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Kill Thy Neighbor:
Violence, Power, and Human Sacrifice in Ancient Egypt

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by

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ABSTRACT OF THE DISSERTATION

Kill Thy Neighbor:
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While many forms of violence against human beings are considered taboo, others are considered acceptable or even desirable under certain circumstances. Human sacrifice in particular occurs as a form of state-sanctioned killing in societies throughout time and space. Evidence for human sacrifice in Egypt is sparse and controversial. In this study, I examine archaeological evidence for this practice in ancient Egypt, and human remains that are believed to be the victims of human sacrifice in the early stages of state formation. By assessing examples of human sacrifice around the world and exploring the ways that violence such as human sacrifice may become accepted or even celebrated, I place the possible examples of human sacrifice in Egypt within the broader scholarly conversation of violence, anthropology, and archaeology. Human remains that are believed to represent victims of sacrifice may shed light on the aspects of identity that led to selection of sacrificial victims. Though much of the data from

Egypt was excavated over the past few centuries by scholars of various levels of experience, and though standards of excavation and conservation have evolved, it may still be possible to apply modern methods of analysis to old remains and yield new data. In this case, it seems clear that human sacrifice was practice in ancient Egypt, based on the evidence for skeletal trauma on many of the remains, but that the Egyptians viewed human sacrifice as very different from the violence expected of the king, as in smiting motifs or the defense of Egypt's borders. By exploring the possibilities of old data to reveal new information, we may greatly expand our knowledge not only of the Egyptians but of human societies through history and around the world.

The dissertation of Roselyn Anne Campbell is approved.

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DEDICATION

For my dad

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Chapter 1 – Introduction

Introduction

Ancient Egypt has for many in the Egyptological literature been perceived as a relatively non-violent society, or at least less violent than her neighbors and contemporaries. Though this image has been changing with notable publications in the past few years, (Bestock 2017; Muhlestein 2008, 2011), the idea that violence was relatively rare in ancient Egypt, or that it was restricted to imagery, has maintained a hold within Egyptological literature (J. Tyldesley 2000). Yet what is the evidence for this elevation of Egyptian society above other, contemporary cultures, that routinely practiced human sacrifice as well as other forms of violent punishment? Egypt was, after all, an authoritarian state, ruled by a god-king who held absolute power over his subjects. There is no reason to believe that every single Egyptian king for thousands of years was beneficent and against the taking of life; on the contrary, some level of violence, at least in terms of warfare to protect and expand Egyptian holdings, was expected of the king (Bestock 2017). Unfortunately, the evidence for violence in ancient Egypt, at least state-sponsored violence, is largely dependent upon textual and artistic representations, each medium subject to its own agendas and biases. It is clear that a more comprehensive and nuanced approach to state-sponsored violence in ancient Egypt (or the lack thereof, as the case may be) is needed.

An additional complication lies in our own scholarly bias. As scholars on the outside of a culture that existed thousands of years ago, which is left to us mainly in state-sponsored monuments, text, and tombs, we inherently (if unwittingly) are predisposed to support the authoritarian regime. Thus depictions of the king about to brutally crush the skulls of enemies have largely been described as purely, or at least mostly, ideological or symbolic in nature (Davis 1992; E. S. Hall 1986; Schulman 1987). Even when more recent studies have admitted

that the king may in face have executed captured enemy leaders himself or engaged in other forms of state sanctioned killing, such actions are described as necessary in order to maintain the king's dominance and control ideologically, and the (albeit rare) records of capital punishment are framed as brutal but befitting a crime against the god (Muhlestein 2008, 2011, 2015). To some extent, this bias is unavoidable, as we must assess archaeological cultures based on the available evidence, and the reality is that the bulk of evidence from ancient Egypt *does* derive from state-sponsored projects. But if the bias is unavoidable, we must at least acknowledge its existence. Davis (1992) presents clear evidence for the use of state-sponsored art as a way to fashion or re-fashion the historical narrative that the Egyptian kings wished to create.

Despite our best efforts, perhaps we *want* to see the Egyptians as less violent and somehow better than their neighbors, based not only on our interest in the culture as scholars but subconsciously on our indoctrination with Egyptian texts and images stating that Egypt *was* better than her neighbors. Certainly no scholar would admit this readily, but I would argue that the ambivalence towards the data for state-sponsored violence in Egypt, particularly regarding the existence of human sacrifice, may owe something to this unconscious bias. The time has come to acknowledge that Egypt was an authoritarian state that manufactured power in a variety of ways, including violence, just like every other authoritarian state throughout history.

In this dissertation, I will examine the archaeological and bioarchaeological context of a group of previously excavated human remains believed to be victims of human sacrifice in the early stages of state formation in Egypt (W. M. F. Petrie 1900, 1925). Archaeological data regarding the construction of these individuals' tombs, their body position and burial goods, as well as social information regarding Egyptian society and culture during the Early Dynastic Period (c.3100-2686 BCE) will be assessed to reconstruct the context of these burials. Although

the human remains from these burials are fragmentary and were excavated in the early twentieth century, when standards for excavation, preservation, and conservation of human remains were very different, it may still be possible to gain new information from these data by applying techniques of analysis that have been vastly improved over the past century. Bioarchaeological analyses help to illuminate the lives of these individuals through assessment of age, sex, overall health, cultural affinity, and analysis of trauma, when such data is available for analysis. Through the comparison of archaeological data about the graves (grave goods, body position, etc.) and osteological data about the inhabitants of these graves when analysis was possible, I use Egyptological, anthropological, and bioarchaeological perspectives to holistically reconstruct the sequence of events that led these individuals to all end up together, deceased, in one location, and to explore the reasons why this mass deposition might have occurred.

In the 1970s Alberto Green scathingly (1975, 109) wrote that "Egyptologists either reject outright, refuse to discuss, or grudgingly admit that there may be certain vague references which can be construed as ritual killing." While these attitudes are certainly changing, Egyptologists still tend to fall into one of two camps when discussing the possibility of retainer sacrifice in the Early Dynastic Period: the practice is either ignored or even denied (cf. Tyldesley 2000), or the practice is simply assumed to have happened (Wengrow 2006; Wilkinson 2001), in which case the discussion tends to end. In the former argument, one reason that human sacrifice in Egypt is often denied is the lack of perimortem trauma (according to the original excavators) evident on the remains of the supposed sacrificial victims (Emery 1954, 1958; W. M. F. Petrie 1900, 1925). This position is problematic for several reasons, the most obvious of which is the assumption that all sacrifice will look the same, i.e. with blatant and incontrovertible evidence of severe or excessive perimortem trauma (the blood sacrifice of the Aztecs is often the model referenced

here, however unconsciously). Yet even a cursory examination of sacrificial practices worldwide will reveal that this is certainly not the case. Not all sacrifices look the same. The components of a sacrifice, both material and performative, will vary based on the cultural context, the purpose of the sacrifice, the frequency and motivation for the sacrifice, the victim and the sacrificer and their respective roles in society, and numerous other factors that may be ineffable from an archaeological standpoint. Assuming that all sacrifice will be violent and bloody is akin to describing all ancient cultures as polytheistic; such a description is at best simplistic, and at worst blatantly incorrect.

The other obvious problem with this interpretation is that no matter how often this lack of perimortem trauma has been proclaimed, it has invariably been repeated from the original excavators: as yet, no scholar has examined (or at least published or communicated) an analysis of the human remains themselves with regards to trauma. And while Petrie was certainly exemplary for his time, methods of osteological analysis have advanced considerably in the century or so since their discoveries. In particular, the emergence of modern forensics has provided new tools and known comparanda with which to approach well-preserved, archaeological human remains.

Even when the practice of human sacrifice is assumed, no scholar has yet addressed this practice holistically. Why did this practice occur, and why did it end? Who was sacrificed, and why, and indeed how? What are the origins and ideologies behind the practice, and what changed such that the practice was discontinued? How did the ancient Egyptians envision, enact, and experience this practice and its meaning? And perhaps most important of all, can we actually determine whether human sacrifice was occurring at all, and if so, how would our conclusion shape the way we discuss ancient Egyptian society, religion, and culture?

This dissertation aims to at least begin to fill this lacuna in the literature. As a trained anthropologist and an Egyptologist, I am in the relatively unique position of being able to assess both the archaeological evidence for or against human sacrifice in ancient Egypt, as well as the physical remains of the (possible) sacrificial victims themselves. Instead of presenting ancient Egypt in a vacuum, as is so often the case in past Egyptological literature that presents this culture as unique, self-motivating, and self-driven, I will assess the practice of human sacrifice in Egypt within its context of the Mediterranean world as a whole and the processes of state formation as they affect societies throughout the world. I will examine the concept of violence, and specifically violence as a tool of power, within the context of the ancient Egyptian mindset, as well as the ways that the Egyptians would have conceived of, and separated, violence from non-violence. To do this, we must first problematize the concept of violence itself.

What is violence?

Intra-species violence has existed for at least as long as modern *Homo sapiens* have walked the planet, and it is not a uniquely human trait, as evidence for such violent behavior has been found in other species as well, though many such examples fall within the primates (Berger and Trinkaus 1995; Eller 2010; Zollikofer et al. 2002). The occurrence, and indeed prevalence, of violence in seemingly every human society through time has led many scholars to suggest that violence is in some way an integral part of the biological makeup of humankind (Eisner 2011; Eller 2010; Turpin and Kurtz 1997). As Turpin and Kurtz (1997) point out, ascribing the roots of violence to biological mandates justifies attempts to change the physical or chemical characteristics of violent individuals (e.g. sterilization to prevent replication of "harmful" or "inferior" genes), while also allowing the social roots of violence (socio-economic inequality,

separation and "othering" of various ethnic or social groups, etc.) to remain unchanged. Others have argued that violence, particularly systematic, large -scale, or organized violence, is a product of cultural and social factors (Durrant 2011; Gamson 1990; Weber 2013). Numerous studies have indicated that, given certain circumstances, almost anyone may be induced to violent behavior (Eller 2010; Milgram 2009; Zimbardo 1973). The question of whether violence is inherent in human nature, or is a product of social constructs, is highly relevant and interesting, but an answer is far outside the scope of the current study.

What do we mean, then, when we describe an action as violent, or a situation as the result of violence? Is something only violent if it causes fracture of the bone or visible trauma? This is clearly not a sufficient definition, since many types of violence (e.g. domestic or sexual abuse, psychological torture, etc.) may leave no mark on the bone and may not even leave soft tissue evidence such as a bruise, but are still regularly referred to as violence by both the survivors and our own judicial system, though the viewpoint of the instigator may certainly disagree. What about practices that fall under the realm of structural violence, where certain individuals are denied access to proper nutrition, shelter from the elements, or otherwise denied access to a healthy lifestyle? Eller (2010, 12) ruminates:

> "What do we mean by violence? Again, that may seem perfectly obvious to us. It is not. Notice, for instance, that the language of violence consists of many related and overlapping but non-synonymous terms, such as aggression, hostility, competition, and conflict. Scholars and laypeople often use these terms interchangeably, and interchangeably with violence, but these are not all synonyms…Violence need not even be directly interpersonal, that is, a clear case of one person hitting another person. What has been called structural violence refers to less direct, more pervasive, and sometimes even unintentional or at least "invisible" harm (up to and including real and serious physical harm" caused by the very arrangements and institutions of society."

Eller (2010, 13) goes on to question simple definitions of violence in detail: If physical harm is considered violence, how does one separate a slap from assault or murder? Does self-inflicted injury count as violence? Do both the perpetrator and the victim have to be human, or even animals, for violence to be admitted (i.e. if a human is killed by a virus or bacteria, is that still violence?) (Eller 2010, 13). Does violence imply intentionality (purposeful harm versus accidental or negligent harm), and can such distinctions even be deduced from cases of "violence" in the past?

Eller concludes that perhaps, violence is simply a way of referring to "harm that we do not approve of," harm that carries the added connotation of judgement from the outside observer, rather than participation in the act itself (Eller 2010, 13). This judgement, of course, may not align at all with how such acts were viewed in the archaeological past, and we must use great caution when interpreting such intention and thought. In bioarchaeological terms, Walker (2001, 576) defines violent injury as "injuries for which there is strong circumstantial evidence of malevolent intent." In many cases, intent to harm may be inferred by the location and morphology of injury, based on forensic cases (D. L. Martin and Anderson 2014). In the archaeological record, often the only violence we are privy to is physical violence severe enough to fracture bone, or at least to cause long-term physical evidence (such as extended periods of malnutrition). For the purposes of this research, Walker's definition seems the most useful, but will be broadened to include the effects of structural violence, which may (and often does) precede violent injury. Thus, for this dissertation, violence will be defined as "physical harm inflicted by a person against another person, for which there is strong evidence of malevolent intent, which is directed at the victim's physical well-being, including their life, and possibly also at their spiritual or eternal well-being." Particularly in a culture such as ancient Egypt, it is

important to remember that the physical and spiritual aspects of a person were inextricably linked, and physical harm might also affect or destroy a person's spiritual, eternal well-being (Campbell 2018).

Moving ahead with this definition in mind, it is easy to find examples of such in cultures throughout time and space. Violence "is something of which all human beings seem to be capable, and at the same time an attribute of humanity that we would choose to deny" (Carman 1997, 2). Some scholars have argued that violence is inextricably linked to the human condition, and particularly human spirituality or religion (Burkert 1986; Girard 1979). Violence may be viewed as a tool of power by those both at the top and the bottom of the social hierarchy, as a way to maintain or improve social status (Turpin and Kurtz 1997). And while most people would like to believe that violence happens because "bad" people do "bad" things simply by virtue of being "bad," some of the worst examples of violence have been perpetrated in the name of virtue, honor, and noble ideals (Eller 2010, 11). As Gaiman and Pratchett (2006, 26) pithily noted in their apocalyptic satire *Good Omens*, "Most of the great triumphs and tragedies of history are caused, not by people being fundamentally good or fundamentally bad, but by people being fundamentally people."

These issues of the relativity and variability of how violence is viewed are of particular importance when examining the fragmentary remains of cultures long lost, where eyewitness accounts (biased though such sources may be) and individual memoirs or diaries are rare or non-existent. While we obviously cannot know for certain what these long-dead individuals thought or felt, we must at least consider the possibility that some acts which we consider violent were not viewed as such by the ancient Egyptians.

Sanctioning Violence

While many forms of violence are considered taboo, others are considered acceptable or even desirable under certain circumstances. If violence varies in the definition, understanding violence that is sanctioned is still more troublesome. Yet such distinctions between acceptable and unacceptable violence certainly exist; even a superficial examination of modern Western attitudes toward death quickly yields small but profoundly different connotations in words such as “murder” and “execution,” which produce, for all practical purposes, the same result: death. The circumstances under which killing may be called murder, justice, punishment, or reward are entirely culturally mandated; as Turpin and Kurtz (1997) point out, “Through an elaborate labeling process, the same acts are defined as moral or immoral, legal or illegal, on the basis of the status of both the perpetrator and victim and of the ostensible reason for the actions” (1997, 7, also Turpin 1986, 1995). The same types of acts may be termed “murder” or “execution,” “state terrorism” instead of “counterinsurgency” or “state violence” (Pierre L. van den Berghe 1990, 9).

There is also the question of informal versus formal violence; when does the government overtly control and enact the violence, and when does it turn a blind eye? Can we distinguish between instances of governmental ignorance from those of deliberate apathy? How do the rules change when the actors are perceived as insiders versus outsiders, foreign versus local, us versus them? There must, therefore, be particular (if nebulous) cultural rules defining when violence is considered acceptable, in what circumstances, and directed at which victims. Violence only becomes a social problem, then, when it transgresses against these cultural rules (Eller 2010, 14). And contrary to what one might think, violent acts themselves may not go against cultural rules at all, but rather, may be viewed as acceptable or even required in some circumstances.

State-sanctioned killing often takes the form of public and/or excessive violence, i.e. the use of force above and beyond what is necessary to cause death in the victim, in order to impress upon the intended audience the dangers of disobeying or displeasing the ruling power. Simply killing a member of a rebelling faction may quell part of an insurgency, but such a killing is of limited utility if the dominating power cannot advertise its victory and power in some way. Decapitation, mutilation, or display of a body help publicize the consequences of actions that have been deemed unacceptable by those in power (Solarino et al. 2019). Other types of sanctioned violence, such as the mass sacrifice of servants and retainers or attendants at the death of a ruler, may be intended to impress not by displaying excessive violence, but rather by the conspicuous consumption of multiple human lives. Yet however they are defined, these terms can create a variety of perhaps unintended consequences for analysis; as van den Berghe (1990, 38) notes when discussing modern cases of genocide, "The whole procedure of categorizing a type of genocidal state and filing genocides under it is decidedly cavalier. It reduces the enormity of cumulative human suffering to an abstract category and denudes the individual genocides of their unique qualities."

Violence may be sanctioned at any scale; as Eller (2010, 14) points out:

> The victim of a justifiable homicide is every bit as dead as the victim of an unjustifiable one, and a just war can be even more lethal and brutal than an unjustified one. There is no one-to-one correspondence between the scale and the acceptability of violence: a small incident can be unjustified and a large incident can be justified.

Smaller-scale sanctioned killing may take the form of single or small-scale executions (of prisoners, military captives, dissidents, etc.), and may be considered acceptable only by a few, usually the ruler and/or his followers. Small-scale sanctioned killing need not only be practiced

by a ruler or powerful individual; in the modern United States, an individual is often considered justified in using deadly force if necessary for self-defense or defense of his or her home against intruders (Eller 2010, 14). Larger-scale sanctioned killings may range from execution of large numbers of prisoners or war captives to outright war and genocide (the Holocaust is perhaps the most well-known modern example). It should be noted here that these justifications are by no means permanent, in large part because the justification depends so much on the point of view as well as on power dynamics. The definition of who is a "rebel" and who is loyal changes dramatically when power dynamics shift in favor of one or the other of the groups. We must never forget that in many or even most cases, it is the luxury of those in power to determine what is acceptable and what is not. Even if force is not used to "convince" the populace one way or another, those in power tend to have access to more resources that can be used to persuade or coerce the rest of the populace one way or another.

While it is impossible to fully know or understand the mindset of an individual, living or dead, careful study of cultural norms, through texts, mortuary patterns, religious practices, and archaeological remains, can provide information about broadly held ideas of what is appropriate or inappropriate in particular circumstances. This type of government-supported violence may appear in the archaeological record in various guises, while cases of violence sanctioned by smaller-level communities and groups (e.g. honor killings) may be erased by time and taphonomy. While such localized practices of violence may indeed be state sanctioned in a general sense (e.g. to continue the honor killing example, the government may approve, overtly or by unspoken rule), it is far more difficult to see such nuance in the archaeological record.

Turning to Egypt, what is the evidence for state sanctioned violence in ancient Egypt, and how can we interpret such evidence?

Understanding Violence in Ancient Egypt

The numerous examples of violent imagery in Egyptian art, and to a lesser extent, Egyptian texts, would seem to make a study of violence in ancient Egypt relatively straightforward. References to the king smiting his enemies or trampling the forces of chaos and evil are commonplace, but a closer look reveals that these are a clear and widely applied trope used to demonstrate the king's virility and his ability to fulfill the mythological precedents of kingship (Bestock 2017; Davis 1992). Artistic depictions of sanctioned violence are quite frequent, and often dominate monumental architecture. These images almost invariably depict violence against those perceived to be enemies of Egypt, such as foreign soldiers. Other scenes, as for example at the mortuary temple of Medinet Habu (built by Ramses III during his reign from 1184 to 1153 B.C.E.)[1], show piles of severed hands and male genitalia that had been collected from defeated enemy soldiers as a way of enumerating the defeated enemy (see Chapter 3).

Subjugation of the forces of evil and chaos, as well as foreign armies, was integral to the ideology of the kingship in ancient Egypt. Images of the king, poised to smash the heads of enemy captives, are carved and painted on monuments and objects across Egypt. This so-called "smiting motif" was used by Egyptian rulers as early as the Predynastic Period (c. 5300-3000 B.C.), and conveys a powerful image of the mighty pharaoh about to smash the heads of subdued enemy prisoners or rulers (Figure 1). Certainly these images were intended to send a symbolic message about the divine might of the pharaoh, but there may have been some basis in historical reality as well; at least in some cases, it seems that this symbolic gesture translated into public, physical violence against enemy captives (Filer 1997; Muhlestein 2011).

[1] All dates derived from Shaw, I. 2004. *The Oxford History of Ancient Egypt*. Oxford; Oxford University Press.

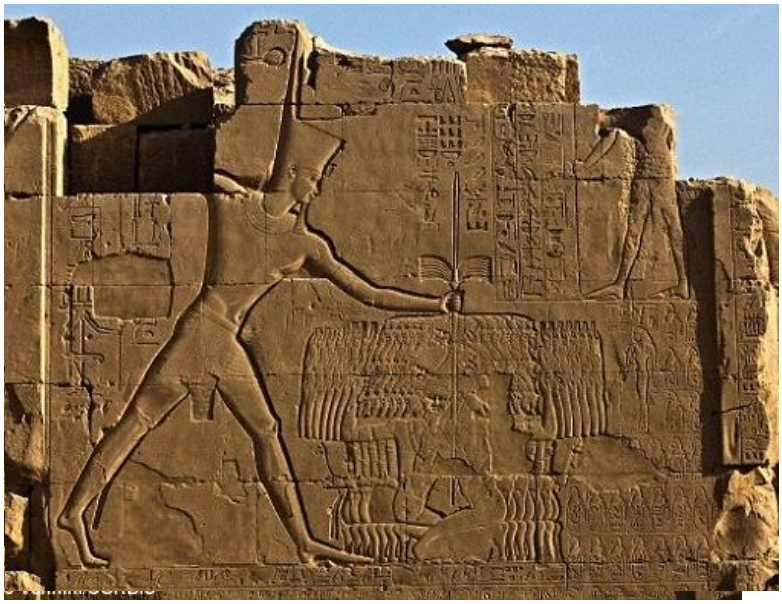


Figure 1: The Egyptian king Thutmose III grasps numerous enemies by the hair, preparing to smash their heads with his mace in a show of power and dominance. Photo by the author.

Some texts (such as the Amada Stela of Amenhotep II) seem to indicate that the pharaoh occasionally killed defeated rulers with his own hands (Filer 1997; Muhlestein 2011), and a bound and decapitated body found at a New Kingdom temple in southern Egypt may lend credence to the ritual killing of captives for important ritual events or purposes, such as temple construction (Johns Hopkins University 2012). Davis (1992) argues, however, that these scenes are designed not to mirror reality, but to mask reality and reinvent the narrative, an interpretation that seems highly likely given the standardization and clear propagandistic and ritualistic nature of the scenes of the king smiting and conquering. Yet despite the plethora of images showing a violent king unleashing violence in various circumstances, there are no direct or explicit depictions of human sacrifice in ancient Egyptian art or text; some potential references to such practices are generally oblique and interpreted as symbolic, particularly since they tend to occur in abstruse religious texts (Eyre 2002) or ambiguous images (Baud and Etienne 2000).

The veracity and accuracy of such images, and their link to reality (if any), has been discussed at length in the literature, with the general conclusion being that while there be may some link to reality in some of these scenes, it was historicity that was sought over accuracy (Bestock 2017; Davis 1992). Most of the extant Egyptian art was state sponsored, as were the monumental texts on stone that have survived long after more mundane texts on scraps of stone or pottery have been lost or broken, and were concerned with presenting a carefully curated version of events and history, in line with Egyptian ideology about the importance of maintaining social order and the status quo. Regardless of the accuracy of such depictions and descriptions, the Egyptians were clearly perfectly willing to show violence, particularly royal violence, under certain circumstances in their monumental architecture. So why are there no clear artistic depictions of human sacrifice (though some have cited a label of King Den as perhaps depicting ritualized killing) (Bestock 2017)?

A few texts contain brief and often oblique references to capital punishment, which was seemingly only enforced in cases of robbery of royal tombs or regicide (Muhlestein 2008, 2015, 2011; J. Tyldesley 2000). Interference with the divine cult (e.g. robbery of temple property) also elicited severe punishments, and some scholars believe that punishment for such offenses included mutilation and destruction of the perpetrator's body by fire, in life or after death (Muhlestein 2008, 2015, 2011; Willems 1990). Such a punishment would have lasting effects beyond death; without a body, the deceased would not be able to enter the afterlife, and his or her spirit would be doomed to wander restlessly between worlds for all eternity (Leahy 1984; Willems 1990).

Could this mean that human sacrifice did not occur? Or if it did, why was it shielded from view in the artistic and textual record? And if it did occur, why, and how, is this particular type

of human sacrifice, and subsequent sacrificial burial, different from other types of state-sanctioned killing? What evidence do we actually have for human sacrifice, and sacrificial burial from ancient Egypt?

Human Sacrifice in Egypt: An Overview of the Evidence

Human sacrifice, if indeed it did occur, was a short-lived practice in ancient Egypt, and seems to have been practiced only at early stages of state formation in the First Dynasty (Bestock 2011). Reasons for the short life of this practice are considered in detail in Chapter 7. The first kings of the newly (more or less) unified Egypt encircled their royal tombs and separate funerary enclosures (of uncertain use but most likely for funerary rituals) with a row of simple burials (Morris 2007; Petrie 1900; 1925). Most of these subsidiary graves were originally excavated in the early 20th century. The subsidiary burials are characterized by their orderly and discrete organization around a royal tomb and/or royal tomb enclosure, and typically include few grave goods (Morris 2007). When grave goods are present, they may include vessels, jewelry, tools, weapons, or sometimes items interpreted as referencing the profession of the deceased (e.g., small boats or paints) (Morris 2007). The Egyptian belief in an afterlife much like an idealized earthly life encouraged individuals to take items with them to the grave, ranging from simple pots in poorer burials to the elaborate and costly funerary assemblages of the kings.

Thus far, scholars are generally in agreement. It is on the question of how and when all these individuals ended up in deceased in the same place that arguments begin to arise. Based on the observation that the individuals surround the royal tombs of this period appear to have been deposited and their simple graves closed all in one event, while the wall bricks were not yet fully hardened by the Egyptian sun, (Kaiser 1985; Morris 2007; Petrie 1900, 1925). Perhaps, the

argument goes, human lives were simply another form of burial goods intended to accompany the pharaoh into the afterlife, as was the case with Chinese soldiers and servants sent into the afterlife to serve their deceased lord (Jiao 2001). And while this certainly seems to be a reasonable assessment, the fact remains that in general, this conclusion is based on the words of archaeologists a century ago, without further assessment of the human remains or the data retrieved from the burials. The time has come to turn a critical and holistic lens on this data and the excavation records and reassess whether these original conclusions are actually valid.

Almost all of the graves holding possible victims of sacrifice were badly disturbed before they were excavated by modern scholars, so it bears considering whether Petrie's interpretation was in error or wishful thinking, based in a desire to find a site as exciting as the mass burial pits excavated by Woolley around the same time at Ur (though Woolley's most spectacular finds came at the end of the 1920s with the burial of Puabi, as well as the Great Death Pit, several years after Petrie's publications about the courtiers' burials) (Woolley and Burrows 1934). Abydos in particular has been used as a cemetery for thousands of years, and it is no wonder that after even a few centuries, specific grave locations might have been accidentally encountered while digging new ones, particularly in the absence (by decay or original absence) of a superstructure. At the tombs of Semerkhet and Qa'a, it is clear that both the main burial and those of the retainers were covered at once by the superstructure, leaving little room of disagreement regarding the timing of all of these deaths (Wengrow 2006). Despite the recent upsurge in studies of violence in the past, a holistic study of these graves, their occupants, and the cultural context of their interment has yet to be undertaken; while Bestock (2009; 2011) has compiled excellent summaries of the tombs and their contents, the bioarchaeological perspective has not been included.

The Gap in the Literature

Recent scholarship has yielded noteworthy studies analyzing and contextualizing violence in past cultures throughout the world (Campbell 2013; Martin and Frayer 1997; Martin, Harrod, and Pérez 2012; Martin and Anderson 2014; Knüsel and Smith 2013; Ralph 2014). Human sacrifice specifically has been discussed throughout the world, on nearly every continent (Baadsgaard et al. 2011; Benson and Cook 2001; Bourget 2016; Bremmer 2007; C. A. Murray 2017a; Geller 2011; Aldhouse Green 1998; Hughes 1991; Ludes and Crubézy 2005; Porter and Schwartz 2012; Read 1998; Sugiyama 2005). Egyptologist have only treated violence sporadically and as isolated cases; some authors have addressed textual and artistic evidence for capital punishment (Tyldesley 2000), or warfare (Darnell and Manassa 2007, Spalinger 2005), while others attempted more holistic views of violent killing in ancient Egypt but did not analyze human remains (Muhlestein 2008, 2011, 2015). Bestock (2017) presents the most complete study of the imagery of violence before the New Kingdom, but also does not address anthropological or bioarchaeological evidence for violence.

Human sacrifice specifically tends to merit a brief mention in Egyptian history texts, with little discussion for or against the occurrence of the practice (Shaw 2004; Wilkinson 2001). Some authors, like Wilkinson (2001) and Wengrow (2006) treat the occurrence of human sacrifice in the First Dynasty as more or less a given, while others suggest that there is little to no evidence for the practice (Baker 2016; J. Tyldesley 2000). Regardless of opinions for or against the practice of human sacrifice, arguments have tended to rely almost exclusively on the statements of early excavators, particularly Petrie. Since Petrie was a careful excavator and was responsible for the excavation of most of the subsidiary graves at Abydos, this reliance is somewhat understandable. However, it has now been a century since Petrie's excavations, and methods for skeletal analysis, as well as knowledge of ancient Egyptian culture, funerary

customs, and history, have advanced considerably. It is clear that a fresh look at the evidence for or against human sacrifice in ancient Egypt is called for, if only to confirm or deny Petrie's statements.

The Data for this Dissertation

The data for this dissertation derives from a variety of sources. Since all of the subsidiary graves were excavated over the course of the last century or so, publications of these excavations are utilized wherever possible. The excavation notebooks from Petrie's excavations of the royal funerary enclosures were also consulted, thanks to the generous permission of Anna Stevenson at the Petrie Museum in London.

As a bioarcheologist as well as an Egyptologist, my particular area of interest is skeletal remains, which are unfortunately few and scattered with regards to the First Dynasty subsidiary burials. Even the remains that are preserved are incomplete and some are inaccessible for research. The individuals analyzed in this dissertation derive from subsidiary graves surrounding the First Dynasty royal enclosures at Abydos, specifically those of Djer, Djet, and Merneith. W.M.F. Flinders Petrie, who excavated most of these burials, noted that none of the skeletal remains exhibited any perimortem trauma, but the unusual position of the bodies in the graves led him to conclude (perhaps somewhat sensationally) that the individuals may have been buried alive (Petrie 1925). While most scholars dismiss this interpretation as overly dramatic, if all the graves were closed at the same time then it does seem unlikely that hundreds of individuals would have died of natural causes in such a short time span (i.e. presumably within a few days, allowing the bodies to be buried before decomposition had advanced and putrefaction occurred). As was traditional for many archaeologists of the early 20th century, Petrie reburied the

postcrania, stating only that they were reburied somewhere in the Shunet el-Zebib (the nearby funerary enclosure of the Second Dynast king Khasekhemwy) and distributed the crania (those that were well preserved and of interest) to various museums (Petrie 1925). The crania that he kept were mostly divided between the Natural History Museum of London (the crania from the subsidiary burials around the royal tombs) and Cambridge University (the crania from the subsidiary burials around the funerary enclosures). The crania at the Natural History Museum have unfortunately been unavailable for analysis for several years due to museum renovation and restoration. Forty-eight of the crania, as well as three mandibles, from the funerary enclosure subsidiary burials are part of the Duckworth Collection housed at the Leverhulme Centre for Human Evolutionary Studies at Cambridge University, and are included in this dissertation. These crania have remained relatively ignored for the better part of a century, with the exception of a few studies focused on particular aspects of the remains (e.g. Keita and Boyce 's 2006 use of porotic hyperostosis as an indicator of general health). Photographs from the original excavations of these tombs are also examined for any additional information regarding the individuals in the subsidiary tombs.

A Note on Terminology

There are several terms used throughout this dissertation that should be clarified from the outset. Of particular importance is the distinction of Upper and Lower Egypt. Because the Nile flows from south to north, the Delta region in northern Egypt is known as Lower Egypt, while the Nile Valley south of the Delta is referred to as Upper Egypt, a convention that dates to ancient Egypt itself. The term “Egypt” is used throughout this study, though in fact this is a later name with ascribed political boundaries, for the sake of convenience.

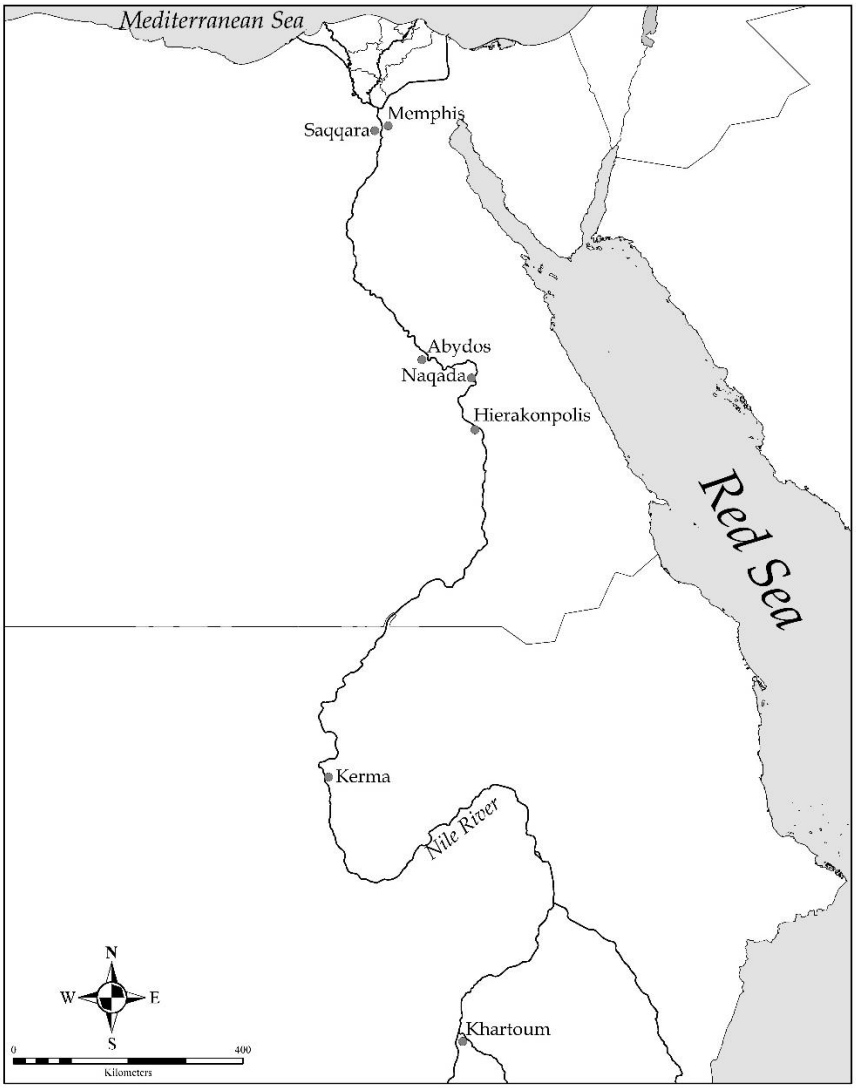


Figure 2: Map showing the modern boundaries of Egypt and Sudan, as well as important ancient sites mentioned in this study. Map by A. Karoll.

Similarly, the term "Nubia" is used to refer to what is now northern Sudan, approximately as far south as modern Khartoum, where the Blue Nile and the White Nile divide. The use of the word Nubia is perhaps even more problematic than the use of the word "Egypt," as various polities and cultural traditions rose and fell along this stretch of the Nile Valley in modern Sudan throughout the course of Egyptian history. Nevertheless, the term has been retained here for reasons of comparability with other materials, as well as to indicate that in

many cases the exact cultural affiliation (C-group, Kushite, Kerman, etc.) of individuals from the Nubian region is not known for a variety of reasons.

