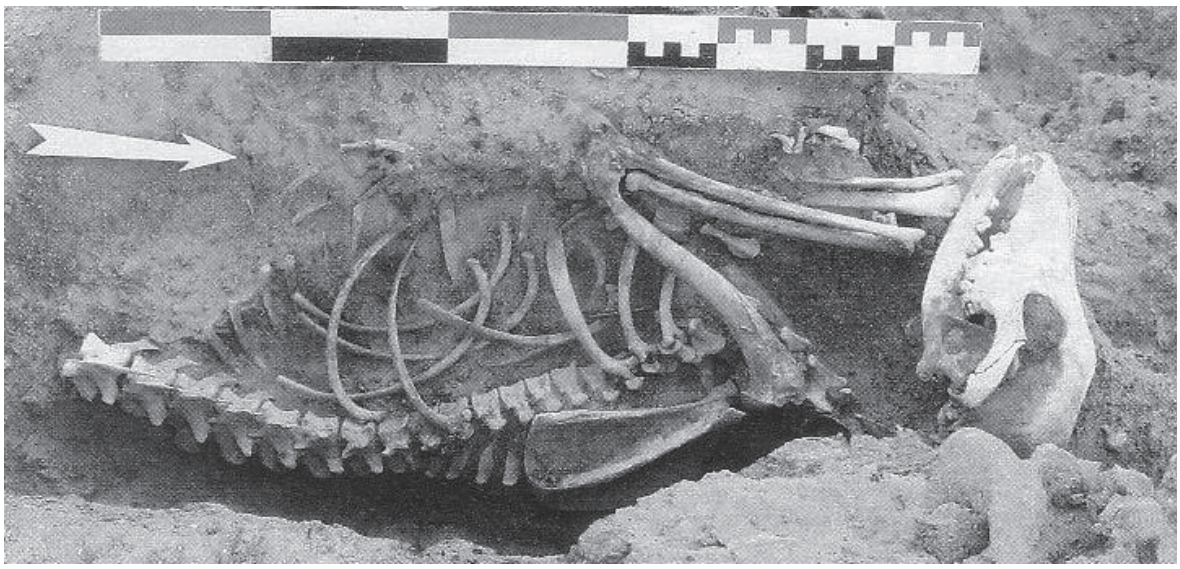


Figure 7.34: DRN 46 dog buried in a cavity in the wall of Cell 401 at Qasr Allam, with an adult and six children buried in the same cell, indicative of a dog providing protection for a group of burials, Colin (2009: Figure 45).

Figure 7.35: DRN 214 three dogs buried with an adult and a child in Cell 413 at Qasr Allam, placed at the east, west and south of the humans, indicative of the barrier-style protection of the two individuals, Colin, Adam & Pranjic (2014: Figure B).

Figure 7.36: DRN 165 one of the six dogs from a human associated burial at Saqqara, in its original position with its back against the edge of the pit indicative, of the barrier-style protection of the individuals within, photo M. Hartley.

Figure 7.37: DRN 160 one of the three dogs found buried at the foot end of a coffin on the north side, located at Saqqara, indicative of the dogs providing protection for an individual, photo M. Hartley.

Figure 7.38: DRN 167 a dog burial found in a rock-cut chamber at Saqqara with 30 individuals including children, indicative of the dog providing protection for the group burial, from Hawass 2009b: website https//www.youtube.com/watch?v=ByeEbkqfRgA) (accessed 13/9/2016).

Figure 7.39: DRN 216 burial of two mummified canids (580, 581), found in the burial chamber of *Wꜣḥ-ib-Rˁ* (Wah-ib-re) at Thebes dated to the 30th Dynasty along with a mummified cat (579), two mummified falcons (575, 576), two mummified ibis (577, 578). The mummified canids are more votive in nature, Bietak & Reiser-Haslauer (1982: 190, Abb 81).

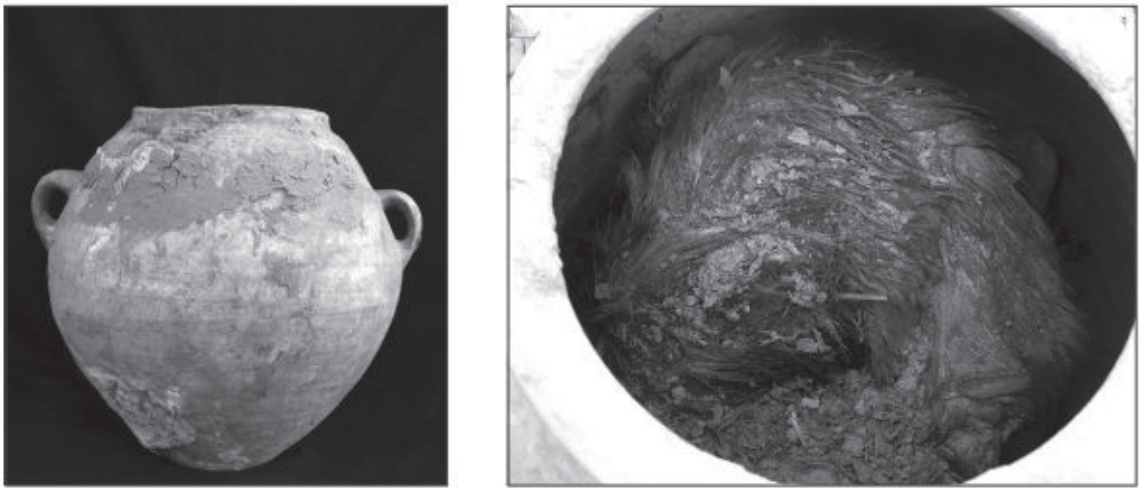


Figure 7.40: DRN 183 vessel containing a dog buried in a pre-existing funerary enclosure at Abydos, indicative of a votive canid burial, Ikram (2013a: Figures 2 & 3).

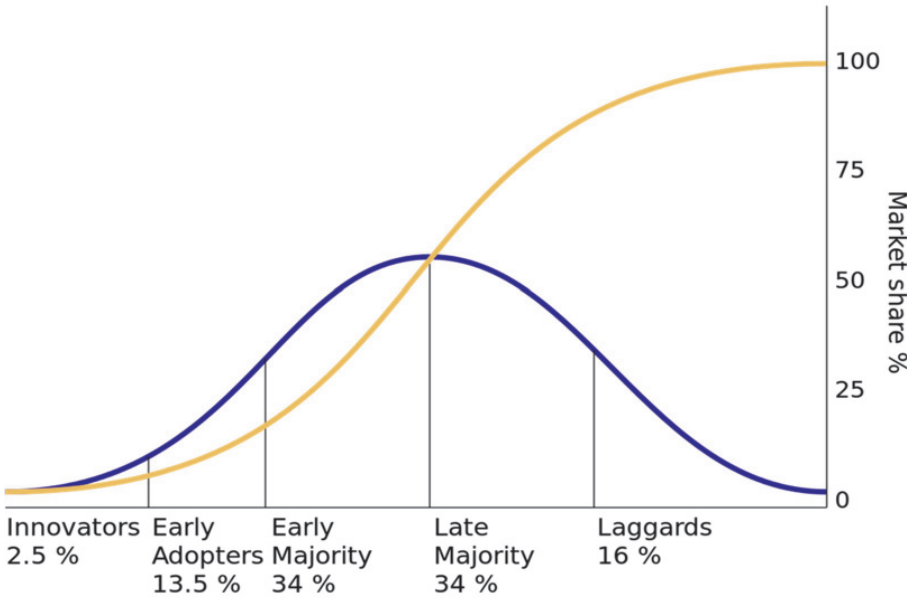
Figure 7.41: DRN 148 vessel containing a single dog, a number of birds and the remains of two sheep, indicative of a votive canid burial including other votive fauna, Peet and Loat (1913: 43, Plate XVII, Figure 5).

Figure 7.42: DRN 151 bricked enclosure set against a vessel containing a dog and a sheep, indicative of a votive canid burial including other votive fauna, Peet & Loat (1913: 46, Plate XVII, Figure 6).

Figure 7.43: DRN 217 votive style dog burial placed under a large amphorae with a cat located nearby found at Berenike on the Red Sea coast, indicative of a votive burial, Sidebotham & Zych (2011: 19).

Figure 7.44: DRN 166 at least five dogs buried around the lower half of a body of a child found at Deir el-Banat, indicative of the dogs providing amplified protection for the human as well as a barrier-style protection, photo: A. Savinetsky, from Ikram (2013b: Figure 5).

Figure 7.45: DRN 168 dog burial found at the entrance of a burial pit cut into the floor of a chamber in the Teti cemetery north, Saqqara, indicative of the dog providing protection for the individual, photo M. Hartley.



Innovators	Early Adopters	Early Majority	Late Majority	Laggards
Predynastic	Early Dynastic	Late Period	Graeco-Roman	Graeco Roman

Figure 7.46: The archetypal S-curve reflecting the relevant stages of adoption, overlayed with the proposed ancient Egyptian equivalents for canid burials. S-curve chart derived from Figures 3-1 and 7-2, from Rogers (1995) https://en.m.wikipedia.org/wiki/Diffusion_of_innovations#/media/File%3ADiffusion_of_ideas.svg (accessed 30/8/16).

Appendix
Corpus of 141 Canid Burials

Catalogue of Database Record Numbers [DRN]

Missing DRN Numbers in the Corpus

Recorded Age and Sex of Humans associated with Canid Burials

DRN 1 - Badari, 5113

SITE NAME: Badari

REGION: Middle Egypt

PERIOD: Predynastic, Badarian

SITE TYPE: Cemetery

GRAVE NUMBER: 5113

GRAVE TYPE: Oval pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Covered in matting

GRAVE GOODS: None

REFERENCES

Brunton & Caton-Thompson (1928: 7 & Plate V); Flores (2003: 68).

COMMENTS

The dog burial lay at the centre of an arc of human graves at the eastern edge of the cemetery. Cemetery 5100 seemed to hold the more important burials. Four animal burials were found in the northernmost section of cemetery 5400 which Caton-Thompson suggested was poorer in character, with most graves containing two or less pots. The burials were tentatively identified as two bovide and two caprid.

DRN 2 - Heliopolis, I 38

SITE NAME: Heliopolis

REGION: Lower Egypt

PERIOD: Predynastic, Lower Egyptian (Maadi/Buto) Culture

SITE TYPE: Cemetery

GRAVE NUMBER: I 38

GRAVE TYPE: Pit

GRAVE CONDITION: Badly preserved

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Debono & Mortensen (1988: 17/39); Flores (2003: 70).

COMMENTS

Along with the dog, one small sherd was found in the fill at a depth of 50cm.

DRN 3 - El Mahasna, H 23

SITE NAME: El Mahasna

REGION: Middle Egypt

PERIOD: Predynastic, Naqada IIA

SITE TYPE: Cemetery

GRAVE NUMBER: H 23

GRAVE TYPE: Pit - rectangular

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 2

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Wrapped in matting

GRAVE GOODS: Imitation ceramic garlic bunches

REFERENCES

Ayrton & Loat (1911: 7/21/32/ Plate VIII); Flores (2003: 86).

COMMENTS

The male body appears to have been placed in a wooden coffin in a semi-contracted position with head to the south east. Associated wood/decayed wood and some matting observed. Diorite staff head, stone mace head, two stones picks, (all with wooden handles) a copper harpoon head, two flint flakes before the face, three pottery vases,one ivory vase, one clay mace head. Broken pot near knees. Dogs lay to the west of the coffin. Ayrton presumed the deceased to be a great warrior chief. Skeletons of dogs lay on their backs wrapped in a matting with imitation garlic bunches lying at their heads. It would appear that the garlic bunches were associated with the dogs and the dogs associated with the human and the other grave goods. This grave has been dated Naqada IIA (Midant-Reynes & Buchez 2002: 542).

In Grave H.41 nearby, the skeleton of a woman, a child and another adult at the back. Among the numerous grave goods present, above the head of central skeleton was a whitened unbaked clay pendant, two cup-like objects and also bunches of model garlic, similar to those found in H23 (Ayrton & Loat 1911: 16).

DRN 4 - Hemamieh, No. 206 (area E)

SITE NAME: Hemamieh

REGION: Middle Egypt

PERIOD: Predynastic/Old Kingdom

SITE TYPE: Settlement

GRAVE NUMBER: No. 206 (area E)

GRAVE TYPE: Pit

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: Multiple (15 or more)

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Three limestone blocks covering

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Brunton & Caton-Thompson (1928: 94/Plate LXIX).

COMMENTS

No marks on bones to indicate how canids died. This burial was found in the layer contemporary with Middle Predynastic but could date later to the Old Kingdom where its appearance would have been intrusive. Among the remains were mandibular rami (mandibles) of two cats. Fifteen or more canids, since determined as dog lay massed under three large limestone blocks. Large range of age, from fully mature, to intermediate to tiny puppies. Considered by Caton-Thompson as the disposal of a bitch with her litter.

DRN 5 - Wadi Digla, WD Animal 5

SITE NAME: Wadi Digla

REGION: Lower Egypt

PERIOD: Predynastic, Lower Egyptian (Maadi/Buto) Culture

SITE TYPE: Cemetery

GRAVE NUMBER: WD Animal 5

GRAVE TYPE: Oval pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Boessneck et al. (1989: 93-94); Rizkana & Seeher (1990: 60 & Plate XXV); Flores (2003: 70-1).

COMMENTS

Sketch plan of site shows one vessel placed at the head of the dog however the tomb record indicates no vessels and photograph shows the presence of sherds but no vessel. Sketch plan shows this dog burial was surrounded by oval pits each containing a human body in a contracted position, including a child burial (WD 164). Other vessels were recorded nearby the dog burial (Fig. 11).
As at 1985 eight animal skeletons were still preserved and studied. Animal 5 was a dog, Animal 3, 4, 7, 10, 12, 13 and 14 were either kids or lambs. Each animal was buried in a separate pit and without obvious relation to a grave of a human in the vicinity. The depth of the animal burials was comparable to the human burials, only smaller in size. Half of the animals were furnished with a pottery vessel in the burial pit. Animal 9 also had a stone bead and some remains of copper ore or even a decayed metal ornament.

DRN 6 - Maadi, Animal Grave

SITE NAME: Maadi

REGION: Lower Egypt

PERIOD: Predynastic, Lower Egyptian (Maadi/Buto) Culture

SITE TYPE: Cemetery

GRAVE NUMBER: Animal Grave

GRAVE TYPE: Oval pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Moustafa (1955: 105); Boessneck (1989: 103); Rizkana & Seeher (1990); Flores (2003: 70).

COMMENTS

No records of this burial were kept, it is known from a sketch of a plan of the site. It was situated on the western end of the excavated area, a little apart from the human burials. The dog was the same slender type and size, with 52cm shoulder height, well known at this time. Boessneck (1989: 103) and Moustafa (1955) who studied and published the skeletal remains differed in their opinions of the dog type.

Moustafa speculated that dogs were interred as a guardian, or else they were sacrificed. Moustafa suggests the Predynastic dog was worshipped. Its likely function being a guard or watch over the cemetery. This is suggested by the fact that only one dog was buried in its own grave among a multitude of humans and other animals.

At least one dog was found at Wadi Digla, and five at Heliopolis and lambsand/or kids were found in these two cemeteries, some buried with offerings, which might indicate a cultic activity of some kind. It remains an open question whether the dog burials and the sheep/goat burials had the same meaning in all cases.(Rizkana & Seeher (1990: 28).

DRN 7 - Shellal, Cemetery 7A - Grave 223

SITE NAME: Shellal

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 7A - Grave 223

GRAVE TYPE: Pit - rectangular with rounded corners

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1910a: 37); Flores (2003: 73)

COMMENTS

The skull of the canid was missing. This burial was found in the centre of the central section of the cemetery, just north of another animal burial (224)
Shellal lies adjacent to the head of the First Cataract on the east bank of the Nile. The animal burials lay scattered among an isolated cluster of human graves, Nos. 201-268, originally identified as "Early B-Group" (Reisner 1910a: 33ff). Based on re-evaluation of the artifactual evidence Smith suggests that most of the human graves in this cluster can be attributed to the earliest phase of the Early A-Group. Smith states: "this group of graves have a character consistent with the earliest graves of Bahan and Kubanieh, and what evidence exists, should be dated to the Naqada I, possibly in some instances, even earlier than the earliest dated Bahan graves (Smith 1991:101).

DRN 8 - Shellal, Cemetery 7A - Grave 224

SITE NAME: Shellal

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 7A - Grave 224

GRAVE TYPE: Pit - rectangular with rounded corners

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1910a: 37); Reisner (1910b: Plate 6b); Flores (2003: 73).

COMMENTS

The disturbed burial of a woman 'appears' to be later, cut through the edge of the dog burial. This grave was found in the centre of the central section of the cemetery just slightly south of another dog burial (223).

DRN 9 - Shellal, Cemetery 7A - Grave 227

SITE NAME: Shellal

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 7A - Grave 227

GRAVE TYPE: Oval pit

GRAVE CONDITION: undisturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1910a: 37); Flores (2003: 73).

COMMENTS

No wrappings or accompaniments present. This grave was found in the centre of the central section of the cemetery, next to (west) of another dog burial (228).

DRN 10 - Shellal, Cemetery 7A - Grave 228

SITE NAME: Shellal

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 7A - Grave 228

GRAVE TYPE: Oval pit

GRAVE CONDITION: disturbed by denudation

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1910a: 37); Flores (2003: 73).

COMMENTS

No wrappings or accompaniments. This grave was found in the centre of the central section of the cemetery. It was situated to the east of another dog burial (227).

DRN 11 - Shellal, Cemetery 7A - Grave 231

SITE NAME: Shellal

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 7A - Grave 231

GRAVE TYPE: Oval pit

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 2

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: Twisted strands of leather

REFERENCES

Reisner (1910a: 38); Flores (2003: 73).

COMMENTS

This grave was very disturbed. The three-strand twisted thong has been interpreted as a possible 'leash'. This grave was found in the central section, towards the south of the cemetery.

DRN 12 - Shellal, Cemetery 7A - Grave 252

SITE NAME: Shellal

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 7A - Grave 252

GRAVE TYPE: Pit irregular

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 3

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1910a: 40); Flores (2003: 73).

COMMENTS

The northern dog A lies under the middle dog B; the southern dog C lies between the legs of B; Thus B and C are contemporaneous burials put in on A. However A may still be contemporaneous. This grave was found on the eastern extremity of the cemetery.

DRN 13 - Shellal, Cemetery 7A - Grave 256

SITE NAME: Shellal

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 7A - Grave 256

GRAVE TYPE: Oval pit

GRAVE CONDITION: Disturbed - mere pan in hard stratum

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: Shells

REFERENCES

Reisner (1910a: 41); Flores (2003: 73).

COMMENTS

The shells were found in the surface debris. Grave found in central section of five burial, two animals (255 & 256), one empty hole (265), one adult male (253), and one infant (254).

DRN 14 - Shellal, Cemetery 7A - Grave 255

SITE NAME: Shellal

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 7A - Grave 255

GRAVE TYPE: Oval pit

GRAVE CONDITION: Denuded- outline partially gone

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 1

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1910a: 41); Reisner (1910b: Plate 7c); Flores (2003:73).

COMMENTS

The goat was buried on its left side, head due west. The dog was buried between the goats legs. The two animals were buried facing each other. The goat's front leg appears to be resting over the dog. Simultaneous burials. Dog skull and vertebrae decayed by denudation. Grave found in cluster of five graves in the central section of the cemetery. Two animals (255 & 256), one empty hole (265), one adult male (253), and one infant (254).

DRN 15 - Shellal, Cemetery 7A - Grave 264

SITE NAME: Shellal

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 7A - Grave 264

GRAVE TYPE: Pit irregular

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1910a: 42); Flores: (2003: 73).

COMMENTS

No other bones were recorded for this burial, but the size of the grave is very similar to the other human graves in this area. Grave found towards the north east section of cemetery.

DRN 16 - Matmar, Grave 3128

SITE NAME: Matmar

REGION: Middle Egypt

PERIOD: Predynastic, Naqada IIC

SITE TYPE: Cemetery

GRAVE NUMBER: Grave 3128

GRAVE TYPE: Oval pit

GRAVE CONDITION: Disturbed - partly

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Remains of wooden coffin

WRAPPING: None

GRAVE GOODS: Ceramic vessels

REFERENCES

Brunton (1948: 16/17/22/Plate X), Flores: (2003: 84).

COMMENTS

The complete skeleton of a dog was found in its own wooden coffin, placed at the foot of the grave which held a male body. The box had pots placed on top. There were ca. 40 pots in total found in the grave. Other animal bones were found - the foreleg and shoulder of a bull, probably food offerings. Wicker coffin(?), mat wrapping for the human burial. Dated Naqada IIC (Midant-Reynes & Buchez 2002: 542).

DRN 17 - Matmar, Cemetery 100

SITE NAME: Matmar

REGION: Middle Egypt

PERIOD: Graeco-Roman Period

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 100

GRAVE TYPE: Unknown

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 3

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: Ceramic dog head model

REFERENCES

Brunton (1948: 91).

COMMENTS

Brunton has included this grave in the 'Late and Ptolemaic Periods' chapter of his publication. This grave contained two dogs and one puppy all lying side by side, heads south. The clay model dog's head was placed above one dog, and scraps of amorphous clay could have been the body. The impression was that this burial was not contemporary with the Protodynastic graves in this area and belonged to the Late or Ptolemaic Period.

DRN 18 - Matmar, 613

SITE NAME: Matmar

REGION: Middle Egypt

PERIOD: Graeco-Roman Period

SITE TYPE: Cemetery

GRAVE NUMBER: 613

GRAVE TYPE: Pit - rectangular

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: Multiple

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Brunton (1948: 91).

COMMENTS

Brunton only mentions a large rectangular pit containing a mass of dog bones at one end. He has included this in his 'The Late and Ptolemaic chapter of his publication.

DRN 19 - Naga Ed Dêr, N7418

SITE NAME: Naga Ed Dêr

REGION: Middle Egypt

PERIOD: Predynastic, Naqada IA/B-IID

SITE TYPE: Cemetery

GRAVE NUMBER: N7418

GRAVE TYPE: Pit - rectangular with rounded corners

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Lythgoe (1965:252-254 & Figure 113b/c); Flores (2003: 85).

COMMENTS

The grave contained the remains of a wooden coffin. A confusion of plundered human bones were found inside the north east corner of the coffin - sex undetermined. Outside the north end of the coffin was the complete skeleton of a dog, lying on its left side head facing south towards the coffin. Eighteen pots were found in situ on the east side of the coffin and two spearheads were found in the fill in the south east corner of the grave, but it cannot be determined if they belonged with this grave or N7149 situated close by.

DRN 20 - Khor Bahan, Cemetery 17A - Grave 4

SITE NAME: Khor Bahan

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 17A - Grave 4

GRAVE TYPE: Pit

GRAVE CONDITION: Denuded - outline not preserved

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Covered with matting

GRAVE GOODS: Twisted leather

REFERENCES

Reisner (1910a: 137); Reisner (1910c: 116); Flores (2003: 74).

COMMENTS

Elliot-Smith lists fragments of a human skeleton found in this grave (Reisner 1910c: 116). However no human bones were listed by Reisner, only dog. If these fragments were present, perhaps this dog was buried in the debris of an earlier grave as in #8.
Elliot Smith reported the dog was buried with a human. It lay on its right side in a contracted position. Around the dog's neck was a leather collar with the ends knotted into a leash 120cm long of twisted leather. Elliot Smith notes that almost all the dogs found in this cemetery had a considerable amount of gnawed fragments of bone under the rib area - this meaning that the dogs had eaten before being 'killed' and placed in the grave.

DRN 21 - Khor Bahan, Cemetery 17A - Grave 8

SITE NAME: Khor Bahan

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 17A - Grave 8

GRAVE TYPE: Pit irregular

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Wrapped in matting

GRAVE GOODS: Twisted leather

REFERENCES

Reisner (1910a: 137); Flores (2003: 74).

COMMENTS

Beside and underneath this dog burial were pots and other objects, which belonged to an older (Early Predynastic) human burial. The dog was found, relatively undisturbed in the debris of the older grave, about 15cm above the floor of this older grave. Under the dog was fur, brown (black) and yellow (white) with the hair down, possibly from the dog.

DRN 22 - Khor Bahan, Cemetery 17A - Grave 11

SITE NAME: Khor Bahan

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 17A - Grave 11

GRAVE TYPE: Pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1910a: 138); Flores (2003: 74).

COMMENTS

DRN 23 - Khor Bahan, Cemetery 17A - Grave 20

SITE NAME: Khor Bahan

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 17A - Grave 20

GRAVE TYPE: Circular pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 3

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1910a: 138); Flores (2003:74).

COMMENTS

No other information was recorded for this burial of three dogs.

DRN 24 - Khor Bahan, Cemetery 17A - Grave 26

SITE NAME: Khor Bahan

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 17A - Grave 26

GRAVE TYPE: Circular pit

GRAVE CONDITION: Denuded - covered with debris

FAUNAL CONTENT

NUMBER OF CANIDS: 5

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1910a: 137-138); Reisner (1910b: Plate 28a); Flores (2003: 74).

COMMENTS

From the photo it appears that the dogs were placed in the grave lying on their left sides. The grave was circular in shape like multiple dog burial #20. Four ivory bracelets were found in the grave just above the dogs, and about 20 flint chisel points and a flint flake, a large piece of malachite, and a shell pierced for stringing were found in the debris higher up, however these objects are believed to belong to an older plundered grave. Elliot Smith says the dogs had worn decayed teeth, food remains in their stomachs and their crania showed ridges and other characteristics more primitive than those of the New Empire dogs found in Cemetery 7.

DRN 25 - Khor Bahan, Cemetery 17A - Grave 36

SITE NAME: Khor Bahan

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 17A - Grave 36

GRAVE TYPE: Oval pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1910: 138); Smith et al. (1910a: 118); Flores (2003: 74).

COMMENTS

Reisner's report states '1 dog', Elliot Smith's report states '2 dogs'.

DRN 26 - Khor Bahan, Cemetery 17A - Grave 44

SITE NAME: Khor Bahan

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 17A - Grave 44

GRAVE TYPE: Circular pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1910a: 138); Flores (2003: 74).

COMMENTS

Reisner states this burial was situated 10cm above grave 17: 43 – the burial of a 30 year old male.

DRN 27 - Khor Bahan, Cemetery 17A - Grave 54

SITE NAME: Khor Bahan

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 17A - Grave 54

GRAVE TYPE: Pit

GRAVE CONDITION: Denuded - only one side of grave preserved

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1910a: 138); Flores (2003: 74).

COMMENTS

The body was badly decayed and caused Reisner some doubt concerning the species, however 'dog' has been entered.

DRN 28 - Khor Bahan, Cemetery 17A - Grave 67

SITE NAME: Khor Bahan

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 17A - Grave 67

GRAVE TYPE: Oval pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 2

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Covered with matting

GRAVE GOODS: Twisted leather

REFERENCES

Reisner (1910a: 138); Reisner (1910b: Plate 27 d); Flores (2003: 74).

COMMENTS

From the photo it appears that the two dogs have been placed together carefully and deliberately into the grave. One dog has its right foreleg resting over the second dog. Paws, claws and fur were preserved.Twisted leather collars and leashes were still on the dogs necks.

DRN 29 - Khor Bahan, Cemetery 17A - Grave 69

SITE NAME: Khor Bahan

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 17A - Grave 69

GRAVE TYPE: Circular pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 2

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1910a: 138); Flores (2003:74).

COMMENTS

"In this cemetery there was also a very interesting series of the remains of pet dogs, buried in the archaic times" (Reisner (1910a: 116). A considerable quantity of gnawed fragments of bone were found under the ribs in almost every case of these dogs.

DRN 30 - Khor Bahan, Cemetery 17A - Grave 77

SITE NAME: Khor Bahan

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 17A - Grave 77

GRAVE TYPE: Circular pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 2

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1910a: 139); Flores (2003: 74).

COMMENTS

The skulls of both dogs were missing.

DRN 31 - Khor Bahan, Cemetery 17A - Grave 91

SITE NAME: Khor Bahan

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 17A - Grave 91

GRAVE TYPE: Circular pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1910a: 139); Flores (2003: 74).

COMMENTS

DRN 32 - Heliopolis, I 39

SITE NAME: Heliopolis

REGION: Lower Egypt

PERIOD: Predynastic, Lower Egyptian (Maadi/Buto) Culture

SITE TYPE: Cemetery

GRAVE NUMBER: I 39

GRAVE TYPE: Oval pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Debono & Mortenson (1988: 17 & 39/Plate 12.1); Flores (2003: 70).

COMMENTS

No grave good s accompanied this burial. The remains of plants were found at the same level as the bones. Debono alludes to it as a 'simple burial'. The dog graves were small and close to the surface, probably because of the size and the fact that the surface had been levelled in this area. The dogs had no specific orientation. The heads were turned towards the south, west, north-west, or north-east, looking towards the east, north or west, lying on right and left sides, and often contracted as if asleep. The five dog burials lay in an arc on the northern edge of the eastern end of the excavated portion of the cemetery.

DRN 33 - Heliopolis, I 40

SITE NAME: Heliopolis

REGION: Lower Egypt

PERIOD: Predynastic, Lower Egyptian (Maadi/Buto) Culture

SITE TYPE: Cemetery

GRAVE NUMBER: I 40

GRAVE TYPE: Oval pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Matting remains

GRAVE GOODS: None

REFERENCES

Debono & Mortenson (1988: 17 & 39/Plate 12.3); Flores (2003: 70).

COMMENTS

The skull of the dog was separated from the body. The head of this dog was more rounded, less elongated than the other dogs. Debono suggest the legs may have been tied together at burial as the legs were very close together. Sherds were found in the fill.

DRN 34 - Heliopolis, I 41

SITE NAME: Heliopolis

REGION: Lower Egypt

PERIOD: Predynastic, Lower Egyptian (Maadi/Buto) Culture

SITE TYPE: Cemetery

GRAVE NUMBER: I 41

GRAVE TYPE: Circular pit

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Debono & Mortenson (1988: 17 & 39); Flores (2003: 70).

COMMENTS

Looking at the site plan, this grave was smaller than the others and more circular. Only a very few scattered dog bones remained.

DRN 35 - Heliopolis, I 42

SITE NAME: Heliopolis

REGION: Lower Egypt

PERIOD: Predynastic, Lower Egyptian (Maadi/Buto) Culture

SITE TYPE: Cemetery

GRAVE NUMBER: I 42

GRAVE TYPE: Oval pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Debono & Mortensen (1988: 17 & 39); Flores (2003: 70).

COMMENTS

This dog was well preserved with fragments of skin adhering to the bone. No grave goods were found but snails were found in the fill.
Six goat burials were also found, each containing numerous pots. The goats all lay with their heads to the south, facing east, their body lying on the right side, contracted in a resting position like the human burials. Only one was buried on its belly. One goat was wrapped in matting (I 36). Three had a black substance underneath covering a larger area than the animal - which could have been matting or a skin (I 37, 67,71). Debono suggests the dogs and goats were selected animals as it is unlikely that every animal was given funerary honours comparable to the humans (Debono & Mortensen 1988: 40).

DRN 37 - Risqalla (Wadi Qamar), Cemetery 30 - Grave 36

SITE NAME: Risqalla (Wadi Qamar)

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 30 - Grave 36

GRAVE TYPE: Oval pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 2

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: Ceramic vessels and figurine

REFERENCES

Reisner (1910a: 192; 1910b: Pl. 40f); Flores (2003: 75).

COMMENTS

Two dogs were found lying on their left sides, one between the legs of the other. Obviously placed in the grave with care. The dogs had hair and skin partly preserved, and were nearly intact. A 3cm pile of debris was on top of the two dogs, believed to have been thrown there from an adjacent plundered tomb. In the debris were a few broken human bones and a few goat (?) bones (offerings) and eight objects.
1. A figure of a steatopygous woman in brown clay, arms broken off, traces of red paint over white
2. Five roughly made brown ware pots, black in patches, two contained grain.
3. A shallow brown ware dish with two horns at one end.
4. A red-polished black-topped ware jar.
The excavator suggests that these objects and the human/goat bones were from a plundered adjacent tomb. However, two of the roughly made brown ware pots were found placed one on top of the other. Sitting in between the two, was a piece of twisted leather, perhaps a piece of leash or collar. If it is a collar and it did belong with the dogs, then it surely must have been placed on the vessel and buried with the dogs. therefore a least one pot belonged with the dogs.

DRN 38 - Hierakonpolis, HK6 - Feature D -related to Tomb 32

SITE NAME: Hierakonpolis

REGION: Upper Egypt

PERIOD: Predynastic, Naqada II

SITE TYPE: Cemetery

GRAVE NUMBER: HK6 - Feature D -related to Tomb 32

GRAVE TYPE: Oval pit

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 2

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Mat-lined pit

GRAVE GOODS: None

REFERENCES

Friedman et al. (2011: 166).

COMMENTS

Feature D is situated just north of Tomb 32, which contained the disturbed remains of at least three young individuals. Feature D was a shallow mat-lined pit which contained the bodies of two adult dogs. One dog had a shoulder height of 53cm. Large posts at the eastern end of the large rectangular Tomb 32 (2.90 x 1.55m, 1.25m deep) suggests a possible super-structure. The subsidiary animal burials, the grave goods and the position of Tomb 32 within its spacious enclosure suggest that it belonged to people of high status.

DRN 40 - Hierakonpolis, HK6 - Tomb 14

SITE NAME: Hierakonpolis

REGION: Upper Egypt

PERIOD: Predynastic, Naqada IC-IIA

SITE TYPE: Cemetery

GRAVE NUMBER: HK6 - Tomb 14

GRAVE TYPE: Circular pit

GRAVE CONDITION: Disturbed - but well-preserved

FAUNAL CONTENT

NUMBER OF CANIDS: 7

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: multiple

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Friedman et al. (2011: 173 & 181); Van Neer (2004: Tab. 1, 88-90).

COMMENTS

Previous excavations yielded numerous remains of dogs in the upper fill of Tomb 14 and its surrounding back dirt, but these cannot necessarily be equated with those found during the recent work. It appears that three or four more dogs are present in the older material, but these may have originated from a shallow grave that was destroyed during plundering or whose location and significance went undetected during the original excavations (Friedman et al. 2011: 181).
The shoulder heights, calculated on the basis of three complete right humeri, were 51cm, 54cm and 56cm.
Seven dogs (six adult, one senile) were listed along with other fauna including: one elephant (partial), one domestic donkey (partial), one juvenile sheep/goat, remains of cattle, sheep/goat, hartebeest, and subadult domestic donkey (Van Neer et al. 2004:Tab. 1).
Also found, a piece of White cross-lined pottery which dates this tomb to Naqada IC-IIA.
Dog remains total 125, representing three adult dogs. The back dirt from T13, T14 contained 520 dog bones belonging to six adults. When back dirt and fill were merged an MNI of seven was reached (van Neer 2004: 90).

DRN 45 - Debod, Cemetery 23 - Grave 58

SITE NAME: Debod

REGION: Lower Nubia

PERIOD: Graeco-Roman Period

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 23 - Grave 58

GRAVE TYPE: Circular pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 1

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1910a: 166); Flores (2003: 78).

COMMENTS

From the debris associated with this circular pit, were found bones and skulls of a dog and a sheep. Cemetery 23 section B held 11 New Kingdom human burials, scattered among them were four animal burials - one goat, two sheep and a sheep or dog. Cemetery 22 and 23 lay on the west bank of the river to the south of the temple at Debod. Flores remarks that although there is some slight evidence for A-Group presence in both cemeteries in the vicinities of the animal burials, if Reisner's reasoning is correct for Cemetery 22, the animal burials in 23 were also probably of the same Ptolemaic date, especially since 23 is closer to the temple than 22 (Flores 2003: 78).
Although Reisner has included this dog and goat burial in the New Kingdom description of cemetery 23, the re use of cemeteries in the vicinity during the Roman and Christian periods, plus the fact that the remains and assemblages found in the Cemetery 23 are not New Kingdom but more recent, this entry is considered to be more consistent with Roman burial practices and therefore has been re-assigned to the Graeco-Roman period.

DRN 46 - Qasr Allam, Cell C401

SITE NAME: Qasr Allam

REGION: Oasis Region

PERIOD: Late Period/Graeco-Roman Period, Dynasty 26/30

SITE TYPE: Cemetery

GRAVE NUMBER: Cell C401

GRAVE TYPE: Hole in wall

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 7

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: Charcoal under body

REFERENCES

Colin (2009: 602-3).

COMMENTS

Sector 4, Area C401. These dog burials were found in association with 16 children, one adolescent (15/16), and 10 adults. Proportion of dogs to children is very high. One whole bovide and the head of another were found nearby. Two layers of ash had been deposited in the pit but no other evidence of fire in other context. Ash and small coals were found directly under the body of a dog. In the 2009-10 season, seven human individuals were added to C401. One adult and six children, confirming the large representation of children in this burial (Colin 2010).
`

DRN 48 - Adaïma, 1001/18.1

SITE NAME: Adaïma

REGION: Upper Egypt

PERIOD: Predynastic, Naqada IIC-D

SITE TYPE: Settlement

GRAVE NUMBER: 1001/18.1

GRAVE TYPE: Pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Remains of matting

GRAVE GOODS: Fragments of ceramic vessels and flint

REFERENCES

Midant-Reynes & Buchez (2002: 533-4, Fig 9).