Structure of this Dissertation

The aim of this dissertation is twofold: first, to provide a thorough assessment of the evidence for or against the practice of human sacrifice in First Dynasty Egypt, and second, to assess the broader context of violence and human sacrifice in the ancient world. Of course an exhaustive survey of human sacrifice in antiquity is far beyond the scope of any single work; instead, I will focus on the ways that human sacrifice may be used as a tool by those in power, and how human sacrifice may be perceived as violent or non-violent, based on the cultural context. To do this, I will first explore the ways that we define, understand, and identify human sacrifice in the archaeological record (Chapter 2). Chapter 3 will discuss ideas of ritualistic display and violent performance, particularly regarding issues of identity and selection of victims for sacrifice. A description of the materials and methods used in this study may be found in Chapter 4. Chapters 5 and 6 will focus on the evidence from subsidiary burials in ancient Egypt: the tombs themselves and the bodies within those tombs, respectively. Only after all the data is presented will I return to the discussion of why and how human sacrifice may have been practiced in ancient Egypt, and explore evidence for the development and decline of what appears to be human sacrifice and sacrificial burial. I will then assess the mechanisms for the transfer and manufacture of power, particularly via human sacrifice, in ancient societies such as Egypt, before finally assessing how we might interpret the evidence from ancient Egypt, and how such interpretations might affect the way that we understand ancient Egyptian civilization and history.

Chapter 2 – Sacrifice and Sacrificial Burial

Introduction

First and foremost, this dissertation is concerned with assessing evidence for possible human sacrifice in the Early Dynastic Period of ancient Egypt. In this chapter I compile comparative, well-documented examples of human sacrifice around the world, and analyze archaeological data to create a picture of the social, political, historical, and environmental context for these instances of ritualized killing;

Across time and space, nearly every culture has had some form of sacrifice; this comes as no surprise, since, as Stevens Jr. (2017, 22) points out, humans are "cognitively similar around the world and throughout history," and thus "tend to arrive at very similar solutions to the most fundamental problems of life". Perhaps even more so than other types of state-sanctioned violence (such as public execution), human sacrifice provides a powerful and visceral tool for rulers to promote order, social identity, group cohesion, and control. Human sacrifice is a topic that has been addressed at length in the literature (Baadsgaard et al. 2011; Bonnechere and Gagne 2013; N. Davies 1988; Porter and Schwartz 2012; Recht 2018), and is well attested throughout the world. Examples range from the retainer sacrifices in Mesopotamia (Baadsgaard et al. 2011; Molleson and Hodgson 2003; Porter 2013; Porter and Schwartz 2012) to the blood sacrifices of the Aztecs and other groups in Central and South America (Benson and Cook 2001; Carrasco 2000; H.D. Klaus, Centurión, and Curo 2010; Read 1998). These studies encompass vast periods of time to include possibilities of sacrifice such as the well-known European bog bodies (Berggren 2017; Connolly 1986; Kelly 2013; Lobell and Patel 2010; Parker Pearson 1986), Iron Age Celtic burial deposits (Voigt 2013), and Paleolithic group burials in Eurasia (Formicola 2007). Sacrifice is particularly well attested in the context of early state formation or

times of crisis, such as the death of a powerful ruler (Morris 2007). While evidence for human sacrifice in some cultures is somewhat obscure (e.g. there is circumstantial evidence suggesting that the ancient Hebrews at least occasionally practiced, or at least were familiar with, human sacrifice; cf. Anderson 1987), other regions have yielded bountiful evidence of the practice (Eller 2010).

Such a discussion must inevitably involve some assessment of the nature of ritual. In some ways, ritual may be viewed as the transforming element that can turn murder into sacrifice, violence into nonviolence, and make the heinous acceptable or even desirable. Ritual may encompass an immense and diverse array of actions, and may be sacred or profane, but in some way imbues actions with additional meaning. Here already we encounter problems, as separating the sacred from the profane is a modern, largely western approach, and it is all too common in archaeological literature to dub any practice we do not entirely understand as ritualistic in nature. Even sacrifice, which is almost always associated with religion of some kind in scholarly discourse, may be profane to our eyes (Berggren 2017). Ritual, whether profane or sacred in our interpretations, has a powerful transformative effect, making mass killing of local inhabitants required or even desirable and turning food and drink into sacred sustenance. Though a complete discussion of the process and nature of ritualization is far beyond the scope of a single dissertation, this chapter will attempt to explore the ways that ritualizing an action changes the perception and nature of that action.

Before I turn to the Egyptian evidence, it is important to know what sort of evidence might be expected in a case of human sacrifice from an archaeological context. Even more importantly, how do we identify sacrifice in the archaeological record, and how might we interpret the presence of, and variation in, sacrificial practices?

What is Sacrifice?

The complexity of interpreting remains that are believed to be sacrificial is well illustrated by an example described by Aldhouse Green (Aldhouse Green 2002). The body of a decapitated man was found near the cremated remains of a warrior from the Archaic-Geometric period (first millennium BCE) in Crete (Stampolidis 1996). The excavator originally identified this individual as a slave, intended to accompany the deceased heroic warrior into the afterlife (Aldhouse Green 2002; Stampolidis 1996). Others have interpreted this individual as an example of revenge killing by relatives of the cremated individual and have suggested that the lack of cremation and grave goods (both markers of Cretan noble status) were designed to shame the decapitated individual or indicate his low status (Aldhouse Green 2002). There is a vast chasm in interpretation between the identification of this individual as a glorified slave following his master to the afterlife and a revenge killing.

Understanding sacrifice is difficult even in more modern examples, which have been described in detail by ethnographers, much less in ancient societies that left incomplete or equivocal records of sacrifice, if any. Examining such records is not without complications; as Anderson (1987, 12) notes,

> The propensity of modern scholars to describe the thought of ancient civilization through its mythological and ritual texts is a highly selective procedure. Yet, it is to these very texts that scholars turn in hope of discerning the ancient's views on the relationship between fertility and agriculture. These mythological texts obviously emphasize supernatural and sometimes "irrational" concerns. Yet the mythic texts comprise only a small percentage of the information which is available for the study of ancient civilizations. The mythic view is hardly the perspective of everyday affairs…Secondly one should be cognizant of the context of a ritual or symbolic statement. What often appears *prima facie* irrational often fits quite well into a larger symbolic frame. Finally one must be cognizant of the fact that modern culture devalues religious ritual and that this devaluation has affected the way scholars approach the study of ritual."

Given the variation in sacrificial practices around the world, and the problems associated with uncritically accepting ancient records of sacrifice, it is clear that a broad definition of sacrifice is necessary. Hubert and Mauss (1964) note that all sacrifice consists of communication between the profane and sacred worlds, with the victim (who is often destroyed) as the mediator. Schwartz (2012) and Tatlock (2006) have defined sacrifice as a sacred killing that is intended to directly affect the suprahuman (i.e., supernatural) realm. Stafford (2006, 775) describes Greek and Roman sacrifice as a "central act of…religious ritual, an offering to the gods, heroes, or the dead." Murray (2017b, 5) emphasizes the transformative and communicative role of sacrificial ritual, granting not only a link between the realms of the mundane and the sacred, but also bestowing "specialized social roles" on the participants. Stevens Jr. (2017, 16) provides perhaps the broadest definition of all, describing sacrifice as the act of "giving up something valuable…to supernatural agencies." Aldhouse Green concurs, noting that, "The two major factors in sacrificial ritual are giving and separation. The offering has to be acceptable to the being in receipt of the gift; the sacrifice has to be separated from the profane world and be treated in a manner that connects it to that of the spirits" (2001, 181). These definitions clearly articulate the important role of sacrifice as a method of bridging both the natural and supernatural worlds, a distinction that allows us to separate even large-scale human sacrifice from massacres or genocides that are politically motivated but have no intention or consideration of the supernatural world (N. Davies 1988).

Yet here too we must be careful, as our divisions of the sacred and mundane certainly do not hold in most, if any, ancient societies (Berggren 2017). Ritual is assumed to be religious, and thus "profane rituals or other formalized activities are seldom discussed alternative interpretations" (Berggren 2017, 33). In some cases, Berggren (2017) notes, the term "ritual

deposition" may be more appropriate than "sacrifice," since the latter term has accrued a great deal of interpretative baggage over the last few centuries of anthropological research. Using the term "ritual deposition" in some cases also has the advantage shifting the focus from the ultimate result to the act of deposition itself (and thus perhaps the act of killing, by extension).

Clearly not all sacrifice was intended to have the same effect, even if we only restrict ourselves to human sacrifice. Berggren (2017) notes that in addition to the problems of understanding ritual and practice in very ancient societies, there are also several deep-seated assumptions that are encountered in the scholars who do address such issues, including the tendency to lump all types of sacrifice together, despite the very obvious variations in every aspect of the practice that appear on a slightly deeper investigation. Murray (2017b) notes numerous different types of sacrifice: civic and private, animal and human, bloody and bloodless. In the case of the Central and South American human sacrifices, rituals often involved much bloodshed and pain, because part of the purpose was to share or release the sacrificed individual's life force, often with the sacrificer or victor (Benson and Cook 2001; Geller 2011; H.D. Klaus, Centurión, and Curo 2010; Read 1998). Sacrifice does not always involve death or even great suffering; plants or objects are often considered sacrifices, and in some cultures and rituals, the sacrifice of some blood (not necessarily actually causing death) may be sufficient for ritual purposes (Eller 2010, 82–83; C. A. Murray 2017a). In some cases, both animals and humans may be sacrificed as part of divination rituals; both Tacitus (Annales 14.30) and Diodorus Siculus (5.31.3) record how the Celts in Britain killed human victims in order to consult the entrails, the blood leaving the victim's body, and any post-mortem convulsions (de Grummond 2017).

An underlying element in sacrifices of humans and animals is often blood. As Stevens, Jr. points out, "blood is at once real *and* symbolic…it is the essence of life; it is life" (2017, 25). Blood is linked to violence, sexuality, and life itself (Aldhouse Green 2002). The loss of too much blood means the loss of life, and even if death does not result, Aldhouse Green (Aldhouse Green 2002, 81) notes that "its bright colour and the way it spurts from a deep wound contribute to its association with terror."

Human sacrifice is also sometimes associated with the construction of new buildings or important constructions such as bridges or town walls (N. Davies 1988). These latter represent boundary zones, areas of liminality that are inherently dangerous (i.e. a wall as a protector of the interior safe part of the town against invaders), and thus are often accompanied by rituals that may involve the sacrifice of animals or humans (N. Davies 1988).

Based mainly on close studies of inscriptions on oracle bones, Ying (2009) has identified two types of human sacrifice in China during the Late Shang period (c.1600-1046 BCE), which are broadly applicable to the practice of human sacrifice in most areas of the world. The first type is consumptive in nature, and primarily emphasizes the act of sacrifice as consumption of an object or a life (human or animal), and as an offering to a deity, force, individual, or the like. During the Late Shang period in China, the victim of such sacrifices was typically a war captive (Ying 2009, 10). This type of sacrifice is more likely to be violent than the second type of sacrifice (see below), as part of the consumptive nature of the sacrifice may dictate the deconstruction of the victim and/or the need to make a performance of violence. For instance, sacrificial victims in the American Southwest during the Pueblo I period (approximately 710-825 CE) were brutally beaten around the feet and ankles and effectively hobbled before execution, a

practice that was almost certainly intended both to increase and to emphasize the helplessness of the victim (Osterholtz 2012).

The second type of sacrifice focused less on consumption, instead emphasizing sacrificial victims as companions in death (Ying 2009, 10). This group of victims was typically composed of those with some sort of relationship to the deceased, such as personal attendants, dependents, or relatives. During the Late Shang Period, this category of victims was known as Renxun (Ying 2009, 10). The classic example of this type of sacrifice during the Third Millennium is the hundreds of personal attendants sacrificed and buried at the Royal Cemetery at Ur (Baadsgaard et al. 2012). Though violence is not uncommon for these types of sacrifices (Baadsgaard et al. 2011; Baadsgaard et al. 2012, 145; Molleson and Hodgson 2003), the act of destroying the offering (i.e. the human being) is typically secondary (or even unaddressed) to the need for service and/or companionship in the afterlife.

How then can we understand these very different types of human sacrifice? Valeri (1985) proposed a classification system based on the deity for which the sacrifice was intended, creating three categories: nomocentric (for deities that protected social groups), ergocentric (for deities that oversaw craftmanship and other economic activities), and genocentric (offerings associated with consumption, such as offerings of the first annual harvest) (Stevens Jr. 2017). Yet these categories may not be too simplistic, since many examples of sacrifice may span more than one of these categories. For one thing, not all sacrifices are intended for deities per se, but may be intended to provide helpers for a deceased ruler or important person in the afterlife. Retainer sacrifice (i.e., the sacrifice of members of the court, often including officials, wives and concubines, and servants or slaves) appears in cultures all over the world, appearing by at least the early Neolithic in China and continuing well into the 20th century in Africa (Bonnechere and

Gagne 2013; Recht 2018; Porter and Schwartz 2012; Testart 2004). In many cases of retainer sacrifice, victims are obtained from within the community, often those who were closely associated with the primary deceased before his or her death. While the killing of invaders or prisoners of war may be accepted readily, the killing of community members might be harder to sell to the community at large.

What is the underlying element, then, that transforms random killing into a ritualized act? As in other cases of state-sanctioned killing, such as massacres or genocides, there is a process by which violence becomes not only a necessary course of action, but the *best* course of action. The most powerful tool of an authoritarian, according to (Zimbardo 1973) psychological studies of violence, is that of ideology.

Ideology

Perhaps the single most important factor in a study of violence, and sanctioned violence in particular, is ideology. While ideology is frequently conflated with religion, ideology need not be religious in any way to be powerful. What is most important for studies of violence is that this ideology create a strong, unifying sentiment. It should be no surprise that such sentiments often (but certainly not always) derive from religion, the realm connecting the natural world with that of the supernatural.

In the modern world, examples of state-sanctioned violence are often linked to religion, either in reality or in the minds of the public. It should be noted here that while examples of violence in the name of religion occur throughout the world in many time periods (e.g. the Crusades are an obvious example), in more modern examples such religious violence tends to occur due to religious *differences*, i.e. disagreement on the fundamentals of the ideology which,

being of a religious nature, have both earthly and spiritual, often eternal consequences. Violence in the name of religious differences does not seem to have been a feature of ancient Egypt (though Egypt is not the only exception by any means). That is, while violence certainly occurred as an aspect *of* religion (e.g. sacrifice, particularly of animals, was very common), there is no evidence of violence being enacted *due to* religious differences; we have no solid evidence of persecution for differences in religion (even during the time of Akhenaten's shift from polytheism to henotheism, there is no evidence that followers who did not entirely embrace the new religious idea were actually punished) or for "heresy" of any kind. This may be due in part to the polytheistic nature of Egyptian religion; as in many polytheistic societies, new or even opposing religious ideas or deities are generally tolerated or even syncretized with local deities rather than perceived as a threat.

Such unifying ideologies need not necessarily be negative, but the strongest unifying forces are almost invariably negative: fear, suspicion, and particularly hatred (Eller 2010; Hoffer 2010). The factual basis (if any), and indeed the details, of such a doctrine are largely irrelevant in many ways; what is important is the conviction of the believers that this doctrine is correct and right (Eller 2010; Hoffer 2010). Such conviction tends to derive from a type of moralism that is frequently (but not always) found in religion, particularly monotheism, since polytheistic religions tend to be more flexible about alternative interpretations (Dunand and Zivie-Coche 2005; Eller 2010; Hoffer 2010). As Eller (2010, 41) points out,

> "if the actors feel that they are absolutely right and absolutely good, the potential for compromise with other groups is strictly reduced; we do not bargain with evil or error, we destroy it. [And] if the ultimate good and truth is so valuable, so inevitable, yet so threatened, there is no sacrifice too great to make on its behalf."

Such fervent dedication is intensified still more when the struggle goes beyond earthly concerns and includes concepts of a cosmic battle between good and evil, right and wrong, that holds the very existence of the world in balance (Bromley and Melton 2002; Eller 2010; Girard 1979; Vries 2002). With such high stakes, "violence…can become not only a necessary evil but a noble and purifying act in its own right" (Eller 2010, 42). In this light, it should be no surprise that religion is so often a factor in violent struggle, as religious ideals provide such a powerful motivating factor and are able to "create a reality in which violence is acceptable, necessary, and even desirable" (Appleby 1999; Bromley and Melton 2002; Eller 2010, 79; Hoffer 2010; Kakar 1996; Kitts, Juergensmeyer, and Jerryson 2013; Vries 2002).

According to Lemarchand (1990), terrorists and revolutionaries typically call for vague but illustrious ideals such as "'liberty,' 'equality,' 'new kingdoms of righteousness,' and so on. Many terrorist movements are motivated by religious or political objectives and are fired by what Weber calls conviction ethics, ethics that are absolute and allow no external critical evaluation. They seek an eternal hierarchical ordering of values, dividing the world into true believers and outsiders" (Lemarchand 1990, 210). While such ideologies need not be religious in nature, constructing categories of absolute good vs. absolute evil creates a context in which any violence, any sacrifice, any atrocity, is not only necessary but good and noble, and any enemies must be annihilated completely.

This type of absolutist ideology leads easily into polarization and separation of "us" from "them," i.e. we that hold to the truth or what is right, and those who reject it (Eller 2010, 41; Said 1979). This leads us to the next important consideration in cases of sacrifice: who, or what, is being sacrificed?

Who/What is Sacrificed

While animal sacrifice seems to have been more widespread throughout history, human sacrifice occurred through the world as well. Eller (2010) points out two key overarching differences between animal and human sacrifices, in Africa specifically but also in other areas of the world:

> "frequently, the processes of sacrifice were similar whether the victim was an animal or human. However, there were two major recurring differences. The first was scale: religions have seldom called for the mass sacrifice of cows or sheep but often the mass sacrifices of humans. The second was intensity of suffering. Seldom did societies go out of their way to torture and prolong the agony of animals. But, as Davies reminds us, 'man was often deliberately made to suffer as a preparation for death. No one thought of scalping a ram, though in Africa animals were sometimes ill-treated'" (Eller 2010, 97).

From an economic standpoint, both animal and human sacrifice is a loss of valuable resources. Animals provide food (whether as by-products such as milk or as meat), as well as material for textiles, leather, and bone tools. In societies such as the Nuer, cattle were considered a suitable substitute for a human victim in blood feuds, because of the vital importance of cattle to all aspects of Nuer society (Evans-Pritchard 1940; Hurn 2017). Perhaps to a lesser extent, the offering of sheep in ancient Israel was also understood as a substitute for human victims, so integral were these livestock to pastoral life (Hurn 2017). Humans, of course, provide a means of increasing the population and a source of labor and skill. The difference, then, must be in the respective values of the animals versus the humans, and perhaps in the emotional impact of sacrificing one over the other.

Human sacrifice may seem to be one of the most violent and heinous offenses possible: the sanctioned or even celebrated killing of members of one's own population, one's own community, at least from an outside view. Perhaps this is part of the reason why human sacrifice is often treated as an aberration by scholars, despite observations in cultures throughout the

world and across many millennia for human sacrifice of all kinds, in addition to the sacrifice of animals. And indeed, it seems likely that there was sometimes resistance to human sacrifice in societies that practiced it, which may be why human sacrifice tends to be so thoroughly ritualized. Even in cases where the audience for such sacrifice is unknown and was perhaps not large, the elements of performance and ritual are notable (e.g. in the case of the bog bodies discussed below).

Here, however, we must check our interpretations and examine our own ideas of value. To a modern Western audience, human life is often considered "the highest, most costly, powerful, or meaningful type of offering to lose through sacrifice" (C. A. Murray 2017b, 9). We must consider, however, that in some cultures, and in some circumstances, human life might have been viewed as equal to, or even of lesser value than, animal life (or even plant life, perhaps). In societies with food shortages or food anxiety, animal life may have been viewed as more valuable, particularly if the human sacrificial victims had been othered in some way (e.g. dehumanized as outsiders or freaks) to make them less than human. Particularly in cases of religious sacrifice, where the sacrifice is made for some higher ideal, the loss of earthly life may be considered of little consequence.

Conversely, in some cultures, it is only certain human lives that are more valuable than animals, while others (some type of outsider, who has been "othered" and in many cases dehumanized in some way) are less valuable or perhaps not even considered human. It is much easier to depersonalize and dehumanize a stranger, perhaps from a foreign and misunderstood land, than your neighbor, someone you may have known your entire life (Geller 2011). Perhaps it is for this reason that many cultures obtain victims from outside of their own culture. The Maya, for instance, often sacrificed children that had been kidnapped or purchased from other

communities (Fancourt 1854; Geller 2011; Romey 2005). Of course, in this case the loss is felt not necessarily by the community doing the sacrificing, but by the community who (often unwillingly) provided the victim (C. A. Murray 2017b).

The case of the Maya brings up another aspect of human sacrifice that must be addressed: who is selected, and why? There are a wide range of victims selected for human sacrifice in different cultures, varying not only with culture but also with the type and purpose of the sacrifice.. Integral to the issue of who is selected for human sacrifice is the idea of relative worth: some human beings are perceived as more valuable than others, for myriad reasons that depend on the larger cultural context. In some rituals, particularly sacrifices that are intended to appease or petition deities, the perceived purity of the victim is vital. In the case of the Maya, for example, children were believed to be more pure, and to have closer links to the supernatural realm (Geller 2011). In the ancient Mediterranean as well, children were often believed to be more pure than adults, and thus to have a predilection or special ability in divination (de Grummond 2017; Johnston 2001). Children were also sacrificial victims in parts of Britain before and during the Roman period, though adults were often sacrificed as well (Aldhouse Green 2001).

In cases of retainer sacrifice, and sometimes child sacrifice, the victims are often members of the local community. In other cases, such as the sacrifice of captives or prisoners of war, the victims are, by definition, outsiders in some sense, even if the definition of "outsider" is recent and fluctuating. The relationship between identity and human sacrifice is discussed further in Chapter 3, as this complex topic deserves more detailed attention and exploration of the reasoning behind the selection of victims.

Stevens Jr. (2017, 24) notes that an important aspect of sacrifice, often missed by scholars and early anthropologists, was the fact that the material properties of the sacrificial victim or object are not actually what is being transmitted; rather, it is the "mystical essence" of what is being offered. While this is certainly true in the case of food and object offerings, as well as animal and in some cases human offerings, I would argue that this is only partially true for cases of retainer sacrifice, i.e. when specific individuals from the ruler's court or family are sent with him to the grave. In a sense, it is the essence that is being offered, but it is also the material properties: if it was only the essence, then presumably any individual could stand in for a concubine or court official. Instead, however, the actual court officials or concubines (among others, of course) are sacrificed instead, suggesting that it is partly the essence, and partly the material properties and skills of that individual in particular that are desirable in the afterlife. That is, part of the purpose of the sacrifice is a distinction between death to appease or negotiate with a supernatural power, and death to live, and serve, again in the afterlife.

In Egypt, votive offerings of animals, often deliberately killed, occurred in the thousands throughout Egyptian history. These offerings were often accompanied by entreaties to the deity with whom the animal was associated, in the hopes that the offering a sacred animal would entice the deity to grant the request (Dunand and Zivie-Coche 2005; Teeter 2011b). Objects were also offered up, sometimes as vessels containing food or drink offerings for the deities and sometimes as a medium for a written request to the deity (Dunand and Zivie-Coche 2005; Teeter 2011b).These are obviously quite different in intent and appearance than the offering of human lives to serve, rather than be received, by a deity.

Of course, who or what is sacrificed depends in large part upon the purpose and context of the sacrifice. While there is obviously a daunting (if not practically infinite) array of

possibilities for social rules and contexts for the sanctioning of ritualized violence and killing, there are some broad cultural patterns that can be detected, not only in the present but also in the past.

When Does Sacrifice Occur?

Various methods of categorization have attempted to sort different types of sacrifice in categories, based on the circumstances in which sacrifice occurs. A broad system of categorization might include both calendrical (centered around seasonal events, agricultural or vegetation cycles) and critical sacrifices (i.e. sacrifice that occur in response to an unexpected event or crisis, whether natural, political, or social) (Stevens Jr. 2017; Winkelman 1998). In societies that depended so heavily on the natural environment around them, as so many early states relied on agriculture and consistent harvest, the threat of crop failure was ever present, and certainly sacrifice often is associated with fertility, both before and after successful harvests (Descola 2013; Descola and Pálsson 1996). Of course, groups of calendrical and critical sacrifices still do not entirely cover all types of sacrifice: in some cultures, sacrifice occurs at specific life stages, points that could be considered both calendrical and critical (i.e. in the danger or excitement of leaving one part of life behind and entering a new stage) (Stevens Jr. 2017). Even within these categories, there is some ambiguity; many cultures practice sacrifice before going into battle, yet this is not generally calendrical, nor is it necessarily unexpected. Sacrifices (not necessarily human) may also be far more frequent; in ancient Canaan and Israel, sacrifices could occur as gifts for a deity, communion with a deity, or as atonement for wrongdoing, suggesting that these sacrifices likely occurred very frequently (G. Anderson 1987). In ancient Athens, calendars of days on which sacrifices (again, probably not human sacrifices in these

cases) should be offered by private citizens listed dozens and dozens of offering days (Gargarin 2017).

Retainer sacrifice specifically seems to have primarily been practiced in two main cultural contexts: times of crisis, and the birth of a new state or form of government (Cameron 1987; Kuhrt 1987). The first occurs during times of crisis, such as the death of a ruler or environmental stress (Walker 1989). Sagan (1985; 1993) has linked occurrences of human sacrifice to the death of a ruler in emerging complex societies. Cameron (1987) and Kuhrt (1987) have suggested that displays of pageantry and opulence by elites or government increase as political stability and strength decreases; this is most likely a reflection of efforts by the elites to maintain the status quo. Violence during times of crisis may stem not only from public displays of power, but also from the proliferation of independent political groups seeking to gain control of an unstable government (Shannon 2002). In ancient Egypt, state- or ruler-sanctioned (and unsanctioned) violence may thus be expected to increase at the beginning and end of the Kingdoms, and at the end of dynasties. Internal raiding and violence tend to increase during these times of decentralization, causing a correlated rise both lethal and sub-lethal violence (Tung 2012, 2008a).

The second common context for sanctioned violence (again, particularly human sacrifice) is at the birth of a state or complex society, particularly in circumstances where one did not exist previously (Morris 2007). With the imposition of a new form of government, rulers often resorted to elaborate displays of power and might. The ultimate control of the ruler over life and death was displayed to powerful effect by mass human sacrifices, and sometimes by the brutal execution of captives and prisoners (Morris 2007). This form of conspicuous consumption solidified the ruler's position and encouraged the populace to accept the new political system.

The human sacrifices of the earliest Egyptian kings are exemplary, as the first pharaohs attempted to unite various small, formerly independent groups under a single semi-divine ruler.

Retainer sacrifice was highly formalized, and frequently (though not always) directed at a state's own populace rather than outsiders. And while other forms of state-sanctioned, formalized, displayed violence may be perceived as external threat management (e.g. execution of enemy leaders or sacrifice of captured enemies), retainer sacrifice appears, on the surface, to be directed at integral members of the royal court: perhaps the very epitome of "insiders". As far as the new ruler was concerned, retainer sacrifice might also function as a form of internal threat management, as those who had served, and perhaps were loyal to, the now deceased former king were removed from any type of competition for control or power of the new regime.

Human Sacrifice versus Sacrificial Burial

It is important to distinguish here between *human sacrifice* and *sacrificial burial*, two practices that are often, but not always, related. The victims of human sacrifice will be treated differently based on the context of the ritual: in some cases, the victims may be discarded like so much refuse, their purpose fulfilled. In other cases, it is important that the victims of such rituals be buried with ceremony and, to some extent, with honor, for example as honored spouses, officials, or servants, destined to accompany their lord or lady in death. Human sacrifice need not be (and often is not) followed by sacrificial burial.

Finding Human Sacrifice in the Archaeological Record

Just as defining violence is more complicated than it might first appear, finding human sacrifice and sacrificial burial in the archaeological record may prove more difficult than expected (Kennedy 1994). As Verano (2001, 167) notes:

> How is human sacrifice identified archaeologically? This is an important issue, because preconceived notions can lead to distinctly different interpretations of archaeological data. Human sacrifice implies the intentional offering of human life. The way in which sacrificial victims are dispatched may leave recognizable skeletal or soft-tissue evidence, but this is not always the case. Distinguishing between natural and induced death in archaeological remains is often difficult…If complicating factors such as post-burial disturbance can be ruled out, the key issue is whether the remains represent freshly sacrificed individuals or secondary offerings."

The practice of human sacrifice may manifest in a variety of ways in the archaeological record. Multiple aspects of a burial must be considered before it can be deemed a potential sacrifice: "the spatial context of killing and deposition, the treatment before and after death of those killed, the nature of the thing offered/destroyed/consumed, the assemblage of artifact-participants, the relationships between the above facets and broader social practices, continuities or changes in these practices over time" (R. Campbell 2012, 310).

Since any type of human sacrifice may be understood as an offering of some sort, burial practices for sacrificial victims can be reasonably expected to differ from those of the general population (Ying 2009). Indications of human sacrifice may include irregular body positioning, inclusion of abnormal grave goods (or lack of grave goods entirely), skewed age and sex profiles, disarticulation of the skeleton (especially beheading, though this is not always the case), and excessive violence (Klaus et al. 2010). Skewed age and sex profiles will depend heavily not only on cultural context, but on the motivation and type of sacrifice; the Aztecs sacrificed children to the rain god because children were believed to be non-entities, while the Maya

sacrifice adolescents between the ages of four and twelve because during these ages a child was viewed as a liminal being, straddling the earthly and spiritual realm (Ardren 2008, as cited in Geller 2011). These sacrifices were of the consumptive type, since the children were generally sent into the afterlife alone, or perhaps with others intended for the same purpose. In contrast, companion in death sacrifices, and particularly retainer sacrifices, more often involved the sacrifice of young, healthy adults who were well suited to service both in this life and the next (Baadsgaard et al. 2011; Molleson and Hodgson 2003).

The location of a burial may also indicate the possibility of sacrifice. The location and manner in which the corpse is deposited is closely tied to the context of the sacrifice. In cases of large-scale human sacrifice, bodies may be deposited in association with the burial of a highly ranked person, or may be deposited all together (e.g. in a sacrificial pit of some kind). While association the tomb of a leader is not always indicative of human sacrifice, it is a feature that appears in various examples of human sacrifice throughout the world (see discussion later in this chapter). Single bodies have been found as foundation deposits or offerings in various areas around the world, including China and Egypt (Liu 2004; *Hopkins in Egypt Today* blog). A key similarity underlining many, though not all, examples of sacrificial burial is that the victim is somehow treated differently than his or her peers. While we must be cautious using a term such as "deviant burial," which may have negative connotations, burials of sacrificial victim nevertheless tend to be dissimilar to those of other community members in some way (Cherryson 2008; Murphy 2008).

Extreme violence, dismemberment, and decapitation are also frequently indications of human sacrifice, and are predominantly associated with consumptive sacrifices. Pérez (2012) discusses the nature of violence as a socially constructed performance with a carefully selected

target audience and, in many cases, a specifically chosen victim. This is particularly applicable to human sacrifice, which is loaded with social and perhaps political meaning. As Suárez-Orozco and Robben 2000 have pointed out, acts of violence do not simply affect the physical body, but also target the individual and collective psyche, and "the social fabric of the society in which it [the violence] takes place" (Pérez 2012). Thus the dismemberment of a war captive might be used to symbolize the utter destruction and dismemberment of enemy groups, while at the same time reinforcing the victor's ultimate power over life and death.

Human Sacrifice and Sacrificial Burial around the World

In order to accurately assess the evidence for human sacrifice and/or sacrificial burial in ancient Egypt, it is necessary to first know what we are looking for. What evidence might point to practices of human sacrifice and sacrificial burial? Particularly since the case for human sacrifice in Egypt is debated, it is useful to take a closer look at cases of human sacrifice and sacrificial burial in cultures around the world, to assess the evidence that may or may not exist in the archaeological record. In addition, a few cases here are included to demonstrate the importance of skeletal analysis and re-analysis and re-interpretation of previously excavated material.

Peru

Evidence for human sacrifice in Peru is extensive, and the practice was clearly adopted by a variety of cultures within Peru. Both the Moche and the subsequent Chimu cultures practiced human sacrifice, though in very different forms.

For the Moche of the northern Peruvian coast, sacrificial rituals were explicitly linked to political structures, and associated with the "highest ranks of rulership" (Bourget 2016, 329). Thus, shifts in political structure seem to be linked with changes in sacrificial practices, particularly regarding the main players who are expected to take the roles of sacrificer and sacrifice (Bourget 2016). In Moche sacrifices, the victims were not intended to accompany a deceased ruler into the afterlife, but instead to be sacrificed *by* the ruler (in many cases) as a display of power and victory.

Human sacrifice is attested extensively not only in art (particularly in decorated ceramics, a hallmark of the Moche cultural tradition), but also in the archaeological evidence. Interestingly, there is a strong relationship between the iconographic depictions of human sacrifice and the archaeological evidence for these rituals (Bourget 2016; Verano 2001a, 2001b). At the site of Huaca de la Luna, near the modern city of Trujillo on the northern coast of Peru, at least 61 males were killed and probably defleshed before they were deposited in a pit in Plaza 3C (Bourget 2016; Verano 2001a). The care with which the bodies were defleshed, leaving the skeleton still fully articulated, suggested to Verano (2001) that the defleshing had occurred as part of a respectful mortuary ritual, and certainly did not indicate cannibalism. In other, earlier parts of the ceremonial complex, other skeletons were completely dismembered and the arms, legs, crania, and trunks scattered about, or in other cases were left to decay before being naturally covered by shifting silt and soil (Bourget 2016; Verano 2001b). At Plaza 3A of the same site, numerous cut marks suggestive of throat cutting and sometimes decapitation were found on the cervical vertebrae of 61 individuals (Bourget 2016; Hamilton 2005).

Decapitation features prominently in Moche iconography as well, particularly in association with particular rituals (Bourget 2016). In these cases of decapitation, it seems that the

victims may have been defeated warriors who were selected as sacrificial victims (Bourget 2016). The collection of blood from the sliced throats of prisoners of war is shown in many examples of Moche art, along with the presentation of the collected blood to the individual who appears to be presiding over such events (Alva and Donnan 1994; Verano 2001b).

Skull fractures were a frequent cause of death at Plaza 3C according to Verano (2001b), though not as frequent as exsanguination, typically by cutting the throat, as evidenced by cutmarks on 75 percent of the collected cervical vertebrae (Verano 2001b). Many of the victims showed evidence of injury shortly before death, i.e. weeks or perhaps a few months preceding death itself; in many cases, these injuries were likely due to combat, since the Moche obtained most sacrificial victims from outside cultures via raids and warfare (Verano 2001b). In other cases, the wounds were closer to the time of death and seem to be caused by techniques of torture, such as cutting on the face, hands, and feet (Verano 2001b). A particularly unpleasant example was an individual who had multiple cut marks around the right orbit, injuries that Verano suggested may have been caused by the mutilations or flaying of the face, as were sometimes shown in Moche iconography (Verano 2001b). It is clear that for the most part, at least, Moche sacrifices were focused on the loss of blood and the causing of pain, rather than a desire to send the deceased into the afterlife as a servant or attendant.

In contrast to the Moche sacrifices, which primarily utilized adult males and sometimes females from other cultures as victims, new evidence suggests that the Chimu culture (which replaced the Moche) sacrificed children en masse (Romey 2019). While this is still a relatively new discovery, the sacrifice of children represents a fundamental shift in the purpose and ideology of the human sacrifice. Sacrificing adults, especially warriors, is often closely linked to the ideology of power and authority. When sacrificing a child, it is not necessarily as important

to demonstrate power; it is easy to overpower a child in almost any context (though it could be argued that the power play in such situations was intended for the parents of the sacrificial victim). Instead, as with other cultures such as the Maya, it seems that children may have been seen as purer or more closely related to the spirit world (see below for a discussion of the Maya and their child sacrifices). This type of sacrifice, then, is more concerned with communication to the spirit world than a show of might.