COMMENTS

Fragments of carbonised wood were found near the head. Some fragments of pottery and flint were dug up in relation to the skeleton as well as a fragment of double matting. Skeleton in poor condition due to erosion but height of dog calculated at 52cm. Dog burial 1001/18.1 was excavated on the south eastern portion of the site. There were two features found within the 5 x 5m excavation square. The first, feature 1001/18.2, was a pit around 13cm deep. It contained a large quantity of twigs as well as faeces, possibly from rodents. While there was no archaeological material found within the pit itself, some were located next to 1001/18.2. The debris found near 1001/18.2 was referred to as 1001/18.3. The materials for this feature included sherds, faunal material, flint fragments and burnt stone (Midant-Reynes & Buchez 2002:66). 1001/18.1 was buried after the features were in place, but the pit may have been in use during the time of the burial (Midant-Reynes & Buchez 2002: 147).

DRN 49 - Adaïma, 3001/20.15

SITE NAME: Adaïma

REGION: Upper Egypt

PERIOD: Predynastic, Naqada IIC-D

SITE TYPE: Settlement

GRAVE NUMBER: 3001/20.15

GRAVE TYPE: Pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: Ceramic vessel

REFERENCES

Midant-Reynes & Buchez (2002: 534, Fig 11).

COMMENTS

This individual was accompanied by a deposit of offerings : a pot, type "bottle" was deposited parallel to the body to the cervical vertebrae and on the left humerous. This vase was type R69c, known from Naqada IC until Naqada IIIA I, but above all typical of Naqada IIB-IID I.
This dog was smaller with a height of 49cm, however the adult dog was better preserved.
Dog burial 3001/20.15 was located in the lower portion of the site to the west. The burial occurred just prior to the beginning of Period II at Adaïma. Nearby there is a large pit, 3001/20.2 which most likely dates to the same period. Once into Period II, there was an ash deposit labelled 3001/25.6. Underneath 3001/20.15 numerous hearth/fire areas as well as a few post holes were found (Midant-Reynes & Buchez (2002: 23).

DRN 50 - Adaïma, 4001/6.3

SITE NAME: Adaïma

REGION: Upper Egypt

PERIOD: Predynastic, Naqada IIC

SITE TYPE: Settlement

GRAVE NUMBER: 4001/6.3

GRAVE TYPE: Pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: Carbonised wood and flint

REFERENCES

Midant-Reynes & Buchez (2002: 534, Fig 12).

COMMENTS

Some remains of carbonised wood and flint were associated with the dog skeleton. Some visible traces on the left tibia and the left side rotting, were remains of skin or leather. This dog was even smaller at 41cm in height. The skeleton was poorly preserved so the measurement could be inaccurate. Burial 4001/6.3 was excavated to the west of section 1001. Three features were in close proximity to this burial, not necessarily physically, but temporally - feature 4001/6.2, 4001/6.1, and 4001/11.3. Feature 4001/6.2 was an ash deposit about 15cm thick and the soil was soft and greyish in colour. Charcoal was present as well as sherds and flint. Towards the bottom of this feature, seeds and micro fauna were collected (Midant-Reynes & Buchez 2002:61). 4001/6.2 was slightly below the dog burial (Midant-Reynes & Buchez 2002:145). Feature 4001/6.1 was found in the same area. This feature was only 10cm deep and was composed of compacted ash and sediment. 4001/11.3 occurred just after the dog burial. The feature was the result of ash and other waste deposits with a depth of 10cm. All three features shared characteristics - ash and unburned flint (Midant-Reynes & Buchez 2002:145).

DRN 51 - Adaïma, 4001/11.14

SITE NAME: Adaïma

REGION: Upper Egypt

PERIOD: Predynastic, Naqada IIC

SITE TYPE: Settlement

GRAVE NUMBER: 4001/11.14

GRAVE TYPE: Pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: Ceramic vessel

REFERENCES

Midant-Reynes & Buchez (2002: 534).

COMMENTS

A pot was put in contact with the feet of the dog, the type largely attested in the Naqada IIC (type R911). Only the forelegs and a few vertebrae were present.

DRN 53 - Adaïma, 4001/17.29

SITE NAME: Adaïma

REGION: Upper Egypt

PERIOD: Predynastic, Naqada II

SITE TYPE: Settlement

GRAVE NUMBER: 4001/17.29

GRAVE TYPE: Pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Remains of matting

GRAVE GOODS: None

REFERENCES

Midant-Reynes & Buchez (2002: 534, Fig 13).

COMMENTS

This dog was found near the north wall of a deep little bowl, the feet sloping towards the south following the inclination of the bowl/basin. The matting was wrapped to the level of the vertebrae column and stopped at the level of the anterior members. Based on the transverse straps, it was wrapped on the bias. In the south part of the grave, the matting raised up with the back limbs on the wall of the basin. Situated north of the C I structure, four features were associated. 4001/17.14 was an ash deposit (Midant-Reynes & Buchez 2002: 53). 4001/17.20 thought to be a fire pit, had large pieces of charcoal and fragments of wood (Midant-Reynes & Buchez 2002: 53). 4001/17.31 (247 x 165 x 30cm) was a large feature, situated north east of the burial and appears to be a debris area. During excavation pieces of flint, faeces, a small quantity of charcoal, faunal remains were collected (Midant-Reynes & Buchez 2002: 61).

DRN 55 - Naqada, 286

SITE NAME: Naqada

REGION: Upper Egypt

PERIOD: Predynastic, Naqada IC-III

SITE TYPE: Cemetery

GRAVE NUMBER: 286

GRAVE TYPE: Pit

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Petrie and Quibell (1896: 26); Flores (2003: 87-88).

COMMENTS

Although only the skull was reported, an entire animal may have been buried with the human. The grave was very disturbed. Also found in the grave most likely associated with the human were grave goods including ceramic vesssels and a comb.

DRN 56 - Abadiyeh - Diospolis Parva, B 119

SITE NAME: Abadiyeh - Diospolis Parva

REGION: Middle Egypt

PERIOD: Predynastic, Naqada I

SITE TYPE: Cemetery

GRAVE NUMBER: B 119

GRAVE TYPE: Oval pit

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: Tool, figurine, model implements

REFERENCES

Petrie (1901: 33); Flores (2003: 86).

COMMENTS

Also found with the dog skull: an ox bone, a mace head, and clay figure of a man, a chisel and a hoe (see pl. vi). There is no mention of a human burial, and no mention of other dog bones. The skull may represent the burial of an entire dog. The graves in cemetery B were described as 'long, oval or straight-sided square'. Cemetery B was described as 'one of the largest' with up to 570 graves, however only 26 graves were described and no map or grave register was provided (Petrie 1901: 32-34). Sequence dates ranging from Naqada I through to Naqada III were provided for a total of 153 graves for cemeteries B, C, H, R, U.
Flores gives the broad date of Naqada I -III for grave B 119 (Flores 2003: 86).

DRN 59 - Abadiyeh - Diospolis Parva, D 21

SITE NAME: Abadiyeh - Diospolis Parva

REGION: Middle Egypt

PERIOD: Old Kingdom, Dynasty 6

SITE TYPE: Cemetery

GRAVE NUMBER: D 21

GRAVE TYPE: Pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 2

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 7

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Petrie 1901: 38).

COMMENTS

The pit was about 13 ft (396cm) deep, with no chamber. At 12 ft (366cm) down was the body and head of an ox. At 8 ft (244 cm) down was the bodies of two dogs and six gazelle heads. At 7 ft (213cm) down was the burial of a female with a scarab of Ramesses 1. The human burial higher up in the pit is certainly Dynasty 19, and is most likely a secondary burial.
Burial D 6 in the same cemetery, was a pit 10 feet deep, with no chamber, and it contained 11 gazelle heads without bodies. Five feet above was the skeleton of a man, a foot higher the skeleton of a woman. Cemetery D was dated 6th Dynasty.

DRN 60 - Hu - Diospolis Parva, Cemetery X - Pan graves

SITE NAME: Hu - Diospolis Parva

REGION: Middle Egypt

PERIOD: Middle Kingdom, Dynasty 12 or after

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery X - Pan graves

GRAVE TYPE: Circular pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: Multiple

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Petrie 1901: 48).

COMMENTS

The multiple dogs grave found was considered un-Egyptian. This circular grave was found filled solely with dogs bodies. No MNI was given. This type a multiple dog burial is not consistent with Pan-grave burials. Discussions with Aaron De Souza concerning Pan-graves, made this burial highly unlikely to be a part of the Pan-grave cemetery it was found in. However it has been entered in the original Pan grave dating by Petrie.

DRN 61 - Hu - Diosoplis Parva

SITE NAME: Hu - Diosoplis Parva

REGION: Middle Egypt

PERIOD: Graeco-Roman Period

SITE TYPE: Cemetery

GRAVE NUMBER: Unknown

GRAVE TYPE: Bricked grave

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: Multiple

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Petrie (1901: 48).

COMMENTS

An existing 6th – 12th Dynasty full-length bricked grave, about 6 ft (183cm) deep, had been emptied, and a layer of dog's skulls and bones were put in the bottom foot (30.5cm) depth. Cosidered by Petrie to be similar to the grave with about 20 dogs bodies found at Naqada cemetery T.
Entered as a Graeco-Roman burial as the quantity suggests the tomb was most likely reused to store votive canids at a later date.

DRN 62 - Abydos, G. 61

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Late Period, Dynasty 30

SITE TYPE: Cemetery

GRAVE NUMBER: G. 61

GRAVE TYPE: Vaulted tomb

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Wrapped in cloth

GRAVE GOODS: None

REFERENCES

Petrie (1902: 39-40, Pl. LXXX).

COMMENTS

The tomb of Hapi-men. The sarcophagus was put in between two brick hollows. Hollow A) held a box of shabtis, 30 plain small figures, two larger and one inscribed in a line down the front for Hapi-men. Over the box were two Osiride figures and a hawk of wood. In B) was a canopic box, carefully painted containing two long round packets of salt and a figure of Nebhat - all the wood was destroyed by white ants. Within the square stone sarcophagus was an inner stone sarcophagus of the figure form. Both sarcophagi had been broken through the side and the mummy torn to pieces over the chest - ancient robbers looking for amulets. At the side of the feet was a small mummified dog (?), carefully swathed in wrappings.

DRN 65 - Hierakonpolis, HK6 - Tomb 42

SITE NAME: Hierakonpolis

REGION: Upper Egypt

PERIOD: Predynastic, Naqada II

SITE TYPE: Cemetery

GRAVE NUMBER: HK6 - Tomb 42

GRAVE TYPE: Oval pit

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 3

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 1

OTHER CONTENT

CONTAINER: None

WRAPPING: Mat-lined pit

GRAVE GOODS: Two black-topped ceramic vessels

REFERENCES

Friedman et al. (2011: 181).

COMMENTS

Tomb 42 held the disturbed remains of three dogs along with indications of a young baboon. The shoulder height of one dog was 51cm. Two black-topped beakers were found intact and upright along the southern side of the grave in its upper levels. This is the first unambiguous evidence of grave gifts for the animals in this cemetery.

DRN 67 - Hierakonpolis, HK6 - Tomb 44

SITE NAME: Hierakonpolis

REGION: Upper Egypt

PERIOD: Predynastic, Naqada II

SITE TYPE: Cemetery

GRAVE NUMBER: HK6 - Tomb 44

GRAVE TYPE: Circular pit

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 4

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Friedman et al. (2011: 181); Droux & Pieri (2010:5).

COMMENTS

This small round tomb originally contained four dogs, with the hind part of only one dog still in situ at the base of the grave. The remains of the others had been dumped in the adjacent Tomb 43 during plundering and as a result were relatively well preserved. One was a juvenile the other three adults, and at least one was male. One of the adult dogs had its second and third cervical vertebrae fused, possibly as a result of an accident or injury. The dog still in situ had a shoulder height of 53cm, and the remains found in Tomb 43 showed the presence of at least one dog being 52cm at the shoulder (Friedman et al. 2011: 181).

DRN 68 - Hierakonpolis, HK6 - Tomb 48

SITE NAME: Hierakonpolis

REGION: Upper Egypt

PERIOD: Predynastic, Naqada II

SITE TYPE: Cemetery

GRAVE NUMBER: HK6 - Tomb 48

GRAVE TYPE: Circular pit

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 10

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Matting remains found with two of the dogs

GRAVE GOODS:

REFERENCES

Friedman et al. (2011: 181); Friedman (2011a: 13).

COMMENTS

Tomb 48 was located to the north of Tomb 16.
The humerus of one specimen indicates a shoulder height of 53cm.
During the 2011 season, Tomb 48 (Feature F), a round grave 1.65m diameter was excavated. It originally held at least 10 dogs based on preliminary count of canine teeth. Parts of three animals were still in situ on the floor and appear to be carefully arranged. Two were intertwined face to face along the west edge while the forelegs of another in a crouched position were found on the east side. A few human remains were also found, but given the level of disturbance, their association with Tomb 48 is unclear (Friedman 2011a: 13).
Two adult humans, association with tomb uncertain. Found in the tomb's upper levels and the fill were several fragments of White cross-line ware with figural designs, but once again, association with tomb uncertain. The area surrounding Tomb 48 has not yet been examined thoroughly enough to ascertain indications of superstructure or whether there are other associated tombs along the north side of the complex (Friedman et al. in press).

DRN 70 - Hierakonpolis, HK6 - Feature C

SITE NAME: Hierakonpolis

REGION: Upper Egypt

PERIOD: Predynastic, Naqada II

SITE TYPE: Cemetery

GRAVE NUMBER: HK6 - Feature C

GRAVE TYPE: Oval pit

GRAVE CONDITION: Undisturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 9

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Sandstone slabs above grave

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Friedman et al. (2011: 182, Fig. 15); Van Neer & Linseele (2008: 12-13).

COMMENTS

Feature C was encountered beneath a lose pile of sandstone slabs. Of the nine individuals, at least two were male and one was a really old dog, the rest healthy young adults. They all appear to be 'medium-sized' - shoulder height around 45cm or a little taller. This would correspond with the average stray dog seen in and around Egyptian villages and stands in contrast to the height estimates for the dogs discussed from HK6 (shoulder heights 46, 51, 52, 53, 54, 56cm). Additional osteometric work is needed to further substantiate whether the somewhat smaller size of the dogs in Feature C, combined with the fact that they were buried with less care, might be an indication that they were the so called 'pariah dogs' or mongrels as opposed to the larger sight hounds. As stated by Brewer (2001: 41) it has been suggested on the basis of pictorial and skeletal evidence of dynastic times it is possible to distinguish between the pariah dogs, with shoulder heights of less than 50cm, and the larger hunting dogs. Based on this information these dogs may have been of the pariah type .

DRN 73 - Helwan, 667.H5

SITE NAME: Helwan

REGION: Lower Egypt

PERIOD: Early Dynastic, Dynasty 1

SITE TYPE: Cemetery

GRAVE NUMBER: 667.H5

GRAVE TYPE: Pit - rectangular

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Wooden coffin

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Saad (1951: 37/ Pl. XLVI); Flores (2003: 94).

COMMENTS

The bones of this dog were in good condition. It was found in situ, lying in a contracted position. Remains of wood were underneath the head. Close by was Animal burial 668 H5 which contained a bird.
The axis of grave 667.H5 appears to parallel that of tomb 666.H5, a small tomb to its south west (Flores 1999:163).

DRN 78 - Helwan, 421 H3

SITE NAME: Helwan

REGION: Lower Egypt

PERIOD: Early Dynastic, Dynasty 1

SITE TYPE: Cemetery

GRAVE NUMBER: 421 H3

GRAVE TYPE: Pit - rectangular

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: Two cylindrical ceramic vessels

REFERENCES

Saad (1947: 166-7, Pl. LXXIII); Flores (2003: 95).

COMMENTS

It was stated that a number of graves south of Tomb 40, contained dog burials, and that the graves were dug in a similar manner to the human graves. However only one was described in the report as a rectangular gravel-cut grave (Saad 1947: 166-7). Judging from the cemetery map, it was located in a dense area of graves a significant distance from Tomb 40.
The other dog burials were briefly mentioned but not recorded have not been entered in the database as their actual existence cannot be ascertained. Translation of German - "Often located next to the grave a small pit in which a dog was buried" (Schweitzer 1948: 121)

DRN 92 - Abydos, 433

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Early Dynastic, Dynasty 1

SITE TYPE: Cemetery

GRAVE NUMBER: 433

GRAVE TYPE: Pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Petrie (1925: Plate XXI); Flores (2003: 93).

COMMENTS

The 'Abydos Register of Courtiers' Graves' records 'dog in grave coffin 46x24' (117 X 60cm). No other information was recorded. The plan (Pl. XVII) shows grave 433 situated in a line of graves on the west side of the complex.
This burial was found in situ in one of the ca. 154 subsidiary burials associated with the valley mortuary installation attributed to King Djet of the 1st Dynasty. It is not clearly indicated whether this animal accompanied a human interment or was the sole occupant of the grave (Flores 2003: 162).

DRN 96 - Saqqara, Mastaba 3507

SITE NAME: Saqqara

REGION: Lower Egypt

PERIOD: Early Dynastic, Dynasty 1

SITE TYPE: Cemetery

GRAVE NUMBER: Mastaba 3507

GRAVE TYPE: Pit - rectangular - associated with Mastaba

GRAVE CONDITION: Undisturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Wrapped in palm-fibre matting

GRAVE GOODS: None

REFERENCES

Emery (1958:78, Pl. 91); Flores (2003: 99).

COMMENTS

At the entrance gate of Tomb 3507, belonging to Queen Her-Neith, was found the skeleton of a dog. Whether this specific animal was, during its lifetime, primarily a watchdog or a pet cannot be determined, not that one role precludes the other. However, the former role is suggested by its burial near the entrance in the mastaba's enclosure wall. Unlike the royally ordered burial of a dog for services rendered as "watchdog" of the king, attested by an inscription on a reused limestone block recovered during excavation of the cemetery west of the Great Pyramid at Giza, this burial was not necessarily an honour bestowed on the dog, but rather a magical or symbolic means of providing protection for the burial of the Queen.
The dog was the only subsidiary grave found belonging to the mastaba. and careful examination both inside and outside the enclosure walls revealed no trace of the usual burials of sacrificed retainers.
A shallow rectangular grave cut in the gravel 0.65m deep. In the grave an undisturbed dog, head south, wrapped in palm-fibre matting. Preliminary examination suggests a breed akin to a saluki. Buried as a guardian of the Queen's tomb (Emery 1958: 78).

DRN 98 - Saqqara, Mastaba 3504

SITE NAME: Saqqara

REGION: Lower Egypt

PERIOD: Early Dynastic, Dynasty 1

SITE TYPE: Cemetery

GRAVE NUMBER: Mastaba 3504

GRAVE TYPE: Pit - rectangular - associated with mastaba

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Emery (1954: 34, Pl. XXIV).

COMMENTS

The dog was found in a grave with a human accompanied by a tubular ceramic vessel. Emery simply states that the western side of the subsidiary grave had been cut away to accommodate the 'intrusive' burial of a dog. There is no indication of the date of the dog burial.

DRN 101 - Saqqara, Mastaba 3035 (Hemaka)

SITE NAME: Saqqara

REGION: Lower Egypt

PERIOD: Early Dynastic, Dynasty 1

SITE TYPE: Cemetery

GRAVE NUMBER: Mastaba 3035 (Hemaka)

GRAVE TYPE: Pit - rectangular - associated with mastaba

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Wooden coffin

WRAPPING: Wrapped in fine material

GRAVE GOODS: One ceramic vessel

REFERENCES

Anon. (1939: 79-80); Flores (2003: 99).

COMMENTS

Extending south of the mastaba of Hemaka were a series of 19 small rectangular graves, 14 of which were still intact. All contained a human skeleton in a contracted position, facing east, wrapped in fine fabric, and placed in a wooden coffin. The nineteenth grave was appreciably bigger than the others, the coffin was also bigger and the body was only partially contracted.
East of the mastaba was a second series of smaller graves. The first three contained coffins of wood each containing a bird wrapped in fine material. The lid of the more grand of these coffins were inlaid with ivory and ebony and each grave contained a terracotta vase. Seven other graves each contained a dog, wrapped in fine material and placed in a coffin, each with a terra cotta vase. A further grave contained a human skeleton lying on the right, facing north.
The mastaba was surrounded by a brick pavement,and the burials to the south and the east were under this pavement. The excavators concluded that the burial in the mastaba and the associated burials to the south and east, took place at the same time.

DRN 102 - Balat, Mastaba 5 - Tomb 1

SITE NAME: Balat

REGION: Oasis Region

PERIOD: Old Kingdom, Dynasty 6

SITE TYPE: Cemetery

GRAVE NUMBER: Mastaba 5 - Tomb 1

GRAVE TYPE: Hole in wall

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: Shell and beads collar

REFERENCES

Chaix & Olive (1986: 201-213, Fig 17); Vallogia (1986: pl. LIV C); Flores (2003: 99).

COMMENTS

Western Desert - Dakhla Oasis - Tomb 1 dog.
This dog was found in the wall of Mastaba V. The dog skeleton was found in the base of the wall. The bones had been disturbed to such an extent Chaix believes the dog had been reburied.The dog was like a greyhound. This burial is unusual for the Old Kingdom, and is more consistent with later dog burials, however no published evidence for any Graeco-Roman reuse of this cemetery supports this and the burial remains dated to the Old Kingdom in the corpus.

DRN 103 – Mediq (Gerf Husein), Cemetery 79 - Grave 52

SITE NAME: Mediq (Gerf Husein)

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 79 - Grave 52

GRAVE TYPE: Pit - rectangular

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 2

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Firth (1912: 133).

COMMENTS

Only the lower part of the human skeleton remained, it lay contracted on the left side. The bones of another skeleton and a dog were found in the debris. One of three covering slabs was still in position at the foot of the grave. The area of Mediq (Gerf Husein) held Cemeteries 79-81 - dated to Predynastic and Early Dynastic (Firth 1912: 127).

DRN 105 - Abydos

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Graeco-Roman Period

SITE TYPE: Cemetery

GRAVE NUMBER: Unknown

GRAVE TYPE: Bricked chamber

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: Multiple

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Habachi (1939: 767-774); Flores (2003: 93-4).

COMMENTS

About 250m from the Seti Temple, Habachi found three Greco-Roman burials, six 1st Dynasty tombs, and a burial of dogs,which was located about 3m from grave No. 2. Dozens of skulls and bones were found scattered inside and outside an underground brick chamber. The size of the bricks - 8 x 12 x 26 led Habachi to the conclusion that it was a 1st Dynasty tomb. The dogs found were of different ages and the bones were in a bad state of preservation, making it difficult to determine how they died. Flores points out that although the bricks do indicate a 1st Dynasty tomb, the dogs may have been placed there at anytime. She believes there is no reason to think that this mass burial was contemporary with the 1st Dynasty chamber (Flores 2003: 94).
As other Graeco-Roman burials were located within the same area as the dog tomb, and the number of dogs in the burial is described as 'dozens' of dog of varying ages in bad preservation, this entry has been placed in the Graeco-Roman time period as it is consistent with the Greaco-Roman practice of storing votive animals in reused tombs considered sacred spaces.

DRN 108 - Thebes

SITE NAME: Thebes

REGION: Upper Egypt

PERIOD: Middle Kingdom, Dynasty 11

SITE TYPE: Cemetery

GRAVE NUMBER: Unknown

GRAVE TYPE: Rock-cut chamber

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 9

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Wooden coffin

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Boessneck (1975: 7, Taf. 7a).

COMMENTS

The dog was medium-sized and delicate (Taf. 7a), but not noticeably slim.
The skeleton is of a dog of approximately 50 - 52cms, slightly resembling a greyhound. The 15 tail bones gave no indication that the tail was rolled up as represented on the wall paintings, in the Old Kingdom.

DRN 125 - Debod, Cemetery 23 - Grave 90

SITE NAME: Debod

REGION: Lower Nubia

PERIOD: Graeco-Roman Period, Dynasty 18 or 20

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 23 - Grave 90

GRAVE TYPE: Pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: Broken ceramic vessel

REFERENCES

Reisner (1910a: 168); Flores (2003: 78).

COMMENTS

To the east end cemetery 23, in section C, was a cluster of 18 animal burials where the ground was described as 'sand'. Sixteen of these animals were sheep, one was a dog and one was an ichneumon. This section was set apart from Cemetery 23 section A, which contained a group of human burials designated B-Group and C-Group. Although Reisner included this dog and goat burial in the New Kingdom description of cemetery 23, the re use of cemeteries in the vicinity during the Roman and Christian periods, plus the fact that the remains and assemblages found in the Cemetery 23 are not New Kingdom but more recent, this entry is considered to be more consistent with Roman practices and therefore has been re-assigned to the Graeco-Roman period.

DRN 126 - Risqalla (Wadi Qamar), Cemetery 34 - Grave 60

SITE NAME: Risqalla (Wadi Qamar)

REGION: Lower Nubia

PERIOD: Graeco-Roman Period

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 34 - Grave 60

GRAVE TYPE: Circular pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 4

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1910a: 199).

COMMENTS

A small entry on the Later Cemeteries on the West bank, Wadi Qamar, simply states that Cemetery 34 contained mud-cut chambers of types Pt.R. IV and Byz. III, pits in mud of Byz. types IV, VI, VII, VIII. Also three circular pits apparently for animal burials. One with a cow, one with a sheep (#13) and one with 4 dogs. No other information was given.
Cemetery 35 also had five of these circular pits, all empty, but apparently for animal burials.
So, it would appear that amongst the mud-cut chambers and mud-cut pits of the Byzantine period, were circular pits, either empty or containing animal burials.

DRN 131 - Balat, Mastaba V - Tomb 6

SITE NAME: Balat

REGION: Oasis Region

PERIOD: Old Kingdom, Dynasty 6

SITE TYPE: Cemetery

GRAVE NUMBER: Mastaba V - Tomb 6

GRAVE TYPE: Pit - rectangular

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Clay coffin

WRAPPING: None

GRAVE GOODS: Shell and bead collar

REFERENCES

Chaix & Olive (1986: 201-213, Fig21); Vallogia (1986: pl. LIV D); Flores (2003: 99).

COMMENTS

Western Desert - Dakhla Oasis - Tomb 6 dog.
This dog was found slightly east of Tomb 1. Dog skeleton from Tomb 6 was found a little more to the east. The skeleton was still in its primary position, placed on its right side in a unfired clay coffin.
this dog was like a pariah dog.

DRN 132 - Qasr Allam, QA C413.107

SITE NAME: Qasr Allam

REGION: Oasis Region

PERIOD: Late Period/Graeco-Roman Period, Dynasty 26/30

SITE TYPE: Cemetery

GRAVE NUMBER: QA C413.107

GRAVE TYPE: Hole in wall of cell

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 2

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Colin (2010: 330-1); Adam & Colin (2012: 326).

COMMENTS

This cavity described as QA C413.107 was occupied by two skeletons of dogs and one of a child. The child (QA C413.114) was buried first. As its body emaciated, the skeleton was reduced and pushed back in the angle of the cavity to make room for the dog (QA C413.115). As the flesh decomposed this skeleton was pushed back against the wall to make room for the next dog (QA C413.113), the last occupant of the structure (Adam & Colin 2012).
At Qasr Allam 30 human skeletons. - 12 adult, 3 adolescence, 15 children.
34 animals - complete and incomplete - offerings? of which 25 were canids. When skeletons were complete they were frequently deposited in direct physical contact with humans, particularly children. Two dogs were accompanied by wadjet eye amulets. In certain cases the canids were clearly deposited after the body of the child was already decomposed. Excluding the theory that the burials were simultaneous.

DRN 135 - Mostagedda, Grave 3000

SITE NAME: Mostagedda

REGION: Middle Egypt

PERIOD: Graeco-Roman Period

SITE TYPE: Cemetery

GRAVE NUMBER: Grave 3000

GRAVE TYPE: Pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: Large shell

REFERENCES

Brunton (1937: 137).

COMMENTS

Chapter XXVIII. "Graves of the Late & Ptolemaic Periods".
Burial of a dog with a large shell at its neck. Close by were a number of rams. Brunton identified the burial as Ptolemaic. The shell was identified as Tonna (=Dolium) near luteostoma, Kuster. Indian Ocean by Dr. Jackson.

DRN 136 - Beni Hasan, T 17

SITE NAME: Beni Hasan

REGION: Middle Egypt

PERIOD: Middle Kingdom, Dynasty 11

SITE TYPE: Cemetery

GRAVE NUMBER: T 17

GRAVE TYPE: Pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Wooden coffin

WRAPPING: None

GRAVE GOODS: Ceramic vessels

REFERENCES

Garstang (1907: 212); Tooley (1988: 207-11, Plates XXVI 2, XXVII 1,2).

COMMENTS

Garstang first described the animal in the coffin as a jackal however It has since been considered to be more likely a dog. The field photo does not show the pottery first described by Garstang, so the relationship between the coffin and the pottery is unknown.

DRN 137 - Edfu, TXXX (N O I)

SITE NAME: Edfu

REGION: Upper Egypt

PERIOD: Middle Kingdom, Dynasty 12

SITE TYPE: Cemetery

GRAVE NUMBER: TXXX (N O I)

GRAVE TYPE: Vaulted tomb

GRAVE CONDITION: intact

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 3

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Large ceramic bowl

WRAPPING: None

GRAVE GOODS: Carbonised wood

REFERENCES

Michalowski (1950: 69-70).

COMMENTS

Section "Les Sepultures du Moyen Empire"
This was a large cave with three wood sarcophagus', oriented North-south.
1. The eastern one contained the body of a man, head north. To the east of the case and against it, a large ovid jar (cat. 712), on the sarcophagus a large bowl (cat. 761) containing animal bones (dog?) and wooden sticks, heavily oxidized.
2. A second sarcophagus, very damaged, contained a summary mummified body (traces of shroud and resin, head north), at whose right hand was placed a stick with a large knob and elongated.
3. Against the west wall of the room was a large elongated wooden sarcophagus inside which the body of a character named Isi, resting, lying on left side, head to the north, facing the east, hands returned to pubis without the slightest trace of mummification or shroud, or any object.

DRN 138 - Edfu, T.XIII (N O I)

SITE NAME: Edfu

REGION: Upper Egypt

PERIOD: Middle Kingdom, Dynasty 12

SITE TYPE: Cemetery

GRAVE NUMBER: T.XIII (N O I)

GRAVE TYPE: Vaulted tomb

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 6

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Large ovoid vessel

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Michalowski (1950: 73-74).

COMMENTS

Found in this tomb were bodies interred in two stages. The inferior consisted of five corpses covered in heavy shrouds. Two large ovoid jars were recovered from this point, one with the dismembered bones of a child and the other the bones of a dog. The superior stage contained the very dispersed bones of three bodies oriented north east and south west. The contents and the internal architecture was very dilapidated, consequently the tomb was difficult to interpret. On the lower floor, it has been quite difficult to identify a matrix of black clay and marl the remains of five bodies (north south). All were buried in thick shrouds judging by the numerous traces of oxidized material, only the body of a child was buried without clothes. The funeral furniture included quite a number of vessels including two jars (cat. 705), small well made-jars (cat. 710). Two large ovoid jars, one containingthe dismembered bones of a small child, the other those of a dog.

DRN 139 - Edfu, T. xe

SITE NAME: Edfu

REGION: Upper Egypt

PERIOD: Middle Kingdom, Dynasty 12

SITE TYPE: Cemetery

GRAVE NUMBER: T. xe

GRAVE TYPE: Vaulted tomb

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 4

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Large ceramic vessel

WRAPPING: Strips of fabric

GRAVE GOODS: None

REFERENCES

Michalowski (1950: 100).

COMMENTS

The tomb contained four sarcophagus. At the entrance to this tomb was a globular jar upside down and broken containing the bones of a dog and shreds of cloth. (Michalowski (1950: 108) states that it is interesting to note the presence in Middle Kingdom tombs in this cemetery, with the presence of similar objects found far away in Beni Hasan for example. This is particularly true of small statuette of a squatting dog and his master, or the model of a boat. In this provincial cemetery, on the southern borders of Egypt, customs are not very different from those of the North.

DRN 140 - Thebes, No. 50

SITE NAME: Thebes

REGION: Upper Egypt

PERIOD: New Kingdom, Dynasty 19

SITE TYPE: Cemetery

GRAVE NUMBER: No. 50

GRAVE TYPE: Rock-cut chamber

GRAVE CONDITION: Plundered

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 1

OTHER CONTENT

CONTAINER: None

WRAPPING: Mummified and unwrapped

GRAVE GOODS: None

REFERENCES

Davis (1908: 4, 5, 17); Picture:TMP 12373.jpg.

COMMENTS

Work on a foot hill near the tomb of Siptah, found two pit-tombs. A perpendicular shaft, 12 feet deep, cut in the rock and filled with stones and debris opened into a room 8 feet square and 5 feet high. In this room a mummified yellow dog of ordinary size was found standing on his feet. His short tail curled back over his back and his eyes open. It had been mummified and unwrapped in ancient times (by robbers). Very close by was a mummified monkey sitting. Davis believed that the two animals had been placed in these positions by the ancient robbers.
To the west of Tomb 49, on a slightly higher level, we discovered a group of three pit-tombs, forming a rough triangle. All were covered with rubbish to a depth of 6 feet and the shafts were also filled with debris. Each had a short square shaft, of no great depth, from the southern side of which was cut a chamber. The three chambers varied in size. The dog was quite perfect, although stripped of its wrappings. No trace of the owner of the tomb was found.

DRN 143 - Elephantine

SITE NAME: Elephantine

REGION: Upper Egypt

PERIOD: Middle Kingdom

SITE TYPE: Settlement

GRAVE NUMBER: Unknown

GRAVE TYPE: Under town wall

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Boessneck (1980: 39-41, Tafel 22); Zahradnik (2009: 288).

COMMENTS

A partial skeleton of a lean dog, which could possibly belong to the Tesem type, was recovered under the Middle Kingdom city wall near the Chumn Temple. It is believed the burial occurred before the construction of the wall (Zahradnik 2009). Von Pilgrim who excavated at Elephantine, knew of this dog, but was not sure of its actual burial or if it was random.

DRN 144 - Tell el-Farkha, Grave 86

SITE NAME: Tell el-Farkha

REGION: Lower Egypt

PERIOD: Predynastic, Naqada IIIB

SITE TYPE: Cemetery

GRAVE NUMBER: Grave 86

GRAVE TYPE: Rectangular room in superstructure

GRAVE CONDITION: Superstructure missing

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: Multiple

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Debowska-Ludwin (2011: 262-3); Debowska-Ludwin (2012: 53-75).

COMMENTS

A rectangular room full of pottery fragments and hundreds of animal bones. Preliminary results identified a huge range of fauna: fish, birds, 30-40 pigs, 5-6 sheep/goats, cattle, aurochs, a hippopotamus, 2-3 dogs, 3-4 cats and a donkey. Under this layer the substructure of the grave was discovered. Work on the faunal material is still in progress, but at present all these remains have been interpreted as a funerary feast (Debowska-Ludwin 2011: 262-3).
Faunal remains analysed by R. Abłamowicz - birds, 31 pigs, three goats, two cattle, a dog, two cats, a hippopotamus and a donkey.
Grave 86 was significant in size (5 X 3m). The mud brick superstructure overlay the actual burial chamber. Hundreds of animal bones were recorded in the room above the burial chamber; considered to be a rich funerary feast. Organic material comprised of fragments of pottery (bread moulds etc, counters, spinning weights), all thrown chaotically in the fill over the burial. The whole construction was preserved to 1m (Debowska-Ludwin 2012: 59). No evidence of hippopotamus, dogs, cats or donkey having been eaten. These animals are more likely associated with ritual funerary practice associated with early burials.

DRN 147 - Abydos, Cemetery E 1005

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Graeco-Roman Period

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery E 1005

GRAVE TYPE: Jar

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 2

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 15+

OTHER CONTENT

CONTAINER: Large ceramic vessel

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Peet & Loat (1913: 43).

COMMENTS

Cemetery E was almost exclusively devoted to mummified Ibis, deposited in large cylindrical or barrel-shape form jars. 90% of all the mummies were ibises, the rest were made up of other falcon type birds, shrews, circular bundles of snakes, a large scarab beetle, and in one jar, two young puppies (Peet & Loat 1913: 41).
Jar 1005 was decorated on one side with three pairs of incised lines. There was no bottom to this jar, but it had a small opening at the lower edge, closed on the outside with a stone. This jar contained 12 adult ibises, one bundle of feathers, one bundle of shrews, two young dogs, and one bundle containing the remains of two small hawks.

DRN 148 - Abydos, Cemetery E 1006

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Graeco-Roman Period

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery E 1006

GRAVE TYPE: Jar

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 10

OTHER CONTENT

CONTAINER: Large ceramic vessel

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Peet & Loat (1913: 43).

COMMENTS

This jar had two small imperforate handles, and a wavy design around the top. It held seven adult birds, one bird, one domestic dog and the remains of two young sheep.

DRN 149 - Abydos, Cemetery E 1019

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Graeco-Roman Period

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery E 1019

GRAVE TYPE: Jar

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 2

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Ceramic vessel

WRAPPING: Wrapped in linen

GRAVE GOODS: None

REFERENCES

Peet & Loat (1913: 44).

COMMENTS

A small circular vase of unbaked clay, the mouth of which was closed by an inverted dish of the same material. It contained the remains of a very young dog wrapped in linen, and two rib bones of an adult dog - Peet does not record two dogs but presumably the rib bones were dog, and it being a fully grown dog, making two dogs.

DRN 150 - Abydos, Cemetery E 1054/1056

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Graeco-Roman Period

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery E 1054/1056

GRAVE TYPE: Brick enclosure

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Bricked enclosure

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Peet & Loat (1913: 45).

COMMENTS

Jar 1056 contained 17 ibises and one bundle of shrews. Jar 1054 contained 10 adult birds. Placed between these two jars was the body of a dog protected by a few bricks.
Found in this cemetery along with the puppies in a jar was the complete skeletons of an ox, lying near a jar containing the ibis. Also found were three or four mummies of domestic dogs and the remains of several sheep. The dogs and the sheep were placed inside small brick enclosures, built close up to, or between the jars. Peet makes no mention if this is one burial or the dogs were in different burials. The jars were almost always made of unbaked clay. The bricks were sun dried, 35 x 18 x 10cm (Peet & Loat 1913: 41).