Maya

Human sacrifice during the Classic (c.250-900 CE) and Postclassic (c.900-1500 CE) is well attested, though often by Spanish conquistadors or travelers whose accounts must be treated with a certain level of skepticism regarding their absolute accuracy. In the Postclassic Period, various types of sacrifice were described by Spanish authors, who detailed victims being tied up and cut in the genitals before being shot by arrows, victims experiencing removal of the heart in a variety of situations, as well as death by beating, being thrown from pyramids, sometimes thousands of individuals in a single ceremony (Robicsek and Hales 1984; Schele 1984; Tozzer 1941). In these types of sacrifice, the causing of pain and blood loss were integral to the sacrifice's purpose and efficacy. This form of sacrifice was enacted very differently from another type, child sacrifice, which was very common during these same time periods.

Children, who were believed to have closer links to the supernatural realm than adults, were viewed as ideal sacrificial victims for some rituals (Geller 2011). Sacrificial victims were typically obtained via three different routes: 1) kidnapping, 2) purchasing from other communities, and 3) as gifts, either from wealthy individuals who took in orphans for sacrificial purposes, or from community members who were particularly pious (Geller 2011). According to

the Mayan worldview, children between the ages of 4 and 10 (remembering that approximately half of infants likely died before their second birthday anyway) were considered the best sacrificial victims; as these children had not yet been socially accepted as adults, they were still "pure" and thus " ideal for sacrifice because they could traverse between earthly and supernatural realms" (Geller 2011, 86).

It is worth noting that children who were in poor health seem to have been preferentially selected (Geller 2011). There are several possible explanations for this trend. One is that these individuals may have been selected precisely *because* they were unhealthy, and thus might not survive into adulthood: a mercy killing, in a sense. Another explanation, put forward by Geller (2011), is that unhealthy individuals were actually used as substitutes for healthy individuals. This would have the benefit of exacting a lower social and economic 'cost' from the society, while at the same time fulfilling the ritual and social obligations of the sacrifice.

In fact, Geller (2011) notes that child sacrifice was not even considered as a violent act among the Maya; instead, it was a way to transform a child, who was automatically of low social status, into a baby jaguar, a divine creature of the supernatural realm. Child sacrifice was a socially sanctioned ritual "designed to sanctify, not violate" (Geller 2011, 80). As Geller (2011:103) points out, "paradoxical though it may seem to some, in certain cultural context and historical moments, it is through the sacrifice of life—not its continuation—that an individual is accorded value." This brings up the important point, mentioned in the introduction, of how we perceive violence, and how the members of other societies may have viewed violence in different or similar ways.

Aztec

There are, perhaps, few cases of human sacrifice that at least appear more overtly centered around power than those of the Aztecs, though of course the actual meaning and significance of such sacrifices is more complex. As Carrasco (2000, 2) states, "violence against humans was a profound human necessity and practice of the Aztecs in their capital city." The spectacularly bloody sacrifices of captured enemy warriors both fascinated and horrified the Spanish conquistadors who encountered this Aztec ritual. In its most well-known form, Aztec sacrifice consisted of the heart being forcibly removed from the chest cavity (sometimes while the victim was still living) and then decapitation; in addition to this pattern, however, Graulich (2007) notes that sacrifice could also be enacted by throat-cutting, burning, drowning, being buried alive, or being thrown from the top of a pyramid or tall pole, among many other methods. At first glance, these are blood sacrifices par excellence. A closer look reveals important layers of nuance. Bloody human sacrifice was about more than simply dominance over others; at a cosmological level, such rituals also served to communicate with deities and maintain the order of the cosmos (Carrasco 2000; Winkelman 1998).

As the Aztec rulers sought to control a vast and diverse area, human sacrifice became a powerful, very visual demonstration of the authority of Aztec rule. Victims tended to be obtained from neighboring or nearby areas, at odds with the Aztec rulers, so killing of these prisoners was an overt show of dominance as well (Carrasco 2000). While adult male, non-Aztec warriors were the preferred victims in many sacrifices, females were also sacrificed, particularly in rituals related to yearly festivals and regenerative rituals, designed to invigorate Aztec children, crops, and forces of war (Carrasco 2000; Winkelman 1998).

Northern Europe: Bog bodies

The hundreds of bog bodies found throughout northern Europe have incited a great deal of interest, first due to their (in many cases) excellent preservation, and then when scientific analyses were conducted, due to the violence many of these bodies displayed. The anaerobic environment, as well as the often highly acidic bog water, of many peat bogs preserves skin, fingernails, and even hair, allowing unprecedented amounts of information to be gleaned from these remains (Brothwell 1986). Perhaps most interesting of all for the purposes of this dissertation are the numerous instances of lethal or excessive violence displayed by many of these individuals. Due in part to the violence, and in part to the deposition of the bodies in the bogs and (in some cases) the seemingly good health of the individuals, human sacrifice is often suggested as an explanation for their deposition, with capital punishment as an alternative explanation.

One of the extreme cases of violence to a bog body is demonstrate by Lindow Man, found in northwestern England and dating to the British Iron Age (Granite 2017). This young man (in his mid-twenties when he died) suffered at least five different injuries that could have caused his death: two blows to the head, a blow to his back that was strong enough to fracture a rib, a neck broken (two vertebrae fractured) by a garrote, and a slit throat (Brothwell 1986; Giles 2009; Granite 2017). At least one of the blows to the top of the head was forceful enough to also split the skull at the back, away from the original injury (Brothwell 1986). Brothwell (1986) has suggested that the cutting of the throat may have been intended as a way to release the victim's blood, rather than specifically being designed to kill the victim, since so many other methods of killing were also used. Whether he was still alive when he was thrown into the bog, and thus drowned, is uncertain (Granite 2017).

Lindow Man is not alone in having experience such excessive violence, far beyond what would have been necessary to end his life. Grauballe Man, found in a bog in Denmark, had his right temple smashed, his leg broken, and then had his throat cut so violently that his larynx was severed and his head nearly detached (Asingh 2009; Brothwell 1986; Granite 2017). Slightly less dramatic is the case of Yde Girl from the Netherlands, who was strangled and also stabbed near her left clavicle (Granite 2017; van der Sanden 1996). One of the Weerdinge Men, also from the Netherlands, was stabbed so deeply in his abdomen that his intestines protruded from the wound (Granite 2017). The young Kayhausen Boy was hogtied and stabbed multiple times in his arm and throat, despite being only about seven years old and thus hardly likely to have been a hardened criminal or excessively strong and recalcitrant victim (Granite 2017). The man from Borre Fen suffered from both asphyxiation and cranial injuries, and a woman from the same bog displayed fractures on her cranium and elsewhere, while the Rendswühren Fen Man had a chest wound and cranial injuries (Brothwell 1986).

The use of excessive or performative violence is a hallmark of state- or society-sanctioned violence (see Chapter 3 for a more complete discussion of the performative aspects of violence and sacrifice). While we cannot exclude the possibility that all three of these individuals were randomly, brutally murdered at the hands of an individual rather than as part of a ritual, the excessive violence and similarities in methods used (particularly strangulation or garroting, suggests otherwise. Green (1998, 173) has suggested that in such cases, the excessive violence was an integral part of a sacrificial ritual, and hypothesizes that "the act of violence itself…may itself be associated with its efficacy in stimulating regeneration, prosperity or other desired outcome." Lucan, Roman poet of the Middle Ages, described cases like that of Grauballe Man in Northern Europe as the "triple death," honoring three Celtic gods: Taranis, Esus, and Teutates

(Brothwell 1986; Granite 2017). Wounding a victim was a tribute to Taranis, hanging or garroting the victim was a tribute to Esus, and the ultimate drowning of the victim was an offering to Teutates (Granite 2017). Tacitus refers to hanging as a punishment for deserters and traitors, burial under a "wicker hurdle" in a bog for "cowards, shirkers, and sexual perverts" and drowning of slaves who had participated in rituals for the earth goddess Nerthus (Tacitus 1914). Diodorus Siculus also mentions the use of human victims for divination, perhaps an explanation for the Weerdinge Man's vicious stomach wound (Granite 2017; Siculus 1939).

In many cases, it seems that the individuals who were deposited in the bogs were of relatively high status; several were clearly in good health (if slightly overweight), and others, such as Grauballe Man, had well-manicured hands that suggest hard labor was not part of their daily activities (Granite 2017). Lindow Man suffered from very little antemortem tooth loss (having lost only two teeth before death) and no certain evidence of gross caries (Brothwell 1986). Brothwell (1986) notes that Lindow Man's mustache was trimmed by shears (true scissors were not introduced until Roman times) a few days before he died, at a time when such shears were not commonly owned, perhaps suggesting that either Lindow Man himself was of relatively high status, or that he was treated as such before his death. Lindow Man also had rounded fingernails suggestive of very little manual labor, and perhaps even a manicure, sometime before his death (Brothwell 1986). He seems to have been free of external parasites (such as fleas or lice), though he did have relatively high numbers of eggs of both the whipworm (*Trichuris trichiura*) and the maw worm (*Ascaris lumbricoides*), which may have caused him some discomfort, though probably not significant unpleasantness or severe health problems (Brothwell 1986). Whether these individuals were sacrificed by their own communities, or were obtained from other societies, is uncertain (Giles 2009; Granite 2017).

According to Brothwell (1986), Lindow Man was almost certainly deposited into the bog unclothed, as were Grauballe man and Tollund Man, the latter of whom wore only a belt and a cap made of sheepskin. Those who did have clothing, such a woman from Borre Fen, seem to have clothing that is "usually incomplete and sometimes disheveled" (Brothwell 1986, 40). Brothwell (1986) has suggested that the lack of clothes could reflect a desire to shame the victims, or could perhaps indicate that rather than being ritually killed, the victims were robbed of their valuables and clothes and dumped in the bog, a hypothesis that is possible but seems somewhat unlikely given the evidence presented here.

Brothwell (1986, 78) believed that Lindow Man, at least, was likely not buried deep in the bog but rather "was left on the surface, perhaps submerged in a pool, and was gradually covered by rapidly forming peat." Brothwell bases this interpretation on the presence of "plant debris, pollen and the remains of insects and other invertebrates" on and around the body (1986, 78). Aldhouse Green (2015), however, points out that had his body actually been exposed, it certainly would have been scavenged and the process of decomposition started, neither of which is supported by the excellent preservation of the soft tissue and extremities; instead, notes Aldhouse Green (2015, 75), "he could have been left to rot on the bog surface, but it was clearly considered important to put him underneath [the surface], whether for fear of pollution, respect or the perceived need to preserve the body in perpetuity."

It is not possible to say for certain that the bog bodies were sacrifices rather ritual killings or, in some cases, murder or even accident. Grauballe Man, with his numerous wounds linked to various deities, seems to be the most obvious candidate for sacrifice over other explanation. Whether he as intended to serve as a placatory offering, an apotropaic offering, or as a plea for

assistance, the excessive and specific nature of his wounds seem to intentionally reference these deities.

If they were sacrifices or ritual killings of some king, the bog bodies do not appear to represent any form of retainer sacrifice that we know of. The bodies seem to have been intended as gifts or perhaps messengers for supernatural deities or beings, rather than as company for a prominent deceased person.

Germany

In some cases, human sacrifice may include the element of destruction, as appears to be the case at the early Neolithic site of Herxheim in southern Germany. While excavating an earthwork surround a settlement, archaeologists found the remains of more than 500 individuals, most of the remains smashed into small fragments (Zeeb-Lanz et al. 2017). There are also clear indications for special treatment of skulls, which were mostly smashed except for the calottes, which were not only saved but in some places put together in large "nests" (Zeeb-Lanz et al. 2017, 175). Many of the long bone fragments were broken or bore cut marks on the diaphyses, a pattern that tends to be associated with the removal of bone marrow for consumption ((Turner 1993; Turner II 2011). This is further supported by the presence of "parallel shallow cuts or scraping marks" on other long bones, as well as marks on the shoulder blades and evidence for removal of the ribs from the spinal column (Zeeb-Lanz et al. 2017, 175–76). Overall, this pattern is most similar to that of animal butchery for consumption, suggesting that these individuals were consumed, either ritually or otherwise, by the inhabitants of the village (Zeeb-Lanz et al. 2017). As the cutmarks were clearly made on fresh bone, it is clear that the disarticulation took place shortly after death, and the patterns of cut marks and fragmentations are so perfectly

similar to animal butchery patterns than an alternative explanation of mortuary processing (i.e. without cannibalism) seems unlikely (Zeeb-Lanz et al. 2017). Strontium isotope analysis indicates that these individuals are from no known Bandkeramik settlement, suggesting that these individuals may be from a different, far distant area, or may slightly pre-date the village itself (Zeeb-Lanz et al. 2017).

At other sites, smaller numbers of individuals were killed by mighty blows to the head. At the site of Talhei min Baden-Wurttemberg, 38 individuals were killed this way, before being thrown into a large pit and covered in one event (Wahl and König 1987; Wahl and Strien 2007; Zeeb-Lanz et al. 2017). At another site in the same cultural tradition (the Bandkeramik culture), nearly 70 disarticulated individuals were found deposited in the ditch system surrounding the village of Asparn (Austria), many with lethal cranial trauma (Teschler-Nicola, Prohaska, and Wild 2006; Windl 1996; 1999, 2001).

It is worth mentioning that during the time period that these individuals were processed, the Bandkeramik culture was in crisis. (Bremmer 2007) notes that it is not unusual for cultures to practice human sacrifice in times of social or political crisis. Unlike many of the retainer sacrificed described here, these killings in Germany harness the violence and power of human sacrifice as a tool for communication with the supernatural, not unlike the Aztecs or Maya in their heart-removal rituals.

Italy: The Etruscans

As with ancient Egypt, the existence of human sacrifice in Etruscan society has been much debated, with most of the clearer references occurring in written or artistic evidence rather than archaeological evidence (de Grummond 2017). While it is certainly wise to be skeptical of

the underlying agenda in such sources, in this case, archaeologically evidence for human sacrifice was finally unequivocally found at the site of Tarquinia, along the northwestern coast of Italy. Excavations by the University of Milan discovered ten human burials in an area of monumental sacred structures (de Grummond 2017). The burials contained individuals of all ages, from infants to adults, males and females, and were inhumed rather than cremated, which was the custom at the time of their deposition (the earliest of the burials were deposited in the ninth and eighth centuries B.C.E.) (de Grummond 2017).

In some of these burials, it seems that individuals may have been selected based on pre-existing health conditions (de Grummond 2017); whether these conditions were perceived as making the victims more sacred, or whether they were viewed as lesser in value and thus an appropriate sacrificial substitute for a healthy individual, is uncertain. Individual 1, a (probably male) child who died around the age of 7 or 8 years, displayed non-anthropogenic cranial deformation that led the anthropologists analyzing the remains to conclude that the child had almost certainly suffered from epileptic seizures (de Grummond 2017). Though there is no trauma to indicate that this child may have been sacrificed (in fact he probably succumbed to his condition or an aneurism, according to the anthropologists), his burial in a sacred space does associate him with nearby, more clearly sacrificial burials. Another child, buried nearby, had been decapitated and buried partly under a wall, perhaps as a kind of foundation deposit or construction offering (de Grummond 2017). Several other adult individuals buried nearby display numerous cases of healed trauma, and at least one was killed by a blow to the head (de Grummond 2017). The latter (Individual no. 10) has been tentatively identified as an outsider, based on cranial morphology that is markedly different from his Etruscan neighbors, as well as on a fragment of Euboean Greek pottery found in his burial (de Grummond 2017). If this

individual was indeed a foreigner, this has interesting implications for the motivation to sacrifice him. The presence of multiple injuries in various stages of healing is one of the hallmarks of abuse, and de Grummond (2017) suggests that he may have been a prisoner of war, supporting textual references to the ritual killing of prisoners of war. Both Herodotus (1.166-167) and Livy (7.15.10) describe the ritual killing of prisoners of war; it is difficult to determine whether we should consider this as sacrifice, or simply as ritualized killing. As there appears to be no element of exchange or mediation with the supernatural, we may be tempted to consider this type of behavior as ritual killing. But we should not exclude the possibility that prisoners of war might have been killed as offerings to *Etruscan* deities, a blood sacrifice to thank the gods for Etruscan victory.

Again in the Etruscan sacrifices we see individuals who were sacrificed as emissaries rather than afterlife attendants. They were not necessarily intended to perpetually serve in the afterlife as to deliver a message to supernatural powers.

Cis-Baikal Region

Very little evidence of human sacrifice has been found in the Cis-Baikal region, and even less has been published in English (most references are, understandably, in Russian). The main evidence for human sacrifice derives from shaman burials, which sometimes included additional bodies that have been interpreted as personal servants or attendants (Aseyev 2007; Shepard 2012). A communal grave from the Third Millennium B.C.E. that was excavated on the Shaman Cape of Olkhon Island in 1976 contained the remains of three individuals, two of which consisted only of charred skulls (Aseyev 2007). The burned skulls were arranged anatomically with broken humeri on two stone slabs, with other fragments of burned bone mixed into the same

excavation level (Aseyev 2007). Over these burned remains lay the unburned body of a third individual, which was presumably the primary burial; the assumption was made that two individuals were sacrificed and burned for the third, primary individual, who was likely a person of some status and may have been a shaman (Aseyev 2007). This is supported by ethnographic observations from the mid-twentieth cemetery, which stated that "if the deceased was rich or strong…he should have with him a personal servant, who was killed by violence and burnt with the dead master; this servant had to serve the master's soul in the other world" (Khangalov 1958, 224 as cited by Aseyev 2007, 98).

Although this ethnographic analogy seems to neatly explain the practice of sacrificing and burning personal servants for the funerary rites of individuals with great status, extreme caution should be used when projecting ethnographic observations several millennia into the past. While it may certainly be the case that the burned individuals were sacrificed for the third just as in more modern practices, such similarities do not in any way constitute definite proof, or in fact even a certain relationship between ancient and modern practices. Though perhaps less likely, it is also possible that the burned individuals were not sacrificed, but rather their bodies (or a few select bones) were preserved for social, ritual, or political purposes by the primary individual. Until more evidence or examples of human sacrifice are found and analyzed in this region, the case for human sacrifice must remain unsettled.

Transcaucasia: Possible Human Sacrifices in Kurgan Burials

Evidence for human sacrifice in Eurasia is not easily accessible to western researchers, and indeed seems to have received relatively little attention even in Eurasia. Kohl (2007) suggests the possibility of human sacrifice in the early great kurgan burials on the Tsalka plateau

of modern day Georgia, and at the sites of Bedeni, Tsnori, and Uch-tepe, dating to the late Third and perhaps early Second Millennium B.C.E. These kurgans, which feature primary burials filled with jewelry, weapons and tools, vessels of gold and silver, and even four-wheeled wagons, also include secondary burials of humans without of grave goods (Kohl 2007). Unfortunately, this is all the information provided, and it seems likely that a complete analysis of the human remains has not been published, or at least has not been published in languages other than Russian.

There is another possible case of human sacrifice from the site of Aslantepe in Turkey, where the remains of four adolescents were discovered in association with a supposedly royal tomb of the Kuru-Araxes culture of the Third Millennium (Kohl 2007). Unfortunately, no further information is available, and thus it is impossible to assess whether or not the four adolescents were in fact sacrificed, or were interred for some other reason or at another time. If human sacrifice was practiced in these areas, it seems to have been of the retainer sacrifice variety rather than sacrifice of individuals directly to deities.

China: Shang Dynasty

Though primary written records for human sacrifice in China are sometimes sparse, the practice is attested at least as early as the Neolithic (c. 5000-2000 BCE) (Yates 2013). Retainer sacrifice, as well as offerings of human being to deities and/or as dedicatory offerings (sometimes in the form of blood sacrifices), appear in the archaeological record throughout Chinese history (R. Campbell 2012; Vankeerberghen 2013; Yates 2013).

The best evidence for human sacrifice comes from the Shang Dynasty (ca. 1600-1050 B.C.E), and particularly from the Shang capital of Anyang (R. Campbell 2012; Chang 1968;

Yates 2013). Campbell (2012, 311) notes that sacrificial burials have been found at Anyang in three distinct contexts: 1) architectural deposits, in which the human remains are located in or under architectural features such as pillars, doors, and rammed-earth foundations, 2) death attendants, located in tombs of important individuals, and 3) offering pits, in which human remains are deposited "in pits associated with cemeteries and large-scale buildings." Campbell (2012) further notes that the foundation deposits are located within the palace-temple precinct and that the tomb and pit sacrificial burials are generally clustered in the royal cemetery. Even many of the smaller buildings outside the palace-temple precinct have human burials beneath them, which may indicate that these foundation deposits conform to social norms of burial practices; outside the royal cemetery, however, numerous instances of "ritualized killing and deposition" may be observed (Campbell 2012).

Among the sacrificial burials at Anyang, two distinct patterns soon emerge: while some burials are "carefully arranged and show no obvious signs of violence," other are "deposited helter-skelter" and often show signs of destruction such as dismemberment or decapitation (Campbell 2012, p. 312). These categories fit neatly into Ying (2009) divisions between companion sacrifice and consumption sacrifice. While the death attendants are quite clearly a type of companion sacrifice, the architectural deposits and offerings pits demonstrate the violence and destruction that are much more typical of consumption sacrifices (R. Campbell 2012; Chang 1968). Campbell (2012, p. 314) vividly describes the architectural sacrifices as having been "tied, chopped and toppled into pits." Death attendants are individually arranged and given their own grave goods, while the architectural and pit offerings are piled together and often commingled with animal remains and artifacts (Campbell 2012). According the Campbell (2012), the arrangement of the architectural and pit offerings was secondary to the performance

of destruction. It should be no surprise that in this display of destruction, the chosen victim was almost always a male, of approximately the right age to serve in the military, and quite probably a captive of war (this assumption is also supported by oracle bone inscriptions) (Campbell 2012). What better way to initiate a new construction than by destroying a captive enemy soldier, and thus symbolically vanquishing the entire enemy?

Burials of death attendants are generally very similar to non-sacrificial Shang burials, with the exception that the sacrificed individuals are placed within another's tomb, and have considerably fewer grave goods than the primary individual in the tomb (jade artifacts and bronze vessels were almost always found within the tombs containing sacrificial burials) (Campbell 2012; Chang 1968). This practice spanned various strata of Shang society; in the largest tombs, even the death attendants are equipped as elites, while smaller tombs might include a poorly outfitted attendant, or even replace the human offering with an animal such as a dog (Campbell 2012). The richest individuals went to the grave accompanied by their servants, guards, charioteers, and concubines (Campbell 2012).

Campbell (2012) suggests that the many similarities between architectural deposits and pit offerings may in fact indicate that the former were simply a subset of the latter. Nevertheless, though they may have been motivated by similar concepts, the two practices must have been considered to be distinct at least on some level, as evidenced by their differential practice and survival after the Zhou conquest of the Shang (Campbell 2012). Architectural deposits containing human remains seem to have vanished with the conquest, while pit offerings continued in lower frequencies, and rarely included human offerings (Campbell 2012).

Campbell (2012) also notes another distinction between architectural deposits and pit offerings in the sex and age of the human offerings. While foundation deposits within the

temple-palace precinct may include domestic animals, human adults, or children, foundation deposits outside this area usually only include human infants or children (Campbell 2012). The sacrificial pits, though they also include animal burials, tend to include mostly young adult and adult human males rather than animal remains (Campbell 2012). Companion offerings tend to consist of children and young adult women, but may include dogs and horses as well (Campbell 2012).

A common thread in all Shang sacrifices is the importance of ancestor veneration. While architectural deposits may be directly intended for the ancestors, death attendants are also important as servants of the soon-to-be-ancestors (i.e. the primary interment). The practice of killing humans for sacrifice may also have been viewed as "acts of communication: of filial piety to the dead and status to the living," particularly if the blood spilled was that of an enemy of the ancestors (Campbell 2012, p. 319). The blood of the human and animal victims served as tribute and sustenance to the spirits of the ancestors (Campbell 2012).

Campbell (2012) suggests that this increase allowed King Wu Ding to publicly and ritually dispose of large numbers of his enemies (the Qiang) by sacrificing war captives, or perhaps these massive numbers of sacrificial victims were a way for Ding to express his "pious ancestral service and martial accomplishment" by offering the blood of the ancestors' enemies. Regardless of the motivation, the Late Shang period seems to have been a period of dramatic increases in sacrificial burials, not only in terms of numbers of victims, but also in terms of the social, political, and ritual aspects of sacrifice (Campbell 2012). These cultural changes appear to be closely related to practices of ancestor worship and veneration, which had a lengthy and hallowed history in China (Campbell 2012). Interestingly, relatively few instances of human sacrifice have been uncovered at Zhengzhou, considered the first capital of the dynasty, and at

Erlitou, which is generally considered to have been China's first state (R. Campbell 2012; Liu and Chen 2003).

Mesopotamia: Ur

Sir Leonard Woolley's discovery and dramatic portrayals of human sacrifice at the Royal Cemetery of Ur seized the public imagination as soon as they were announced in 1929, and seem to be the closest parallel to the retainer burials in Egypt. Dating to the mid- to late Third Millennium, the Royal Cemetery yielded well over two thousand burials during Woolley's excavations in the early 1930s, and probably at least twice that many once existed before much of the site was looted and destroyed by later interments and construction (Baadsgaard et al. 2012:127). During excavations in the 1920s and 1920s, Leonard Woolley uncovered the remains of thousands of human skeletons, clustered around or within what appeared to be the tombs of leaders (Baadsgaard et al. 2011). Of these tombs, Woolley designated sixteen as royal tombs (though this identification has been debated), based on the wealth of grave goods and unusual structure; current research indicates that these royal tombs were most likely constructed around 2600-2450 B.C.E. (Baadsgaard et al. 2012). Within these 16 royal tombs, skeletal remains of sacrificial victims (up to 74 in one instance) were found in main burial chambers, on the floor of pits just outside the main burial chamber, or in subsidiary pits next to the tomb, all of whom seem to have been sealed into the tomb around the same time as their deceased master or mistress (Baadsgaard et al. 2011). Several of the tombs had a stone chamber containing the royal corpse (sometimes with a few attendants), and large pits either outside the chamber or in an adjacent pit were filled with the bodies of other retainers. While earlier tombs seem to have had attendants in various rooms, later tombs included specific rooms for personal attendants, and

large death pits for additional, perhaps more distant attendants or retainers (Baadsgaard et al. 2012:130). The so-called "King's Grave," (Tomb PG 789) contained a total of 63 individuals, including soldiers, ox-cart drivers and grooms, and dozens of other men and women carefully laid out in the tomb (Baadsgaard et al. 2011). Tomb PG 1237 held the remains of 74 retainers, this time mostly females with musical instruments, prompting Woolley to nickname this tomb the "Great Death Pit" (Baadsgaard et al. 2011). The two most famous royal tombs with attendants include the grave of a queen generally believed to be Puabi, and the grave of a king (named the "King's Grave" by Woolley) (Baadsgaard et al. 2012:131). Each held over sixty retainers, and though the king's tomb included soldiers, groom, and women, the tomb of Puabi included mostly women arranged around musical instruments, perhaps preparing to entertain their queen in the afterlife (Baadsgaard et al. 2012). Woolley posited that these additional attendants committed suicide by drinking poison from a cup that they carried into the tomb with them, and once they had expired, the bodies of the attendants were carefully arranged (as were the bodies of any sacrificial animals included in the burial) before the tomb was sealed (Baadsgaard et al. 2012:134).

In contrast to Woolley's widely-disseminated notion of solemn attendants sipping poison from cups and then swooning gracefully to die by the side of their lord, recent research has suggested that the cups mentioned by Woolley were in fact used to stage a feasting scenario, and were certainly not as ubiquitous he had implied (Baadsgaard et al. 2012:138). Modern CT-scans of two of the crania indicate that these individuals, at least, had no such peaceful transition to the afterlife. Instead, these two individuals (a male and a female) were bludgeoned in the head by a fairly heavy implement, probably with a sharp spike such as those of the battleaxes found in other graves, based on the morphology of the breaks visible in the CT-scans (Baadsgaard et al.

2011). Perhaps most interestingly, however, the bodies were then arranged in a way that suggests the trauma was intentionally covered or shielded, presumably to make it appear as though the individuals had died peacefully or were simply sleeping, or at the very least to hide the evidence of their violent demise (Baadsgaard et al. 2011). The fact that these two crania derive from different tombs may suggest that these methods of killing and preserving attendants were, if not standard practice, at least fairly common (Baadsgaard et al. 2011).

In addition, the bodies of at least some attendants were apparently heated or smoked after death, presumably to preserve the bodies for some time, and perhaps indicating that the death of the attendants did not necessarily occur at the same time as the death of the principal occupant of the tomb (Baadsgaard et al. 2011; Baadsgaard et al. 2012; Molleson and Hodgson 2003). It is telling that no evidence of heating or burning is evident within the tomb itself, which would immediately discredit Woolley's idea of attendants dying within the tomb (Baadsgaard et al. 2012:147). Mercury sulfide or cinnabar may also have been used to delay putrefaction and further preserved the bodies (Baadsgaard et al. 2012). The bodies may have been intentionally preserved for display during some sort of funerary ritual (Baadsgaard et al. 2011). Woolley was not being fanciful, however, in noting that the bodies were carefully arranged; the women clustered around musical instruments and men were grouped as though guarding the entrance (Baadsgaard, Monge, and Zettler 2012).

As in Egypt, these sacrificial burials occurred during Ur's Early Dynastic period (around 2500 B.C.E., thus several centuries after the Egyptian examples), as the Ur polity was establishing its authority (Baadsgaard et al. 2011). The practice seems to have only taken place at Ur, though tantalizing evidence of cart burials is attested at Kish (unfortunately the site was not properly excavated and poorly documented) (Baadsgaard et al. 2011; Moorey 1978). Baadsgaard

et al. (2012) have suggested that the reason for this lies partly with Ur's prominent location at the head of the Persian Gulf, which allowed ready access to raw materials and products arriving by sea. The elaborate rituals of human sacrifice may also have served to reinforce or perhaps establish a new social order (though there is as yet no evidence for this theory) (Baadsgaard et al. 2012, 154). Dickson (2006) suggested that the sacrifices were enacted as a violent tableau intended to assert the authority of the vulnerable kings (particularly in such a time of crisis as the death of a ruler).

In addition, the presence of sacrificed retainers is limited to only 16 royal tombs; since this number seems to include at least a few queens as well, who may have ruled alongside their husbands, it seems that human sacrifice was a relatively short-lived practice (Baadsgaard et al. 2011). As Baadsgaard and colleagues (2011, 40) note, "Perhaps such extravagant funerals were a social and ideological experiment too costly in terms of material wealth and human life to achieve symbolic efficacy or longstanding legitimacy."

Although various explanations besides human sacrifice have been suggested for these tombs at Ur, the evidence seems to strongly support the idea of sacrifice. The sex and age distribution of the attendants (predominantly adult men and young women, with few other age groups represented) fits the typical profile of companion sacrifice, in which individuals are chosen specifically for their relationship or service to the deceased (a wider age gap might also indicate sacrifice, for instance of family groups, but the sacrifices at Ur do not seem to fall into this category) (Baadsgaard et al. 2012:137; Molleson and Hodgson 2003). Perhaps the clearest link between the idea of companions in death and the attendants at Ur is in the careful staging of the bodies into poses that suggest activities and service, such as entertaining and guarding their lord, perhaps as though attending their final feast.

Ancient Israel

Ancient Israel may seem a strange addition to this list, as the Bible repeatedly critiques the practice of human sacrifice in other cultures as a barbaric and pagan custom (Aldhouse Green 2001). And indeed, the most frequent references to human sacrifice in the Bible are those either condemning other cultures such as Carthage for the practice, or those which describe a human sacrifice that almost occurred, but did not (Niesiołowski-Spanó 2013; Schwartz 2012). The most classic case of the latter is the direction from God instructing Abraham to kill his eldest son, Isaac (Genesis 22:1-19). According to this story, Abraham had prepared everything for the sacrifice and was indeed holding his knife, ready to cut his son's throat, when God miraculously provided a ram as a substitute (Genesis 22:1-19). While this dissertation is not the place to conduct a deep discussion of this and other similar stories from the Old Testament concerning human sacrifice, two points bear particular mention here: 1) The sacrifices are never (with one exception, discussed below) consummated, but instead an animal is substituted, and 2) The instructions to sacrifice someone held dear, though sometimes met with horror, are nevertheless followed in the belief that God will either intervene or have a greater plan in mind (Schwartz 2017).

The exception to this narrative of human sacrifice aborted in the nick of time is the case of Jephthah. As he led his Israelite clan into battle against the Ammonites, Jephthah swore that if God granted him victory over the enemy, Jephthah would sacrifice the first thing he saw upon his return home (Judges 11:1-11, 29-40). This rather short-sighted vow backfired when, after winning the battle and returning home in triumph, the first thing or person that Jephthah encountered was his daughter. Though he regretted his vow, Jephthah kept his promise, ad after a few months to prepare herself, the daughter was sacrificed (Schwartz 2017).

It is interesting, but not surprising, that the underlying thread through all of the Biblical references to sacrifice is the importance of obedience to God. Though human sacrifice is understood to be an abomination, the will of God is ineffable, and if God commands you to sacrifice a person, you are to trust in his higher plan and sacrifice that person. The difficulty, of course, is that overall we have only textual evidence regarding the practice (or non-practice) of human sacrifice in ancient Israel. This is intended to serve as a cautionary tale, in some ways; while we should not assume that human sacrifice was rampant, neither should we assume, based on textual evidence alone, that human sacrifice never or rarely occurred. As Niesiołowski-Spanó (2013, 167) notes, the idea at least of child sacrifice was "well rooted in Hebrew tradition," regardless of whether the Hebrews themselves engaged in the practice or not. In the particular tradition of *molk*-sacrifice, the understanding was that an individual of great value to the sacrificer (often a child) was to be offered up as a plea for divine protection (Niesiołowski-Spanó 2013). It could be that the repeated references to the abomination of child sacrifice and the instructions not to engage in such practices are linked to the popularity of the practice; as Niesiołowski-Spanó (2013, 168) notes, "The repetition of the ban [on child sacrifice] shows the need for and actuality of such a prohibition," at least before the shift in the 7th century BCE to the overarching Passover sacrifice.

Carthage

As discussed above, the Bible repeatedly condemns the apparently widespread practice of child sacrifice in Carthage, so close to the land settled by the ancient Hebrews. This idea has long been repeated, based not only on the Biblical references but also on the writings of Sophocles, Diodorus Siculus, and Kleitarchos, among others (Harden 1963; J. H. Schwartz 2017;

Wolff and Stager 1984). However, as Schwartz (2017) points out, such assumptions are based on outside sources, and the assumption that the only way to explain the available archaeological evidence is sacrifice, rather than on a systematic study of human remains believed to be victims of this practice.

Excavations of the Tophet at Carthage have revealed hundreds of burial urns containing the remains of cremated individuals, largely human infants children but also the remains of some animals (Schwartz 2017). In the early 1920s, over 2000 such urns were recovered at different parts of the Tophet (Schwartz 2017), most containing more cremated remains of human infants and children. This was widely regarded as incontrovertible evidence for the practices described by Diodorus and others. There was, however, one rather large problem with this: the human remains had not been analyzed.

When the human remains were actually analyzed from some of these urns, a few important observations were made. The remains did indeed contain the remains of young humans, but most were infants, many within a few weeks of birth, and even prenates (i.e. fetuses not carried to term and thus stillborn or aborted) (Schwartz 2017). This demographic profile is consistent not only with ancient populations (such as the Roman population at Kellis, Egypt, described by Tocheri et al. 2005), but also with many modern populations (Chalmers and Macfarlane 1980; Saunders and Barrans 1999; Schwartz 2017). Many urns contained at least two or more individuals, but crucially, the individuals were not complete in many cases (J. H. Schwartz 2017). Even within one urn, the skeletal elements that were present often showed differential burn patterns (J. H. Schwartz 2017). Schwartz (2017) concludes that the best possible explanation for such evidence is a large crematory pyre, unevenly heated (thus accounting for the differential burning on some fragments from the same urn), that was used over and over again to

cremate human remains. When the cremation was complete, the remains were gathered from the pyre, with little concern for extracting every single element from the pyre (Schwartz 2017). The remains were thus not only mixed, but one individual could have been scattered throughout various urns over time (Schwartz 2017). Crucially, there was no evidence of perimortem trauma, or noticeable trauma at all, on any of the remains (Schwartz 2017). While this does not necessarily mean that trauma did not exist (it is sometimes difficult even in inhumed remains to see all trauma, much less in fragmentary, cremated infant remains), there is also no archaeological evidence that sacrifice *did* occur. Infant mortality in ancient societies, and even in many modern ones, frequently approaches or exceeds 50% within the first two years. There is no reason to suppose that the remains in the urns at the Tophet represent anything other than a cemetery for infants and children that was used over a lengthy period of time (Schwartz 2017; Schwartz et al. 2012, 2010).