DRN 151 - Abydos, Cemetery E 1063b

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Graeco-Roman Period

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery E 1063b

GRAVE TYPE: Brick enclosure

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 1

OTHER CONTENT

CONTAINER: Bricked enclosure

WRAPPING: Wrapped in cloth

GRAVE GOODS: None

REFERENCES

Peet & Loat (1913: 46).

COMMENTS

1063b was a brick enclosure built up against 1063a. The mummified remains of a dog and a sheep were carefully wrapped in cloth and placed in the enclosure.

DRN 153 - Dier al-Barsha, Shaft 16L24/1

SITE NAME: Deir al-Barsha

REGION: Middle Egypt

PERIOD: Second Intermediate Period

SITE TYPE: Cemetery

GRAVE NUMBER: Shaft 16L24/1

GRAVE TYPE: Shaft

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 7

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

De Meyer et al. (2005/6: 55).

COMMENTS

These animal remains were considered as intrusive. They were described as individuals that entered the deposit by accident, falling down the shaft and consequently dying. The remains were found partly in the burial chamber and partly in the shaft.
This cemetery was reused in the New Kingdom and Ptolemaic period. The burial is more consistent with later Graeco-Roman burial practices but has been left in its original time frame as there is insufficient archaeological evidence to support a change.

DRN 154 - Dier al-Barsha, Tomb 16L05/2

SITE NAME: Deir al-Barsha

REGION: Middle Egypt

PERIOD: Second Intermediate Period

SITE TYPE: Cemetery

GRAVE NUMBER: Tomb 16L05/2

GRAVE TYPE: Rock-cut chamber and shaft

GRAVE CONDITION: Unfinished and disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 332

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 3

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

De Meyer et al. (2005/6: 56-7).

COMMENTS

This unfinished tomb with shaft had been used as a burial place from the SIP through to the New Kingdom then again in the Ptolemaic Period. The faunal remains were extremely abundant and well preserved. All the faunal remains found were considered to be intrusive. They had fallen down the shaft and unable to climb out had died. There were 332 domestic dogs of all ages, from neonatal to senile, as well as foetal bones.
Also present:
Egyptian mongoose (*Herpestes Ichneumon*)
red fox (*Vulpes vulpes*)
cat (*Felis silvestris f*. catus?)
This cemetery was reused in the New Kingdom and Ptolemaic period. The burial is more consistent with later Graeco-Roman burial practices but has been left in its original time frame as there is not enough archaeological evidence to support a change.

DRN 155 - Abusir, Tomb 2

SITE NAME: Abusir

REGION: Lower Egypt

PERIOD: Old Kingdom, Dynasty 5

SITE TYPE: Cemetery

GRAVE NUMBER: Tomb 2

GRAVE TYPE: Shaft - associated with mastaba

GRAVE CONDITION: Complete

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 12

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: Charcoal and ceramic beer jars

REFERENCES

Bárta (2001:31, Plate XXb); Bárta (2011: 185-186).

COMMENTS

Family tomb of Shedu, discovered at Abusir. Ground plan measured 7.6 x 9.0m. In its eastern part was a small courtyard - the cult chapel - measured 4.6 x 2.2m. It once had a light organic roof supported by wooden columns found on the floor. There were 12 shafts altogether arranged in four rows. Each shaft contained a member of Shedu's family and grave goods. A small shaft in the floor of the chapel, at a depth of about 2m contained a simple burial of an elderly dog, 7-10 years old. In the filling of the shaft were beer jars that had been clearly placed there by members of the family, or at least of his master Shedu.
Around the burial were clear traces of charcoal. The author believed that this charcoal with the beer jars found above in the fill at 1.6m were probably the remains of a funerary ceremony (Bárta 2001:31).

DRN 156 - Kafr Hassan Dawood

SITE NAME: Kafr Hassan Dawood

REGION: Lower Egypt

PERIOD: Late Period (?)

SITE TYPE: Cemetery

GRAVE NUMBER: Unknown

GRAVE TYPE: Pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

El-Merghani (2003:343).

COMMENTS

El-Merghani's report on the Kafr Hassan Dawood canid burial indicates the skeleton was a jackal and was discovered in the northern part of the cemetery. It was buried on a small hill about 1m above the human burials. The dating of this cemetery is inconclusive: "Archaeologists disagree about the dating of the animal (cattle) burials; some believed they belong to the Predynastic Period, and saw this as evidence of sanctifying the goddess Hathor; others believed they dated to the 26th Dynasty or the Graeco-Roman period" The 'jackal' was included in this cemetery therefore, the dating of this burial has not been defined, more likely the latter. Joanne Rowlands indicates that Geoffrey Tassie, who was the field director at Kafr Hassan Dawood in the 1990s, believes that these burials are not Pre- or Early Dynastic (personal communication 14/10/13).
Hassan et al. (2015: 88) on the dating of the cemetery at Kafr Hassan Dawood say "the need to undertake further excavation and research to answer several outstanding questions, not the least the exact date of the graves located in the north of the cemetery".
This burial is considered to be consistent with Late Period or beyond burial practices and has been placed in the Late Period timeframe.

DRN 157 - Qasr Allam, QA 5024

SITE NAME: Qasr Allam

REGION: Oasis Region

PERIOD: Late Period/Graeco-Roman Period, Dynasty 26/30

SITE TYPE: Cemetery

GRAVE NUMBER: QA 5024

GRAVE TYPE: Hole in wall

GRAVE CONDITION: Heavily eroded

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: Charcoal under body

REFERENCES

Adam & Colin (2012:317-8); Colin, Adam & Pranjic (2014).

COMMENTS

Sector 5 retained the presence of two inhumations in the west wall of the platform at 0.33m distance from each other. The first was a child (QA 5020) of 12/18 months, oriented south-north. The second an adult dog (QA 5024)oriented north-south, thus facing the child. These two structures situated at the side wall were heavily eroded and incomplete, but it is undeniable two primary burials, one for the child, one for the dog. Deposited with the child was discoid blue pearl glass and with the dog, a layer of charcoal under the intact fur of the animal.
Colin Adam and Pranjic verified these details in the later 2014 article.

DRN 159 - Giza, B492

SITE NAME: Giza

REGION: Lower Egypt

PERIOD: Late Period, Dynasty 26

SITE TYPE: Cemetery

GRAVE NUMBER: B492

GRAVE TYPE: Pit

GRAVE CONDITION: Complete

FAUNAL CONTENT

NUMBER OF CANIDS: 8

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Wrapped in material

GRAVE GOODS: None

REFERENCES

Kaiser (2009a: 6); Kaiser (2009b: 14).

COMMENTS

The eight dogs, some wrapped in linen lay above a child burial (AERA Annual Report 2008-2009: 6) The only other animal burials at Giza to date consist of a cache of ibis mummies and an interment of shrew mice. Giza Mapping Project 2009-2010 Annual Report: 43. The two adult dogs on top showed signs of mummification. A black substance with imprints of linen wrappings enveloped their skeletons, while the bodies appear to be tightly wrapped. The other dogs, young adults and puppies, were not tightly wrapped, but a grey powdery substance adhered to the bones, suggesting a possible inexpensive treatment for burial.
It has been suggested that the four puppies were wrapped together in one piece of cloth. They lay at the bottom of the burial pit and appeared to be deposited one on top of each other. A grey substance covered them.

DRN 160 - Saqqara, CF51 / HR 107

SITE NAME: Saqqara

REGION: Lower Egypt

PERIOD: Late Period

SITE TYPE: Cemetery

GRAVE NUMBER: CF51/HR 107

GRAVE TYPE: Pit - rectangular

GRAVE CONDITION: Damaged

FAUNAL CONTENT

NUMBER OF CANIDS: 3

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Wrapped in cloth

GRAVE GOODS: None

REFERENCES

Hartley, Buck & Binder (2011: 24).

COMMENTS

The lower foot section of a wooden coffin with a centre strip of hieroglyphs, oriented east-west with head west. Only the tibia and feet bones of the human remaining and these were fused, so body was adult. On the northern side of the coffin at the foot end, were three mummified dogs which appeared to have been burnt. Very fragile.

DRN 161 - Thebes, Chamber 4

SITE NAME: Thebes

REGION: Upper Egypt

PERIOD: Graeco-Roman Period

SITE TYPE: Cemetery

GRAVE NUMBER: Chamber 4

GRAVE TYPE: Rock-cut chamber and shaft

GRAVE CONDITION: Undisturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 2

OTHER CONTENT

CONTAINER: None

WRAPPING: Wrapped in palm-fibre matting

GRAVE GOODS: None

REFERENCES

Rhind (2002: 77-123).

COMMENTS

A large shaft with multi-chambers cut into the rock. The four chambers were undisturbed. Chamber 4 held a sarcophagus of black granite crudely shaped with the body of a elderly mummified male inside. At the doorway to this vault, was a tall cylindrical jar, inscribed near the neck with a short line of Demotic text, almost entirely faded. It was filled with the fruit of the Dom palm. At the head of the sarcophagus was a dog about 18 inches long, swathed in osiers (wrapped in reeds). A mummified ibis; a model of a small hawk on a pedestal, constructed from folds of linen gummed together; and an oblate ball of bitumen about three to four inches in diameter, embedded with a coiled snake. Rhind interprets this group of objects as being of significance in religious funerary beliefs by making the connection between the dog and Anubis, the ibis and Thoth, the hawk with Horus, and the snake with Amun. Anubis - his special duty was to guide the newly disembodied soul as it passed from the present life to the future and to aid in the final judgement. Thoth - the recording angel, recorded to Osiris the deeds of the deceased. Horus - ushered those who passed the test into the presence of Osiris. Snake - sacred to Amun
Human died in the 21st year of the reign of Caesar (Augustus) dating the interment to 9 BC.

DRN 162 - Saqqara, CF33

SITE NAME: Saqqara

REGION: Lower Egypt

PERIOD: Late Period

SITE TYPE: Cemetery

GRAVE NUMBER: CF33

GRAVE TYPE: Pit

GRAVE CONDITION: Damaged

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Hartley, Buck & Binder (2011:24).

COMMENTS

Burial extremely disturbed. A few dog bones were located on the north side, of the remains of a wooden coffin which held a few human remains. The dog bones were at the foot end of the coffin.

DRN 163 - Saqqara, BP1

SITE NAME: Saqqara

REGION: Lower Egypt

PERIOD: Late Period

SITE TYPE: Cemetery

GRAVE NUMBER: BP1

GRAVE TYPE: Pit

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Hartley, Buck & Binder (2011:24).

COMMENTS

The pit contained the remains of at least one neonate and a series of dog bones.

DRN 164 - Saqqara, BP2 / HR 111

SITE NAME: Saqqara

REGION: Lower Egypt

PERIOD: Late Period

SITE TYPE: Cemetery

GRAVE NUMBER: BP2/HR111

GRAVE TYPE: Pit

GRAVE CONDITION: Damaged

FAUNAL CONTENT

NUMBER OF CANIDS: 2

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Hartley, Buck & Binder (2011:25).

COMMENTS

An individual burial pit, maximum 70cm wide x 142cm long. Numerous human bone fragments were found throughout the pit, none in anatomical position. In the south west corner of the pit about 14cm deep were dog bones. Possibly both adult dogs. Remains of red brick and mud brick and fragments of plaster and wood were found in the pit.

DRN 165 - Saqqara, BP3 / HR112

SITE NAME: Saqqara

REGION: Lower Egypt

PERIOD: Late Period

SITE TYPE: Cemetery

GRAVE NUMBER: BP3 / HR112

GRAVE TYPE: Pit

GRAVE CONDITION: Damaged

FAUNAL CONTENT

NUMBER OF CANIDS: 8

NUMBER OF HUMANS: 2

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Wrapped in material

GRAVE GOODS: None

REFERENCES

Hartley, Buck & Binder (2011:25).

COMMENTS

Possibly the composite of two cut graves, was very irregular in shape and measured 173cm maximum length and 123cm maximum width. Fragments of wood, mud brick and white plaster were found interspersed. The remains of at least two adult humans were identified. Unlike the other pits, the dogs in this pit were undisturbed and mostly articulated. At least eight mummified dogs had been placed either around the edge of the pit with their spines against the edge or towards were located in the centre of the pit. These dogs were found at varying depths up to 39cm below the upper edge of the tafl layer. The two central dogs appeared to be juveniles and were more disturbed than the outer dogs which all appeared to be adults.

DRN 166 - Deir el-Banat

SITE NAME: Deir el-Banat

REGION: Lower Egypt

PERIOD: Graeco-Roman Period

SITE TYPE: Cemetery

GRAVE NUMBER: Unknown

GRAVE TYPE: Pit

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 5

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Partially wrapped

GRAVE GOODS: None

REFERENCES

Ikram (2013b: 303; Fig. 5).

COMMENTS

In the Graeco-Roman cemetery of Deir el-Banat, the non-mummified body of a child was found. It had been mummified naturally by the arid climate and was partially covered in sacking, and the lower half surrounded by crudely mummified canines ranging from puppies to fully mature animals. They were not oriented in any particular direction but had been placed around the lower half of the body randomly. The number is not definite but at least five.

DRN 167 - Saqqara

SITE NAME: Saqqara

REGION: Lower Egypt

PERIOD: Late Period, Dynasty 26

SITE TYPE: Cemetery

GRAVE NUMBER: Unknown

GRAVE TYPE: Rock-cut chamber

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 30

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Hawass (2010) http://www.drhawass.com/blog/new-tombs-saqqara (accessed 13/9/2016)).

Hawass (2009 https//www.youtube.com/watch?v=ByeEbkqfRgA (accessed 13/9/2016)).

COMMENTS

The remains of about 30 individual humans were found in a chamber at the bottom of a shaft during the 26th dynasty. The remains had been placed in five niches, three in the eastern wall and two in the northern wall. Four bodies had been placed in one of the eastern niches, with a dog placed at their heads.

DRN 168 - Saqqara, Tomb 2

SITE NAME: Saqqara

REGION: Lower Egypt

PERIOD: Graeco-Roman Period

SITE TYPE: Cemetery

GRAVE NUMBER: Tomb 2

GRAVE TYPE: Rock-cut chamber

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: Multiple

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Hartley, Buck & Binder (2011:22).

COMMENTS

In a small chamber cut off the shaft to the north in Tomb 2, were numerous human mummified remains, all very broken and disturbed. The floor of the chamber was made of slabs of limestone. Under the limestone blocks a small burial pit had been cut out, with disturbed human mummified remains still present. One slab of limestone had been removed (in antiquity) to expose the burial and the post cranial bones of a canid were found at the entrance to the pit beside the limestone block that had been removed. A crania was found mixed with disturbed human remains about 1m away. These remains appeared to have come from one dog.

DRN 169 - Hierakonpolis, HK6 - Tomb 71

SITE NAME: Hierakonpolis

REGION: Upper Egypt

PERIOD: Predynastic, Naqada II

SITE TYPE: Cemetery

GRAVE NUMBER: HK6 - Tomb 71

GRAVE TYPE: Circular pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 12

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: Twisted leather

REFERENCES

Friedman (2013: 5); Friedman et al.(in press).

COMMENTS

Tomb 71 provided 12 dogs and a child. The dogs were medium sized and had shoulder heights of between 47 and 56cm. The child was between seven and ten years of age. Several lengths of twisted leather found mixed with their bones are no doubt the remains of dog leashes, as in the scene from the Moscow bowl.
Tomb 71 contained the remains of 12 dogs and one young human. The dog bones were heavily fragmented, but many long bones could be restored, making it possible to calculate shoulder heights of between 47 and 56 cm. All were adult, but none were very old dogs. The only pathologies observed were five fractured ribs. The human, of undetermined sex, was 7-10 years of age. A large amount of fabric was found along with several pieces of twisted leather rope that may have been leashes for the dogs. While it is tempting to view this burial with its dogs as marking a boundary, only further excavation can determine whether it might be the southern boundary of the Tomb 72 complex, or part of another complex to the south (Friedman et al. in press).

DRN 170 - Abydos, U-209a

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Predynastic, Naqada IIA-B

SITE TYPE: Cemetery

GRAVE NUMBER: U-209a

GRAVE TYPE: Pit

GRAVE CONDITION: Disturbed/looted

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Dreyer et al. (2000: 88).

COMMENTS

Young adult dog. Animals remains of graves from Naqada time examined in 1998. All graves were disturbed and looted in antiquity. Complicated evaluations (Dreyer et al. 2000: 86).
U-209a believed to be associated with U-209 containing the body of a young adult male 20-25 years (Personal communication Urlich Hartung 25/11/ 2014).

DRN 171 - Abydos, U-217

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Predynastic, Naqada IIA-B

SITE TYPE: Cemetery

GRAVE NUMBER: U-217

GRAVE TYPE: Pit

GRAVE CONDITION: Disturbed/looted

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Dreyer et al. (2000: 88).

COMMENTS

Young adult dog. Partial skeleton only. Dated Naqada Ic (Dreyer et al. 2000: 87). Re-dated Naqada IIA/IIB (personal communication Ulrich Hartung 25/11/2014)

DRN 172 - Abydos, U-480

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Predynastic, Naqada IC-IIA

SITE TYPE: Cemetery

GRAVE NUMBER: U-480

GRAVE TYPE: Pit

GRAVE CONDITION: Disturbed/looted

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Dreyer et al. (2000: 88).

COMMENTS

Young adult dog. 30-50 year old human male. Grave dated Naqada IC/IIA (personal communication Ulrich Hartung 25/11/2014).

DRN 173 - Abydos, U-500

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Predynastic, Naqada IA

SITE TYPE: Cemetery

GRAVE NUMBER: U-500

GRAVE TYPE: Pit

GRAVE CONDITION: Disturbed/looted

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Dreyer et al. (2000: 88).

COMMENTS

Young adult dog. Associated with an adult human, sex unknown (personal communication Ulrich Hartung 25/11/2014).

DRN 174 - Abydos, U-179

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Predynastic, Naqada IIC-D1

SITE TYPE: Cemetery

GRAVE NUMBER: U-179

GRAVE TYPE: Pit

GRAVE CONDITION: Disturbed/looted

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Dreyer et al. (2000: 88).

COMMENTS

An incomplete adult dog skeleton. dated Naqada IID (Dreyer et al. 2000: 87). Associated with a human child 6-8 years. Dated Naqada IIC/IID1 (personal communication Ulrich Hartung 25/11/2014).

DRN 175 - Abydos, U-181

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Predynastic, Naqada IID1-D2

SITE TYPE: Cemetery

GRAVE NUMBER: U-181

GRAVE TYPE: Pit

GRAVE CONDITION: Disturbed/looted

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 2

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Dreyer et al. (2000: 88).

COMMENTS

Adult dog associated with a human adult female (?) and a child. Grave dated Naqada IID/D2 (personal communication Ulrich Hartung 25/11/2014).

DRN 176 - Abydos, U-261

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Predynastic, Naqada IID1-D2

SITE TYPE: Cemetery

GRAVE NUMBER: U-261

GRAVE TYPE: Pit

GRAVE CONDITION: Disturbed/looted

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Dreyer et al. (2000: 88).

COMMENTS

Adult dog found associated with a human (sex unknown). Dated Naqada IID/D2 (personal communication Ulrich Hartung 25/11/2014).

DRN 177 - Abydos, U-503

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Predynastic, Naqada IID1-D2

SITE TYPE: Cemetery

GRAVE NUMBER: U-503

GRAVE TYPE: Pit

GRAVE CONDITION: Disturbed/looted

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Dreyer et al. (2000: 88).

COMMENTS

Adult dog associated with an adult human (sex unknown). Dated Naqada IID/D2 (personal communication Ulrich Hartung 25/11/2014).

DRN 178 - Abydos, U-m

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Predynastic, Naqada IIIA1(?)

SITE TYPE: Cemetery

GRAVE NUMBER: U-m

GRAVE TYPE: Pit - rectangular mud brick lined

GRAVE CONDITION: Disturbed/looted

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Dreyer et al. (2000: 88).

COMMENTS

Adult dog associated with a human (sex unknown). Probably dated to Naqada IIIA1 (personal communication Ulrich Hartung 25/11/2014).

DRN 179 - Abydos, U292a

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Predynastic

SITE TYPE: Cemetery

GRAVE NUMBER: U292a

GRAVE TYPE: Pit

GRAVE CONDITION: Disturbed/looted

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Dreyer et al. (2000: 88).

COMMENTS

The most perfect example of a dog burial came from U-292a. Here an adult, medium-sized, stocky-built dog was buried on a mat (Dreyer et al. 2000: 87).
In the absence of characteristic findings accompanying the grave remained undated.
Personal communication with Ulrich Hartung 25/11/14 - additionally, there have been some dog bones in U-132a, a child 1-2 years, Naqada IID?, but the inventory comes probably from the brick lined tomb U-a: male, Naqada IIIA1.

DRN 180 - Mostagedda, 3500

SITE NAME: Mostagedda

REGION: Middle Egypt

PERIOD: Predynastic, Badarian

SITE TYPE: Cemetery

GRAVE NUMBER: 3500

GRAVE TYPE: Pit

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Matting remains

GRAVE GOODS: None

REFERENCES

Brunton (1937: 41).

COMMENTS

Area 3500 (continuation of 2200). Unregistered graves contained three males, one female and four young children. In graves without bodies were pierced shells and ceramic vessels. Also, a the skeleton of an animal with matting, probably a dog, lying head south on its right side.

DRN 182 - Tell el-Maskhuta, L. 2040

SITE NAME: Tell el-Maskhuta

REGION: Lower Egypt

PERIOD: Second Intermediate Period

SITE TYPE: Cemetery

GRAVE NUMBER: L. 2040

GRAVE TYPE: Pit - rectangular mud brick lined

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 1

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Holladay (1982: 44-5, Figs. 72, 73, 74); Zahradnik (2009:277, Fig. 162).

COMMENTS

Grave L. 2040 with two cow skulls outside was a totally different sort of tomb, obviously from the same general time frame, but containing the well preserved skeleton of a woman, loosely flexed and lying on her right side, with and intact sheep or goat before her, and a small dog below her feet and a broken portion of a handmade jug above her shoulder. Her skull had been pierced, and two teeth knocked out, by an Asiatic shaft-hole axe of the same sort earlier to have shown to have killed King Seqenenre (ca. 1575-1550 BC). A single similar blow had dispatched her dog. Two similar tombs were found nearby L. 2178 and L.12736 with typical MB II Second Intermediate Period goods pottery and construction techniques used. Each tomb was built in a bowl-shaped shallow pit, then the hole was backfilled with clean sand. A perimeter wall of mud-brick, generally having a 'head' and a 'foot' surmounted by radially-disposed mud-bricks along the two sides, the whole being domed over with a mud-plaster arch, apparently laid over packed-in sand. Some aspect of the construction process always resulted in the loosely-laid 'radial' bricks being raised above the level of the curb wall at their distal ends, where they were always found to rest on a couple of centimetres of clean sand (this would have intruded at any time between the actual construction phase and the time of excavation).

DRN 183 - Abydos

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Late Period

SITE TYPE: Temple

GRAVE NUMBER: Unknown

GRAVE TYPE: Pot

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Large ceramic vessel

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Ikram (2013a).

COMMENTS

The dog pots were found in the south-east corner at Shunet ez Zebib, a large mudbrick structure located at Abydos, dedicated to Khasekhemwy, 2nd Dynasty, built in 2750 BC. The jar was most likely the reuse of a storage jar. This particular large jar had two handles and the dog was not wrapped. The fur was auburn-coppery in colour and the hairs were quite long (3.5 inches). It was found curled up in at the bottom of the jar with its nose pointing to its hind legs. The dog was around five years old.

Thirteen pots found have been fully investigated. Four were empty, three contained ibis and five were filled with dogs. Three pots contained skeletonised dogs, and two contained dogs with fur.

DRN 184 - Abydos

SITE NAME: Abydos

REGION: Middle Egypt

PERIOD: Late Period

SITE TYPE: Temple

GRAVE NUMBER: Unknown

GRAVE TYPE: Jar

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Large ceramic vessel

WRAPPING: None

GRAVE GOODS: Broken pieces of ceramic vessel

REFERENCES

Ikram (2013a).

COMMENTS

The dog pots were found in the south east corner at Shunet ez Zebib, a large mud brick structure located at Abydos, dedicated to Khasekhemwy, 2nd Dynasty, built in 2750 BC. Thousands of ibis burials were found in jars recovered from the dunes nearby. This dog was in a large jar filled with broken pieces of another large pot, which were used as packing material to keep the animal in situ. The bones of his right foreleg were pushing through the skin and yellow fur. Dog was about five years old.

DRN 185 - Giza, G 7510

SITE NAME: Giza

REGION: Lower Egypt

PERIOD: Old Kingdom, Dynasty 4

SITE TYPE: Cemetery

GRAVE NUMBER: G 7510

GRAVE TYPE: Rock-cut chamber - associated with a mastaba

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Reisner (1942: 28, 148); Zahradnik (2009: 277).

COMMENTS

The mastaba of Ankh-haf was dated from the time of Chephren (Khafre) by Reisner. As shown by recent studies, however, the mastaba was already integrated in the original plan of the East Cemetery and thus was built in the time of Cheops (Khufu). The grave owner must have been a close relative of the king. This mastaba is next to the grave Annex G, 2000, which is located in the West Cemetery, the largest facility in Giza. In the grave chamber a dog burial was discovered, looking to the west.
Photo: www.gizapyramids.org accessed 1/4/14 photo B5704_NS
http://www.gizapyramids.org/media/view/Photos/31187/126451?t:state:flow=5a99e2c2-f334-4cd9-8325-dd6e5f5859b8

DRN 186 - Harageh, 410G

SITE NAME: Harageh

REGION: Lower Egypt

PERIOD: Predynastic, Naqada II

SITE TYPE: Cemetery

GRAVE NUMBER: 410G

GRAVE TYPE: Pit

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1?

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Matting remains

GRAVE GOODS: Ceramic vessels

REFERENCES

Engelbach (1923: pl. LV); Flores (2003: 83).

COMMENTS

Two small Predynastic cemeteries were excavated about 1.5km apart. Both can be dated to Naqada IIc-d1. Cemetery G contained 30 graves, only 20 are listed in the tomb register and 20 appear in the cemetery map. Although no human remains are indicated for this disturbed grave, the assumption here, based on the notational format for the other graves in the tomb register, is that this was a human interment accompanied by a dog and not an independent burial of a dog.
410G dog bones and traces of matting - dated S.D 55-57 - four ceramic vessels.
The size of the grave and the presence of four pots would suggest a human burial accompanied by a dog however no human bones were found.

DRN 187 - Ballas, 394

SITE NAME: Ballas

REGION: Upper Egypt

PERIOD: Predynastic, Naqada I

SITE TYPE: Cemetery

GRAVE NUMBER: 394

GRAVE TYPE: Unknown

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 1

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Petrie & Quibell (1896: 13, 16, 17, Pl. XXVIII); Flores (2003; 87).

COMMENTS

Some bones of a dog were in the filling of the tomb and at the feet of the deceased, "the bones of an animal, probably a gazelle" (Petrie & Quibell 1896:16).

DRN 188 - Elephantine, NE 64

SITE NAME: Elephantine

REGION: Upper Egypt

PERIOD: Old Kingdom/First Intermediate Period

SITE TYPE: Cemetery

GRAVE NUMBER: NE 64

GRAVE TYPE: Brick enclosure

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: Wrapped in matting

GRAVE GOODS: None

REFERENCES

Boessneck & von den Driesch (1982:18); Zahradnik(2009: 287, Abb. 169).

COMMENTS

There is a small mastaba with a chamber. The burial took place in late Dynasty 6 or early First Intermediate Period. The dog was wrapped in a mat. Remaining bone material was from spillage, possibly intrusive. (Trans Boessneck).

DRN 189 - Hierakonpolis, HK6 - Tomb 2

SITE NAME: Hierakonpolis

REGION: Upper Egypt

PERIOD: Predynastic, Naqada III

SITE TYPE: Cemetery

GRAVE NUMBER: HK6 - Tomb 2

GRAVE TYPE: Pit - rectangular

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 3

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: Multiple

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Hoffman (1982: 48); Van Neer et al. (2004:Tab. 1, 75).

COMMENTS

Forty seven dog remains were found belonging to a minimum of three individuals, all of which clearly were only partially represented. These animals were adults shown by the fused long bones and by the teeth eruption. Also present were the remains of one human, one young hippo, two wild donkeys, five cattle (two bulls, two cows, one calf), two baboon skulls, one adult goat (incomplete), one adult sheep (incomplete), one juvenile sheep (incomplete).
As reported by Hoffman (1982) - Tomb cleared but never reported on by Ambrose Lansing in 1935. Re excavated by Hoffman in 1979. Absence of any in situ artifacts make interpretation difficult.

DRN 190 - Hierakonpolis, HK6 - Tomb 5

SITE NAME: Hierakonpolis

REGION: Upper Egypt

PERIOD: Predynastic, Naqada IIA

SITE TYPE: Cemetery

GRAVE NUMBER: HK6 - Tomb 5

GRAVE TYPE: Circular pit

GRAVE CONDITION: Heavily disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 7

NUMBER OF HUMANS: 2

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Hoffman (1982; 54); Van Neer et al. (2004:Tab. 1,77-8).

COMMENTS

Tomb 5 revealed seven dogs, and two humans, dated by association with Tomb 3 to Naqada IIA.
A minimum of seven dogs were present, obtained on the basis of numerous isolated teeth that included 12 lower first molars, five from the right side and seven from the left.
Hoffman (1982) - Tomb 5 lay immediately west of Tomb 4, which was believed to be a secondary, multiple dog burial. There were numerous fragments of animal bones and well over 100 dog teeth, including a partial mandible. The relative frequencies and sizes indicates the presence of at least five or six dogs. No complete skulls were found although several were found in the looters back dirt pile from Tomb 2 that covered the whole area. Several small sherds (nondiagnostic) and several scraps of linen were also found. Dark stain in soil at bottom could be remains of linen wrapping from a bag or wooden box, a sample was taken for analysis. Difficult to relate these small tombs (T1, 3, 4, 5, 6, 7, 8, 9, Feature 1) to other tombs around Tomb 2. They seem to have common features - reburial, small size, lack of grave offerings and concentration in an area north west of Tomb2.

DRN 191 - Hierakonpolis, HK6 - Tomb 9

SITE NAME: Hierakonpolis

REGION: Upper Egypt

PERIOD: Predynastic, Naqada IIA

SITE TYPE: Cemetery

GRAVE NUMBER: HK6 - Tomb 9

GRAVE TYPE: Pit - rectangular

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 3

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Hoffman (1982: 53); Van Neer et al. (2004:Tab. 1, 80).

COMMENTS

Three dog skulls were found however the origins of the skulls remain unclear. Remains of three dog skulls were found labelled as belonging to Tomb 9. Documentation for the tomb is poor and no animal bones were reported from that tomb.
Hoffman (1982: 53) - Tomb 9 lay immediately to the west of Tomb 6. Much smaller. Black-topped red ware sherds found. Deep in the tomb were a couple of fragmentary human bones and half a large flat based rolled-rim jar which joined from sherds from Tomb 6 (probably where it originated).

DRN 192 - Hierakonpolis, HK6 - Tomb 11

SITE NAME: Hierakonpolis

REGION: Upper Egypt

PERIOD: Predynastic, Naqada IIIA2

SITE TYPE: Cemetery

GRAVE NUMBER: HK6 - Tomb 11

GRAVE TYPE: Mud brick lined rectangular pit

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: Multiple

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Van Neer et al. (2004: 81, Tab. 1).

COMMENTS

The lower levels produced pottery predominantly from Naqada I-II period - excavators suggest that Tomb 11 had been cut through an earlier grave. The material from the earlier graves was then used to create a mound over Tomb 11.
Remains of one dog were found along with one human, one adult sheep, one adult goat, two sub adult goats, two juvenile sheep/goat, and a few bones of pig, cattle, donkey, hare, gazelle, hippo, plus a tusk fragment of elephant.

DRN 193 - Hierakonpolis, HK6 - Tomb 13

SITE NAME: Hierakonpolis

REGION: Upper Egypt

PERIOD: Predynastic, Naqada IC-IIA

SITE TYPE: Cemetery

GRAVE NUMBER: HK6 - Tomb 13

GRAVE TYPE: Oval pit - oddly shaped

GRAVE CONDITION: Heavily disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 2

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 1

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Van Neer et al. (2004: 84-6, Tab. 1).

COMMENTS

Two adult dogs were found with one human, one large male goat,
In situ pottery dates the grave to Naqada IC-IIA
Sixty-five dog remains were found belonging to two individuals. Although not completely preserved most body parts of these dogs are represented. All articular ends were fused indicating the animals were adult.

DRN 194 - Hierakonpolis, HK6 - Pit 240

SITE NAME: Hierakonpolis

REGION: Upper Egypt

PERIOD: Predynastic, Naqada IIA

SITE TYPE: Cemetery

GRAVE NUMBER: HK6 - Pit 240

GRAVE TYPE: Pit

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 4

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Van Neer et al. (2004: 92-4, Tab. 1).

COMMENTS

A single toe bone was the only evidence found of a dog burial. Other remains found were one human, one hartebeest and a few bones of cattle, sheep, goat.
Pit 240 was found directly north of Tomb 13 and Tomb 14.It was not a clear tomb but like a depression in the laminated slits, which was not fully cleared.

DRN 195 - Hierakonpolis, HK6 - Tomb 18

SITE NAME: Hierakonpolis

REGION: Upper Egypt

PERIOD: Predynastic, Naqada IIA-B

SITE TYPE: Cemetery

GRAVE NUMBER: HK6 - Tomb 18

GRAVE TYPE: Circular pit

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 5

NUMBER OF OTHER FAUNA: Multiple

OTHER CONTENT

CONTAINER: None

WRAPPING: Matting remains

GRAVE GOODS: None

REFERENCES

Van Neer et al. (2004: 98-9, Tab. 1); Friedman et al. (2011: 171-2).

COMMENTS

Twenty-three dog remains were found in the fill, representing one adult dog. Five partially articulated individuals, mostly female were also found with two juvenile sheep, two juvenile goats and a few remains of one cattle, two adult goats, one pig and four birds. All the animal remains came from the fill. The celebrated bearded mask is attributed to this tomb, plus a straw tempered pottery cow modelled with a flat base, as if applied to a vessel.
Tomb 18 abuts the western wall of Tomb 16. The 2009 excavations revealed what appears to be an annex or extension of Tomb 18, with a lip separating the two tombs, both originally dug to the same depth. The remains of four individuals (two adult, two juvenile) were found here. Only matting for the interment of one juvenile was preserved. From this tomb came three small but extremely fine Black-topped jars, 2 R83a vessels, a P1t2, an elliptical bowl of straw tempered clay (F15) an ivory cup with a pedestal base and traces of red pigment on the outside. The top of an undecorated ivory comb, several carnelian beads and one possible garnet bead. The high quality of the objects suggests high status. The remains of three ostrich eggs in the south-western corner of the tomb.

DRN 196 - Hierakonpolis, HK6 - Tomb 20

SITE NAME: Hierakonpolis

REGION: Upper Egypt

PERIOD: Predynastic, Naqada IC-IIA

SITE TYPE: Cemetery

GRAVE NUMBER: HK6 - Tomb 20

GRAVE TYPE: Circular pit

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 3

NUMBER OF OTHER FAUNA: Multiple

OTHER CONTENT

CONTAINER: None

WRAPPING: Mat-lined pit

GRAVE GOODS: None

REFERENCES

Van Neer et al. (2004: 101-2, Tab. 1); Friedman et al. (2011: 168).

COMMENTS

Tomb 20 was dated by an assemblage of intact Black-topped pottery jars to Naqada IC-IIA. The area around Tomb 20 was previously excavated by Adams and believed to contain two interconnecting tombs (Tomb 20 and Tomb 21).
Excavations of the mat-lined floor in 2010 revealed the disturbed remains of three individuals, two female and one male all between the ages of 12 and 19 years. A fine tanged arrow head wrapped in animal hide and four transverse arrowheads were found in the fill. Thick wads of textile were found up to 2.5cm thick, resin coated and stained by decomposition fluids (Friedman et al. (2011: 168).
The faunal remains which may relate to this tomb come from the robbers trench above and consist of the partial remains of one dog, one adult and one subadult cattle, one adult and one juvenile sheep, one subadult goat, one juvenile and one subadult pig. Also tooth fragments of a hippo, and rib fragments of a crocodile.

DRN 198 - Hierakonpolis, HK6 - Tomb 19

SITE NAME: Hierakonpolis

REGION: Upper Egypt

PERIOD: Predynastic, Naqada IC-IIA

SITE TYPE: Cemetery

GRAVE NUMBER: HK6 - Tomb 19

GRAVE TYPE: Pit - rectangular

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 5

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Van Neer et al. (2004: 99-100, Tab. 1); Friedman et al. (2011: 176-7).

COMMENTS

At the base of the tomb were fragments of a multi-layered bier, consisting of a wood substrate with plaster and reed impressed into it, indicating that the aurochs (Bos primigenius) was buried in a manner accorded to a human interment. Black-topped red and straw tempered pottery sherds date the grave to Naqada IC-IIA. Upper part of a red painted pottery figurine. A fine linen bag or mat contained traces of malachite and remnants of a garland of the flowering herb Ceruana pratensis. Fragmentary human bone identified in the faunal remains but they probably originate from Tomb 17. In the tomb fill four skeletal elements of an adult dog were found. In the robbers back dirt 26 bones belonging to a subadult and an adult dog were found. Also found were the fragmentary remains of at least two very young and one adult sheep/goat. Given the small number of remains it is unclear if complete animals were originally buried.