The case of Carthage is presented in particular here because it demonstrates the importance of 1) Re-examining previously excavated material, even if the conclusions have been much published and accepted, and 2) Including an osteological analysis of any human remains present in any case where sacrifice or a similar situation is expected. As is the case with Egyptian evidence for human sacrifice, much has been written about Carthaginian sacrificial practices, and archaeological data too was interpreted as supporting the practice of child sacrifice. It was not until the human remains themselves were analyzed that a different picture emerged. Even if the conclusions had been the same, the importance of having a qualified osteologist conduct a study of the remains in such cases cannot be overstated.

Central and West Africa

British traders and explorers visiting various parts of Africa over the past five centuries recorded rituals that involved human sacrifice, and sometimes the sacrifice of kings in specific circumstances, in many cases continuing well into the 19th century (de Heusch 1986; Law 1985). The descriptions of such rituals are not without their biases; human sacrifice was often cited as justification not only for viewing all Africans as primitive or barbaric, but was even used as justification for 'saving' Africans from the violence of their own populations and selling them into European slavery (Law 1985; Snelgrave 1734). The most extreme of such accounts justifying slavery on moral grounds was penned by Archibald Dalzel (1793), who described how the Dahomey (in modern Benin) were continuously raiding and battling their neighbors in order to obtain captives for sacrifice. The European slave trade was thus presented as a way of saving the lives of captives who otherwise would have been killed (Dalzel 1793; Law 1985). Nevertheless, ethnographic accounts indicate that human sacrifice, including regicide, was indeed practiced by various cultures throughout Africa.

Obviously there have been many widely divergent cultural groups across the vast continent of Africa, many of which are still incompletely understood. Here, then, let us focus only on a few examples where we have reliable records of human sacrifice, in some cases practice up through at least part of the 20th century (de Heusch 1986; Law 1985).

According to Law (1985), human sacrifice in West Africa was more commonly retainer sacrifice than sacrifice to or for a deity (Law 1985; Parrinder 1961). The sacrifice of attendants to accompany a deceased person into the afterlife is attested in various groups of West Africa (Parrinder 1961). Since the dead are believed in many West African cultures to become supernatural beings with the power to affect the living, Law (1985) notes that in a sense, retainer

sacrifice was still a form of human sacrifice to, or to secure favor from, a supernatural being. Sometimes the victims were the wives or attendants of the deceased, and sometimes they were captured prisoners or criminals instead, as was often the case among in Dahomey (Dapper 1668; Law 1985) and Asante (Burton 1893; Law 1985; Wilks 1975). In ancient Ghana, female slaves were sacrificed to serve wealthy men in the afterlife at least as early as the tenth century CE (Law 1985; Levtzion and Hopkins 1981), and in the eleventh century an Arabic chronicler describes the practice of burying alive a king's servants at his death (Levtzion and Hopkins 1981). A similar practice was described among the Mandingo (modern Gambia) and the Beafada in the 16th century CE (modern Guinea-Bissau) (Fernandes 1951). Seventeenth-century accounts describe the sacrifice of slaves at the death of noblemen in what is now modern Sierra Leone, and at royal funerals in Allada, located between modern Benin and the Gold Coast (Dapper 1668; Law 1985). In more recent times, the practice of human sacrifice, especially retainer sacrifice, appears to have been restricted to certain areas of West Africa, particularly in cultures in what are now the countries of Benin and Guinea (Law 1985). Sacrifice of a few dozen individuals at festivals honoring deceased kings, as well as at agricultural festivals, was described as late as the late 18th century in Benin by Ryder (1969).

In the kingdom of Dahomey (located between modern Benin and the Gold Coast) in the 18th century CE, human sacrifice, as well as increased rates of interpersonal violence, were particularly prevalent between the death of a king and the accession of the new ruler (R. F. Burton 1893; Law 1985). Outbursts of interpersonal violence, while not necessarily condoned, were also expected during this time of transition between rulers, as a demonstration of why the rule of law and a strong king were necessary (Law 1985)This fits well within the observation in anthropological literature that such times of crisis (e.g. death of a ruler, especially one considered

partly or completely divine) often result in human sacrifice and increased violence as a way to cope with this dangerous, liminal time period (Sagan 1985).

In some cases, the king himself became the victim of human sacrifice. Among groups such as the Rukuba of Nigeria (19th and 20th century CE), the king is responsible for ensuring the well-being of his people, any type of catastrophe that he is unable to avoid indicates that the king's power is ineffectual, and thus he must be deposed (de Heusch 1986). This deposition is sometimes enacted as symbolic sacrifice of the king, who in reality is simply deposed, while an unhealthy infant is smothered in the deposed king's place (de Heusch 1986). Other groups also find alternative victims to sacrifice in the king's place, sometimes an outsider or commoner and sometimes an animal that has ideological and symbolic associations with the king himself (de Heusch 1986). Other groups, such as the Jukun (a tribe that still lives in Nigeria), seem to have actually killed the king himself after he had reigned for seven years, though this practice has been discontinued (de Heusch 1986).

Sudan

There is clear evidence for the practice of human sacrifice, and particularly retainer sacrifice, from various time periods in the region that is now Sudan, particularly during Classical Kerma Period (c.1750-1500 BCE) but also in the kingdoms of Ballana and Qustul into the 6th century CE (Adams 1977; Trigger 1976; van Dijk 2007; Welsby 1996). The Kingdom of Kerma maintained a firm hold on the area south of the Nile's Third Cataract for some time, constructing enormous tombs and funerary chapels that remain remarkable constructions to this day (Adams 1977; Trigger 1976).

George A. Reisner, who excavated many sites in Egypt as well as in Nubia, excavated the royal tombs at Kerma in the early 20th century, uncovering not only luxury goods of all kinds but the skeletons of individuals who, he believed, had been buried alive at the death of their ruler as retainer sacrifices (Reisner 1923a, 1923b). In most cases, the retainers were lying in various positions on the floor around the main body, which was placed on a bed, and in some cases the retainers numbered in the hundreds (at least one tomb, K X, contained 322 bodies) (Reisner 1923a). These attendants included mostly women and children, but also men, which Reisner (1923a, 69) interpreted "body-guards or hareem servants." While most of the burials including sacrificed retainers belonged to royalty, some high officials were apparently also allowed to have a few subsidiary burials (Reisner 1923a, 1923b; van Dijk 2007).

The Case for Egypt

Now that we have explored various examples of human sacrifice in a brief survey, the Egyptian material can be examined more closely in the context of previous research on human sacrifice in other areas. Junker (1911) cited imagery of sacrificial offerings of animals and objects shaped like animals and humans as evidence for human sacrifice in Egypt during the Ptolemaic period or later, and Griffiths (1948) cited Classical accounts by authors such as Procopius to argue that human sacrifice was at least practiced during the Roman period, if not earlier. Lefébure (1900) published a summary of Classical accounts of human sacrifice in Egypt and suggested that perhaps the poorly understood *tekenu* represented human sacrifice, a belief that has largely been discarded by modern scholars as having little basis in the available evidence. Yoyotte (1980) suggested that human sacrifice may have been practiced during the Third Intermediate Period (c. 1070-712 BCE), with red-headed victims being selected as victims

due to their visual association with the red-headed got Seth, though this practice has not been evidenced by archaeological evidence. Schulman (1987) suggested that the Egyptians regularly witnessed human sacrifice or public execution, and that the honorific gifts bestowed on prominent Egyptians by their king (as seen in various artistic depictions on stelae) were to commemorate the attendance of nobles at such events, an argument which seems tenuous at best. In the same vein, Muhlestein (2011) concluded that literary references in ancient Egyptian fictional tales to punishments such as being burned or drowned constituted evidence of these punishments being regularly practiced, a conclusion that is not supported by any remained archaeological or non-fictional textual evidence. A common thread in all of these descriptions is the sole reliance on artistic or textual evidence, rather than archaeological evidence (which admittedly in some periods is limited or even non-existent).

Archaeologically, we are on more solid footing. There is ample evidence for manipulation of human remains, and possibly human sacrifice, during the Predynastic period (Albert 2005; Crubézy and Midant-Reynes 2005; Dougherty and Friedman 2008).

An object that is frequently cited as evidence for human sacrifice in Egypt, or at least ritual killing, is a scene from a small wooden label dating to the reign of Djer, found by Walter B. Emery at Saqqara (Baud and Etienne 2000; Emery 1938; Menu 2001; W. M. F. Petrie 1901; Wilkinson 2001). This label (and a few contemporary ones that show similar imagery) is roughly carved and shows several different discrete scenes, with both human and animal figures. Most relevant for is discussion is a scene in the upper right corner, which shows two figures, one of whom (apparently a male) is kneeling with his hands tied behind his back, while another individual (also a male) stabs him in the chest with a sharp implement (“un instrument perforant

ou trenchant" according to Baud and Etienne 2000, 3) and catches the resulting blood in a vessel (Figure 3).

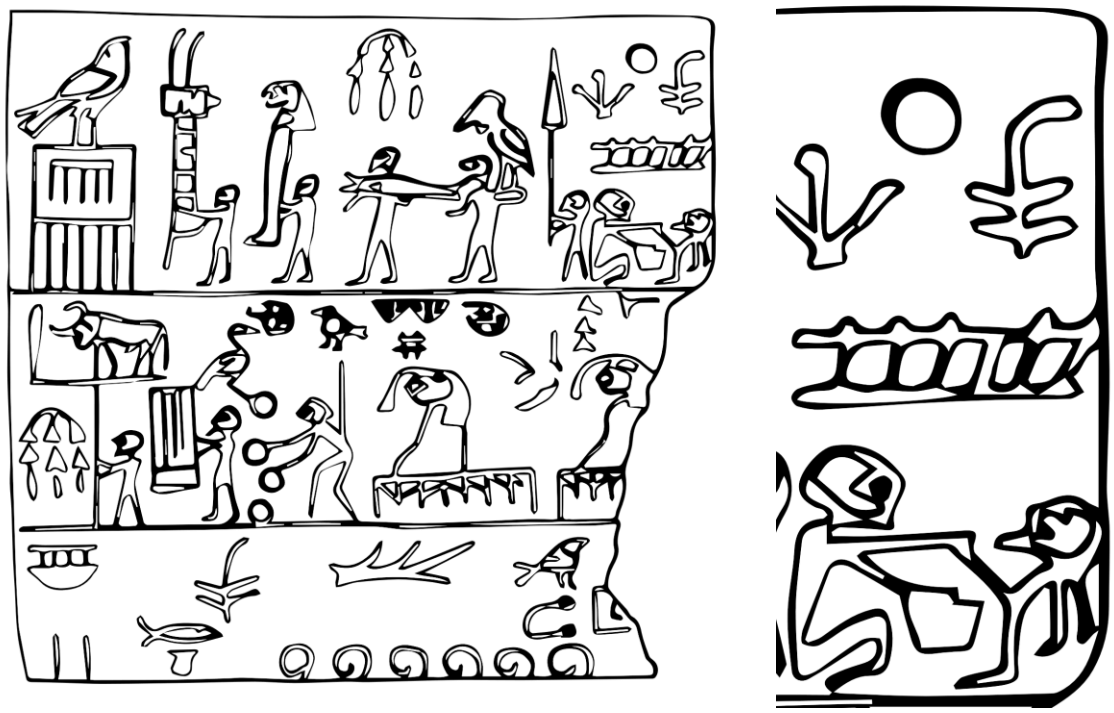


Figure 3: Drawing of a wooden label from the tomb of an official named Hemaka at Saqqara (left). A close-up of the upper right corner (right) seems to show a bound individual being stabbed in the chest by a second individual, who collects the spilled blood in a vessel (after (Emery 1938, pl.17).

The inclusion of royal and religious imagery on the other parts of the label has caused the image to be interpreted as "the only pictorial evidence we have of cultic human sacrifice" (van Dijk 2007, 151) by many authors (Menu 2001; Morris 2007). Van Dijk (2007, 151-2) goes so far as to state "That this is a real event and not just a symbolic representation of the kind that is so often depicted in later temple reliefs is made likely by the fact that it is not the king who is shown killing the victim, but a nonroyal officiant." While this may be a big assumption, it bears consideration. Images of violence almost invariably depict the king enacting violence on enemies

or wild animals, and are a clear symbolic statement of royal power and authority (Bestock 2017). Even at this early stage it is usually possible to distinguish the king from other individuals in artistic depictions, and it does seem that the individual doing the killing is not the king. This may suggest that unlike images of smiting and mastering ferocious wild beasts, ritualized killing in this situation (whatever that may be) was not part of the repertoire of violence expected of the Egyptian king (Bestock 2017), a point to which we will return in Chapter 8.

Even if we assume that the label depicts an actual event or events, rather than being a symbolic depiction of some kind, we certainly cannot be confident that the image shows human sacrifice rather than some other form of ritualized violence, such as the execution of a prisoner or criminal (Baud and Etienne 2000). The fact that the victim is bound may argue for execution over human sacrifice, as only in one known case is a body from a subsidiary grave in Egypt bound; all the other known occupants of the subsidiary graves that have been interpreted as human sacrifice show no evidence of such binding.

Conclusion

It is clear from the foregoing discussion that sacrifice exists in many forms and in many cultures around the world. Let us now turn our attention to the mechanics of sacrifice: how it worked, who was selected as the victim(s), how the victim was dispatched, and how the ritual of human sacrifice functioned within the ideological context of the culture where it was practiced.

Chapter 3-Ritual, Performance and Identity in Sacrifice

Introduction

While studies addressing violence in the past have proliferated over the past decade, few studies have specifically delved into the realm of *displayed, state-sanctioned violence*. This is a subtle but crucial distinction; many forms of violence may be displayed to some degree (e.g. warfare), but in some cases, it seems that the *display* of that violence was as important, or even more important, than the violence itself. The concept of display is particularly salient when considering more modern examples of culturally sanctioned violence such as the Rwandan Genocide, the Armenian Genocide, the Holocaust, and the War in Darfur, to name only a few. These contemporary examples highlight the role of violence (not only physical violence but structural violence as well) as a tool for manipulating and controlling large groups of people (Krohn-Hansen 1994; Parsons 2007).

Yet it is not always easy to convince large groups of people that violence is a necessary or even beneficial course of action. Certainly, some individuals revel in violence, but large-scale violence such as war or genocide tend to require the support of at least a significant portion of the population. In cases of human sacrifice, while some individuals may have offered themselves willingly, others likely were reluctant or even opposed (the prisoners of the Aztecs, whose hearts were sometimes torn out while still beating, were probably not particularly willing victims). How, then, is death ritualized and justified in such a way that it becomes acceptable, even on a large scale?

Ritualizing and Justifying Death

The importance of ideology and its power to promote violence has already been discussed (see Chapter 2). But what are the actual steps by which someone may be convinced to kill (or offer up to be killed) someone within their own community, as is so often the case in human sacrifice? Philip Zimbardo's (1973) psychological experiments suggest that there is a specific process by which individuals may be convinced to perform violent acts, despite any initial reluctance to do so. This process involves several phases, which are modified somewhat here into the categories of identity and depersonalization, displacement and diffusion of responsibility, linguistic distortion, and the idea of no escape.

Identity and Human Sacrifice

In cases of sanctioned killing, certain victims are seen as more or less desirable or eligible, based on a set of culturally constructed criteria (Law 1985; Schwartz 2012). Selection of victims is often based heavily on the creation of identity groups, whether ethnic, religious, economic, or otherwise. Unfortunately, identity is also an extremely complex and ever-changing topic that is difficult to study even among living subjects, much less in the distant archaeological past (Anderson 2016; Shennan 1994). Identity may also be constructed through the medium of religious beliefs or groups, ethnicity, gender, sex, age, social class, occupation, landscape and built environment, and any of a wide range of categories (Anderson 2016; Jones 1997; Shennan 1994). Disabled individuals may also be sacrificial victims, as was frequently the case with bog bodies of northern Europe (Aldhouse Green 2001). Parker Pearson (2000, 70–71) has argued that such individuals may have been perceived as influenced by the spirit world and thus the best vehicle or messenger for sacrificial ritual. While not all aspects of identity are identifiable in the archaeological record, they certainly play a role in perceptions and acts of violence. Human

identity is a flexible and multi-faceted construct that can be molded and manipulated in a variety of ways. Within the context of violence and state power, the individual factors of identity (age, sex, perceived "ethnicity") may be subsumed by a real or created group. In the modern world, "ethnicity" is often considered one of the most powerful tools or aspects of identity.

Ethnicity

Ethnicity is a fluid and problematic concept even in modern populations. While modern governments (and, indeed, individuals) often strongly associate broader identity categories with ethnicity (black, white, Native American, etc.), past cultures placed a much heavier emphasis on what we would probably consider to be nationality, usually as evidenced by adoption of a common language along with the attendant culture and, often, religion (van den Berghe 1990:5). Anthropologists tend to speak of ancestry or cultural affinity rather than ethnicity, as ancestry at least can be determined through skeletal morphology, and cultural affinity may be estimated based on the accoutrements of the burial; this is much more useful in archaeological contexts because cultural traits do not necessarily mirror what we (or ancient populations) would consider to be ethnic groups (Hall 2000; Jones 1997). In some cases, grave goods such as artifacts, clothing, or even hairstyles, may indicate the cultural affinity of the deceased (Buzon 2011; Shennan 1994). However, assuming a one-to-one correlation between artifacts and cultural affinity or ethnicity is problematic. A famous Egyptian case illustrating this point is the case of Maiherpri, a close companion of the New Kingdom (c.1570-1069 BCE) king Thutmose III, who was interpreted as a Nubian based on his dark skin, though later analysis determined that his famously "Nubian" hair was, in fact, a wig, and that his dark skin could have been natural or darkened by mummification (Figure 4) (Forbes 2015). While this does not mean that Maiherpri

was *not* Nubian, it does provide a cautionary tale against assumptions about ethnicity or ancestry based on appearances.

Figure 4: Maiherpri, a companion of King Thutmose III, who was buried in the Valley of the Kings (Tomb KV 36) in southern Egypt (Image from Elliot Smith and Dawson 1924)

It must be remembered that the popular saying "The dead do not bury themselves" holds true, however cliché it may sound. Burials are conducted by others than the deceased, and thus may express the identity of the deceased differently than that individual self-identified. This is easily seen to a small degree in the practice of modern Western burials, where individuals are frequently buried in their best clothes, rather than their everyday garb that would have been more commonly associated with that individual. The deviant and "vampire" burials of medieval

Europe contain individuals that quite likely had not self-identified as vampires (or even been identified by their peers as such) during life (Betsinger and Scott 2014; Barrowclough 2017).

Regardless of biological ties, ethnic identity is a social construct and is perceived subjectively both by those within and without the established group (Hall 2000; Jones 1997; Shennan 1994). This is particularly true in ancient Egypt, where stereotyped depictions of various "ethnicities" have been cited by Egyptologists as corroboration of ethnic divisions in Egyptian society. But the Egyptians were frequently in contact with non-Egyptians, primarily Nubians, Libyans, and "Asiatics" from the Sinai and Levant regions, and these people were settling in Egypt and intermarried with locals from an early date. Kemp (2005, 26) points out that there were a range of responses to foreigners in Egypt: "demeaning generalizations about foreigners and attempts to bar them from entering do not express absolute values but were heavily dependent upon context, and the Egyptians did not translate these into exclusion laws or into customs and behavior which formed an effective barrier." As early as the First Dynasty, the Egyptians began their continual conquest of Nubia, with varying levels of success for the next several millennia, and, somewhat paradoxically, soldiers were recruited from Nubia at least as early as the Old Kingdom (Kemp 2005). This seemingly contradictory strategy highlights the important point that distinctions of foreignness and otherness were heavily based on context. From the ancient Egyptian viewpoint, nationality and ethnicity seem to have been constructed primarily in terms of geographic origin (e.g. Nubia or Libya), as well as linguistic terms (e.g. speaking Egyptian and acting as an Egyptian could mean that one was, in fact, Egyptian) rather than ancestry (Kemp 2005).

Ideas of ethnicity as we tend to think of it, i.e. often associated with ideas of superiority based solely or primarily on skin color, are relatively modern constructs; while the Egyptians

certainly noticed and recorded differences in skin tone between Egyptians and Nubians, these distinctions were not necessarily linked to any notions of superiority. Egyptian art stereotyped not only foreigners but Egyptians as well (Kemp 2005). Egyptian women were portrayed with lighter skin to indicate that they were affluent enough to spend most of their time indoors, away from the sun, while Egyptian men were portrayed with darker skin to indicate that they were healthy and strong enough to work outside. Such depictions were also highly formulaic and context-dependent, and do not necessarily have any bearing on how individuals with different skin tones or other "ethnic" identifiers were treated in real life. If a foreigner was perceived as part of "the enemy," "he [was] simply designated by an adjective which seems most appropriately translated as vile" (Kemp 2005, 94). Other foreigners integrated completely into Egyptian society and were portrayed very different. Artistic depictions of these individuals generally follow typical Egyptian conventions, but may indicate "foreignness" by showing darker skin, unusual hairstyles, or different clothing types ((Figure 5). As far as we can tell, artistic depictions of different skin colors, hairstyles, and manner of dress were simply a way of differentiating populations from different areas or cultures rather than a way to indicate superiority of any particular group (Robins 2008).

Figure 5: Images of stereotyped foreigners from the New Kingdom palace of Ramses III at Medinet Habu, southern Egypt: a Nubian chief (center) (accession number 03.1570), a Syrian chief (right) (accession number 03.1573), and a Philistine chief (right) (accession number 03.1572). Museum of Fine Arts, Boston.

The populations obviously mixed in everyday life, particularly with regard to the inhabitants of Nubia, in what is now Sudan. Throughout Egypt's long history, Nubians seem to have frequently settled in Egypt and simply been integrated with the rest of the population, often as soldiers or attendants, while individuals from the Levant more frequently entered Egypt as prisoners of war, destined to be slaves (Kemp 2005). Immigrants and some war captives (mainly women, but sometimes men as well) could also be integrated into Egyptian society, occasionally even joining the elite ranks of Egyptian scribes (Kemp 2005). Some of these foreigners

integrated so completely into Egyptian society that they seem to vanish from the archaeological record. A 13th Dynasty papyrus details the list of slaves in a noble's household, and more than half of the slaves' names (both male and female) are preceded by the adjective "Asiatic" (Kemp 2005). The slaves' children, however, all have Egyptian names, thus fading into the general Egyptian population from an archaeological point of view (Kemp 2005). During the New Kingdom, numerous foreigners were settling in Egypt, and it seems that many were fully integrated into Egyptian life. By the late 18th Dynasty, employment of Medjay Nubians (from the region of Medja in Nubia) was so common in Egyptian security forces that the term ceased to be associated with a specific group of Nubians and instead referred generally to police forces and patrols (Darnell and Manassa 2007). Slaves could be Egyptian or foreign, as could elites. Nationality, then, was clearly an aspect of identity that could be manipulated and adapted in a variety of ways.

It is uncertain whether or not the retainer sacrifices of ancient Egypt consisted of native or foreign victims; either method would have required enormous resources. Sacrifice of foreigners would likely have required massive raids to obtain the hundreds of sacrificial victims; since no records of such raids (which would have perhaps strained resources at the very birth of a united Egypt) exist, this is perhaps an unlikely explanation. Sacrifice of Egyptians, however, would have also placed enormous strain on the native population, particularly since so many of the sacrifices were young, relatively healthy adults (Morris 2007). The inclusion of typically Egyptian artifacts in some of the graves further supports the hypothesis that the interred, at least in death, were identified as Egyptians in death (W. M. F. Petrie 1900, 1925; Morris 2007).

If non-Egyptians were sacrificed to accompany the king in death, the most efficient way to acquire the number of individuals needed for the sacrifices would have been raids or warfare.

According to textual sources, non-Egyptian war captives could meet a variety of fates; while captured leaders were usually executed, lower-ranking women and men were usually dragged back to Egypt to supplement the labor force. On the Mit Rahina stela, Amenemhat II recorded that he brought over 1500 Asiatics back to Egypt with him after a campaign and describes the dispersal of these captives amongst the elite, who presumably made the captives into slaves or servants (Kemp 2005; Marcus 2007). Such captives might be expected to show evidence of structural violence, predisposing these individuals to poorer health, lower socio-economic status, and generally higher mortality (Galtung 1969; Klaus 2012). War captives in many populations who become slaves are also often subjected to higher rates of sub-lethal violence and injury recidivism (i.e., injured individuals are more likely to be injured again) than the native populace (Harrod and Martin 2014).

Enemy leaders were not so fortunate as other captives; after a particularly triumphant campaign in the Levant, Amenhotep II records on the Amada stela that he brought seven defeated princes back to Thebes, tied to the prow of his boat, before displaying their bodies at Thebes and Gebel Barkal (the verb tense in this account is unfortunately ambiguous regarding whether the princes were slain before or after they were brought back to Thebes) (Filer 1997). There is some textual evidence suggesting that captives may have been publicly executed in Thebes after victorious campaigns (Muhlestein 2011). Enemy soldiers who were already dead (or perhaps were dying) were often mutilated; Egyptian reliefs frequently show piles of severed hands or genitalia that are used to tally the number of defeated enemy soldiers in a graphic display of victory. Several grisly piles of such trophies adorn the temple of Ramses III at Medinet Habu, and of course the discovery of collected hands at Tell el Dab‘a indicates that such practices did occur in real life as well (Bietak 2012).

It seems we must then abandon "ethnicity" as a useful construct, though created ethnicity (i.e. designating a group as "other" due to their physical appearance) may be used as a tool for othering. But this is not the only way that humans form ideas about their place in, and relationship to, the world. Other facets of identity such as age, sex, and even gender may be somewhat easier to analyze in archaeological contexts. These concepts have their own caveats, of course. For example, chronological age (e.g. 27 years old, 50 years old, 3 years old) as determined from human remains may not match an individual's social age (child, adult, etc.), and biological sex may be ambiguous or, if certain, may still not correlate with the gender that the individual identified with or was identified with by their community. To some degree, these ambiguities will always be unsolvable in archaeological populations (and, arguably, even in modern populations).

Gender and Sex

As in any other aspect of archaeology and anthropology, gender is an important aspect of studies of violence. As Gero and Conkey (1991,10) point out in their important study of gender and archaeology, "gender illustrates ways in which particular roles and relationships are socially constructed, especially –for archaeologists—in relation to the productive and material world". While the complex and fluid nature of gender identity cannot fully be understood from the material culture of the archaeological record, Gero and Conkey point out that we must at least consider the ways that gender is manifested and subsequently interpreted and understood from the archaeological record (Gero and Conkey 1991, 409). However, gender has historically been misunderstood in archaeological contexts when judgements are made based on modern (often binary) perceptions of gender and gender identity (a famous example is the Etruscan warrior

'prince' who, upon osteological examination, turned out to be a woman (Ghose 2013)). Even modern concepts of gender are constantly changing and defy neat categorization, difficulties that are amplified when our only understanding of gender comes from such trappings as clothes and artifacts that survive in the archaeological record. Even if gender was, for simplicity, separated into categories of male or female for each archaeological culture, there are still exceptions; there is, for instance, clear skeletal evidence for biological women acting as among the Arikara tribes of the Missouri River area, though the role of warrior was traditionally a male one (Hollimon 2001; 2011).

While gender may be difficult or impossible to determine from the archaeological record, biological sex is easier to determine from well-preserved skeletal remains. Interestingly, patterns of violence do correlate with biological sex; numerous studies have indicated that, broadly speaking, females are more likely to be victims of violence, while biological males are more common than female in roles related to warfare (Robbins Schug et al. 2012). However, the context of the violence here becomes crucial, as certain types of violence differentially affect the sexes. Males are more likely to participate, and thus die, in battles and other forms of physical combat. During war or large-scale violence, such as genocide, both males and females may be affected more equally. Some factors are more subtle; as Eller (2010, 35) points out, "Manliness is often a limited and contested commodity that must be achieved in contrast to, and at a cost of, women."

In sacrificial rituals, sex and gender may play important roles. The ancient Greeks describe the sacrifice of young, virginal women, harnessing both the "unsullied purity and undissipated sexuality" as a potent offering to the gods (Aldhouse Green 2002, 156). In Egypt, gender roles certainly affected the social persona of men and women. In their written records at

least, the Egyptians seem to have recorded only male and female genders, but it is quite possible that like most cultures, they recognized a gradient, or at least different types, of gender as well. As has been discussed earlier in this work, conflating biological sex with culturally-specified gender roles is extremely problematic, not least because the Egyptians almost certainly viewed gender roles differently than we do in our modern, industrialized civilization.

Age

Age is also a category of identification; while chronological age may be estimated from skeletonized or mummified remains, social age (e.g. such nebulous categories as "child" or "adult") are socially determined. Here again, different forms of sanctioned violence may affect different groups. While children may not participate in battles during times of war, they are certainly not immune to the violence of raids and capture. In Egypt, however, it seems that children were infrequently included in retainer sacrifice, if ever, and appear to have escaped other forms of formalized, sanctioned violence (such as execution) entirely.

As has already been discussed, in some types of sacrifice, children are considered the best candidates for human sacrifice (Geller 2011; Schele 1984). While the sacrifice of children often seems particularly abhorrent to modern audiences, and has long-term consequences for cultures with some practices since, as Aldhouse Green (2001, 152) points out, that culture is quite literally "sacrificing the future," we must be careful to check our initial reactions. While it is true that children are the promise of future population growth, they are also, from an objective standpoint, often an economic burden. Up to a certain age (which varies by culture), children are not able to work as hard or as efficiently as adults, not able to effectively bear arms, and require significant investment from other community members that may take time away from other

important economic or subsistence activities (Aldhouse Green 2001). When viewed as not yet full members of society, children may be seen as economically cheap or even expendable, or conversely as more pure because they are as yet untainted by adulthood (Aldhouse Green 2001). The importance of young victims, not only in human sacrifice but also in animal sacrifice, is a theme that appears in many cultures, from South America to Iron Age Britain (Aldhouse Green 2001).

Identity Groups

Any aspect of the numerous identities, or combination of identities, may be components of any individual's identity at any one point (Anderson 2016; Eller 2010). Individuals who share one or more of these aspects of identity (whether self-identified or not) may coagulate into groups. Group membership, even perceived membership in an ethereal or purely ideological group, can be a powerful aspect of an individual's identity. Any one individual will perceive him- or herself as a member of various groups throughout life (based on living location, employment or career, age, marital status, ethnicity or perceived ethnicity, etc.), and these groups will inevitably shift in importance and relevance as time passes (Eller 2010). Often these group memberships will not contradict one another (e.g., one could be both a woman, and in her mid-thirties), but inevitably membership in a group means exclusion of others (e.g., this woman is in her mid-thirties, but that woman is in her mid-twenties) (Arnold and Wicker 2001; Diaz-Andreu and Lucy 2007; Eller 2010; Zakrzewski 2007). Again, this exclusion is often harmless, but can be utilized to powerful effect in the right circumstances. Being a member of a group ("us") automatically means there must be a "them," and such differences may be maximized and emphasized to turn "us" against "them" (Diaz-Andreu and Lucy 2007; Eller 2010). Prior to

actual violence, new identity groups may be created (or at least solidified) to split groups that might previously have been perceived as a cohesive whole (e.g., during times of political fragmentation such as the Intermediate Periods in Egypt) (Eller 2010).

Social groups automatically create insiders (termed by social scientists the "in-group") and outsiders (the "out-group"), effectively separating "us" from "them" (Eller 2010; Said 1979). This fact alone need not lead to violence; since an individual may identify with multiple groups at any given time, the overlapping and crossing identities tend to maintain a type of balance (Diaz-Andreu and Lucy 2007; Eller 2010). Yet some groups might be more exclusionary, might have stronger links to someone's self-ascribed identity, or might include some element of inequality and hierarchy, and it is these groups that are particular favorable for outbreaks of violence (Eller 2010, 33). If individual humans have a capacity for violence, "groups unleash or exacerbate that capacity, and institutions regularize and legitimize it" (Eller 2010, 36). The victim (or victims) then serves as a pointed message to his or her group. Prior to actual violence, new identity groups may be created (or at least solidified) to split groups that might previously have been perceived as a cohesive whole (e.g., during times of civil unrest such as the Intermediate Periods in Egypt).

Having a common enemy (be it an individual or a group) provides a motivating focus for all of the negative forces, and enacting such negativity against perceived transgressors may even fuel more hatred, as the victims are viewed as deserving of their fate through virtue of their nationality, beliefs, or behavior (Eller 2010; Hoffer 2010). Violence may even be used to enhance group identity or increase social cohesion, as those with differing views are systematically othered and then destroyed (Osterholtz 2012; Rappa 1999; Schröder and Schmidt 2001).

Group action also allows individuals to displace responsibility for their own violent actions. Whether the violent actions are physically divided (so that one individual does not see, perform, or understand the full level of violence), or the perpetrator or victim are dehumanized (either with language, or physically with a mask or similar object), violent action is more easily accepted by perpetrators and spectators when the ultimate responsibility can be placed elsewhere (Baumeister 1999). This is particularly effective when the orders for violence come from a place or figure of authority; (Zimbardo 1973) psychological experiments indicated that individuals were more likely to commit violent acts if such acts were commanded by a figure of authority (rather than, for example, a peer). As (Eller 2010, 44) notes, many of the previously discussed factors may align:

> "A person does not *have* to be a psychopath to feel good about causing harm and suffering – or to feel little or nothing at all about it. Rather, what we have discovered is that human needs only a belief system that teaches that he or she is acting for good reason (even a "higher cause"), under someone else's authority, as a member of a (threatened) group, in pursuit of interests.

This is particularly relevant for this dissertation; sacrifice of individuals to accompany the ruler into the afterlife, with hundreds of individuals being buried next to their king every generation for over a century, was clearly a practice dictated by the government. Yet the nascent Egyptian state was clearly vulnerable, as evidenced by the unrest and lack of unity lasting into the Second Dynasty. It seems unlikely that the populace would have been incapable of rising against, and even overthrowing, the king, if they felt that he was overstepping his bounds. Indeed, the assassination of Ramses III many centuries later indicates that the king was by no means unassailable (Hawass et al. 2012; Redford 2002). There seems, then, to have been some level of quiescence from the population at large. Somehow, the majority were convinced that violence was the best, or perhaps the only, choice.

Linguistic and Artistic Distortion and Depersonalization

Since social norms generally preclude many types of violence, particularly internal violence, these norms often need to be overcome in order for the violence to become acceptable; for example, while a government may rule that all members of a town should be slaughtered, this is (probably) not common practice, and thus others might be reluctant to carry out such grisly orders. Once the victim or group is chosen, their identity is modified by the perpetrators in order to dehumanize, distance, and stigmatize the victims (Eller 2010; Zimbardo 1973). Dehumanization of potential victims is one way to persuade the populace that violence against certain individuals (sometimes their own neighbors and community members) or a group is necessary. Psychological studies have regularly showed that even normally peaceful individuals can be convinced to commit violent acts if the victim is seen as distant or in some way dehumanized (Zimbardo 1973). Zimbardo (1973) conducted a series of experiments in which individuals were asked to inflict pain (at least, they believed they were inflicting pain) on another individual, and found that the perpetrators would more readily cause pain if the identity of the (perceived) victim was obscured in some way, such as with a mask or being out of sight altogether. This process of dehumanization and distancing might start relatively innocuously, by strengthening group ties and making such groups more exclusionary.

One of the most common ways to dehumanize victims is with the power of language. By verbally casting the chosen victim(s) as the other, the outsider, and often less than human or even truly evil. Rather than being simply different, the out-group is now perceived as presenting a hindrance or a danger to the in-group, and thus violence (sometimes to the extent of total elimination) becomes not only necessary but also a force for ‘good’ (Eller 2010). This is readily apparent in modern examples of violence, particularly in cases of genocide. Discussing the Burundi genocides, (Lemarchand 1990, 89–90) notes that “more often than not, the participants

in violence are reduced to caricatures ("the tall, graceful Tutsi pitted against the short, stocky Hutu"), and their motivations are ascribed to the perverse effects of ancestral hatreds (alternatively depicted in terms of "tribalism" or "caste prejudice"). Sometimes the language is much harsher; "In the case of the Ache, both the settlers and their victims spoke varieties of the same language stock, but "the settlers are men of reason, while the hunting and gathering Ache are in their terminology merely Guayaki 'rabid rats'; and rabid rats must be exterminated" (Kuper 1990, 44). Prior to the Rwandan genocide, widely circulated cartoons fostered a belief that some individuals were less than human, and thus deserved to be killed to enhance the greater good (Gourevitch 1999; Kiernan 2009; Wielenga 2014). Such tactics are particularly potent and effective when they derive from figures or institutions of authority (Turpin and Kurtz 1997, 5). There is evidence for similar practices in the ancient world, for example among the Romans, who preferred to sacrifice foreign slaves which were viewed as less human than Roman citizens (Aldhouse Green 2002).

Participants in sanctioned violence manipulate language to the fullest extent possible to justify the violence. While the most notable and, arguably, most influential use of language is in the terminology used to refer to the victims (discussed above in "Identity and Depersonalization"), language can also be used to mitigate the acts of violence themselves; perhaps the most well-known example of this is the use of the term "The Final Solution" for the plan to kill all Jews under Adolf Hitler's Nazi regime. Killing may be described as cleansing or purifying, or extermination of some vermin, or simply a sacrifice (in itself a euphemism, particularly in regard to violence and suffering) for a greater cause.

The power of language is also manipulated, both consciously and unconsciously, by observers and scholars. Some scholars prefer terms such as "aggression," "counter-insurgency,"

"revolution," and other words that are, perhaps, less negatively charged than words such as "violence," "killing," or "genocide," while other scholars may use more charged words such as "slaughter" or "massacre," depending on the bias and intent of their research (Eller 2010; Kiernan 2009; Kuper 1990; Riches 1986; Rummel 1997; Pierre L. van den Berghe 1990; Whitehead 2004; Kenton Worcester, Bermanzohn, and Ungar 2001). As with any topic, use of negatively- or positively-charged terms can sway the audience/reader towards the desired interpretation. This is also relevant in our understanding of ancient texts, which may be translated in various ways that with subtly, but significantly different meanings.

Images may also be used to manipulate the emotions and perceptions of viewers, and to influence the way that they see other groups of people. Of course this is very obvious in the highly stylized depictions of foreign enemies in Egyptian art, who cower or sprawl, often naked or nearly naked, at the mercy of the king. Such depictions demean and dehumanize the victims permanently for viewers of the image (Figure 6).

Figure 6: King Tutankhamun, portrayed as a sphinx, tramples his enemies, who lay in awkward and uncomfortable poses. Photo by Danielle Candelora.

The absence of references to sacrificial victims in Egypt is telling. Not for these individuals the descriptors of animals and foreigners. In almost every case, each individual is accorded a single burial, with their own grave goods and sometimes a coffin (Emery 1949, 1954, 1958; W. M. F. Petrie 1900, 1925). Some of the individuals even had small stelae with their names and titles inscribed on them (Petrie 1925). Perhaps this is an indication that these individuals were "insiders," that their death was not so much a punishment as a necessary step into the afterlife with their king.

While this particular step of the process of sanctioning violence was described during Zimbardo's (1973) experiments regarding how humans can be encouraged or coerced into violent action, it has relevance in many cases of sanctioned killing. In this case, it is perhaps more appropriate to say "no alternative." It is not necessarily that the perpetrator will suffer their own death, or the death of a loved one, if they fail to inflict violence, but rather, violence is seen as best or only way to persuade or ensure compliance or to serve the greater good (whatever that may mean at that time and to the individual(s) involved). This is particularly applicable to cases of sacrifice (if the sacrifice is not conducted, the god(s) might be displeased and wreak havoc and destruction) and execution (practically speaking, elimination of the transgressor or enemy) (Geller 2011; Girard 1979; C. A. Murray 2017a). The "retribution" or punishment for failing to commit violence may extend to the supernatural realm, in that perpetrators fear divine retribution if they do not commit violence, and victims fear divine repercussions if they fail to submit.

Outside of warfare and genocide (which seems to be a more modern construction in some ways), human sacrifice seems to be the most public and most visible display of violence in the ancient world. In some cases, hundreds of individuals were slain in a single ritual, often publicly. We must then consider the mechanics of how such practices might have functioned as a socially constructed performance designed with a specific purpose in mind, based on the context.

The Symbolism of Physical Violence to the Body: Politicization and Performance

Pérez (2012) describes the nature of violence as a socially constructed performance with a carefully selected target audience and, in many cases, a specifically chosen victim. Social anthropologists published extensive studies of performative violence in more recent times

(Ferguson 2008; Rappa 1999; Riches 1986; Schröder and Schmidt 2001; Turpin 1986), and archaeologists and bioarchaeologists have also begun to explore the idea of performative violence in the past (Benson and Cook 2001; Carter 2013; Cobb and Giles 2009; H.D. Klaus, Centurión, and Curo 2010; Osterholtz 2012; Pauketat 2009; Pérez 2012a; Tung 2008b, 2007a, 2012).

Violence as a tool of control is meaningless without an audience, and thus acts of violence that are intended to manipulate and control spectators are enacted as if on a stage, with 'props' (or tools to carry out the violent act) and a method of killing that has been calculated to elicit the most powerful response (Pérez 2012a). This is perhaps most evident in cases of sanctioned killing such as executions, but may also be present in examples of genocide or mass killings such as human sacrifice (Gourevitch 1999; Krüger 2010; Pérez 2012a; Whitehead 2004).

Acts of violence do not simply affect the corporeal body, but rather, sanctioned violence for political or social purposes is targeted at the individual and collective psyche, and "the social fabric of the society in which it takes place" (Pérez 2012a). Culturally sanctioned killing may be manifested as the use of force above and beyond what is necessary to cause death in the victim. Simply killing a member of a rebelling faction may quell the insurgency, but such a killing has limited influence if the dominating power cannot advertise its victory and power in some way. Thus, sanctioned violence often takes the form of public and/or excessive violence in order to impress upon the intended audience the dangers of disobeying or displeasing the ruling power. For instance, numerous cut marks on the first and second cervical vertebrae could be indicative not merely of beheading, but of a show of force, since a single cut (or perhaps several cuts at most) across the throat is generally sufficient to kill an individual. There is no object with which a human can more readily identify than a human body or corpse (Pérez 2012a). Thus we find

instances of evisceration of pregnant women in Rwanda, removal of feet and hands of prisoners in Sierra Leone, and killing with hammers and mallets in the ethnic cleansing of Bosnia, all of which were intended to inspire horror and fear in the populace (Pérez 2012a; Whitehead 2004). In ancient societies, these themes of performance and display were undoubtedly just as important; Porter has noted that, at least in the case of human sacrifices at Ur in Mesopotamia, the sacrifice itself was "subordinate to the need to make the tableau" (2013, 197). In the American Southwest, excavations at a site dating to the Pueblo I period (approximately 710-825 CE.) revealed that execution victims were first tortured by severe blows to the feet and ankles, effectively hobbling the victim, before ultimately being killed (Osterholtz 2012). This was likely a performative act designed to highlight and increase the helplessness of the victim and the power of the aggressor or aggressive party (Osterholtz 2012).

Violence and politics are closely intertwined, and though warfare is perhaps the most obvious example of this, there are numerous other ways that political power may be wielded through violence (Mitchell 2004; Ruggiero 2006; Rummel 1997; Kenton Worcester, Bermanzohn, and Ungar 2001). In some situations, the true effects of this power may be invisible in archaeological contexts For example, the disappearances in Argentina during the 'dirty war' of the 1970s and '80s were a potent way to display power (in this case, the ability to penetrate the inner sanctum of the home and remove the victim without a trace) and generally preceded physical violence; the disappearances themselves, with their unpredictability and the implicit threat of violence, were nonetheless an incredibly effective tool to strike fear in the hearts of citizens (Robben 2000). While the skeletal trauma of such situations may appear in archaeological remains, the nuances of power and terror cannot be fully understood when such situations occurred in the distant past.

State-sanctioned killing, as a politicized act, is frequently directed at individual and group identity. Osterholtz, (2012:148) notes that "violence may act as a mechanism for building social cohesion through the development and destruction of the 'other'." The victim (or victims) then serves as a pointed message to his or her group. Acts of sanctioned violence for political or social purposes do not simply affect the corporeal body, but rather, target the individual and collective psyche, and "the social fabric of the society in which it takes place" Pérez (2012: 15). There is no object with which a human can more readily identify than a human body or corpse, and thus damage to the body elicits fear and inspires compliance and submission in a way that words and pictures cannot (Pérez 2012a). Thus we find instances of evisceration of pregnant women and forced cannibalism of family members during the 1994 genocide in Rwanda, and removal of feet and hands of prisoners in the civil war in Sierra Leone, techniques that were carefully calculated to inspire horror and fear in the populace (Gourevitch 1999; Krüger 2010; Pérez 2012a; Whitehead 2004; Wielenga 2014). Killing with hammers, mallets and other everyday implements in the ethnic cleansing of Bosnia provided both a method of killing that was convenient, and a way to inspire terror by causing death with ordinary objects that were relatively harmless under ordinary circumstances (Pérez 2012; Whitehead 2004). The causing of death is almost subsidiary to the performance; by using everyday objects, or excessive violence, to mutilate and cause pain to an individual, their identity is attacked and obliterated in a symbolic way. The taking of trophies, such as limbs, skulls, or scalps from living or deceased victims, is attested in many cultures, including ancient Egypt (Andrushko, Schwitalla, and Walker 2009; Andrushko and Torres 2011; Finucane 2008; Tung 2007b, 2012; Forstner-Müeller et al. 2012; Zimmerman 1997). Numerous images exist on Egyptian temple walls (e.g., at Medinet Habu) of

huge piles of severed hands and genitalia, used to tally the number of enemies killed in a conflict (Figure 7).

Figure 7: Piles of hands severed from enemy soldiers, as depicted on the walls of Ramses III's temple at Medinet Habu. Photo by the author.

Since the successful use of a corpse as a symbol depends to some extent on its recognizability as a human body and the visibility of the wounds, violence might be enacted *after* death as well. Disarticulation, mutilation, and annihilation of the corpse (and images of individuals) symbolize social and political victory and total power over life and death (Robben 2000; Varner 2013). Politicization of the dead involves the display of those human remains (Pérez 2012a). Public sacrifice, execution, and martyrdom provide a visceral understanding of the fate of those who resist the established authority (Carter 2013). Thus politicization of the dead becomes rather like a performance with a corpse rather than a living victim, and various acts of violence or manipulation may be perpetrated on the corpse to gain maximum response from any viewers.

The Performance of Sacrifice

Observations of animal sacrifices have indicated that perhaps the deepest common thread connecting sacrifices across cultures is the feeling of *communitas* experienced by those who are involved in some way with the sacrifice, whether as active participants or observers (Anderson 1987). In the case of the ancient inhabitants of Israel, religious or cultic events were the main way to create a feeling of unity, both socially and religiously (Anderson 1987). Of course this feeling is manufactured by those organizing or requiring the sacrifice, but regardless of the source, this does not decrease the potency of the unity created by inclusion in (or exclusion from) a momentous occasion.

In ancient Egypt, it seems that many sacrifices were practiced in the holy areas of the temple, hidden away in the sacred space walled off from the mundane world (Dunand and Zivie-Coche 2005). The mainstream population was not totally separated from sacrificial rituals, however; the use of votive offerings, not only objects but sometimes mummified animals, is well attested throughout Egyptian history (Assmann 2005; Dunand and Zivie-Coche 2005; Hornung 1993).

Sacrificial Space

As Wegner (2017, 98–99) notes, at least during the Middle Kingdom, the Egyptian state was well aware of techniques to manipulate the built environment in order to control sacred space. The stele of Neferhotep marked the edge of sacred space along the processional route, a purposeful choice designed to highlight the boundary not only between the sacred and the mundane, but also between the royal and private realms of construction and access (Wegner 2017). Extending back to the Old Kingdom, the pyramids and associated enclosures were obviously effective at simultaneously designating a private and sacred space while also

advertising that exclusivity (among other things) with their high level of visibility. Can we project these ideas of spatial separation into the Early Dynastic Period?

Interestingly, there do not appear to have been any enclosure walls around the funerary enclosures of the First Dynasty, at least according to Petrie's notes and records (see Chapter 4 for a more complete discussion of the subsidiary burials and their archaeological context). If access to the mortuary rituals were restricted, then, another method must have been used. A study of later (even a few generations after the Early Dynastic burials) temple architecture indicates that the Egyptians were adept at creating spaces for audiences both sacred and mundane, and that architectural forms were often used to restrict access. It seems unlikely that the remoteness of the location would have prevented every single curious onlooker, so perhaps we should consider whether the funerary rituals were actually *intended* to be viewed. Who, then, might have been privy to the sacrifice of so many individuals?

Audience

A crucial component of any sacrificial space was the intended audience. The audience may not necessarily be human, of course, and many sacrifices were likely relatively private affairs between the offerers and the deity or being receiving the offering. Parallels may be drawn to the offering stele that are so ubiquitous in ancient Egyptian culture. These stelae were directed at both living audiences (who were expected to repeat the offering formula aloud) and to the spirits of the afterlife (especially the deceased, but also any deities who might be in charge of making sure such offerings reached the intended recipient). As Wegner notes, the living audience (or priest reading aloud the text to the illiterate) were in effect "enact[ing] a performative sacrifice consisting of a spoken invocation of offerings" (Wegner 2017, 93). Both the *ka* of the deceased as well as various divinities (particularly those who judged the deceased) were the main

audience of such rituals as well as the recipient (at least the *ka* was believed to be the recipient) (Wegner 2017, 93). These offerings also affected the living, of course; not only did the enactment of such offerings "align the performer of the invocation with the elite recipient and by extension with the divinely sanctioned state administration in general, thereby enhancing his or her own socioeconomic status as well," but could also help the chances of the offerer being transported successfully into the afterlife him- or herself (Wegner 2017).

Presumably, the primary and most important audience (at least in theory) for human sacrifice was the god and perhaps the already deceased divine king, who was awaiting his attendants in the afterlife (it seems unlikely that so many individuals would be sacrificed *before* the death of the king, since such an event might occur unexpectedly or not for many years). In the case of many offering sacrifices, the intended audience (arguably, the *only* intended audience) for the ritual was a deity or spirit(s) in the divine realm, who would be in a position to reciprocally provide some benefit to the offerer either in this life or the next (Wegner 2017).

In more mundane (and perhaps more pragmatic) terms, a human audience for human sacrifice would have been an extremely effective tool of political and economic power. As discussed above, the manipulation of the body is perhaps the most powerful tool of all when attempting to control other human beings. The economic cost alone would have been immense; at least some of the individuals sacrificed appear to be in the prime of their life, still capable of farming Egypt's fertile fields or serving in the new king in many ways. Even if the individuals were sacrificed as a way to undercut any supporters for other heirs to the throne, the loss of experience and collective administrative knowledge is beyond comprehension, particularly in a new state that, as far as we know, was still finessing their writing system, much less their governmental system. The Egyptians may also not have distinguished between the symbolic and

more mundane functions of this mass turnover of human life; as in many ancient cultures, distinctions between spiritual and earthly, every day and supernatural, were generally viewed as parts of the same idea, rather than as separate categories as we tend to view them today (G. Anderson 1987, 125).

What might such a spectacle have looked like? If there was indeed an audience, would they have watched the slaughter of hundreds in silence? When writing about Carthaginian child sacrifice (another hotly debated practice), Plutarch wrote that loud music was played to drown out the sounds of wailing and mourning (Schwartz 2017). While we may certainly doubt the veracity of Plutarch's account (particularly given the centuries between his documentation and the events he was describing), the concept of audience response must be considered. Even if the Egyptian sacrifices were not as overtly violent as Aztec sacrifices (at least to our eyes), it seems unlikely that the families and loved ones of the sacrificed individuals would have rejoiced in the mass deaths. Would they have attended the ritual, or would they have been kept away, their grieving removed from the actual scene of sacrifice? On the one hand, the mortuary rituals of the king were undoubtedly a sacred affair, and thus were likely excluded or protected in some way from the polluting influence of everyday life. At the same time, however, allowing onlookers to witness the slaughter of hundreds of individuals could have added greatly to the spectacle. If onlookers were permitted, it seems likely that weeping, mourning, and perhaps wailing would have accompanied the death of the retainers; the soundtrack not only of death, but of power.

While we cannot know the nature of the audience for any human sacrifice in ancient Egypt, we can certainly formulate some theories based on Egyptian social structure and religious and royal ideology. Minimally, the other victims would almost certainly witness the death of their compatriots; while it is possible that all the retainers were killed at once, there must at least

have been an awareness of the death of others. If there were others besides the victims and the killers witnessing the ritual, the audience is likely to have been restricted in some way. The highly hierarchical nature of Egyptian society may suggest that only certain elites were allowed to witness this ritual. On the other hand, in most cases there is no evidence for any sort of wall that would have restricted access to, or even view of, the retainer burials (see Chapter 5 for a more complete discussion of the architectural features of the subsidiary burials and the main burials with which they are associated).

Mode of Death

In cases of human sacrifice, the mode of death depends in part on the purpose of the sacrifice: is the point of the sacrifice to cause death and thus liberate or give that individual's life force to something else, or is the point of the sacrifice to embark on a journey into the afterlife with a deceased ruler or important person? If dominance over a prisoner or enemy is intended, a particularly violent method of killing will generally be most effective to highlight the victim's helplessness and annihilate the perceived source of rebellion or transgression. Performative violence could also be used as a very graphic punishment for those caught transgressing against the state and, in ancient Egypt, the god-king himself. According to legal accounts from the 21st Dynasty, individuals found guilty of tomb robbery in the New Kingdom seem to have been impaled (Peet 2005). These transgressors may or may not have been alive when they were placed on stakes, but either way the public display of their bodies would have served as a grisly reminder of the consequences of such crimes (Muhlestein 2015; J. Tyldesley 2000).

Such executions or sacrifices are also more likely to involve dismemberment or mutilation, as such actions symbolize social and political victory and total power over life and death

(Robben 2000; Varner 2013). Rituals that damage the body or cause excessive pain are particularly effective as motivation to follow the desired (by the rulers, at least) cultural norms or behavioral patterns. Public sacrifice, execution, and martyrdom provide a visceral understanding of the fate of those who resist the established authority (Carter 2013). As (Stevens Jr. 2017, 28) notes, "Sacrifice, especially of live beings, is spectacular, and the sight of flowing blood generates universal reaction in all primates." Public sacrifice, execution, and martyrdom provide a visceral understanding of the fate of those who resist the established authority (Carter 2013).

If, however, the main goal of the killing is conspicuous consumption and power over life and death, as is often the case of retainer sacrifice, it may be unnecessary to utterly destroy the sacrificial victims (Law 1985). For example, the sacrifices at the Royal Tomb at Ur were not really focused on causing death at all; rather, the purpose was to create a moment in time that would persist for eternity (Baadsgaard et al. 2011; Baadsgaard et al. 2012) Death may be viewed simply as another stage in a journey, a threshold that must be crossed, rather than a glorification of violence and dominance. In such situations, it may even be undesirable to obliterate or "damage" the victim, since doing so could inhibit the ability of the victim to serve his or her ruler in the afterlife. Death might take a less bloody form, such as strangulation or the ingestion of poison. Alternatively, death might still be traumatic, but the evidence for such trauma then masked during the mortuary rituals. Though at least some of the human sacrificees at Ur were bludgeoned to death by massive blows to the head, (Baadsgaard et al. 2011, Baadsgaard et al. 2012), care was taken to arrange the bodies in such a way that the violent aspects of their death were hidden or at least not emphasized. What is important in these cases is the power and prestige of the primary deceased to command the death of those around him.

When human sacrifice is discussed in the context of ancient Egypt, the interpretations of previous excavators have held sway for many years. Petrie (1925) stated that there was no evidence of trauma, and based on the positioning of some of the bodies suggested that perhaps the retainers were buried alive. While my own research suggests that there is indeed trauma present on many of the individual remains (see Chapter 6), it is nevertheless interesting that the violence does not seem to be emphasized, in that human sacrifice as a ritual is not mentioned or depicted (with certainty) in any evidence that has been preserved. However, neither was the violence masked in the same way that it was at Ur, as the Egyptian bodies show little or no evidence of careful arrangement in most of the cases that are preserved in photographs or description. The implications of this are further considered in Chapter 7.

The Evidence in Egypt

Having assessed broad patterns in sacrifice and ritual, let us now turn to the evidence that we actually have from ancient Egypt for human sacrifice in the Early Dynastic Period. Chapter 4 focuses on the materials used in this study and the methods for analysis. Chapter 5 will address the subsidiary burials in detail, including the construction, arrangement, and contents of the burials, while Chapter 6 will address the occupants of the subsidiary burials and the data gleaned from skeletal analysis of these individuals.

Chapter 4 - Materials and Methods

Introduction

The sheer number of subsidiary tombs from First Dynasty mortuary complexes dictates that data for this dissertation derive from a variety of sources. In addition, the complexes of various rulers have been excavated at different times and by different excavators, further complicating the ability to draw large-scale comparisons.

Textual and Archival Material

The excavation of Aha's funerary enclosures by Bestock (Bestock 2008, 2009) were assessed for information regarding the tomb, enclosures, and subsidiary burials of this ruler. Morris (2007) also provides insight on these excavations based on conversations directly with Dr. Bestock.

Since the large First Dynasty mastabas at Saqqara have at times been attributed to the kings of this period, and have been theorized as also including subsidiary burials of retainers, excavation information for these tomb complexes was assessed and included in this study (see Chapter 5). These mastabas were excavated by Walter Emery, who fortunately published detailed accounts of the architecture and contents of these tombs, as well as their associated subsidiary burials (Emery 1949, 1954, 1958).

Petrie's publications of his work at the First Dynasty mortuary complexes at Abydos at least provide information about the contents and location of each subsidiary burial, though the vast majority of these graves were plundered or disturbed long before Petrie's time (W. M. F. Petrie 1900, 1925).

Skeletal Material: A(nother) Note on Imperfect Data

Human remains from excavations in Egypt have fared both better and worse than some of the architectural and archaeological remains. On the one hand, well-preserved mummies, particularly those believed to be of high status, were often carefully stored and studied by excavators and scholars over the past two centuries. Medical specialists such as Grafton Elliot Smith were called in to study these typically royal or high-status individuals, ensuring that at least some scientific data was collected and analyzed from specific, usually high-profile individuals. In some cases, radiographs were also taken, providing valuable information that was invisible to the naked eye (Elliot Smith and Dawson 1924).

Skeletal remains often fared worse, however. Given the interest in phrenology in the late 19th and early 20th century, the cranium was believed to be the source of the best, or at least most interesting, data from the human skeleton. In archaeological terms, this meant that once the remains had been photographed (in the best-case scenario), excavated, and possibly examined for general osteological markers of age and sex (again, in the best-case scenario), the bones were simply discarded or reburied, often mingled with all of the other human remains (and sometimes other artifacts) found during that excavation season. Remains that retained fragments of soft tissue, such as hair or skin, but that were not as well-preserved as complete mummies, were often "cleaned," which here means that all of the skin and soft tissue was removed and discarded so that the bones could be analyzed without such hindrances (e.g. Winlock 1945).

Despite Petrie's many excellent qualities as an excavator, he followed standard practice for early 20th century archaeological excavations when he reburied the postcranial remains that he had excavated at Abydos and retained only the crania. These crania were then distributed to various institutions, with the bulk eventually ending up in the Natural History Museum in London (approximately 60 crania from the subsidiary burials surrounding the royal tombs) and

the Leverhulme Centre for Human Evolutionary Studies at Cambridge University (48 crania from the subsidiary burials around the funerary enclosures). Emery, who photographed and recorded in some detail the characteristics of the subsidiary burials he excavated at Saqqara, does not indicate in his publications what became of the human remains; presumably they were reburied either at the site or outside the edge of the site boundary. The human remains from more modern excavations tend to be housed in storage magazines in Egypt, available only to the members of that excavation team. It is only in the past few decades that archaeologists have begun to retain not only the whole skeleton, but to preserve as much as possible for future researches who may have better, less invasive research technologies (it was not uncommon for Egyptologists of the early 20th century to "clean" mummies, i.e. remove all remaining hair and soft tissue, in order to analyze the skeleton within, thus robbing future researchers of the ability to do any kind of DNA or soft tissue analysis).

An additional research constraint lies in the current accessibility of the human remains from these subsidiary burials. The collections of the Natural History Museum in London have been unavailable for analysis for several years due to renovations, and thus had to be excluded from this study. Other remains that were excavated more recently (e.g. those from the subsidiary burials of Aha), are generally stored in magazines in Egypt with scant information regarding their exact whereabouts, and access is often difficult or impossible to obtain for someone outside the original excavation project. Whenever possible, the bioarchaeological information about these remains was collected from published material for inclusion here.

Summary of the Skeletal Data in This Dissertation

The human remains analyzed in this dissertation derive from subsidiary graves located around the funerary enclosures of two First Dynasty rulers, Djer and Djet, and around the funerary enclosure of Merneith (see Figure 1). When this area of the North Cemetery was

excavated by W.M.F. Petrie in 1922, there were originally 269, 154, and 79 graves surrounding the enclosures of Djer, Djet, and Merneith, respectively. The crania of these individuals are part of the Duckworth Laboratory Collection, which is housed at the Leverhulme Center for Human Evolutionary Studies at Cambridge University. The postcranial remains, according to Petrie, were almost all reburied in the funerary enclosure of Khasekhemwy (now known as Shunet el-Zebib) which is located just southwest of the other three funerary enclosures. As the preserved crania form only a small fraction of the original number of grave occupants, the missing crania and skeletons were likely too disturbed to be of interest, or were considered of no interest to Petrie for some other reason and were reburied with the other postcrania.

The grave numbers used here are those assigned by Petrie during excavation of the funerary enclosures. It is immediately apparent that the numbers are not always sequential; in some cases, the numbers occur in strings on various sides of a single enclosure, and in some cases numbers jump from one enclosure to another, suggesting that multiple enclosures were being excavated simultaneously and that numbers were assigned as graves were encountered. The number 22, which appears before all of the grave numbers in the Duckworth's collection, probably refers to the year (1922) in which these remains were excavated, since Petrie (1925, 1) states that the excavations of the subsidiary graves around the funerary enclosures was conducted between 8 December 1921 and 11 February 1922.

Condition of the remains

In general, the crania are in a very good state of preservation. Most are complete, though a few are fragmentary but seem to be present nearly in their entirety. Many of the crania have been coated in what appears to be paraffin wax. Morant (1925, 22) notes that 81 crania "were

obtained and in sufficiently good condition to be treated with paraffin preparatory to transport" but that "through some misadventure only 48 were packed and reached England." A coating of paraffin wax was a common method of preservation in the early 20th century, as paraffin wax was believed to be more or less inert and was used to consolidate and preserve fragile archaeological remains (not only skeletal material, but also basketry and beaded items whose connecting threads had disintegrated) (Morant 1925; Wendrich 2019). The wax is generally fairly thin (usually less 1-2mm) but pools in such a way that the most likely method for wax application was dipping, i.e. the crania were probably dipped quickly into liquid wax and then removed (this also explains why many of the crania are not completely covered in wax, as presumably some handhold would be necessary), or perhaps pouring the wax over the crania, as in some cases the base of the crania are not covered in wax. The use of the wax as a stabilizer is supported by the observation that in crania that display fractures or loose sutures, there is frequently wax on and around these unstable areas. In many cases, it appears that the crania were not completely cleaned before the application of the wax was applied, and chunks of soil and mineralization are preserved beneath the wax. It may also be that the wax was applied hurriedly or somewhat carelessly, as in one case (the individual from grave 396) the wax within the cranial vault has trapped a moth, and in another (the individual from grave 510) the vault still held a thick layer of soil as well as at least 9 teeth when the wax was applied. In such cases the wax may have been applied by pouring rather than dipping, since the cranium was clearly inverted when the wax was applied, allowing the wax to pool and harden within the vault.

Previous Work on the Remains

Though Petrie was an excavator with some considerable experience regarding human remains and burials, his publication of the human remains from the subsidiary burials at Abydos

does not contain all the information one might desire. Unlike Emery (Emery 1949, 1954, 1958), who published detailed descriptions of the (admittedly better preserved) subsidiary burials from Saqqara, Petrie contented himself with general descriptions and, in the case of the funerary enclosures, large tables summarizing the information he had obtained (W. M. F. Petrie 1900, 1901, 1925). Sex was sometimes recorded, while age generally went unrecorded altogether. Petrie noted that there was no evidence of trauma on any of the remains from the subsidiary burials, though we must bear in mind that small indications of trauma, such as small cut marks indicative of throat slitting or sharp force trauma to the thorax may have gone unnoticed, not only by Petrie but by other scholars who were mostly or only interested in assessing ancestry or population affinity of the remains (Baud and Etienne 2000).

Such a scholar was Morant (1925), who studied the 48 crania (currently in Cambridge) from the funerary enclosure subsidiary burials; though Morant makes no mention of Merneith, he must have also examined the four crania from her enclosure in order to reach a total of 48 individuals. Thirty-seven of the crania were identified as male, 10 as female (the remaining cranium was described by Morant as "negroid" and not assigned a sex) (Morant 1925). Morant determined, based on cranial morphology (and on measurements by Mr. G. H. Motley), that the occupants of the subsidiary graves all derived from the Lower Egyptian "race" rather than from Upper Egypt (a conclusion which should be treated with some skepticism, based as it is in the study of phrenology that was popular at the time). He concluded that these crania had "greater breadth, a rather smaller height and the same length" of those from Upper Egypt (Morant 1925). He also suggested that the crania suggested intermixing with another population, neither Egyptian nor Nubian (Morant 1925). The hypothesized population admixture observable in the individuals in the subsidiary burials was supported by Keita (Keita 1990; 1992).

Keita (1990, 1992) studied groups of Egyptian crania from various sites and times periods, including some of the crania from the First Dynasty subsidiary burials (though whether these crania derived from subsidiary graves around the funerary enclosures versus the royal tombs is not stated), and noted that the Abydos crania seemed to represent a mixture of traits from tropical African groups (generally termed "Negroid" by past scholars) and groups in northern Egypt. While the Abydos crania do represent some population admixture, they consistently display more characteristics of southern Egyptian and tropical African populations than of the northern Egyptian populations (Keita 1992).

Keita and Boyce (2006, 65) analyzed the Cambridge crania as well as those from the royal tomb subsidiary burials in the Natural History Museum for evidence of cribra orbitalia and porotic hyperostosis, and suggested that higher ranking officials were buried around the royal tombs, while lower ranking officials and craftsmen were buried around the funerary enclosures. Based on the increased evidence for survival of childhood nutritional stress, Keita and Boyce concluded that the individuals occupying the subsidiary burials around the royal tombs were healthier than those who occupied the graves around the funerary enclosures, suggesting that the officials buried around the royal tomb had access to better nutrition and healthcare (Keita and Boyce 2006:65). Specifically, based on markers of physiological stress, mainly porotic hyperostosis, they hypothesized that the individuals around the funerary enclosures had poorer health during childhood, with more frequent and severe episodes of physiological stress, than the individuals from the subsidiary burials around the royal tombs. The implications of such differences are compared with my own findings and discussed in Chapter 7.

Skeletal Material from the Enclosure of Djer

Of the original 269 graves that surrounded Djer's funerary enclosure, 19 crania from the occupants of these graves are stored at the Leverhulme (Table 1). An additional mandible, without an associated calvarium, is also present. This bring the total percentage of remains analyzed in this study to 7% of the original burial population.

Grave Number	Location	Element	Petrie Photograph Citation
461	East side, northeast corner	Cranium + mandible	N/A
470	East side, northeast corner	Cranium + mandible	Unpublished photograph in Petrie Museum
484	East side, northeast corner	Cranium only	N/A
510	East side, northeast corner	Cranium + mandible	N/A
511	East side, northeast corner	Cranium + mandible	N/A
530	North side, northeast corner	Cranium + mandible	Unpublished photograph in Petrie Museum
533	North side, northeast corner	Fragmented cranium	Petrie 1925, Plate XX
538	North side, northeast corner	Cranium + mandible	Unpublished photograph in Petrie Museum
543	North side, northeast corner	Partial cranium + mandible	N/A
602	North side, northeast corner	Cranium only	Unpublished photograph in Petrie Museum
603	North side, northeast corner	Cranium + mandible	N/A
675	West side	Cranium + mandible	N/A
740	West side	Cranium + mandible	N/A
745	West side	Cranium + mandible	N/A
746	West side	Cranium + mandible	N/A
756	West side	Cranium + mandible	N/A
763	West side	Cranium + mandible	N/A
776	West side	Cranium + mandible	N/A
704	West side	Mandible only	N/A

Table 1: Summary of the individuals from the subsidiary burials around Djer's funerary enclosure whose crania were analyzed in this research.

The crania that were analyzed derive from graves along the northern, eastern, and western rows of subsidiary tombs that surround the central enclosure (Figure 8). Five of the graves (graves 461, 470, 484, 510, and 511) were located on the eastern side of the enclosure, near the northeastern corner, with six others (530, 533, 538, 543, 602, and 603) located on the northern side near the same corner. Though not present in the Leverhulme's collection, Petrie

also published photographs of individuals in six graves also from the northeastern corner (422, 423, 531, 534, and 607) (W. M. F. Petrie 1925). An additional eight crania (from graves 675, 740, 745, 746, 756, 763, and 776) derived from the western side, as does a lone mandible (704), for a total of 19 crania and 1 mandible from the original 269 subsidiary tombs.

Four of the graves (746 and 745, 510 and 470) were originally arranged in adjacent pairs, and 510 is located directly north of and abutting 511, but the remaining crania derive from graves that are scattered throughout the subsidiary grave rows. Grave numbers and locations were determined from Petrie's (1925) publication.