DRN 201 - Hierakonpolis, HK6 - Tomb 28

SITE NAME: Hierakonpolis

REGION: Upper Egypt

PERIOD: Predynastic

SITE TYPE: Cemetery

GRAVE NUMBER: HK6 - Tomb 28

GRAVE TYPE: Oval pit

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 1

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Friedman (2010: 72).

COMMENTS

Friedman et al. (in press) - The eastern 4m of Tomb 49 (12 long horned cattle) were completely empty except for the scattered bones of two medium sized dogs, possibly intrusive from Tomb 28, and an aurochs vertebra found in the upper fill. If this is correct then Tomb 28 held 2 dogs and only 1 dog was entered in the corpus.

DRN 202 – Mediq (Gerf Husein), Cemetery 79 - Grave 144

SITE NAME: Mediq (Gerf Husein)

REGION: Lower Nubia

PERIOD: Predynastic, Early A-Group

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery 79 - Grave 144

GRAVE TYPE: Pit - rectangular with rounded corners

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Firth (1912:144).

COMMENTS

Firth simply states in his records "a small recess or later burial at the foot of the grave and 35cm above the floor, contained a dogs' bones".

DRN 203 - Naqada, Cemetery T

SITE NAME: Naqada

REGION: Upper Egypt

PERIOD: Predynastic

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery T

GRAVE TYPE: Oval pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 20

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Petrie & Quibell (1896: 26).

COMMENTS

In Naqada Cemetery T, bones of about 20 individual dogs were found. no other information supplied.

DRN 204 - Hu - Diospolis Parva, Cemetery X - Pan graves

SITE NAME: Hu - Diospolis Parva

REGION: Middle Egypt

PERIOD: Middle Kingdom, Dynasty 12 or after

SITE TYPE: Cemetery

GRAVE NUMBER: Cemetery X - Pan graves

GRAVE TYPE: Circular pit

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: Multiple

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Petrie.(1901: 48).

COMMENTS

The dog's grave found here was also un-Egyptian. This circular grave was found filled solely with dogs bodies. No MNI was given. This type a multiple dog burial is not consistent with Pan grave burials. Discussions with Aaron De Souza concerning Pan graves, made this burial highly unlikely to be a part of the Pan grave cemetery it was found in. However it has been entered in the original Pan grave dating by Petrie.

DRN 206 - Amarna

SITE NAME: Amarna

REGION: Middle Egypt

PERIOD: New Kingdom, Dynasty 18

SITE TYPE: Temple

GRAVE NUMBER: Unknown

GRAVE TYPE: Unknown

GRAVE CONDITION: Unknown

FAUNAL CONTENT

NUMBER OF CANIDS: 9

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Peet & Woolley (1923: 114); Listemann 2010: 136).

COMMENTS

Nine dog burials were discovered at the western perimeter wall of the Maru-Aten Temple. The larger building on the north-west corner of the enclosure may have been a workshop or a residence - in here were found undisturbed dog burials. Cows were found in another room near the nine dead dogs. Suggest a home farm area. Now lost under extended cultivation. It is possible that the Maru-Aten dogs belong to the original Amarna phase of occupation, but highly unlikely.
In 1880 Wilkinson sketched the upstanding buildings of the city and marked Grid 10 with a note “dog and human bone”. Over the area of the Kings House another note reads “dog bones”. There is nothing to link the functioning royal building and the burial of animals, so unlikely they belong to the original occupation time. In two smaller buildings south of the enclosure a large amount of bone was found belonging to about 30 greyhound type dogs. These two buildings have been interpreted as royal 'kennels' (Houlihan 1996: 78). Numerous dog remains were found dating to the later Graeco-Roman Period reuse at Amarna (Payne 2006) when the practice of burying dogs (and cows) was more common. However to date, there is not enough evidence to support changing the entry to Graeco-Roman, therefore it remained in the New Kingdom chronology.

DRN 207 - Saqqara, Mastaba 3035 (Hemaka)

SITE NAME: Saqqara

REGION: Lower Egypt

PERIOD: Early Dynastic, Dynasty 1

SITE TYPE: Cemetery

GRAVE NUMBER: Mastaba 3035 (Hemaka)

GRAVE TYPE: Pit - rectangular - associated with Mastaba

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Wooden coffin

WRAPPING: Wrapped in fine material

GRAVE GOODS: Ceramic vessel

REFERENCES

Anon. (1939: 79-80).

COMMENTS

This burial was one of seven dogs and three birds all associated with the mastaba of Hemaka, a high ranking official in the reign of King Den.

DRN 208 - Saqqara, Mastaba 3035 (Hemaka)

SITE NAME: Saqqara

REGION: Lower Egypt

PERIOD: Early Dynastic, Dynasty 1

SITE TYPE: Cemetery

GRAVE NUMBER: Mastaba 3035 (Hemaka)

GRAVE TYPE: Pit - rectangular - associated with Mastaba

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Wooden coffin

WRAPPING: Wrapped in fine material

GRAVE GOODS: Ceramic vessel

REFERENCES

Anon. (1939: 79-80).

COMMENTS

This burial was one of seven dogs and three birds all associated with the mastaba of Hemaka, a high ranking official in the reign of King Den.

DRN 209 - Saqqara, Mastaba 3035 (Hemaka)

SITE NAME: Saqqara

REGION: Lower Egypt

PERIOD: Early Dynastic, Dynasty 1

SITE TYPE: Cemetery

GRAVE NUMBER: Mastaba 3035 (Hemaka)

GRAVE TYPE: Pit - rectangular - associated with Mastaba

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Wooden coffin

WRAPPING: Wrapped in fine material

GRAVE GOODS: Ceramic vessel

REFERENCES

Anon. (1939: 79-80).

COMMENTS

This burial was one of seven dogs and three birds all associated with the mastaba of Hemaka, a high ranking official in the reign of King Den.

DRN 210 - Saqqara, Mastaba 3035 (Hemaka)

SITE NAME: Saqqara

REGION: Lower Egypt

PERIOD: Early Dynastic, Dynasty 1

SITE TYPE: Cemetery

GRAVE NUMBER: Mastaba 3035 (Hemaka)

GRAVE TYPE: Pit - rectangular - associated with Mastaba

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Wooden coffin

WRAPPING: Wrapped in fine material

GRAVE GOODS: Ceramic vessel

REFERENCES

Anon. (1939: 79-80).

COMMENTS

This burial was one of seven dogs and three birds all associated with the mastaba of Hemaka, a high ranking official in the reign of King Den.

DRN 211 - Saqqara, Mastaba 3035 (Hemaka)

SITE NAME: Saqqara

REGION: Lower Egypt

PERIOD: Early Dynastic, Dynasty 1

SITE TYPE: Cemetery

GRAVE NUMBER: Mastaba 3035 (Hemaka)

GRAVE TYPE: Pit - rectangular - associated with Mastaba

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Wooden coffin

WRAPPING: Wrapped in fine material

GRAVE GOODS: Ceramic vessel

REFERENCES

Anon. (1939: 79-80).

COMMENTS

This burial was one of seven dogs and three birds all associated with the mastaba of Hemaka, a high ranking official in the reign of King Den.

DRN 212 - Saqqara, Mastaba 3035 (Hemaka)

SITE NAME: Saqqara

REGION: Lower Egypt

PERIOD: Early Dynastic, Dynasty 1

SITE TYPE: Cemetery

GRAVE NUMBER: Mastaba 3035 (Hemaka)

GRAVE TYPE: Pit - rectangular - associated with Mastaba

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: Wooden coffin

WRAPPING: Wrapped in fine material

GRAVE GOODS: Ceramic vessel

REFERENCES

Anon. (1939: 79-80).

COMMENTS

This burial was one of seven dogs and three birds all associated with the mastaba of Hemaka, a high ranking official in the reign of King Den.

DRN 213 - Qasr Allam, C401 1008/1007

SITE NAME: Qasr Allam

REGION: Oasis Region

PERIOD: Late Period/Graeco-Roman Period, Dynasty 26/30

SITE TYPE: Cemetery

GRAVE NUMBER: C401 1008/1007

GRAVE TYPE: Pit - cell

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Colin, Adam & Pranjic (2014: Fig. 2).

COMMENTS

Cell 401 - collective burial in the north west corner of cell 401.
1007 - child disturbed, 1008 - canid

DRN 214 - Qasr Allam, QA Cell 413

SITE NAME: Qasr Allam

REGION: Oasis Region

PERIOD: Late Period/Graeco-Roman Period

SITE TYPE: Cemetery

GRAVE NUMBER: QA Cell 413

GRAVE TYPE: Pit - cell

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 4

NUMBER OF HUMANS: 2

NUMBER OF OTHER FAUNA: 2

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: Amulet, shell and bead

REFERENCES

Colin, Adam & Pranjic (2014: Fig. 3 A,B,C,D).

COMMENTS

C413 100 - canid - disturbed, elements still in situ, left side, west of adult (102) and child (103), amulet with dog.
C413 101 - canid disturbed, bones mingled with (169).
C413 169 - canid disturbed, most elements still in situ, lying with (101), lying left side near leg bones of ovicaprid (104).
C413 120 - canid very disturbed, lying east of adult (102) and child (103). Two wadjet eye amulets near leg, bead above head and cowrie shell between maxillary and mandible.
Humans, adult (102) and child (103) appear to by lying side by side, head to toe.
(104) appears to be bovid leg bones - possible food offering?

DRN 215 - Qasr Allam, QA Cell 418

SITE NAME: Qasr Allam

REGION: Oasis Region

PERIOD: Late Period/Graeco-Roman Period

SITE TYPE: Cemetery

GRAVE NUMBER: QA Cell 418

GRAVE TYPE: Pit - cell

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 12

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 0

OTHER CONTENT

CONTAINER: None

WRAPPING: None

GRAVE GOODS: None

REFERENCES

Colin, Adam & Pranjic (2014: 38).

COMMENTS

Cell 418 - excavation is not complete to date but has so far revealed a cluster of at least 12 dogs,associated with a child of 9 years. Like humans, the dogs have been buried with care in the ground and were the subject of various rearrangements during successive passages of the gravediggers. A number of the dogs from Qasr Allam have been aged, but the dog burial number is not indicated. Two old adults (more than six years). Six middle adult (two to four years). Three young adult (light tooth wear and some unfused epiphysis) and three juvenile (6-12 months).
Gender. Seven skeletons presented with a baculum in anatomical position, indicating a male - once again no burial numbers are given. Using Ruscillo's "Table Test" the number was raised to 11 out of the 21 being male. Ruscillo's Table test involves an adult humerus and a flat surface (Colin, Adam & Pranjic 2014: 43).

DRN 216 - Thebes, TT 414

SITE NAME: Thebes

REGION: Upper Egypt

PERIOD: Late Period, Dynasty 30

SITE TYPE: Cemetery

GRAVE NUMBER: TT 414

GRAVE TYPE: Rock-cut chamber

GRAVE CONDITION: Disturbed

FAUNAL CONTENT

NUMBER OF CANIDS: 2

NUMBER OF HUMANS: 1

NUMBER OF OTHER FAUNA: 5

OTHER CONTENT

CONTAINER: None

WRAPPING: Wrapped in material

GRAVE GOODS: Seals, tools, statues and ceramic vessels

REFERENCES

Bietak & Reiser-Haslauer (1982: 190 & 288-289).

COMMENTS

Found in the tomb complex of Anch-Hor (TT 414), in the upper chambers of the grave system was the later burial chamber of Wah-ib-re, dated to to the 30th Dynasty. Found in situ above the sarcophagus were the following: 2 mummified dogs, one mummified cat, two mummified falcons with crown of upper and lower Egypt, two mummified ibis, model with seal, mud seal, knife handle, hook, scraper, tweezers, small spoon, needle, awl, two large ceramic vessels, two small ceramic bowls, statuette of Isis kneeling and 51 ushabtis of various types.

DRN 217 - Berenike

SITE NAME: Berenike

REGION: Red Sea Coast

PERIOD: Graeco-Roman Period

SITE TYPE: Cemetery

GRAVE NUMBER: Unknown

GRAVE TYPE: Pit

GRAVE CONDITION: Intact

FAUNAL CONTENT

NUMBER OF CANIDS: 1

NUMBER OF HUMANS: 0

NUMBER OF OTHER FAUNA: 1

OTHER CONTENT

CONTAINER: Broken ceramic vessel

WRAPPING: Wrapped in matting

GRAVE GOODS: None

REFERENCES

Sidebotham & Zych (2011:18-20).

COMMENTS

Human burials were found at the edge of the city along the road leading inland to the Nile. Two types of burials, cist (box) and deposited in wooden sarcophagi inside tombs. The dog had been wrapped in a mat and then covered by a large amphorae. The cat lay about 20cm to one side. The caption under the picture states the burials were found beneath an early Roman rubbish dump.

Missing DRN Numbers in the Corpus

The missing DRNs from the final corpus related to animals other than canids which formed part of the initial corpus. When these were removed to allow undistracted focus on canids, the DRNs also disappeared leaving gaps in the final sequencing. This in no way diminishes the validity of the remaining entries. The following table documents the missing DRNs.

CORPUS NO.	SITE	GRAVE NO.	ANIMAL
DRN 39	Hierakonpolis	HK6 Feature H - related to T32	Hippopotamus
DRN 41	Hierakonpolis	HK6 T17	Baboon + 2 humans
DRN 42	Hierakonpolis	HK6 T33	Elephant
DRN 43	Hierakonpolis	HK6 T19	Aurochs (2)
DRN 44	Hierakonpolis	HK6 T43	Domestic bull
DRN 47	El Mahasna	H4	Goat + human
DRN 54	Adaima	1001/17.1	Pig
DRN 57	Abadiyeh	D5	Donkey, Ox + human
DRN 58	Abadiyeh	D6	Gazelle skulls (11) + humans
DRN 63	Hierakonpolis	HK6 T36	Cow and calf
DRN 64	Hierakonpolis	HK6 T35	Goats (2)
DRN 69	Hierakonpolis	HK6 Feature B	Baboon
DRN 71	Hierakonpolis	HK6 Feature E	Cats (6)
DRN 72	Hierakonpolis	HK6 T12	Baboons (7), hippo, cat
DRN 74	Helwan	668 H5	Bird
DRN 75	Helwan	719 H5	Donkey (2)
DRN 76	Helwan	720 H5	Camel
DRN 77	Helwan	615 H3	Donkey (3)
DRN 79	Helwan	53. H10	Donkey (3)
DRN 80	Helwan	264 H2	Tortoise + human
DRN 81	Wadi Digla	WD Animal 1	Quadrupe
DRN 82	Wadi Digla	WD Animal 2	Quadrupe
DRN 83	Wadi Digla	WD Animal 3	Lamb/kid
DRN 84	Wadi Digla	WD Animal 4	Kid
DRN 85	Wadi Digla	WD Animal 6	Quadrupe
DRN 86	Wadi Digla	WD Animal 7	Kid
DRN 87	Wadi Digla	WD Animal 8	Quadrupe
DRN 88	Wadi Digla	WD Animal 9	Quadrupe
DRN 89	Wadi Digla	WD Animal 10	Kid
DRN 90	Wadi Digla	WD Animal 11	Quadrupe
DRN 91	Wadi Digla	WD Animal 12	Kid
DRN 93	Wadi Digla	WD Animal 13	Kid/lamb
DRN 94	Wadi Digla	WD Animal 14	Kid
DRN 99	Hierakonpolis	HK6 T24	Elephant
DRN 100	Abydos	171	Cats (17)
DRN 104	Koshtamna	Cemetery 87-21	Goat + human
DRN 106	Abusir	Unknown	Donkey (3)
DRN 107	Maadi	Unknown	Dog cranium in settlement
DRN 109	Heliopolis	I 15	Goat
DRN 110	Heliopolis	I 24	Goat
DRN 111	Heliopolis	I 36	Goat
DRN 112	Heliopolis	I 37	Goat
DRN 113	Heliopolis	I 67	Goat
DRN 114	Heliopolis	I 71	Goat

Corpus No.	Site	Grave No.	Animal
DRN 115	Qustal	L 3	Bovine
DRN 116	Qustal	L 6	Bovine
DRN 117	Qustal	L 20	Bovine
DRN 118	Qustal	L 25	Bovine
DRN 119	Qustal	L 26	Bovine
DRN 120	Qustal	L 27	Bovine
DRN 121	Debod	Cemetery 23 – 70	Sheep
DRN 122	Debod	Cemetery 23 – 57	Goat
DRN 123	Debod	Cemetery 23 – 62	Sheep
DRN 124	Debod	Cemetery 23 – 67	Sheep
DRN 127	Meris-Markos	Cemetery 41 – 101	Cow
DRN 128	Meris-Markos	Cemetery 41 – 102	Cow
DRN 129	Meris-Markos	Cemetery 41 – 201	Bovine
DRN 130	Khor Bahan	Cemetery 17 – 71	Bovine
DRN 133	Hierakonpolis	HK6 T46	Hartebeest + human
DRN 134	Hierakonpolis	HK6 T45	Crocodile
DRN 141	Thebes	51	Monkey (3), ibis, ape, duck (3)
DRN 142	Thebes	52	Monkey
DRN 144	Tell el-Farkha	86	Multiple animals – double entry
DRN 152	Abydos	Unknown	Mass of canid bones - votive
DRN 200	Hierakonpolis	HK6 T43	Double entry

Recorded Age and Sex of Humans associated with Canid Burials

Corpus No.	Site	No. of Humans	Sex of Humans	General Age of Humans	Specified Age of Humans
DRN 3	El Mahasna	1	Male	Adult	
DRN 16	Matmar	1	Male	Adult	
DRN 19	Naga Ed Dêr	1	Unspecified	Adult	
DRN 40	Hierakonpolis	1	Unspecified	Juvenile	10-15 years
DRN 46	Qasr Allam	7	Unspecified x 1 Unspecified x 6	Adult Child	
DRN 55	Naqada	1	Unspecified	Adult	
DRN 59	Abadiyeh	1	Female	Adult	
DRN 62	Abydos	1	Male	Adult	
DRN 98	Saqqara	1	Unspecified	Adult	
DRN 103	Mediq (Gerf Husein)	2	Male x 1 Unspecified x1	Adult Unknown	
DRN 108	Thebes	9	Unknown x 6 Unknown x 3	Adult Child	
DRN 132	Qasr Allam	1	Unspecified	Child	
DRN 137	Edfu	3	Male x 1 Unspecified x 2	Adult Adult	
DRN 138	Edfu	6	Unspecified x 5 Unspecified x 1	Adult Child	small child
DRN 139	Edfu	4	Unspecified x 4	Adult	
DRN 144	Tell el-Farkha	1	Male	Adult	
DRN 155	Abusir	12	Male x 1 Unspecified x 11	Adult Unspecified	
DRN 160	Saqqara	1	Unknown	Adult	
DRN 161	Thebes	1	Male	Adult	
DRN 162	Saqqara	1	Unknown	Adult	
DRN 163	Saqqara	1	Unknown	Neonate	
DRN 164	Saqqara	1	Unknown	Adult	
DRN 165	Saqqara	2	Unknown x 2	Adult	
DRN 166	Deir el-Banat	1	Male	Child	~ 14 years
DRN 167	Saqqara	30	Male & Female	Adults & Children	
DRN 168	Saqqara	Multiple	Unspecified	Adult	
DRN 169	Hierakonpolis	1	Unknown	Child	7-10 years
DRN 171	Abydos	1	Male	Adult	
DRN 172	Abydos	1	Male	Adult	30-50 years
DRN 173	Abydos	1	Unknown	Adult	
DRN 174	Abydos	1	Unknown	Child	6-8 years
DRN 175	Abydos	2	Female x 1 Unknown x1	Adult Child	
DRN 176	Abydos	1	Unknown	Unspecified	
DRN 177	Abydos	1	Unknown	Adult	
DRN 178	Abydos	1	Unknown	Unspecified	
DRN 182	Tell el-Maskhuta	1	Female	Adult	
DRN 185	Giza	1	Male	Adult	
DRN 187	Ballas	1	Unspecified	Adult	
DRN 188	Elephantine	1	Unspecified	Adult	
DRN 189	Hierakonpolis	1	Unspecified	Unspecified	
DRN 190	Hierakonpolis	2	Unspecified x 1 Unspecified x 1	Adult Child	