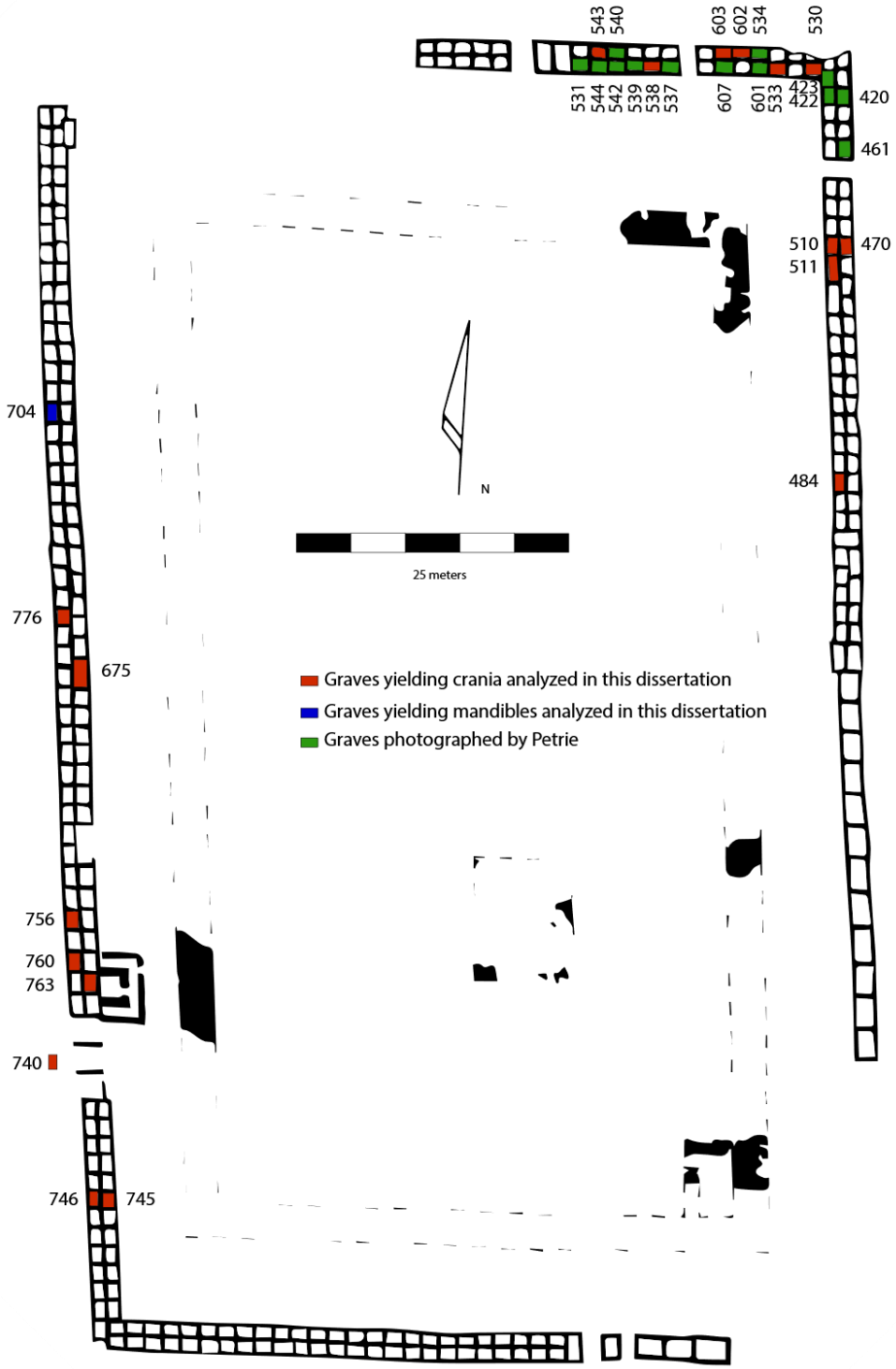


Figure 8: Locations of the subsidiary graves around Djer's funerary enclosure where the individuals analyzed in this dissertation were found. Red squares indicate the location of human remains in the collection of the Duckworth, blue squares represent the locations of the mandibles without associated crania, and green squares are the graves photographed by Petrie but not present in the Duckworth collection. Original plan after Bestock 2009, Figure 18.

Thirteen additional individuals were photographed during excavation but are not present at the Leverhulme (Table 2). Some of these photographs were published in Petrie's account of the excavation of the subsidiary burials (Petrie 1925), while others were not published but are stored at the Petrie Museum in London, England.

Grave Number	Location (side)	Photograph Citation
420	East side, northeastern corner	Unpublished photograph in Petrie Museum
422	East side, northeastern corner	Unpublished photograph in Petrie Museum
423	Northeastern corner	Unpublished photograph in Petrie Museum
531	North side	Unpublished photograph in Petrie Museum
534	North side, northeastern corner	Unpublished photograph in Petrie Museum
537	North side	Petrie 1925, Plate XIV
539	North side	Petrie 1925, Plate XIV
540	North side	Unpublished photograph in Petrie Museum
541	North side	Petrie 1925, Plate XIV
542	North side	Petrie 1925, Plate XIII
544	North side	Petrie 1925, Plate XIV
601	North side, eastern corner	Petrie 1925, Plate XIII
607	North side, northeastern corner	Unpublished photograph in Petrie Museum

Table 2: Summary of the individuals around Djer's funerary enclosure who are not represented in the Duckworth Collection, but whose burials are shown in various photographs by Petrie, both published and unpublished.

Skeletal Material from the Enclosure of Djet

Of the 154 graves surrounding the funerary enclosure of Djet, 23 crania are housed at the Leverhulme (Table 3). Two individuals, from graves 122 and 417, are represented solely by mandibles; it is unknown why the calvaria were separated from the mandible of these individuals, but perhaps the calvaria sustained severe damage or were lost or damaged in transport to England. The total number of graves of Djet's retainers analyzed in this study is 25, or 16% of the total burial population at Djet's funerary enclosure.

Grave Number	Location	Element	Petrie Photograph Citation
131	East side	Cranium + mandible	N/A
122	East side	Mandible only	N/A
132	East side	Cranium + mandible	N/A
135	East side	Cranium + mandible	N/A
146	East side	Cranium + mandible	N/A
396	North side	Cranium + mandible	N/A

412	West side	Cranium + mandible	N/A
413	West side	Cranium + mandible	N/A
417	West side	Mandible only	N/A
426	West side	Cranium + mandible	N/A
428	West side	Cranium + mandible	N/A
429	West side	Cranium + mandible	N/A
432	West side	Cranium + mandible	N/A
433	West side	Cranium + mandible	N/A
436	West side	Cranium + mandible	Unpublished photograph in Petrie Museum
437	West side	Cranium + mandible	N/A
442	West side	Cranium + mandible	N/A
443	West side	Cranium + mandible	N/A
444	West side	Cranium + mandible	N/A
445	West side	Cranium + mandible fragment	N/A
446	West side	Cranium + mandible fragment	N/A
447	West side	Cranium + mandible	N/A
449	West side	Cranium + mandible	N/A
452	West side	Cranium + mandible	N/A
454	West side	Cranium + mandible	N/A

Table 3: Summary of the individuals from the subsidiary burials around Djet's funerary enclosure whose crania were analyzed in this research.

Only one cranium (from grave 396) is present from the northern bank of graves, while four crania (131, 132, 135, and 146) and one mandible (122) originate from the eastern graves, and the remaining eighteen crania (graves 412, 413, 426, 428, 429, 432, 433, 436, 437, 442, 443, 444, 445, 446, 447, 449, 452, and 454) and one mandible (417) came from graves along the western side. Grave number and location were determined from Petrie's (1925) publication.

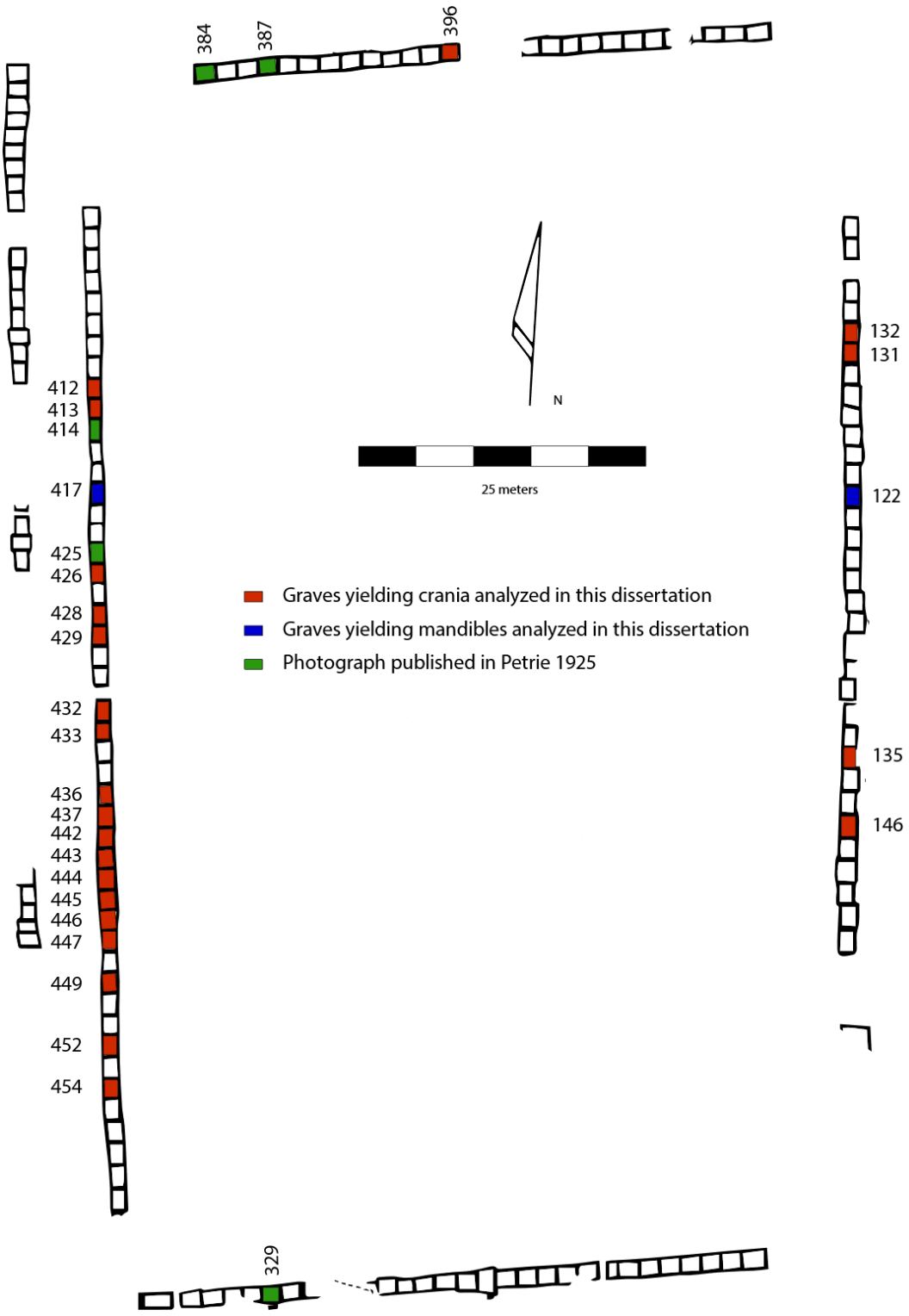


Figure 9: Locations of the subsidiary graves around Djet's funerary enclosure where the individuals analyzed in this dissertation were found. Red squares indicate the location of human remains in the collection of the Duckworth, blue squares represent the locations of the mandibles without associated crania, and green squares are the graves photographed by Petrie but not present in the Duckworth collection. Original plan after Bestock 2009, Figure 17.

Five additional graves were photographed (of which three were published) but are not part of the Leverhulme collection (Petrie 1925). These graves were located on the southern (grave 329), northern (384 and 387) and western (414 and 425) sides of the funerary enclosure (Table 4).

Grave Number	Location	Photograph Citation
329	South side	Petrie 1925, Plate XIII
384	North side, northwestern corner	Petrie 1925, Plate XIII
387	North side, northwestern corner	Unpublished photograph in Petrie Museum
414	Western side	Petrie 1925, Plate XIII
425	Western side	Unpublished photograph in Petrie Museum

Table 4: Summary of the individuals around Djet's funerary enclosure who are not represented in the Duckworth Collection, but whose burials are shown in various photographs by Petrie, both published and unpublished.

Skeletal Material from the Enclosure of Merneith

Merneith's funerary enclosure originally had the smallest number of subsidiary graves (79), and thus it is perhaps not surprising that only four crania (5% of the total graves at Merneith's enclosure) were retained from this collection of graves (Table 5). This enclosure was also badly disturbed and damaged by later graves and funerary constructions.

Grave Number	Location	Element	Petrie Photograph Citation
205	North side	Cranium + mandible	N/A
302	North side	Cranium + mandible	N/A
229	East side	Cranium + mandible	N/A
254	South side	Cranium + mandible	N/A

Table 5: Summary of the individuals from the subsidiary burials around Merneith's funerary enclosure whose crania were analyzed in this research.

Two crania (numbers 205 and 302) derive from graves on the northern side, one (229) from the eastern side, and one (254) from the southern side (Figure 10). Grave number and location were determined from Petrie's (1925) publication.

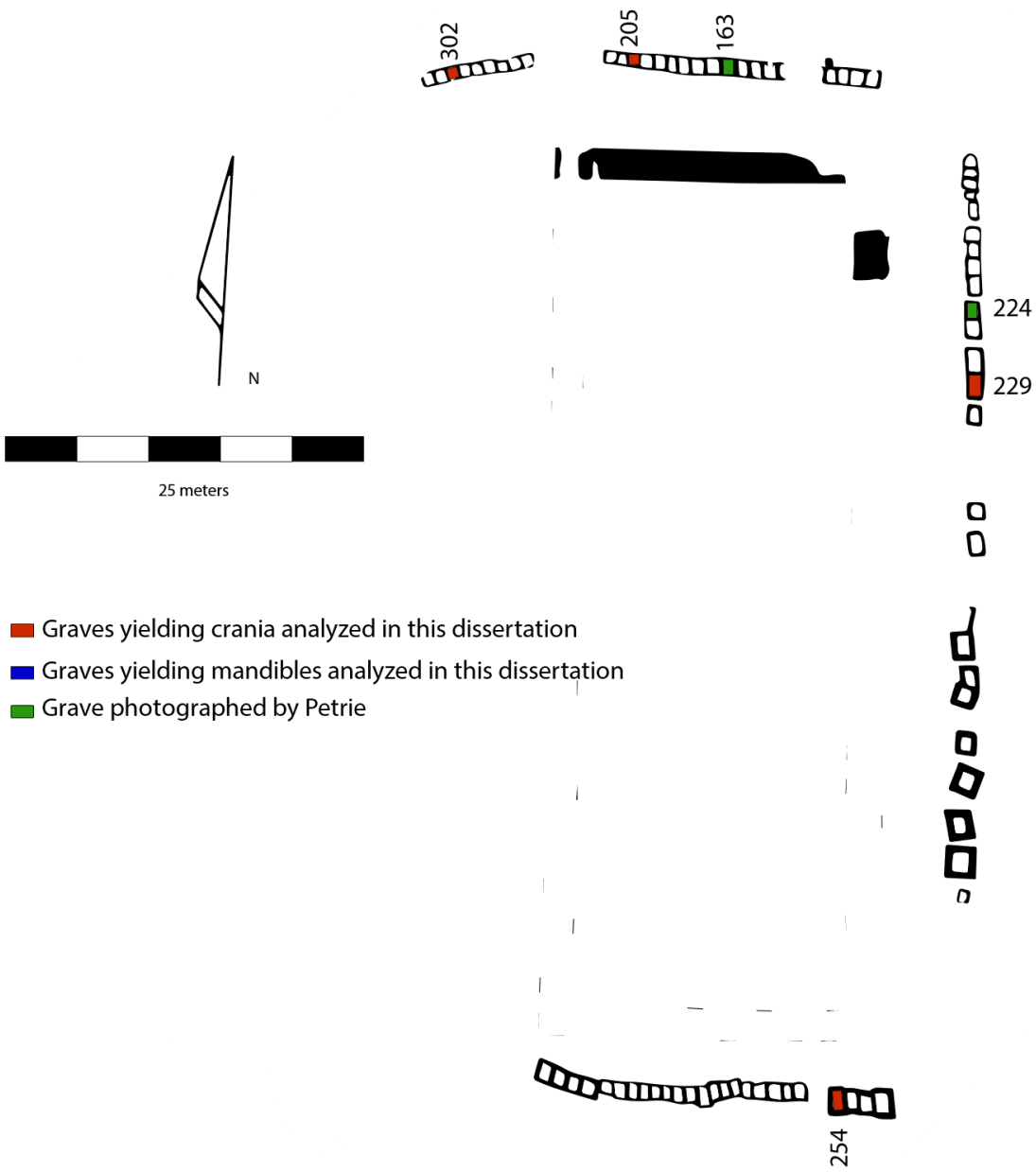


Figure 10: Locations of the subsidiary graves around Merneith's funerary enclosure where the individuals analyzed in this dissertation were found. Red squares indicate the location of human remains in the collection of the Duckworth, blue squares represent the locations of the mandibles at the Duckworth without associated crania, and green squares are the graves photographed by Petrie but not present in the Duckworth collection. Original plan after Bestock 2009, Figure 16.

Two additional graves were photographed (one of these was published in Petrie 1925) but the human remains are not present at the Leverhulme (Table 6). These graves were located on the northern (163) and eastern (224) side of Merneith's funerary enclosure.

Grave Number	Location (side)	Photograph Citation
163	North side	Unpublished photograph in Petrie Museum
224	East side	Petrie 1925, Plate XIII

Table 6: Summary of the individuals around Merneith's funerary enclosure who are not represented in the Duckworth Collection, but whose burials are shown in various photographs by Petrie, both published and unpublished.

Methods

As all of the subsidiary graves analyzed in this dissertation were excavated in the early twentieth century, my own analysis was two-pronged. Contextual information was derived from publications and photographs. I also analyzed the 48 crania available at the Leverhulme, based on standard osteological methods.

Archival Research

The primary data for this study is the information regarding the subsidiary tombs around the funerary enclosures of Djer, Djet, and Merneith. In addition to Petrie's publication of his excavations of these enclosures, I was also able to consult his original excavation notes and some of his unpublished photographs, which are currently housed at the Petrie Museum in London (Petrie 1925). Consultation of Petrie's (1900) publication of the royal tomb subsidiary burials provided material for comparison.

For comparative material, and to gain a better understanding of subsidiary graves as a whole during the First Dynasty, I consulted publications regarding other examples of First

Dynasty mortuary complexes that have been postulated to include subsidiary burials that could be sacrificial in nature. This primarily includes the other royal tombs and funerary enclosures of known First Dynasty rulers at Abydos. These tombs were excavated over the past century and a half by various archaeologists and scholars (see Chapter 5 for a more complete history of the excavation of these tombs) (Amélineau 1899, 1902, 1904, 1905; Bestock 2008, 2009, 2011; Kaiser and Dreyer 1982; Dreyer 1991; Dreyer, Hartung, and Pumpenmeier 1993; Dreyer et al. 1996, 2003, 2006; Werner Kaiser 1969; Kaiser and Dreyer 1982; Kaiser 1985; Petrie 1900, 1925). Some of the large First Dynasty mastabas at Saqqara have also previously been interpreted as royal (though this interpretation has generally fallen from favor; see Chapter 5) and certainly include subsidiary burials, regardless of the royalty (or lack thereof) of the primary tomb occupant. These tombs and their enclosures with subsidiary burials were meticulously studied and published by Walter Emery (1949, 1954, 1958), whose publications provided a great deal of comparative information (see Chapter 5).

Bioarchaeological Methods

In the absence of post-cranial remains, primary bioarchaeological analysis relied on features of the cranium to assess biological age and sex. My own analyses were compared with the estimates recorded by the original excavator (W. M. F. Petrie 1925) when available, as well as others who analyzed the remains (Keita and Boyce 2006; Morant 1925). In most cases, my analysis was consistent with that obtained by Petrie (when indicated).

Estimation of age is not without its issues, not least of which is the discordance between chronological age and social age (Buikstra and Ubelaker 1994; Larsen 2015; Lewis 2007; Latham and Finnegan 2010; D. L. Martin, Harrod, and Pérez 2013; White, Black, and Folkens

2012). Older individuals are much more difficult to age accurately than juveniles, and the problems of preservation that affect all archaeological samples may preclude the observation of many features important for assessing age. Another significant issue with the estimation of age in archaeological populations is the fact that methods for age estimation tend to be based on modern samples with known chronological ages and tend to assume little variation in age indicators between and within populations (Larsen 2015). Ideally, methods that have been developed specifically for the population being studied should be used, and a variety of age estimation methods will be applied to craft the most accurate and reliable assessment of age-at-death (Hoppa and Vaupel 2008; Larsen 2015; Lovejoy et al. 1985).

In the absence of postcranial remains available for study, age was assessed by examination of dental eruption (Hillson 1996, 2014), as well as cranial suture closure (Buikstra and Ubelaker 1994). Both methods are more accurate with juveniles than with adults, and cranial suture closure rates may be affected by other conditions such as pathology or malnutrition (Larsen 2015; Lynnerup and Jacobsen 2003; Milner and Boldsen 2012, 2012a, 2012b; Nawrocki 2010; White, Black, and Folkens 2012; Wittwer-Backofen et al. 2008). Ideally, radiographs would be taken to determine whether unerupted third molars were developing in the crypt or were simply not present (agenesis), but radiographs were not possible in the present study (Latham and Finnegan 2010).

In the data set for this study, many individuals had cranial sutures that were too open to score, which would suggest an age of less than 20 years at the time of death; in many cases, however, these same individuals show evidence of advanced attrition on their third molars, which would suggest an age at death of the mid-20s or older. In other cases, cranial sutures were almost or completely obliterated but dental attrition was minimal to moderate and the third molar

had not erupted. The high rates of pathologies observed in the remains (see Chapter 6) suggest that these pathologies may have influenced the markers typically used to assess age at death. Given the problems inherent with both cranial suture closure and dental eruption or attrition as methods for estimating adult age (Falys and Lewis 2011), this study took a combined approach. While age ranges were estimated based on cranial suture closure and dental eruption when possible, these ages were used to place each individual into an age category rather than to assign a numerical age which would likely be incorrect. Though Falys and Lewis (2011) argue that age categories should be restricted to numerical estimates, they also note that methods for assessing age from the cranium are highly variable and extremely problematic. Given the problems of the current data set (as discussed above), the use of age categories seems to be the most responsible choice from a scholarly point of view, as it yields a broad assessment rather than an incorrect assessment and is widely used in anthropological and osteological literature when a precise or accurate age estimation is not possible. The age categories used in this study were those derived from Buikstra and Ubelaker (1994): Young Adult (20-34 years), Middle Adult (35-49 years) and Old Adult (50+ years).

Severe attrition is a common feature of ancient Egyptian populations (Rose, Armelagos, and Perry 1993). Dental attrition for anterior teeth (incisors, canines, and premolars) was recorded according to the system set out by Smith (1984), while molar wear was recorded based on the system published by (1979). Scott's (1979) is considered more suitable for molars that exhibit moderate to heavy wear (Buikstra and Ubelaker 1994). While dental attrition may be used for age assessment, the rate of attrition is variable within and between populations, due in part to variation in diet, food preparation techniques, environment, and sometimes occupation (e.g. if the teeth are used as tools in the course of one's frequent activities (Johansson, Fareed,

and Omar 1991; Johansson 1992; Johansson et al. 1993; Latham and Finnegan 2010). This is particularly true in ancient Egyptian populations, where dental attrition is frequently quite severe, perhaps due in part to the rough stone that was used to grind flour and the large amount of sand in the air (Leek 1972; Rose, Armelagos, and Perry 1993). While broad comparisons may be drawn between populations with similar subsistence patterns (e.g. hunter-gatherers vs. agriculturalists), population-specific standards are vital to ensure accurate results. Since such a standard does not currently exist for ancient Egypt, dental wear was used to provide broad age categories rather than specific age ranges in this study, with the belief that it was better to err on the side of caution rather than error.

Biological sex was estimated based on the criteria for analyzing morphological features of the cranium, as put forth by Buikstra and Ubelaker (1994). Even more than age, sex is difficult to assess without the postcranial skeleton, and any analysis must consider intra-population variation (Buikstra and Ubelaker 1994; White, Black, and Folkens 2012). In most cases, my own assessment of sex agreed with that Petrie (1925). Since Petrie presumably had the opportunity to base his assessment of sex on the postcranial skeleton as well as the cranium, this agreement suggests that cranial sex estimation may, in some cases, have an acceptable rate of accuracy. When my own assessments of sex differed from that of Petrie in a few cases, I noted the difference but proceeded with my own conclusions.

Overall health status was assessed though differential diagnosis of pathological indicators of malnutrition, disease, and physiological stress (Larsen 2015; D. L. Martin, Harrod, and Pérez 2013; Ortner 2003; Roberts and Manchester 2005; Roberts and Buikstra 2003). Markers of both systemic stress (such as porotic hyperostosis and cribra orbitalia) as well as discrete episodes of extreme stress (as shown by linear enamel hypoplasias, for example) shed light on the life

experiences of each individual, particularly during childhood and development. Increased prevalence of disease, markers of systemic or discrete periods of stress, and poor dental health may be an indication of restricted access to healthcare (or lower quality healthcare), nutrient deficiencies, and relatively invariable diet, which could all be indicators of lower socio-economic status, particularly in cases of structural violence against foreign or native slaves (H.D. Klaus 2012).

Evidence of systemic stress, such as cribra orbitalia and porotic hyperostosis, may indicate long term nutritional deficiencies (Ortner 2003; Stuart-Macadam 1985, 1992; Waldron 2009). Porous defects on the cranial vault (porotic hyperostosis) and within the orbits (cribra orbitalia), sometimes with new bone formation, occur due to widening of the diploe due to systemic stress (Angel 1964; Goodman et al. 2013; Keita and Boyce 2006; Ortner 2003; Waldron 2009). Porotic hyperostosis (PH) and cribra orbitalia (CO) have traditionally been linked to chronic iron deficiency (Larsen 2015; Ortner 2003; Sandford, Van Gerven, and Meglen 1983; Stuart-Macadam 1985, 1992; Waldron 2009), though deficiencies in Vitamin C and/or Vitamin D, as well as secondary periostitis, have also been suggested as causes (Ortner 2003). Though both PH and CO are frequently lumped together, Larsen (2015) points out that CO is sometimes caused by factors other than anemia, such as Vitamin C or D deficiencies or trauma. Both CO and PH are conditions that tend to affect juveniles more than adults, and when lesions are observed in adults the conditions tend to reflect stressors from childhood or adolescents and to be in the process of healing (Larsen 2015).

A study by Burkhard and colleagues (2001) suggested that chronic bleeding caused more significant lesions than dietary iron deficiency, a conclusion that led Keita and Boyce (2006) to link the occurrence of porotic hyperostosis and cribra orbitalia in human populations with the

chronic blood loss of various parasitic infections, particularly schistosomiasis and hookworm. The prevalence of schistosomiasis and hookworm in the Nile Valley, as well as in other agricultural communities both past and present, make these parasitic infections the most likely cause of widespread PH/CO in Egyptian populations (Brooker, Bethony, and Hotez 2004; Chandiwana, Bradley, and Chombo 1989; Keita and Boyce 2006; Larsen 2015; Stephenson and Holland 1987; Tanaka 1989). Larsen (2015) further notes that the grains which formed a staple of the Egyptian diet were also low in iron, perhaps further contributing to the anemia suffered by ancient Egyptians. Of particular note is Stuart-Macadams' (1985) observation that vault porosity in adults is linked to childhood anemia rather than adult-onset anemia, a conclusion that has important implications for interpretations of the social status, and potential social mobility, of individuals displaying such lesions (Keita and Boyce 2006).

While PH and CO tend to occur after lengthy periods of systemic stress, other markers may demonstrate discrete periods of physiological stress, such as disease or malnutrition. Linear enamel hypoplasias (LEH) are clear indicators of disruptive episodes to metabolic processes during the formation of dental enamel (Goodman and Rose 1991; Hillson 2008; 2014; Seow and Wan 2000; Suckling 1989). These horizontal grooves tend to occur on the buccal surfaces of the anterior dentition, though they may also occur on the molars (Larsen 2015). According to Larsen (2015), the three primary causes of LEH are rare hereditary anomalies, localized trauma, and systemic metabolic stress, of which the latter is the most common cause of LEH (Hillson 2008; Hillson and Bond 1997; King, Humphrey, and Hillson 2005). LEH may be tied to a variety of conditions and are thus considered a nonspecific marker of physiological stress (Goodman and Rose 1991; Larsen 2015; Kreshover 1944; Pindborg 1982). In some societies, such as the Middle Sicán in Peru, LEH was found to be far more common in lower status individuals than in higher

status individuals, a pattern that is consistent with findings from other cultures (Goodman 1998; Goodman and Martin 2002; Goodman, Armelagos, and Rose 1984; Klaus 2014; Swärdstedt 1966).

Though various attempts have been made to specify the timing of LEH with regard to an individual's age, these attempts have met with limited success (Hillson 2014; Massler, Schour, and Poncher 1941; Sarnat and Schour 1941, 1942; Schulz and McHenry 1975). Hillson (2014) suggests that while general estimates of the timing of LEH can be made by macroscopic observation, other methods that attempt to provide more precise information on timing actually provide a false sense of accuracy, as such methods generally fail to adequately account for the processes of enamel formation of the tooth cusp. Even methods of measuring the defects with calipers or using regression formulas provided results that varied significantly between populations (Goodman and Song 1999; Hillson 2014; Ritzman, Baker, and Schwartz 2008; Swärdstedt 1966). Observations of thin sections with a scanning electron microscope (SEM) may provide more accurate results regarding the timing of LEH, or at least to determine the sequence of defects on the enamel (Hillson 2014; S. Hillson and Bond 1997).

As well as the presence or absence of LEH, the presence or absence of caries and dental abscesses and any antemortem tooth loss**,** were also recorded in this study (Hillson 1996, 2001, 2014). Caries were also recorded according to Hillson (2001).

An important focus of my bioarchaeological analyses involved the identification, documentation, and analysis of skeletal trauma. Though evidence for many injuries may be lost with the decay of soft tissue, some forms of accident and violence leave markers on the skeleton, and have been used to identify violence in cultures of the past all over the world (Alvrus 1999; Arkush and Tung 2013; Fibiger et al. 2013; Domett, O'Reilly, and Buckley 2011; Dyer and

Fibiger 2017; Judd and Redfern 2012; Juengst et al. 2017; C. Knüsel and Smith 2013; Kohler et al. 2014; Lovell 1997, 2014; D. L. Martin and Anderson 2014; D. L. Martin and Frayer 1997; D. L. Martin, Harrod, and Pérez 2012; Robbins Schug et al. 2012; Schulting and Fibiger 2012; Šlaus et al. 2012; Walker 2001). Location of the trauma can provide indications of intentionality; on the cranium, purposeful violence is often directed at the frontal and parietal bones, and due to the prevalence of right-handedness, most victims show wounds on their left sides (Filer 1997; Walker 2001). A knowledge of skeletal biology is vital in interpreting the location of the original injury, as the shape of the cranium means that forces may spread out across the vault, causing fractures to occur in weaker parts of the cranium that may be located some distance from the original point of impact (Alvrus 1999; Smith, Jones, and Smith 1910; Tung 2007; Webb 1995).

Preliminary research indicated that a comprehensive, standardized system for recording trauma in archaeological specimens does not exist, and that bioarchaeological recording of trauma often differs significantly from forensic recording of trauma. In particular, systems for recording trauma frequently display great variation depending on the experience level of the observer. To this end, I created my own system for recording and analyzing trauma, which is intended to be of use to both forensic anthropologists and bioarchaeologists. This system was created after consultation of numerous sources, including Buikstra and Ubelaker (1994), Hussain and colleagues (1994), and Kimmerle and Baraybar (2008). My system for recording and identifying trauma focuses on macroscopic examination of fracture features, and is accompanied by a manual with specific instructions on how to identify different types of trauma. It is hoped that this system will minimize inter-observer error and facilitate comparisons with trauma data from diverse populations.

All crania were carefully examined for traces of trauma that might not have been immediately apparent, such as small cut marks or perimortem stress fractures. All incidents of trauma were carefully photographed. Perimortem trauma was identified based on features such as hinging, plastic response, radiating fractures, and other standard forensic features for perimortem trauma (Kimmerle and Baraybar 2008; Spencer 2012). Because most of the crania have been coated with wax, in some cases it was difficult to find features that would indicate the timing of injuries, i.e. coloration of the fractured surface versus the surrounding bone could not be differentiated in these cases. When the identification of injury timing was not certain, I chose to err on the side of caution.

Taphonomic processes which resemble trauma (root etching, rodent or carnivore gnawing, excavation damage, etc.) were also carefully observed and noted (Haglund and Sorg 2001; Kennedy 1994; Pokines and Symes 2013; Sorg and Haglund 1996; Spencer 2012; Wakely 1997; Wedel and Galloway 2014). The approximate time of any visible traumatic injury in relation to death was determined whenever possible (ante-, peri-, or post-mortem), and the location and type of trauma were described (sharp force trauma, blunt force trauma, etc.) (Pérez 2012b; Spencer 2012). If the remains were manipulated (e.g. in cases of decapitation or dismemberment) immediately after death, it would likely be impossible to separate the perimortem injuries from the postmortem injuries, since the bone would still have been fresh and would have reacted more or less as living bone (Kimmerle and Baraybar 2008; Lovell 1997).

Determining the origin of the individuals in the subsidiary burials is more complex. Both metric and non-metric analyses have been applied to ancient Egyptian populations, especially early Egyptian populations, in attempts to understand the origin and movement of people in and along the Nile Valley (Berry and Berry 1972; Keita 1990, 1992; Prowse and Lovell 1995;

Prowse and Lovell 1996). Metric analyses of some of the retainers (see above for a discussion of Keita 1992) suggests a population that was relatively heterogenous and showed admixture from groups through Egypt and northern Nubia. Berry and Berry (1972) attempted to use cranial non-metrics to assess the origin of early Egyptian populations, and stated that non-metric traits were less susceptible than metric traits to alteration by age, sex, and environment, relationships which were later proved to exist. More recently Prowse and Lovell (1995; 1996) applied the study of cranial and dental non-metrics to Predynastic Egyptian remains as well as remains from the A-group (c.3100-2500 BCE) and C-group cultures of Nubia (c.2000-1500 BCE) in an attempt to determine the population affinity of individuals from the early stages of the Egyptian state. The conclusions of these authors supported previous work by cranial metric work by Keita (1992) which suggested "a significant degree of biological heterogeneity among Nile Valley populations of Upper Egyptian and Lower Nubian cultural history (Prowse and Lovell 1996, 243). Based on the relative luxury of burial goods with the individuals analyzed, Prowse and Lovell (1996) suggested that at least in Naqada (see map in Chapter 1) during the Predynastic Period, individuals with shared traits seemed to be buried in the same cemetery with a similar level of high-status burial goods, leading the authors to suggest that status in this group may have been inherited or ascribed rather than achieved through merit or some other external factor. This study provides an example of how non-metric traits may be used successfully in some cases to highlight population movement and status.

For the sake of completeness, I recorded the presence or absence of cranial non-metric traits after the system put forth by Buikstra and Ubelaker (1994). Non-metric traits represent normal variations in skeletal structures that have been linked to genetic as well as environmental influence (El-Najjar and Dawson 1977; Pietrusewsky and Douglas 1993; Saunders and Rainey

2007). While early studies focused simply on the presence or absence of traits such as multiple infraorbital foramina (among many others), as evidence for relatedness, methods evolved to record not only the presence or absence of such traits but also their particular expression (e.g. how many infraorbital foramina) (Hauser and De Stefano 1989; Saunders and Rainey 2007). Because their expression is affected by the environment as well as by genetic heritability, non-metric traits have been used in studies of relatedness with a wide range of results (Cheverud and Buikstra 1981, 1981; Donlon 2000; Finnegan 1978; Hanihara, Ishida, and Dodo 2003; Ossenberg 1976; Prowse and Lovell 1995; Prowse and Lovell 1996; Richtsmeier, Cheverud, and Buikstra 1984; Saunders and Popovich 1978; Saunders and Rainey 2007; Stojanowski and Schillaci 2006). While early studies focused on the use of non-metric traits to distinguish between populations or "races," (Morton 1839; Scott 1893), it has become clear that intra-group variation may be at least as complex and diverse as inter-group variation (not only with regard to non-metric traits but in many other skeletal traits) (Donlon 2000). Current use of non-metric traits tends to be restricted to analyses of smaller-scale variation at the interregional or intraregional level (Donlon 2000), as well as studies assessing the effects of social status on expression of non-metric traits (Prowse and Lovell 1996; Stojanowski and Schillaci 2006). The use of non-metric traits as a sole indicator of relatedness is generally considered unreliable (i.e. ideally the assessment of these traits would also be accompanied by DNA analysis or another method to determine relatedness, in part because the relationship between genetic and environmental influences on the expression of non-metric traits is still incompletely understood (Hauser and De Stefano 1989; Khudaverdyan 2012; Mann, Hunt, and Lozanoff 2016).

Frequency of non-metric traits in the current study may suggest that related groups were selected for inclusion in the retainer burials, perhaps simply due to hereditary elite positions, but

perhaps also for some other reason or intent. However, due to the unreliable nature of non-metric traits as sole indicators of relatedness, as well as the small sample size used in this study, any patterns in shared non-metric traits are presented only as very general observations and possibilities rather than proof of kinship or relatedness. I am exploring the possibilities for DNA analysis of these remains in order to better understand the relationships (or lack thereof) between the individuals in this study.

Material markers of cultural affiliation, when described by the early excavators, were noted (see Chapters 5 and 6 for more discussion of the burial goods in the retainer graves). In many cases, cultural material and context of the grave may provide indicators of cultural affinity. Body treatment (e.g. position of the remains in the grave, body wrapping or lack thereof, artificial or natural mummification, etc.), as well as grave goods (e.g. Egyptian pottery styles, amulets or beads, etc.) may provide information about the (perceived, if not self-identified) cultural affinity of the deceased (Buzon 2011; J. M. Hall 2000; Shennan 1994). However, assuming a one-to-one correlation between artifacts and cultural affinity or ethnicity is problematic for a variety of reasons, as previously discussed (see Chapter 3). Immigrants to Egypt commonly integrated into Egyptian culture, and thus contextual information from the burial may only illuminate cultural affinity (adopted or native) rather than ethnicity or cultural/geographical origin (Kemp 2005). Though direct correlations between artifacts and ethnicity should generally not be assumed, material culture may be an integral part of the process of constructing, maintaining, and restructuring ethnic identity, both in life and in death (Buzon 2011; Hodder 1982; Shennan 1994).

Conclusion

All of these lines of evidence allowed me to at least partially reconstruct the osteobiographies of the individuals interred in these subsidiary tombs, and allow me to better understand the reasons why these individuals may have been selected for burial around, and perhaps at the same time as, their king. In the following two chapters, I will first assess the archaeological context of these individuals (Chapter 5) before assessing the human remains themselves (Chapter 6).

Chapter 5-The Interments

Introduction

In any archaeological work, one of the first things that must be considered is place. Understanding how other cultures view and understand the creation, use, and ideology of a place is integral to reconstructing the archaeological remains from that site. While this is true of any archaeological site, here it is particularly important for the study of retainer burials in ancient Egypt. Even before human remains were thoroughly analyzed from the First Dynasty subsidiary graves (and in some cases this has still not occurred and/or is no longer possible), it was the confluence of place, ideology, and architecture that convinced early scholars of the presence of sacrificial victims. Petrie (1925) posited that the closure of hundreds of subsidiary graves at once (rather than over time, as would be expected if those interred lived to the end of their natural lifespan) indicated the presence of human sacrifice. With this in mind, this chapter will address the architecture of these tombs, assessing the evidence for or against human sacrifice, and if such evidence can even be derived from these tombs. The following chapter will then turn to the analysis of the occupants of these subsidiary graves.

With the retainer burials of ancient Egypt, there are many levels of place and spatiality that must be considered. Perhaps most obvious is the burial location, which in itself is multivalent and complex. At the broadest level, graves that have been identified as those of human sacrificial victims have been found at both Abydos and Saqqara, nearly 350 miles apart, all dating to the First Dynasty (Figure 11).

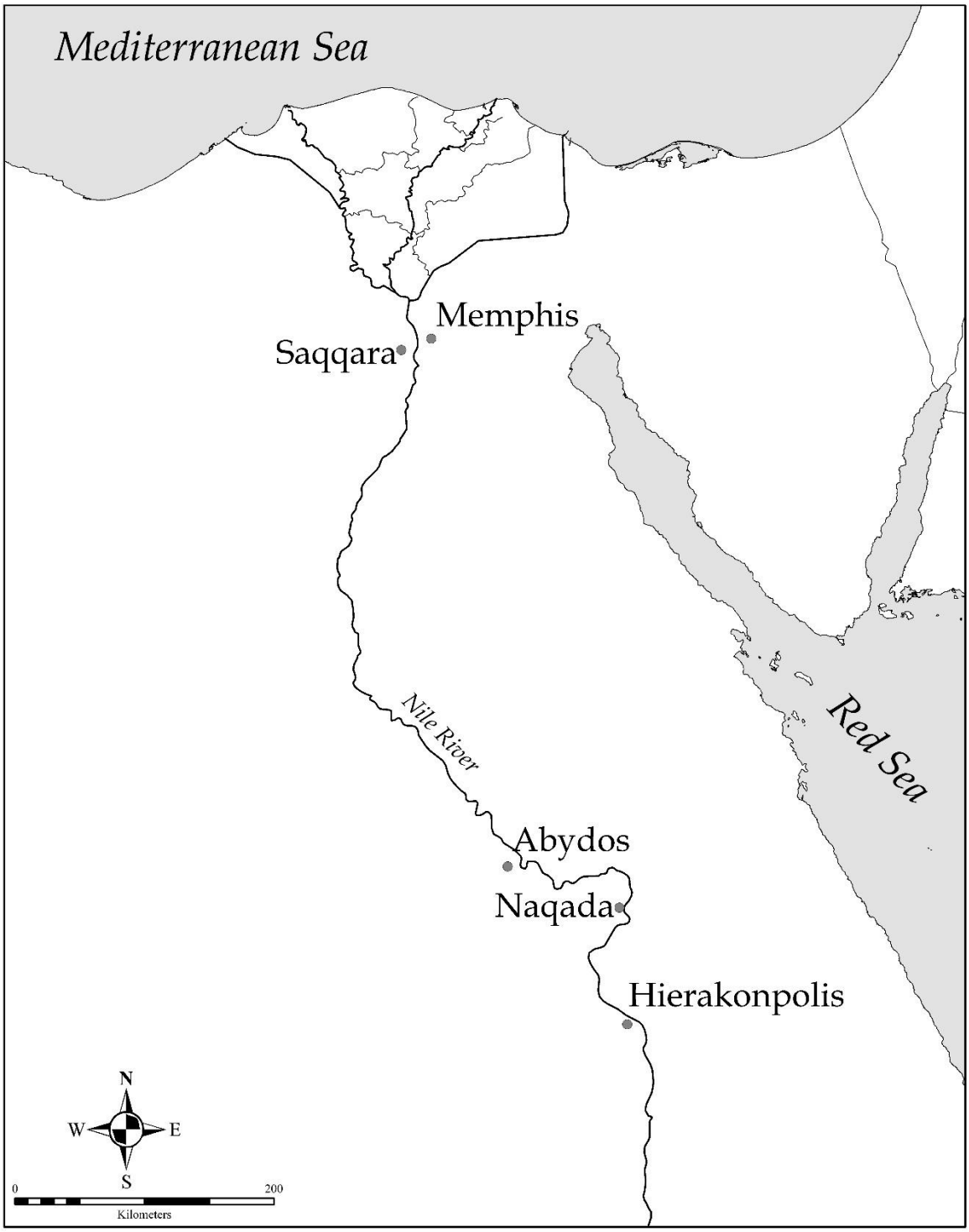


Figure 11: Map showing the location of Saqqara and Abydos, as well as other important ancient sites and the modern city of Cairo. Map by A. Karoll.

Perhaps the most obvious difference between the subsidiary graves at Abydos and Saqqara lies in the number of these graves that accompanied each primary tomb (Table 7).

Ruler	Total Subsidiary Graves at Abydos	Total Subsidiary Graves at Contemporary Saqqara Tomb	Saqqara Tomb Number
Djet	328	62 (Tomb 3504)	3504
Merneith	120	22 (Tomb 3603)	3503
Den	?	10	3506
Qa'a	26	1 (Tomb 3500)	3500

Table 7: Comparison of the numbers of subsidiary graves from the royal tombs at Abydos with those from contemporary tombs at Saqqara.

Yet even within and between each site, there are not only many similarities, but also many variations. At Abydos, kings constructed tombs separate from their funerary enclosures, though both structures had retainer burials and the tombs were located less than a mile (and easily visible) from the funerary enclosures (see Figure 1).

While both the tombs and the enclosures tend to be surrounded or at least flanked by subsidiary tombs, the subsidiary burials around the enclosures are constructed as a single or double row that surrounds the enclosure, while the tombs have ranks or groups of subsidiary tombs on all sides (in most cases), sometimes with up to three rows of tombs in a group. The Abydos funerary enclosures do not have the same number of burials as the tomb of the same king, and the arrangement and construction of subsidiary graves varies (Figure 11).

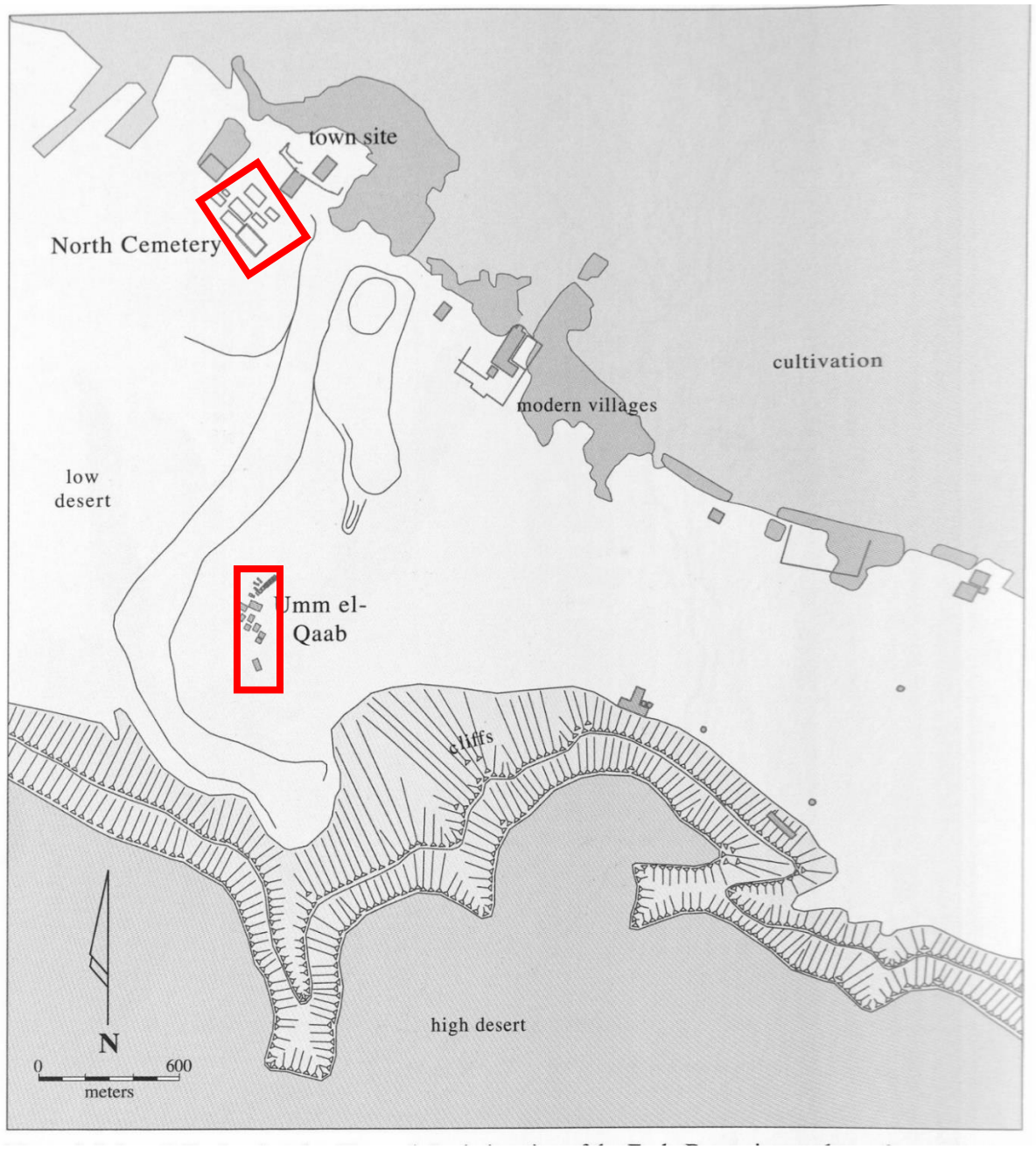


Figure 12: Map showing the location of the royal tombs (Umm el-Qaab) and funerary enclosures (North Cemetery) at Abydos (Bestock 2009, Figure 2)

Even from a single king's tomb to his funerary enclosure there is considerable variation regarding the location of the subsidiary burials and their construction, relative opulence,

placement of male versus female graves, and perhaps even orientation of each body within its tomb (Figure 13).

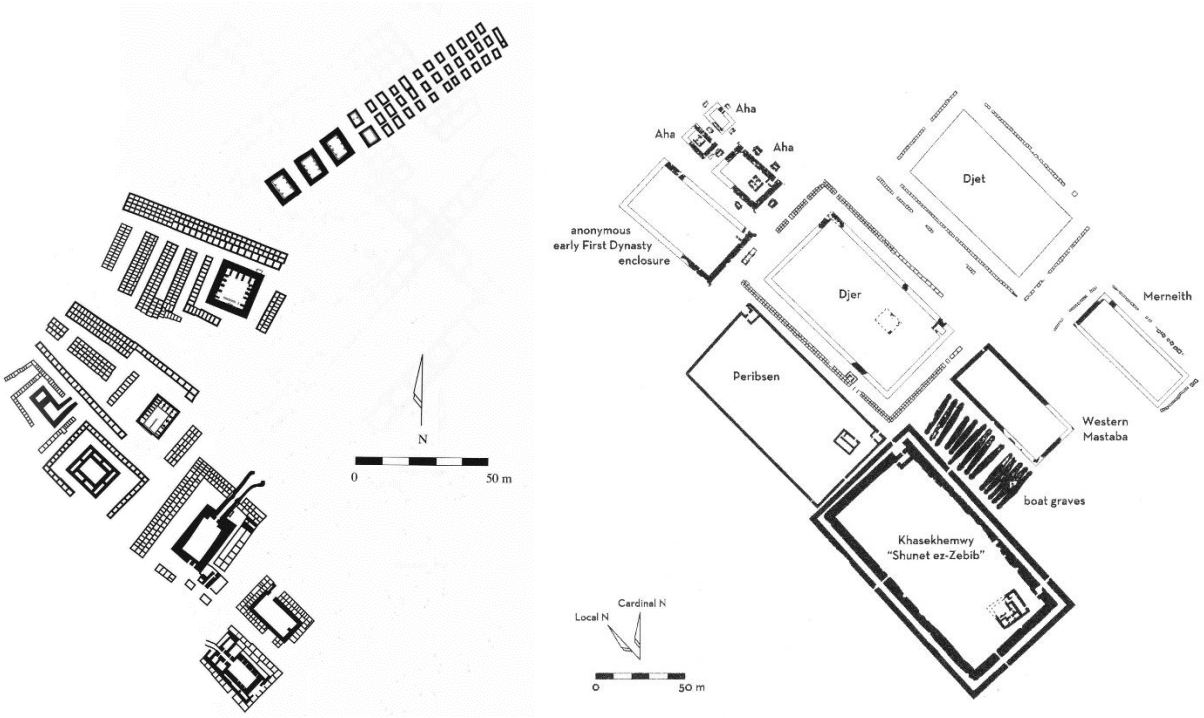


Figure 13: The royal tombs and subsidiary burials at Abydos (left) and the royal funerary enclosures and subsidiary burials at Abydos (right). (after Bestock 2009, Figure 12 on the left and Figure 15 on the right).

The first kings of Egypt may have also constructed monuments with subsidiary burials at Saqqara, where the elites seem to have constructed their burials, though the attribution of these tombs is still debated (see the section of this chapter titled “The True Tomb”). Funerary enclosures either do not seem to exist or are heavily modified and a part of the same complex as the tomb rather than a separate entity. Instead of being constructed in rows or banks, the subsidiary graves at Saqqara are often just outside or built underneath the wall that encloses the

main tomb (Figure 14). Architecturally, this is a very different phenomenon (see later in this chapter for further discussion of the architecture of the Saqqara subsidiary graves). The reason these tombs have been grouped with the First Dynasty tombs showing subsidiary burials is due at least in part to the placement of the subsidiary graves themselves. In both these four Saqqara tombs, as well as the Abydos tombs and enclosures, the subsidiary burials are clearly a part of the funerary complex itself, rather than added later, as would be the case with elite tombs in the Third and Fourth Dynasty and later (Reisner 1936; Dodson and Ikram 2008). Thus, the Saqqara tombs will be considered here to determine if they do indeed show evidence of sacrificial burial, or are simply an alternative layout for retainers associated with the burial of the primary deceased.

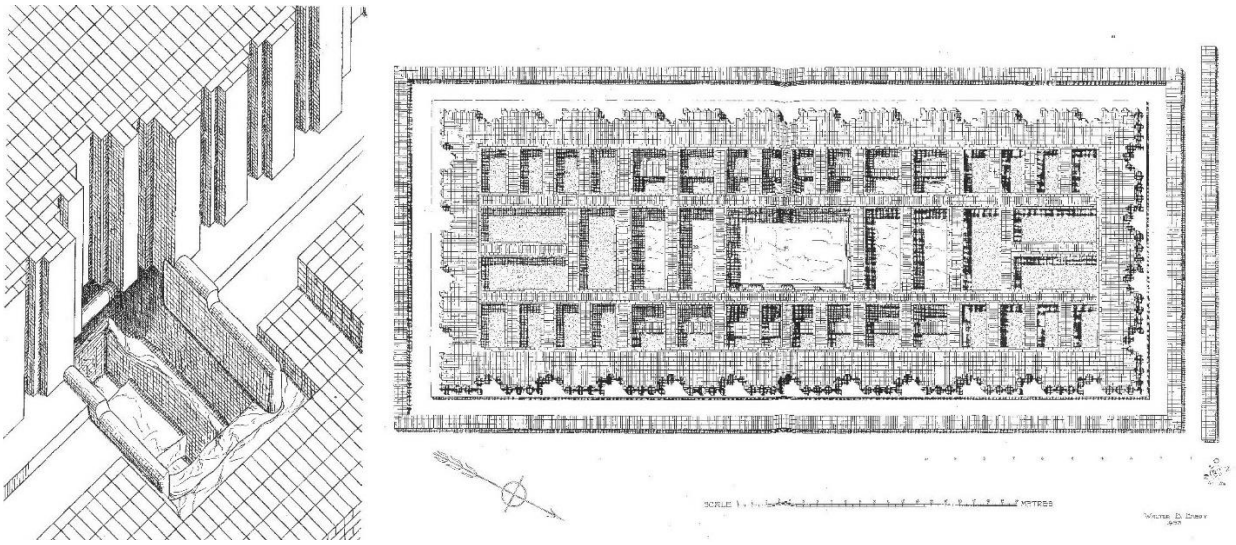


Figure 14: Plan of a subsidiary grave outside and underneath the niched wall around Tomb 3503 at Saqqara (left) and Tomb 3504 with the surrounding ring of subsidiary graves (right) (Emery 1958)

All of these levels of place, the tomb, the enclosure, the mortuary complex, are only what the archaeologists might find. There is one more location that may or may not be found by the

archaeologists, but may have enormous implications for understanding how the Egyptians themselves understood and enacted the burial of these retainers: the location where these individuals died. Porter (2013) makes the very salient point that in many cases, such as the retainer sacrifices in Mesopotamia, the actual location of the killing is not known, but presumed, though there is evidence for special locations dedicated to sacrificial killing of animals, if not of humans the only location available to the archaeologist, in most cases, is that of the final deposition of the body. Where the individuals died has important implications for who might have witnessed the deaths (natural or otherwise). Whether these retainers died peacefully in their beds or were publicly slain in front of a vast audience, the place of their death has bearing on how their bodies were deposited for eternity. While we may not be able to find the place of death after five millennia, it is an important part of the picture. The place of death will be further considered in Chapter 7, where all of the possible manners and modes of death are considered.

With all of this complexity in mind, the aim of this chapter is to first consider the places, in both a geographical and an ideological sense, that these retainer burials occupy, before addressing the occupants themselves in Chapter 5. Another reason for this organization is that Egyptologists have tended to use location and architecture of these subsidiary tombs as the primary, or sole, evidence for the practice of human sacrifice, while generally ignoring the human remains. While this is understandable in many ways, as each scholar has their own specialty and research focus, the time has come to craft a holistic, multi-disciplinary analysis of these retainer burials, in order to assess not only the evidence for or against human sacrifice, but also to understand these burials through an anthropological lens, in the context of broader human history.

A Note on Imperfect Evidence

Before delving into the evidence itself, a note on the nature of our evidence is necessary. The very nature of the places where the royal tombs of Egypt were located, in addition to the afterlife beliefs that encouraged deposition of valuable goods in elite and royal graves, meant that the vast majority of upper-class Egyptian tombs were robbed in antiquity, in many cases repeatedly, and then continued to be disturbed by intrusive burials, early explorers more interested in fabulous museum-quality items than in scientific research, and even some so-called scholars. The sacred association of Abydos with Osiris, particularly in later times, meant that the site was a favored burial ground for centuries, and it seems that many older graves were inadvertently (or more cynically, purposefully) disturbed in the construction of later burials (O'Connor 2011). By the time most of the subsidiary graves were excavated in the early 20th century, only a fraction had remained untouched.

At Saqqara, the primary excavations that will concern us here are those of Walter B. Emery, who worked in the North Cemetery of Saqqara (as well as other parts of the site) from the mid-1930s through the 1950s. Emery was by no means the first to excavate this area, which had been excavated by J.E. Quibell from 1911 to 1913 and then by C.M. Firth in 1930 (Emery 1958; G. T. Martin 2007). The work of both of these scholars were interrupted by World Wars, and it was not until Emery took over the site (Firth had died in 1931) that the North Cemetery was subjected to more thorough analysis. While Emery's methods and recording were not always perfect, he was far more thorough than many of his predecessors and contemporaries, taking and publishing many photographs and recording in detail the findspots of objects and human remains.

At Abydos, the situation is more confused and more fragmentary. In the early 19th century, Auguste Mariette conducted excavations around the royal tombs at Abydos, but it was not until the end of the 19th century that Emile Amélineau conducted full-scale excavations (in comparison to earlier efforts, at least) of the First and Second Dynasty tombs at the site (Amélineau 1899, 1902, 1904, 1905). While Amélineau's methods were not as rigorous as modern standards might desire, and garnered him frequent and scathing criticism from those who worked at Abydos after him (W. M. F. Petrie 1900; Wilkinson 2001), his work served to draw attention to Abydos and sparked the interest of other scholars in the early stages of Egyptian history and state formation (Wilkinson 2001). Amélineau's work was roundly criticized by both Petrie (1900) and Reisner (1936), and the sheer amount of material found in Amélineau's excavation detritus by Petrie must lend some credence to these critiques (W. M. F. Petrie 1900, 1925).

In the early 20th century, W.M.F. Petrie excavated the subsidiary graves surrounding the Abydos royal tombs first (W. M. F. Petrie 1900). Several decades later he excavated the subsidiary tombs around the Abydos funerary enclosures (W. M. F. Petrie 1925). Work on the royal tombs continued with contributions by Kemp (1966, 1967), and Kaiser (Kaiser 1969; Kaiser and Dreyer 1982; Kaiser 1985), and more recently by Günter Dreyer and his team (Kaiser and Dreyer 1982; Dreyer 1991; Dreyer, Hartung, and Pumpenmeier 1993; Dreyer et al. 1996, 2003, 2006). Laurel Bestock has also worked at Abydos, and has been able to assign both a tomb and three funerary enclosures (discussed below) to Aha (Bestock 2009, 2011).

It should be noted here that the royal tombs of the First Dynasty have been exhaustively discussed, analyzed, and published elsewhere (Bestock 2009 provides a good overview), and such is not the purpose of this dissertation. Instead, it is my aim to summarize the relevant

information about the royal tombs and enclosures, focusing primarily on the subsidiary tombs and their occupants, and the possible evidence for human sacrifice.

The Importance of Burial Context in Ritualized Violence

At the outset, it may be useful to consider what we might expect if the retainers of the First Dynasty Egyptian kings were indeed sacrificed. Retainer sacrifice, and indeed most forms of human sacrifice, were almost always at the behest of the ruler, and thus are likely to appear differently in the archaeological record than the burials of, for example, victims of a massacre or of a random, unsanctioned killing. When the ruler is the head of a large and complex state such as Egypt, even in the First Dynasty, the effort poured into human sacrifice (and other rituals) may provide indications about the concerns, influence, and power of the leadership.

Just as in any mortuary context, burials of the victims of state-sanctioned killing were constructed based on culturally specific ideas of life, death, social relationships, and beliefs about the spiritual realms (Parker Pearson 1999; Weber 2012). Victims of sacrifice, so often viewed as mediators in some way between the human and supernatural realm, might be accorded carefully constructed burials (and sometimes richer burials) than foreigners, criminals, and prisoners of war. Once again, however, this depends on the purpose of the sacrifice; in the case of blood sacrifices, the usefulness of the victim may have been spent once his or her blood or essence has been removed or released, and the body may be discarded. Many of the bodies from Moche human sacrifices in Peru were deposited *en mass*e in a pit, still in the sacred area but without attention to individual burial (Bourget 2016). Sacrificed retainers, on the other hand, must be preserved as useful servants for the afterlife. Thus they tend to be buried near their lord and master. Thus they tend to be buried near their lord and master. In many cases, the retainers are

even included in the same burial structure as the king or queen with which they are associated, as is the case in Mesopotamia and in Shang China (Baadsgaard et al. 2011; Baadsgaard, Monge, and Zettler 2012; Molleson and Hodgson 2003; Shelach 1996; Woolley and Burrows 1934).

In many ways, the most important element of retainer burial, sacrificial or otherwise, is that of association with the ruler. Reisner (1936, 118) goes so far as to say that "these subsidiary graves indicate a union in the other world of the *kas* of the persons concerned with the *ka* of the great person in the adjacent main tomb." While this is based on later, well-attested concepts of Egyptian religion and ideology, there does seem to be a desire for these retainers to enter the afterlife with their ruler, otherwise there would not be much point in constructing the graves near that of the king and also supplying the occupants of these burials with tools of various trades. If no association was needed or desired, the bodies could simply be buried wherever they expired or in another cemetery. This principle applies both to burials that are only subsidiary (i.e. definitely not sacrificial) and those that are or may be sacrificial, and is especially evident in the cemeteries surrounding the royal tombs of the Old Kingdom at Giza and Saqqara, where the officials constructed their tombs surrounding that of their master. Proximity was clearly of great importance to the Egyptians even in the First Dynasty.

In addition to the social prestige of a visible tomb in proximity to that of the king (a privilege which presumably had to be granted by the king himself), it is likely that the nobles expected to gain either entrance to, or prestige in, the afterlife by associating themselves with the king in death as they had in life. As Reisner (1936, 108) points out, the association between the king and his officials or servants would have been emphasized both in retainer sacrifice and in normal burial around the royal tomb; the primary difference was that in cases of retainer sacrifice, "the association with the lord and master is practically uninterrupted from life on earth

to life after death." The occupants of these graves will be discussed in Chapter 5, but for now it seems safe to assume that the occupants of the graves were in some way associated with the king, if not during life (though this is unlikely based on the available evidence; see Chapter 5), at least they were intended to be associated in death.

If proximity to the king was important whether sacrifice was practiced or not, how might we separate sacrificial burials from those that were not sacrificial in nature? Typically the architecture of the tomb has been used by Egyptologists to separate these two types of burial. When numerous tombs were closed simultaneously, sacrificial burial is more likely, since it is unlikely that so many individuals would die at once of natural causes (in cases where disease outbreaks cause numerous deaths over a short period of time, the pattern is somewhat different, with multiple bodies generally in a single, hastily crafted burial). In addition to exploring the architecture of these tombs, this chapter will also explore the implications of how construction methods and placement of the tomb could have impacted the way that the tombs were viewed and used.

Before we can assess the tomb themselves, it is necessary to understand a little bit about Egypt in the First Dynasty, and the social, political, and economic context of these retainer burials as they would have been constructed and viewed by the ancient Egyptians.

Egypt in the First Dynasty

The mechanics and circumstances of the creation of the Egyptian state is a topic that has occupied many scholars for decades. While the nuances of this process are far beyond the scope of this work, and still not completely understood, it is vital to have a basic understanding of this formative period in Egyptian history if we are to assess the evidence for and against human

sacrifice in the First Dynasty. Most scholars now believe that the process of unification of the various polities along the Nile Valley happened rather more gradually (and perhaps fitfully) than in a single, heroic conquest of northern (Lower) Egypt by the ruler(s) of southern (Upper) Egypt (Hoffman 1979; Beatrix Midant-Reynes 2000; O'Connor 2011; Wilkinson 2016). It seems that during the period Egyptologists have dubbed Dynasty 0 (in order to keep but also adapt Manetho's system of dynastic organization that has been used for centuries), the dispersed groups across Egypt began to coagulate into fewer "proto-states,", a process that eventually led to a more or less unified Nile Valley by the time the First Dynasty began with the reign of Hor-aha (often called simply "Aha") (Köhler 2011; Wilkinson 2016). There is some indication that the unification may not have been entirely stable, and that the kings of the Second Dynasty had to re-subdue some of the regions of Egypt (Shaw 2004; Wilkinson 2001, 2016).

Regardless of exactly how the unification of Egypt happened, by the time of the First Dynasty, "the centrality of the monarchy and of the king himself had been firmly established as fundamental and undeniable truths" (Wilkinson 2016, 543) (though see Chapter 7 for a discussion of royal power in regards to the possibility of retainer sacrifice in the First Dynasty). State religion, as much as it existed, seemed to revolve around the king and his well-being (Wilkinson 2016). Though the long-standing political centers in Upper Egypt, such as Hierakonpolis, continued to be important, the administrative capital seems to have been moved to Memphis, at the tip of the Nile Delta near modern Cairo (Köhler 2011). These First Dynasty kings were able to marshal enough resources to construct monumental royal tombs, as well as separate funerary enclosures, as far away as Abydos, all surrounded by subsidiary graves (Table 8). Funerary enclosures have not been found for the last three kings of the dynasty, and a

possible enclosure for Den has not yet been firmly tied to that king (see later in this chapter for a discussion of a possible candidate for Den's enclosure).

Ruler	Number of Subsidiary Graves Around Tomb	Number of Subsidiary Graves Around Funerary Enclosure(s)	Total
Hor-aha (Aha)	35	12	47
Djer	318	269	587
Djet	174	154	328
Queen Merneith	41	79	120
Den	135	?	135
Anedjib	63 (64 according to Reisner)	?	63/64
Semerkhet	69 (68 according to Reisner)	?	69/68
Qa'a	26	?	26

Table 8: Subsidiary burials associated with the First Dynasty kings buried at Abydos (after Bestock 2011 and Reisner 1936).

The royal tombs at Abydos have been attributed to their respective owners with the help of stelae bearing each king's name (Wilkinson 2016). The early funerary enclosures (from Aha to Merneith) have also been assigned based on such finds, but the last four kings of the Dynasty have proved more mysterious, at least regarding their funerary enclosures (see Table 1). It seems unlikely that Den did not have a funerary enclosure, particularly since in every other way he seems to have followed the pattern of his predecessors, his father (probably) Djet and mother/possible regent Merneith. A possible candidate for Den's funerary enclosure has been presented by Morris (2007) in the form of Macramallah's rectangle at Saqqara. The arguments for and against this enclosure belonging to Den, as well as why this enclosure was constructed at Saqqara rather than Abydos, are presented later in this chapter. Funerary enclosures for Anedjib, Semerkhet, and Qa'a also have not been identified (though a structure known as the Western Mastaba among the tombs at Abydos has been possibly dated to the First Dynasty, and the owner of this monument has not been identified; see Bestock 2009) at either Abydos or Saqqara. Since

these kings also changed the form of the royal tombs, perhaps they deviated from tradition again and eschewed the funerary enclosure altogether, or perhaps their funerary enclosures remain to be discovered or identified in the much-disturbed landscape of the North Cemetery at Abydos.

While the kings of the early Second Dynasty also built tombs and funerary enclosures at Abydos, the banks of retainer graves have vanished altogether. We do not know exactly why this practice was discontinued, after at least a century of retainer graves being so closely associated with or even attached to the royal funerary monuments. By the end of the Second Dynasty, the royal cemetery had moved north, closer to the capital at Memphis, and the next few centuries saw the monumental tombs of Saqqara and Giza as the royal burial grounds. The tombs of the elite continued to be clustered around that of their ruler, but now were constructed individually, with great effort expended to make these tombs individualized, lavish resting places for their owners.

The choice of royal burial at Abydos, rather than (or possibly in addition to; see below) the much nearer and more visible (in terms of the capital) Saqqara, was obviously a conscious one, perhaps related to the previous importance of the site as a burial ground. On the one hand, the inhabitants of Upper Egypt would have been used to the burials of important elites and rulers at Abydos, as many of the Dynasty 0 rulers, as well as numerous important individuals from the Predynastic Period, had been buried at the site for centuries. On the other hand, from a practical point of view, shifting the seat of power to the north meant that those very individuals who may not have grown used to a southern ruler were also very far, geographically and perhaps ideologically, from the rich history of powerful southern rulers. While the location of the capital at the apex of the Delta was strategically excellent, giving access to the Mediterranean as well as the length of the Nile river, it must have been a challenging transition to navigate as a fledgling

state. By linking themselves to the preceding kings of Dynasty 0, who may have been responsible for coalescing the Egyptian state, the First Dynasty kings ideologically created a continuous lineage, albeit one that may or may not have been visible to the elites at the royal court in the north, between themselves and their predecessors of a unified (or loosely unified) Egypt.

Tombs and Enclosures

The fact that at least half the kings of the First Dynasty built tombs in addition to separate funerary enclosures merits some discussion. The purpose of the tombs themselves is relatively straightforward, but the funerary enclosures, which are only found at Abydos, have been interpreted in various ways over course of their exploration by modern scholars. Reisner (1936) termed these "valley shrines," though they are commonly referred to now by the more general term "funerary enclosure."

The funerary enclosures consist of large, niched mudbrick walls surrounding a rectangular, open space. The enclosures are oriented north-south based upon the direction of the Nile current (i.e. not exactly north-south, but oriented as if the Nile was running directly north-south, though it is slightly off-axis at Abydos (Bestock 2009, 2011). As the orientation was very precise according to the flow of the Nile, it was clearly intentional, and fits within the stellar associations between the king and the stars in the Early Dynastic and early Old Kingdom tombs (Krauss 2016). Bestock (2011) notes that from the outside, these structures would have resembled larger versions of the mastaba tombs used by private, elite individuals of the First Dynasty (Bestock 2011). The enclosures generally have two doorways, one each in the

southwest and northeast sides, and may have had a “low brick bench” running along the exterior wall (Bestock 2011, 140).

Although the precise function of these enclosures is unknown, it is apparent that they served as a location for cult activities of some kind, presumably associated with the royal mortuary cult (Bestock 2011; Reisner 1936). The central space enclosed by these walls was largely empty, though a “single, free-standing, mud brick building” was located in each enclosure (at least the ones that have not been completely destroyed), and remnants of funerary offerings (organic material and ceramics) indicate that these structures would have served a cultic purpose (Bestock 2009, 2011)

The funerary enclosures, with their high, mastaba-like walls and their location near the cultivated and settled banks of the Nile, were highly visible monuments. Given the fact that all of the known funerary enclosures have at least one, and usually two, entrances, these spaces were clearly designed to be entered, even if access was restricted to certain groups. The remains of offering spaces, and offerings themselves, also indicates that the funerary enclosures were places intended both for the dead and for the living. The evidence of destruction of these enclosures could be interpreted in two ways: 1) the life of the enclosure was believed to end either with completion of the funerary rituals for its owner or with the construction of the subsequent ruler’s funerary enclosure, as proposed by Bestock (2009), or 2) the destruction of the funerary enclosure could have been intended as a way to preserve a moment in time (i.e. the “moment” of the transition to the afterlife) forever. This latter scenario may be less likely, considering the fact that the royal tombs were not destroyed intentionally as far as we can tell.

The royal tombs, unlike the funerary enclosures, were certainly not intended as spaces to be entered. In most cases the entrances to the tombs were either plugged or blocked by the

construction of other elements, such as parts of the superstructure (Bestock 2009). By placing the royal tombs farther out in the desert, away from the cultivation, the kings also made the tombs harder to access, even if only slightly. Though most scholars believe that the royal tombs probably had a superstructure of some kind, the only evidence we have for such a superstructure was, in fact, subterranean (Bestock 2011). If these tombs had a very large superstructure, it seems probable that at least some trace would have remained; even the funerary enclosures that were deliberately destroyed have retained traces of the walls around them. This suggests that the royal tombs did not have such a large superstructure, and were thus less visible on the landscape. Their location farther into the western desert, and near the bay of cliffs that has been interpreted by Egyptologists as shaped like the later symbol for "horizon" and thus associated with the entrance or path to the afterlife, also removed these monuments from the land of the living and placed them firmly at the entrance, if not within, the realm of the dead. It could be argued that these tombs were thus the eternal structures for the deceased kings, while the funerary enclosures were, in some ways, temporary and transitory.