Corpus No.	Site	No. of Humans	Sex of Humans	General Age of Humans	Specified Age of Humans
DRN 191	Hierakonpolis	1	Female (?)	Adult	
DRN 192	Hierakonpolis	1	Unspecified	Child	10-12 years
DRN 193	Hierakonpolis	1(?)	Male	Adult	
DRN 194	Hierakonpolis	1	Unknown	Unknown	
DRN 195	Hierakonpolis	5	Female x 1 Female x 1 Male x2 Unknown x 1	Adult Adult Adult Juvenile	18-24 years 20-35 years 14-15 years
DRN 196	Hierakonpolis	3	Male x 1 Female x 1 Unknown x 1	Young adult Young adult Young adult	15-20 years 15-20 years 15-20 years
DRN 202	Mediq (Gerf Husein)	1	Male	Adult	
DRN 213	Qasr Allam	1	Unspecified	Child	
DRN 214	Qasr Allam	2	Unspecified x 1 Unspecified x 1	Adult Child	
DRN 215	Qasr Allam	1	Unspecified	Child	9 years
DRN 216	Thebes	1	Male	Adult	

Appendix
Case Study of 119 Canid Crania

Measurements and Information

Canid Crania Measurements

Specimen #	Total length	Upper Neurocranium length	Basal length	Palatal length	Facial length	Interorbital width	Maximum height	Zygomatic breadth
1	192	100	166	91	92.5	42	55	109
2	190	102	166	92	91	38	54	107
3	191	96	167	92	99	38	56	
4	182	92	160	89.5	91	39	53	106
5	183	92	159	91	97	37.5	51	100
6	179	92	157	88	92	38	53	102
7	187	93	161	99	100	42	58	
8	188	98	163	92	91	38	54	105
9	187	98	168	91	95	41	53	107
10	195	100	172	95	101	41.5	56	113
11		98				37	54	98
12	183	97	160	90	90	36	52	
13	181	90	159	87.5	91.5	37	55	107
14	184	94	163	89	96	39	50	103
15	170	91	153	84	78	34	50	
16	176	93	157	80	88	35	53	104
17	187	98	163	90	93.5	40	55	
18	208	99	177	101	110	36	58	116
19	178	94	159	88	87	32	49	
20	189	97	166	91	96	39	53	
21	185	95	165		99	37	53	
22	193	101	161	91	94	37.5	53	
23	199	90	172	94	96	41	55	111
24	186	98	179	89	92	38	54	
25	191	98	169	91	95	37	54	
26		95				37	56	103
27	174	93	153	86	86	35	51	
28	171	91	146	82	85	38	53	97.5
29	175	94	155	85	88.5	39	51	
30	172	92	151	82	84.5	38	51	
31	163	86	145	80	84	30	45	95
32	179	90	159	85	91	37	54	
33	175	93	151	83	89	34	49	
34	170	88	146	81	87	35	51	
35	172	94	152	80	83	35	51	
36	169	88	148	81	85	36	51	99
37	171	86	150	83	88	31	49	
38	173	90	151	82	91	37	54	
39	172	88	153	89	90	35	50	100

SPECIMEN #	TOTAL LENGTH	UPPER NEUROCRANIUM LENGTH	BASAL LENGTH	PALATAL LENGTH	FACIAL LENGTH	INTERORBITAL WIDTH	MAXIMUM HEIGHT	ZYGOMATIC BREADTH
40	175	90	154	86	87	37	51	100
41	168	89	148	81	85	31	48	95
42	176	90	144	84	91	35	52	
43		86				36	47	91.5
44	164	86	144	81	89	34.5	46	
45	162	84	142	78	83	32.5	44	
46	175	94	155	86	88	36.5	50	99
47	171	92	150	82	85	37	52	
48	176	91	156	87	89	37	51	
49	171	92	152	88	88	38	49	101
50	174	90	155	84	89	38	51	
51		87						
52	174	91	155	86	88	33	48	
53	177	94	153	86	87	36	51	
54	176	91	153	86	90	37	51	
55	169	88	146	79	84	33	51	
56	165	89	147	80	81	36	46	94
57	178	92	155	83.5	91	34.5	48.0	99
58	173	93	153	85	82.5	37	48	
59	156	86	139	80	77	29.5	43	
60	173	95	154	84.5	85	36.5	46	
61	176	90	152	84	89	36	46	97
62	170	88	148	84.5	84	33.5	44	94
63	168	93	149	82	85	35	46	
64	164	87	141	77.5	80	38	50	
65	171	90	149	80.5	87	39	46	101
66	160	85	144	80	83	34	44	
67	167	92	149	84.5	82	34	45	
68	180	92	158	87	95	39	47	101
69	180	95	156	85	87	37.5	50	
70	177	94	156		86	34	47	
71	175	95	153	86	89	39	49	
72	166	90	148	80	81.5	34	46	
73		90				36	47	88.5
74	169	89	149	80.5	83	32.5	48	
75	142	77	128	73	70	30.5	40	
76	164	84	147	82	81	31	44	
77	157	86	136	74	78.5	28	43	
78	156	87	139	77	75	30	46	
79	158	87	136	76	75	31.5	44	
80	161	84	136	76	80.5	36.5	45	89.5

SPECIMEN #	TOTAL LENGTH	UPPER NEUROCRANIUM LENGTH	BASAL LENGTH	PALATAL LENGTH	FACIAL LENGTH	INTERORBITAL WIDTH	MAXIMUM HEIGHT	ZYGOMATIC BREADTH
81	154	82	135	73	75	32	48	94.5
82	162	86	145	81	81.5	35	48	94
83		89				37	47	97
84	165	86	145		80	30.5	48	92
85	164	87	149	80	82	36	45	96
86	174	90	154	85	91	36	49	97
87	172	94	154	84	83	34	48	100
88	169	88	148	82	84	35	46	100
89	171	88	154	84	84	32	46	97
90		95				36	50	101
91	154	82	138	77	77	29	43	
92	162	84	142	79	81	32	48	88
93	158	82	138	79	80	31	40	89
94	145	80	130	74.5	74.5	28.5	40	85
95	166	89	147	80	85	36	47	97
96	162	88	146	83	80	36	46	
97	150	85	132	72.5	71.5	36	45	
98	164	92	145	81	76	32.5	49	95
99	167	85	147	82.5	82	31.5	43	
100	164	85	148	81	81.5	35	49	
101		91				34	44	93
102		90				30	43	89
103	165	89	148	82	82	37.5	50	
104							46	
105		90				35	51	93.5
106	186	95	163	91	92	40	56	105
107	157	83	136	78	79	33	49	
108		89				38	56	99
109	178	96	156	86	85.5	39	51	
110	192	94	170	93	101	39	54	
111	168	92	152	84	86	35	49	
112	180	94	159	86	86	37	53	103
113	160	85	138	79	77	33	48	91
114	201	102	176	98	105	44.5	60	
115	179	98	156	88	87	40	52	103
116	164	86	145	82	82	39	47	93
117	185	98	159	90	88	34.5	50	102
118	159	87	141	80	83.5	32	43	
119	160	84	143	78	80.5	31	45	

Canid Crania Information

Specimen No.	Compl/Incompl	Sex	Age	No. Fractures	No. Perforation	Gum Disease	Full DA	Teeth in situ	Total tooth loss	Total PM tooth loss	Total AM tooth loss	Incisors L	Incisors R	Canines	Premolars L	Premolars R	Molars L	Molars R
1	C	M	Young Adult	0	0	Moderate	Y	6	14	7	7		2	1	1	3		
2	I	M	Adult	0	0	Mild	Y	5	15	14	1				1			
3	I	M	Adult	0	0	None	N	8	12	12								
4	I	M	Young Adult	0	0	Mild	Y	8	12	11	1				1			
5	C	M	Young Adult	0	1	None	Y	9	11	11								
6	I	M	Young Adult	0	1	Mild	Y	4	16	16								
7	I	M	Adult	0	1	None	Y	4	16	15	1		1					
8	I	M	Young Adult	1	1	Moderate	Y	5	15	12	3				1		1	1
9	I	M	Young Adult	0	0	Mild	Y	10	10	9	1		1					
10	C	M	Adult	0	0	Moderate	Y	3	17	15	2							2
11	I	M	Young Adult	0	0	None	N	5	15	15								
12	I	M	Young Adult	0	0	None	Y	5	15	15								
13	I	M	Young Adult	1	1	Mild	Y	5	15	14	1							1
14	I	M	Young Adult	0	0	None	Y	11	9	9								
15	I	F	Adult	0	0	None	Y	1	19	15	4	2	2					
16	I	M	Adult	0	0	None	Y	8	12	12								
17	I	M	Young Adult	0	0	None	Y	4	16	16								
18	I	M	Young Adult	0	0	Mild	Y	16	4	4								
19	I	M	Adult	0	0	None	Y	6	14	14								
20	I	M	Young Adult	0	1	None	Y	8	12	12								

Specimen No.	Compl/Incompl	Sex	Age	No. Fractures	No. Perforation	Gum Disease	Full DA	Teeth in situ	Total tooth loss	Total PM tooth loss	Total AM Tooth Loss	Incisors L	Incisors R	Canines	Premolars L	Premolars R	Molars L	Molars R
21	I	M	Adult	0	0	None	Y	4	16	13	3	1	2					
22	I	M	Young Adult	0	2	Mild	Y	9	11	8	3	2	1					
23	C	M	Young Adult	0	0	None	Y	8	12	12								
24	I	M	Young Adult	0	0	None	Y	2	18	18								
25	I	M	Young Adult	1	0	Mild	Y	2	18	14	4	2	2					
26	I	M	Adult	0	1	None	N	5	15	15								
27	I	F	Adult	1	1	None	Y	2	18	17	1						1	
28	C	M	Adult	0	1	None	Y	9	11	8	3				3			
29	I	F	Adult	0	0	None	Y	3	17	17								
30	I	M	Adult	0	1	Moderate	Y	2	18	12	6		2		2	2		
31	I	M	Adult	0	0	None	N	9	11	11								
32	I	M	Young Adult	0	1	None	Y	3	17	16	1							1
33	I	M	Adult	0	1	Moderate	Y	8	12	10	2						2	
34	I	M	Adult	0	0	None	Y	3	17	17								
35	I	M	Adult	0	1	Moderate	Y	2	18	10	8	3	2				2	1
36	C	F	Young Adult	0	1	None	Y	9	11	10	1	1						
37	I	F	Young Adult	0	0	Mild	Y	12	8	8								
38	I	M	Adult	1	0	None	Y	12	8	8								
39	C	M	Adult	0	0	None	Y	5	15	15								
40	I	F	Adult	0	2	None	Y	6	14	14								
41	I	F	Young Adult	0	0	None	Y	4	16	16								
42	I	M	Young Adult	0	0	None	N	5	15	15								

Specimen No.	Compl/Incompl	Sex	Age	No. Fractures	No. Perforation	Gum Disease	Full DA	Teeth in situ	Total tooth loss	Total PM tooth loss	Total AM Tooth Loss	Incisors L	Incisors R	Canines	Premolars L	Premolars R	Molars L	Molars R
43	I	M	Young Adult	0	0	None	N	4	16	15	1			1				
44	I	M	Adult	0	1	None	N	7	13	13								
45	I	M	Adult	0	0	None	Y	2	18	16	2	1						1
46	C	M	Adult	0	0	None	Y	2	18	18								
47	I	M	Young Adult	0	0	None	Y	7	13	13								
48	I	M	Young Adult	0	0	None	Y	4	16	16								
49	I	M	Adult	0	2	Mild	Y	9	11	6	5	1	3		1			
50	I	M	Young Adult	1	0	None	Y	11	9	9								
51	I	M	Adult	0	3	None	Y	10	10	10								
52	I	M	Young Adult	0	1	None	Y	1	19	19								
53	I	M	Young Adult	0	0	Mild	Y	3	17	13	4		2		2			
54	I	M	Young Adult	0	0	None	Y	7	13	12	1				1			
55	I	M	Adult	0	0	None	Y	3	17	17								
56	I	M	Adult	0	0	None	Y	3	17	14	3					1	1	1
57	I	M	Adult	0	1	None	Y	10	10	7	3	2	1					
58	I	M	Young Adult	0	0	None	Y	5	15	11	4					2		2
59	I	F	Young Adult	0	0	None	Y	6	14	11	3	2	1					
60	I	M	Young Adult	0	1	None	Y	5	15	15								
61	C	M	Adult	0	0	Mild	Y	7	13	5	8	3	3		1	1		
62	I	M	Adult	0	0	None	Y	4	16	14	2						1	1
63	I	F	Old Adult	0	0	Moderate	Y	0	20	7	13	3	3		1	2	2	2
64	I	F	Adult	0	1	Moderate	Y	1	19	11	8	3	2	2				1

Specimen No.	Compl/Incompl	Sex	Age	No. Fractures	No. Perforation	Gum Disease	Full DA	Teeth in situ	Total tooth loss	Total PM tooth loss	Total AM Tooth Loss	Incisors L	Incisors R	Canines	Premolars L	Premolars R	Molars L	Molars R
65	I	M	Adult	0	0	Moderate	Y	5	15	8	7	3	2	1			1	
66	I	M	Young Adult	0	0	None	Y	8	12	12								
67	I	M	Young Adult	0	1	None	Y	5	15	15								
68	I	M	Adult	0	1	Mild	Y	4	16	13	3	2	1					
69	I	F	Adult	0	0	Mild	Y	5	15	10	5	3	2					
70	I	M	Adult	0	0	Moderate	Y	4	16	11	5	1	2				2	
71	I	M	Adult	1	1	Mild	Y	5	15	12	3	1	1		1			
72	I	F	Adult	0	0	None	Y	3	17	11	6	1	1		2	2		
73	I	M	Young Adult	0	0	None	N	8	12	12								
74	I	M	Adult	1	0	None	Y	4	16	11	5	2	2				1	
75	I	F	Young Adult	0	0	Mild	Y	5	15	9	6				3	3		
76	I	M	Young Adult	0	0	None	Y	3	17	17								
77	I	F	Young Adult	0	1	None	Y	3	17	17								
78	I	M	Young Adult	0	0	None	Y	7	13	13								
79	C	M	Adult	0	2	Severe	Y	2	18	9	9	1	3	1	2	2		
80	I	F	Adult	0	0	Mild	Y	11	9	8	1	1						
81	I	M	Adult	1	1	Moderate	Y	5	15	13	2						1	1
82	I	M	Adult	0	1	Mild	Y	5	15	7	8	3	1	2	1	1		
83	I	M	Adult	0	0	None	N	7	13	13								
84	I	M	Young Adult	0	2	None	Y	16	4	4								
85	C	F	Young Adult	0	0	None	Y	17	3	2	1						1	
86	I	M	Young Adult	0	0	None	N	13	7	7								

Specimen No.	Compl/Incompl	Sex	Age	No. Fractures	No. Perforation	Gum Disease	Full DA	Teeth in situ	Total tooth loss	Total PM tooth loss	Total AM Tooth Loss	Incisors L	Incisors R	Canines	Premolars L	Premolars R	Molars L	Molars R
87	I	M	Adult	0	2	None	Y	1	19	19								
88	C	M	Adult	0	1	Moderate	Y	5	15	7	8	3			2	1	1	1
89	I	M	Young Adult	0	1	None	Y	6	14	14								
90	I	M	Adult	0	0	Moderate	Y	4	16	9	7	1	3		1		1	1
91	I	M	Adult	0	0	None	Y	5	15	15								
92	C	M	Young Adult	0	3	None	Y	8	12	12								
93	I	F	Adult	0	0	Moderate	Y	2	18	12	6				3	1	2	
94	I	F	Young Adult	0	0	None	Y	7	13	13								
95	I	M	Young Adult	0	0	None	Y	9	11	10	1							1
96	I	M	Adult	0	0	Mild	Y	0	20	13	7	3	2				1	1
97	I	F	Adult	0	3	Mild	Y	4	16	12	4	2	2					
98	I	M	Adult	0	0	None	Y	9	11	10	1	1						
99	I	M	Young Adult	0	0	None	Y	5	15	15								
100	I	F	Young Adult	0	2	None	Y	6	14	13	1				1			
101	I	F	Adult	0	0	None	N	3	17	17								
102	I	M	Adult	0	0	None	N	9	11	11								
103	I	M	Adult	0	0	None	N	2	18	18								
104	I	M	Unknown	0	0	Unknown	N											
a105	I	M	Young adult	0	0	None	N	1	19	19								
a106	I	M	Adult	0	0	None	Y	8	12	12								
a107	I	F	Young Adult	0	0	None	Y	6	14	14								
a108	I	M	Adult	0	0	None	N	4	16	16								

Specimen No.	Compl/Incompl	Sex	Age	No. Fractures	No. Perforation	Gum Disease	Full DA	Teeth in situ	Total tooth loss	Total PM tooth loss	Total AM Tooth Loss	Incisors L	Incisors R	Canines	Premolars L	Premolars R	Molars L	Molars R
a109	I	F	Adult	0	0	None	Y	1	19	13	6				3	3		
a110	I	M	Young Adult	0	0	None	Y	5	15	12	3				2	1		
a111	I	M	Young Adult	0	0	None	Y	2	18	18								
a112	C	M	Young Adult	0	0	None	Y	2	18	17	1				1			
a113	C	F	Adult	0	0	Mild	Y	7	13	12	1				1			
a114	I	M	Adult	0	0	None	Y	3	17	17								
a115	I	M	Adult	0	1	None	Y	7	13	13								
a116	C	M	Adult	0	0	None	Y	12	8	8								
a117	I	M	Young Adult	0	0	None	Y	7	13	13								
a118	I	M	Adult	0	1	Mild	Y	5	15	13	2				1	1		
a119	I	M	Adult	0	1	None	Y	0	20	20								