Regardless of how long the interior of the funerary enclosures was used (none of the excavators mentioned any evidence of doors or any type of blocking in the doorways of the enclosures), they were clearly more accessible, both in fact and in ideology, than the royal tombs. The funerary enclosures have been described as a precursor to the later construction of mortuary temples intended to serve the divine mortuary cult of the king after his death (Reisner 1936). Bestock (2011) disagrees, however, pointing out that unlike later mortuary temples, in the First Dynasty funerary enclosures there is evidence for deliberate destruction early in their history, i.e. shortly after the king's death or perhaps when the subsequent king built his own funerary enclosure nearby. Bestock (2011, 141) further suggests that

> "unending mortuary cult was not the point of these monuments, which rather probably served a cultic function for living kings. Perhaps their destruction indicates that they, like the inhabitants of the subsidiary graves, were ritually killed and buried to accompany the deceased king."

This brings up an important point: we do not know if a king's tomb and his funerary enclosure were constructed simultaneously or sequentially, nor do we know for certain whether one or both continued to be used for offerings after the king's death. Based on the lack of evidence for mortuary cult offerings associated with the royal tomb (though of course we must always bear in mind that such evidence may have been destroyed by the centuries of new burials and plundering at Abydos), it seems that once the royal funerary proceedings were over, the tomb was left as a static monument. Based on this, and on the evidence for not only offerings but also destruction of the funerary enclosures, it is clear that the Egyptians thought of the royal tomb and the funerary enclosure as different spaces, even if they were connected by ownership.

While the rulers of the First Dynasty all constructed tombs at Abydos, and most constructed funerary enclosures at Abydos as well, some of these kings may also have constructed tombs, but not funerary enclosures, at Saqqara. Why might this be the case, and why might these kings have felt the need to build two different tombs in two different, geographically separated locations, each with retainer burials?

The True Tomb: The Problem of First Dynasty Saqqara and Abydos

It is a common and much-repeated trope that the ancient Egyptians viewed the world dualistically, seeing Egypt itself as a combination of Upper and Lower Egypt, the red land and the black land. There does seem to be some basis to a dualistic division in the funerary realm as well, but we must be careful not to simplify this worldview too much. The tombs of the First

Dynasty rulers are a prime example of this tendency. When Petrie first excavated the First Dynasty tombs and funerary enclosures at Abydos, there seemed little question that these were the final resting places of the first kings of a (more or less) unified Egypt, after so many centuries of nomadic and then more settled tribes along the Nile. Following the discovery of the very large First Dynasty tombs at Saqqara, some larger by far than the royal tombs at Abydos, Emery (1949, 1954, 1958) posited that no king worth his salt would allow any elite to build a larger tomb than the royal sepulcher, so surely the Saqqara tombs must have been the true burials of the First Dynasty kings and the Abydos tombs simply cenotaphs designed to demonstrate the king's dominance over all of Egypt, north and south (Emery remarks on page 3 of his 1954 publication of these tombs that "no matter how we may restore their [the Abydos tombs'] obliterated superstructures, they must yet remain vastly inferior to their counterparts at Saqqara"). Van Dijk (2007, 140) stated that the Saqqara tombs are "much larger and much more imposing than the tombs at Abydos, that is, if the funeral enclosure belonging to the latter are left out of the equation." Others have insisted that since we can securely identify the owners of the Abydos tombs based on stelae and fragments of funerary equipment, Abydos must certainly be the true location of the First Dynasty royal burials. Hoffman (1979) insisted that certainly no king would allow a mere official to have a larger tomb than the king, and so perhaps it was the Saqqara tombs which were actually cenotaphs. Part of the problem here is that invariably when comparing the relative sizes of these tombs, scholars separate the Abydos tombs from their funerary enclosures, comparing only the actual tombs to those at Saqqara. Given the observation that mortuary complexes consisting of multiple elements had been used by elites in Egypt for some time by the First Dynasty, this separation may not reflect the way the Egyptians themselves viewed these tombs and funerary enclosures.

Here is where our own bias and urge to simplify may hinder our understanding of these monuments; in our quest to find the "true" or "real" burials of the First Dynasty kings, we may fail to consider that to the Egyptians, *perhaps it did not matter*. That is, while the burial of the king was obviously of great importance, there is no reason why the king might not have had a tomb at Abydos, an enclosure at Abydos, and also a tomb at Saqqara, and perhaps it was not considered important where his body actually rested. If a king did indeed have a tomb at Saqqara, a tomb at Abydos, and a funerary enclosure at Abydos, it is interesting to consider how and why the burial patterns of the retainers are similar and different is these distant locations.

It is also possible that the Saqqara tombs were intended for someone other than the king after all, perhaps a very important official, royal wife, or other member of the royal family. It is true that in all cases the tombs at Saqqara have less retainers than the tombs at Abydos from the same era. It is not only the numbers that differ; the positions of the retainers within their graves, as well as the construction of the graves themselves and objects within, also differ between Saqqara and Abydos, as well as between each king. Since all of the tombs were not only looted but badly burned in antiquity, it is not possible in any of the Saqqara First Dynasty tombs (save one) to determine who exactly was buried in the main chamber (Emery 1949, 1954, 1958; Wilkinson 2016). Wilkinson (2016) points out that even aside from this damage, almost all of the Early Dynastic elite tombs at Saqqara are more or less anonymous, lacking the stelae with the name of the occupant (Tomb 3505 at Saqqara seems to be the only exception, belonging to an official named Merka). Even when objects are found that name an individual or individuals, it is unclear if these names refer to the tomb owner or to someone else (Wilkinson 2016). Though some have argued that the inclusion of the so-called palace-façade architecture in these Saqqara tombs connects them with royalty, such architecture was used for tombs throughout Egypt during

this period, so this is not necessarily a strong enough argument to attribute these tombs only to kings (Wilkinson 2016).

The debate over the "true" location of the First Dynasty raged fiercely until relatively recently, but has largely been settled due to the efforts of Kemp (1966, 1967), Kaiser (1969), and O'Connor's (1989). The former two scholars were able to connect the Second Dynasty funerary enclosures of Peribsen and Khasekhemwy to the later development of the pyramid complexes of the early Third Dynasty, thus providing strong support for the construction of the Abydos First Dynasty enclosures and tombs as royal monuments (Wilkinson 2001). It is now generally accepted that while some of the tombs at Saqqara seem to date to the reigns of the First Dynasty rulers (roughly one per reign, except for several from the reign of Den), they likely belonged to high officials rather than to the kings, perhaps even belonging to the king's second-in-command or even, as Wilkinson (2016, 549) suggests, to "proto-viziers." It is quite likely that at this early period the highest officials were relatives of the king, deserving of their own retinues, though we do not know for sure (Wilkinson 2001, 2016). The relative anonymity of the tombs may indicate that markers of royal favor (i.e. the ability to build a highly visible, very large tomb near the capital) were more important than individuality in some way. As Wilkinson (2016, 545) points out, "It is almost as if the individual identities of those buried in the Memphite necropolis were less important than their membership of the royal court—proclaimed most visibly by the niche, 'palace-façade' architecture of their funerary monuments—and hence their subservience to the king."

Whoever may have owned these Saqqara tombs, there are at least four tombs that included subsidiary burials, previously interpreted as evidence of human sacrifice, within their mortuary context. An interesting side-effect of the assignment of Abydos as the royal cemetery is

that the possible sacrificial burials at Saqqara are now largely ignored, probably due in large part to the fact that we simply do not know exactly who owned these tombs with the eternal retainers. Let us then turn our attention to these tombs, and consider not only their possible owners, but the contextual information for the location, construction, and use of these tombs.

Saqqara as a Site

Saqqara has several unique advantages over Abydos in practical terms. As a site, its location in northern (Lower) Egypt, near the long-time capital of Memphis, meant it was far easier for the king to oversee the construction of any monuments that he commissioned at this site, should he feel the need or desire to do so. The location also meant that monuments at this site could have been visible from the capital, not only for the locals but for any visiting dignitaries that the king wished to impress. Raw materials, at least in the form of the Tura limestone that was used for the pyramids in the Old Kingdom, were close at hand. Overall, the site was far more accessible from the capital than Abydos, far to the south. It is likely for these reasons, and perhaps others, that the kings eventually gave up Abydos as a royal burial ground and began constructing their funerary monuments at Saqqara instead. In the First Dynasty, it seems that at least some members of the elite constructed their tombs at Saqqara, but the paucity of tombs from this period suggests that the privilege of burial here may have been at the discretion of the king.

Saqqara First Dynasty Tombs

Though at least one large tomb has been found at Saqqara for the reign of each First Dynasty king, not all of these tombs include subsidiary burials. Four of the tombs excavated by

Emery yielded subsidiary graves: Tombs 3504, 3503, 3506, and 3500 (Figure 15). Based on various objects within and around these tombs, Emery (1954) dated Tomb 3504 to the reign of Djet, Tomb 3503 to the era of Merneith, Tomb 3506 to the reign of Den, and Tomb 3500 to the reign of Qa'a (the numbers were assigned as the tombs were discovered or excavated, hence they do not necessarily follow the chronological order of these tombs). Though all of these tombs have subsidiary graves, they all have far fewer than the subsidiary graves of the contemporary royal tombs and enclosures at Abydos, perhaps further supporting the view that the Saqqara tombs belonged to officials or royal family members rather than the kings themselves (see Table 2).

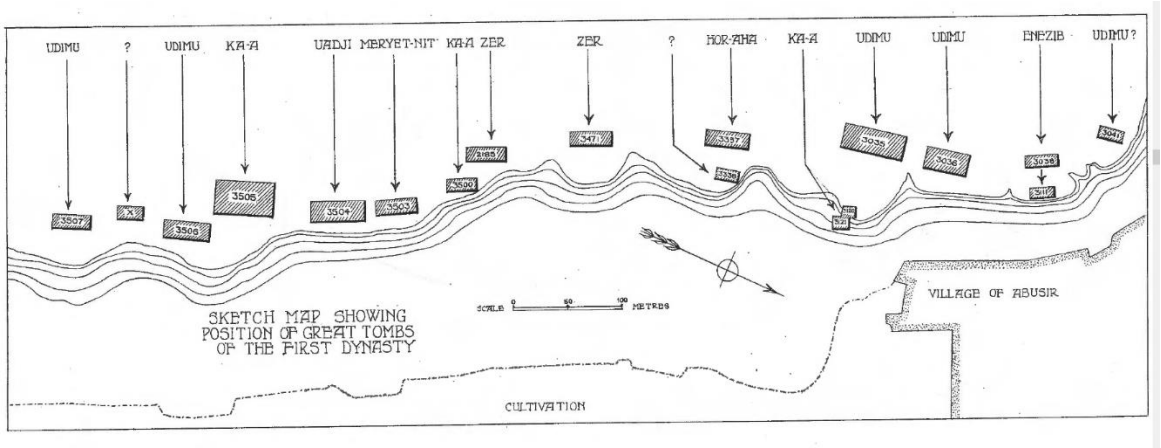


Figure 15: Sketch map showing the location of the First Dynasty tombs discussed in this study (after Emery 1958).

The four tombs from Saqqara that are discussed here share broad similarities of construction. All consist of a substructure composed of multiple rooms, and a superstructure that is characterized by a mastaba with the niched pattern known as the "palace-façade" form for its resemblance to the supposed exterior of the royal palaces (Emery 1954, 1958). The tombs are then surrounded by an enclosure wall, separating the sacred burial space from the polluting

effects of the mundane world outside. In all but one case, the subsidiary burials are located outside this enclosure wall, just as they are at Abydos. The implications of this will be considered later in this chapter. First, let us take a closer look at these tombs chronologically.

Tomb 3504

Tomb 3504 consists of a massive substructure, featuring twenty-one rooms, covered by individual roofs, and a large mastaba as the superstructure (Figure 16) (Emery 1954). A low bench ran around the exterior of the superstructure itself, perhaps similar to the low bench described by Bestock (2009) at the funerary enclosures of Abydos (Emery 1954). Surrounding the superstructure was an enclosure wall, and outside of this were the sixty-two subsidiary burials, arranged in rows on the eastern, western, and southern sides (Emery 1954). Emery (1954, 8) notes that these subsidiary graves "did not consist of separate pits but were formed by a trench which was divided by cross walls into separate graves each roofed with timber and covered by individual superstructures of mud brick." The north side, instead of having subsidiary walls, has a boundary wall to separate Tomb 3504 from the nearby Tomb 3503 (Emery 1954).

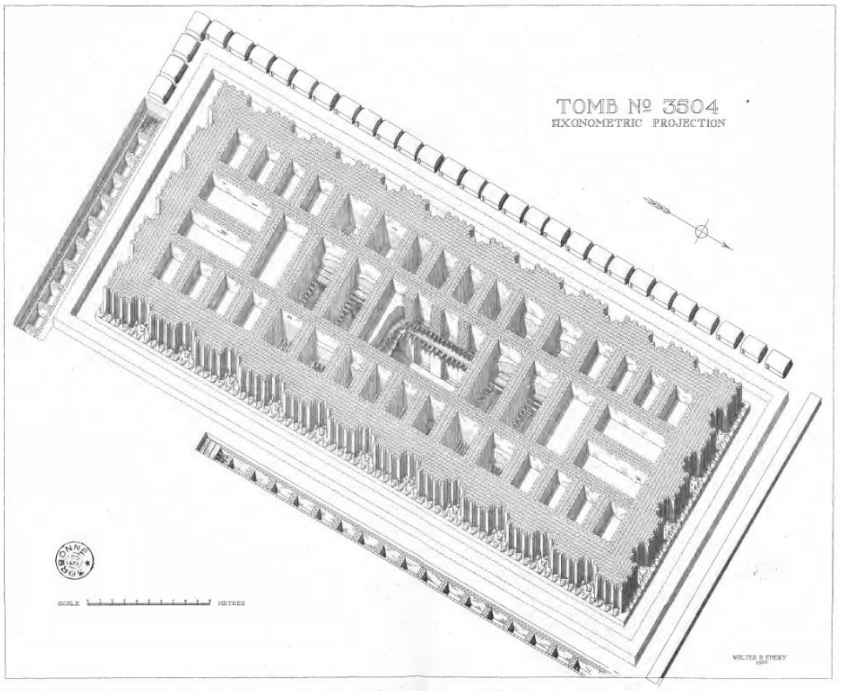


Figure 16: An axonometric view of Tomb 3504 at Saqqara, surrounded by subsidiary graves (after Emery 1954, Plate I).

Each grave was roofed by timbers resting on a ledge running along the interior walls, which were covered in mud plaster (Emery 1954). On top of these timbers was a layer of matting, which in turn lay under a small, rounded mudbrick superstructure that was filled with rubble (Emery 1954). Various objects were found within and around the main tomb and the subsidiary tombs, including vessels of stone and pottery, flint objects, copper tools, fragments of wooden and ivory furniture, bone and ivory arrowheads, and other small objects (Emery 1954).

Many, though not all, of the subsidiary graves had been plundered before they were excavated b Emery, but he was able to gain a great deal of useful information even from the plundered graves. Of the sixty-two subsidiary graves, almost all of the tombs also contained remnants of wooden coffins, and forty-eight still contained identifiable human remains. Overall,

the subsidiary graves appeared relatively uniform and unremarkable, though the human remains themselves are discussed in Chapter 5.

Tomb 3503

Tomb 3503, dated to the reign of Merneith, was built adjacent to Tomb 3504. Like its predecessor, Tomb 3504 comprised a substructure of a large pit divided into various compartments, a wooden roof, some type of superstructure, and an enclosure wall (Figure 17) (Emery 1954).

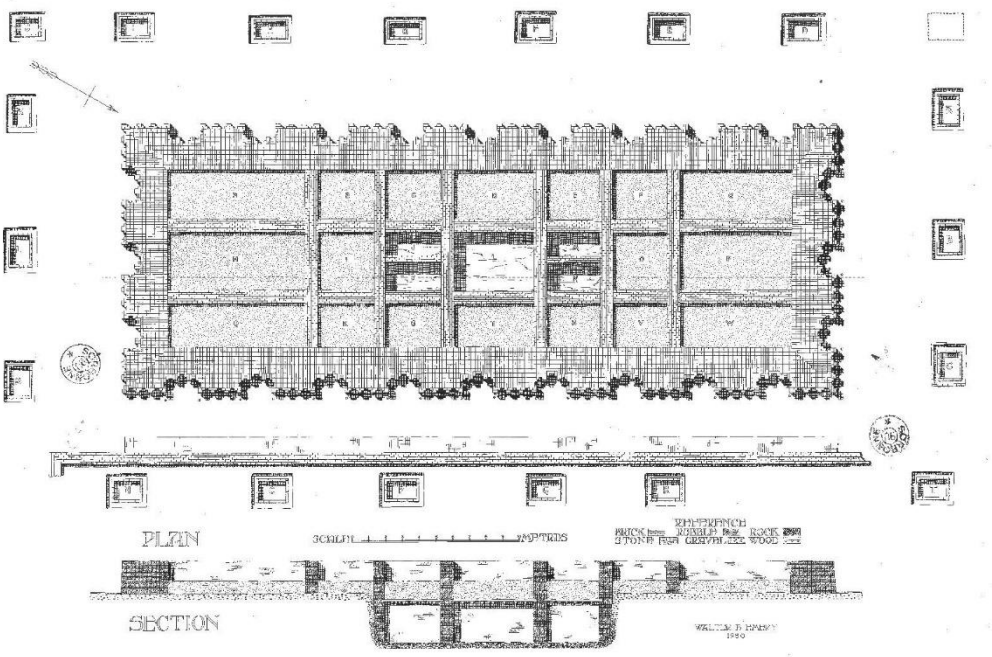


Figure 17: Plan of Tomb 3503 at Saqqara, surrounded by individual subsidiary graves (Emery 1954, plate XXXVIII).

Based on the large amount of brick debris found at this tomb, Emery (1954, 140) suggested that the main superstructure was probably "a structure of considerable height." This

tomb also included subsidiary graves, though fewer in number (only twenty-two, two of which had apparently been destroyed by the time Emery found them), in keeping with the general decline in numbers of subsidiary burials as the First Dynasty progressed. Unlike Tomb 3504, however, Tomb 3503 had subsidiary graves on all four sides (Emery 1954). Only the east enclosure wall of the tomb complex remained, and although Emery was undecided on whether the enclosure wall originally surrounded all four sides of the tomb, it was clear that the subsidiary burials, on the east side at least, were certainly outside the enclosure wall (Emery 1954). These subsidiary tombs were broadly similar to those of Tomb 3504, consisting of "brick-lined pits," a ledge in the wall to hold a roof of wooden beams and plant fiber matting, and probably similar superstructures to those of Tomb 3504 (Emery 1954, II:130). An important difference, however, is that the subsidiary tombs around Tomb 3503 seem to have been constructed in groups, or at least show variation in their structure and completion. Emery (1954, II:134) notes that "Some of the pits have battered sides and some have vertical sides; some have the brickwork faced with a grey-coloured mud plaster and some with a yellow-colored plaster." The variation clearly appears to be purposeful, since similarly constructed tombs are grouped together, but what this variation means is uncertain; Emery (1954) suggested that perhaps similar tombs were either constructed at the same time or the construction was led by different people in different areas.

Many of the subsidiary burials were found undisturbed by plunderers, and yielded remains of various stone and ceramic vessels as well as human remains. Emery (1954) suggested that many of the objects within the burials, such as model boats, paint pots, and a copper chisel, were indicators of the occupation of the deceased.

Tomb 3506

Tomb 3506, dated to the reign of Den, departed in several ways from its predecessors (Emery 1958) (Figure 18). Unlike so many of its neighbors, this tomb was not burned in antiquity, though it was looted (Emery 1958). An interesting fact about this tomb is that it very clearly demonstrates two distinct phases of use or construction (Emery 1958). In the first phase, the structure consisted of "a great rectangular rock-cut pit…unroofed and open to the sky," and almost certainly used for some sort of funerary purpose (Emery 1958, III:38). Emery (1958) speculated that this structure may have been used for funerary rituals that predated the tomb owner's death, though this seems unusual and would beg the question of why such rituals would be enacted before the owner's death rather than after. We could, perhaps, draw some parallel here with the funerary enclosures at Abydos, which were also open structures for funerary rituals. If this was indeed the case, it seems more likely to me that the space was used by someone other than the tomb owner, perhaps a relative, before being converted from an open funerary space to a closed tomb. Regardless of the reason why this happened, it is clear that at some point the pit was covered by a large superstructure and used as a tomb by an unknown individual during the reign of Den.

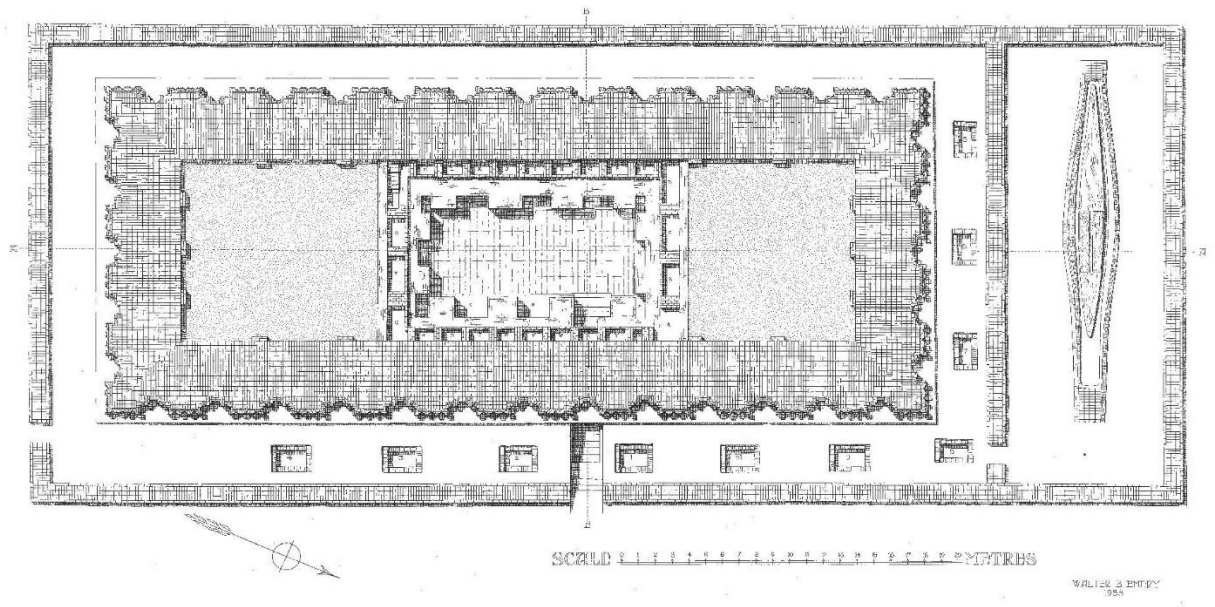


Figure 18: Plan of Tomb 3506, showing the subsidiary graves (bottom and near right) and boat burial (far right) (Emery 1958).

Tomb 3506 included ten subsidiary burials, each constructed separately, and unlike any of the earlier subsidiary burials, located inside the enclosure wall of the mortuary complex, as well as a subsidiary burial for a boat (see Figure 6) (Emery 1958). These subsidiary graves are located only in the north and east corridors between the main superstructure and the enclosure wall, and are spaced approximately four meters apart (Emery 1958). Some of the graves include coffins, while others do not but are lined with wooden planks (Emery 1958). Each grave had a superstructure similar to those of earlier subsidiary graves, with rubble filling a mud structure with a rounded roof (Emery 1958).

Macramallah's Rectangle

Also dating to the reign of Den is the area known as Macramallah's Rectangle, so named because it was discovered and excavated by the excavator of the same name (Figure 19)

(Macramallah 1940; Morris 2007). In 1936, Rizkallah Macramallah discovered an enormous retainer cemetery in Wadi Abusir while working at Saqqara and dated the cemetery to the reign of the pharaoh Den (Macramallah 1940; Morris 2007). Morris (2007, 22) postulated that since to date no funerary enclosure of Den has been discovered (or at least one that could be definitively assigned to Den), perhaps the sacrificial portion of the king's funeral was conducted at Saqqara "so that the citizens of the new capital might participate directly or at the very least observe a portion of the solemnities that surrounded the royal funeral." While an equivalent of the funerary cult structures at Abydos was not discovered in the midst of these burials, it is not improbable that such a structure may have existed (Morris 2007, 22). Even if no such structure was present, however, both Morris (2007) and Kaiser (Kaiser 1985) believed that the empty area surrounded by tombs was intended as the focal point for the retainer burials around it, and Kaiser suggested that the king's body may have been displayed in this area to 'observe' the sacrifice of his retainers (Morris 2007:22).

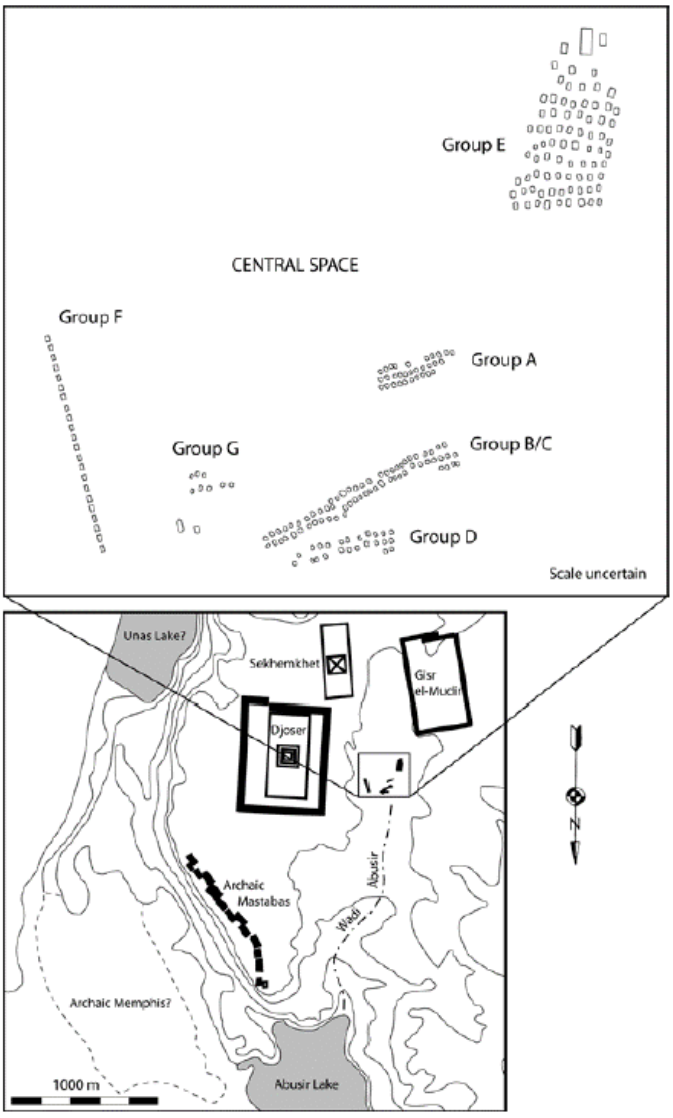


Figure 19: Macramallah's Rectangle and the associated subsidiary graves (after Morris 2007, Fig. 2.4).

This area consists of six groups of graves, totaling at least 231 graves, arranged in six differentiated groups on three sides of an open area; no excavations were carried out to the south of the open area, and more recent survey and resistivity studies have concluded that no structures or burials seem to have existed on the southern side (Macramallah 1940, pl. 1; Morris 2007, 21).

Nearly two decades after the original excavations by Macramallah, Kaiser (1985) pointed out that based on the orderly arrangement of the burials and the fact that they had apparently occurred simultaneously, the cemetery most likely reflected ritual participants of a sacrificial mortuary ritual, like those conducted at Abydos for preceding kings (Morris 2007, 22). Bestock (2011) has expressed some skepticism that this area may be considered a royal funerary enclosure like those at Abydos. This seems justified, as the arrangement of subsidiary graves certainly appears much less orderly than the those at the funerary enclosures at Abydos. While the graves do seem to surround some open area, it is a much more irregular shape than any of the known First Dynasty funerary enclosures which are invariably rectangular.

In addition, all of the known royal funerary enclosures at Abydos were originally bounded by a wall, not only in the First Dynasty but in the Second Dynasty as well. It is not out of the realm of possibility that Den departed from tradition by not only not having a walled enclosure (or that evidence of such an enclosure has been totally destroyed, though the survival of the other enclosures makes this seem somewhat unlikely), but also by having such an enclosure. However, overall the pattern of Macramallah's Rectangle is significantly different from those known and identified enclosures of the First Dynasty at Abydos.

Tomb 3500

Tomb 3500 was the last at Saqqara to include subsidiary burials (albeit only four) (Emery 1958) (Figure 20). The tomb itself is somewhat simpler than its predecessors, having a superstructure with a simpler niche design than some of the earlier tombs and a superstructure that had only six large rooms, which were found empty (Emory 1958). Interestingly, the enclosure wall for this tomb complex covers part of the main grave pit, suggesting that the

enclosure wall was not built until the primary burial had already taken place (Emery 1958). The four subsidiary graves were all located in the south corridor, and one of them had been plundered, the others were intact, and one even retained its complete superstructure (Emery 1958).

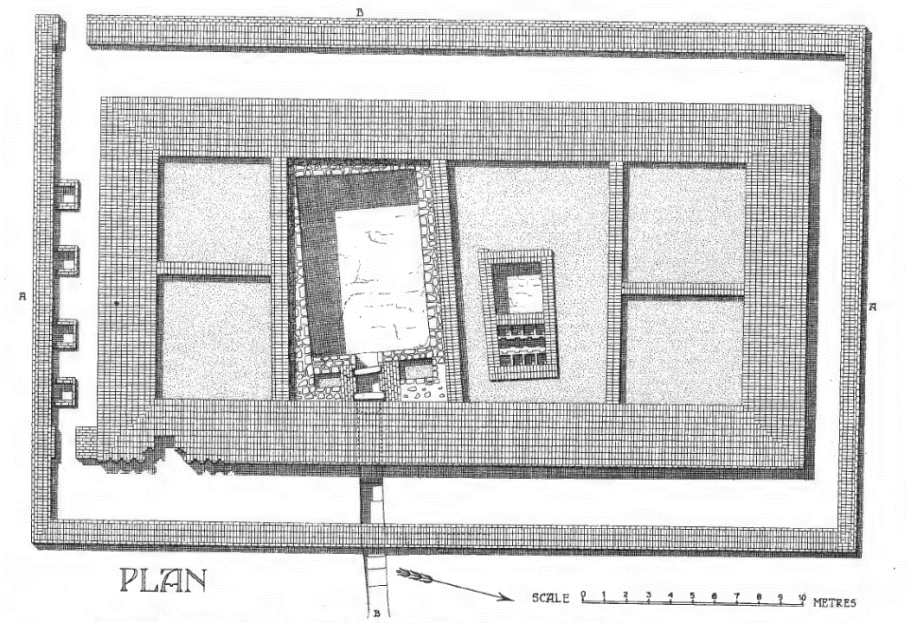


Figure 20: Plan of Tomb 3500 by Emery (1958, Plate 114). The subsidiary burials are visible as square against the enclosure wall on the left.

Understanding Subsidiary Burials at Saqqara

Having summarized the First Dynasty tombs with subsidiary burials at Saqqara, let us now consider how, or whether, the architecture of these tombs and subsidiary burials provide evidence for or against the practice of human sacrifice.

The subsidiary tombs around Tomb 3504, though the substructures seem to have been built as a long trench that was subdivided to form individual tombs, seem to have independent superstructures. Such a construction method means that while the tombs may have been filled in one event, e.g. after a ritualistic sacrifice of retainers, these tombs could just as easily have been

closed over a long period of time, as the intended occupants succumbed naturally to old age, disease, or infection. The graves around Tomb 3503 were even more independent, as each subsidiary tomb appears to have been independently constructed by digging a pit, lining the pit with bricks, and building a superstructure over each tomb after the body had been deposited within. While the tombs do exhibit architectural similarities suggesting that groups were built either by the same builders or around the same time, this does not necessarily have any relationship whatsoever to when these tombs were filled, i.e. different groups could have been building the subsidiary superstructures simultaneously or at different points in time. The subsidiary graves at Tomb 3506 also appear to have all been constructed independently; their location inside the main tomb's enclosure wall, rather than outside, could potentially indicate that the tombs were filled around the same time as the main burial if the mortuary complex was locked or sealed after the primary interment. However, we do not know if these enclosures were sealed or not, and indeed it seems likely that in some cases the enclosures may have remained open for continuing funerary rituals (as seems to be the case at the Abydos enclosures; see Bestock 2011).

It seems, then, that the subsidiary burials at Saqqara provide no evidence for or against the practice of human sacrifice. The independent construction of each subsidiary tomb gives us no secure timeline that might indicate the interment of numerous individuals in a very short time, as might be expected if multiple individuals were sacrificed in one ritualistic event. Conversely, the low numbers of subsidiary burials at these tombs could also mean that even if human sacrifice was practiced, groups of workers could still construct individual superstructures in a short period of time. With no firm conclusions about the practice of human sacrifice, or lack thereof, in the tomb architecture at Saqqara, let us turn our attention to Abydos.

Abydos as a Site

Abydos was a place of importance long before Aha, generally considered the first king of the First Dynasty, built his tomb there. Located solidly in Upper Egypt, long before Thebes (modern Luxor) came to be the capital of Upper (and then all) Egypt, Abydos had been used as an elite burial ground for more an a century before the First Dynasty kings built their tombs (Dreyer 2011; O'Connor 2011). The settled area of Abydos was on the western side of the Nile rather than the eastern side, where so many of the other settlements were located. The town itself, as was typically the case in ancient Egypt, was located near the cultivable land along the banks the Nile, while the cemeteries were located farther out in the desert. While the First Dynasty funerary enclosures are actually located relatively close to the ancient town, the burials at Umm el Qaab are nearly a mile farther into the western desert, near the cliffs of the inhospitable high desert.

The First Dynasty royal tombs show a clear evolution from the tombs of the later Predynastic Period at Abydos (Bestock 2011; Dreyer 2011). Aha, as the first king of the First Dynasty, built his tomb just south of those of his predecessors, and it is possible to trace the development of an increasingly complex and hierarchical society from the Predynastic Period through the Early Dynastic based on Abydos tombs alone (Dreyer 2011). Though the royal cemetery shifted to Lower Egypt in the Old Kingdom, Abydos continued to be used by on and off throughout the rest of pharaonic history, a testament to the lasting importance and mythology of this special place.

While it is readily acknowledged that Abydos was much used as a burial ground (and this is certainly true, particularly from a diachronic perspective), this emphasis on the longue durée may hide the exclusionary nature of this important burial site. Lest we forget, in the First

Dynasty it is only kings, and Queen Merneith, who are accorded primary burial at Abydos, at least in the area around Umm el Qaab; all other burials are clearly associated with, and present because of, these royal mortuary complexes. It is interesting to note that before the First Dynasty, Abydos may have been less exclusionary in terms of burial privileges. In some ways this is not surprising, since before the First Dynasty (and perhaps during), Egypt was still separated into numerous polities governed by various, probably hereditary leaders (Köhler 2011; Beatrix Midant-Reynes 2000; Teeter 2011a). It may speak for the importance and sanctity of Abydos itself that when Egypt was unified into a single kingdom (ideologically if not entirely in fact), the rulers did not establish a new burial ground for their newly minted royal burials, but chose to not only stay in the cemetery near their forebears, but be buried so closely to these predecessors that a continuum can (more or less) be traced from the earlier burials in farther north to the later burials in farther south. Alternatively, perhaps it was less the site of Abydos, and more the importance and heritage of their predecessors that the First Dynasty kings wished to emulate and connect themselves to a lineage of powerful rulers, perhaps their ancestors by blood or perhaps only their ancestors by mythology

The First Dynasty Mortuary Complexes at Abydos

The kings of the First Dynasty all have known royal tombs at Umm el-Qaab with surrounding subsidiary burials, and most had funerary enclosures nearby. Aha, generally considered the first king of the First Dynasty, built his tomb at the south end of Cemetery B, where his predecessors had built their tombs (Bestock 2009). The proximity of his tomb, which is very near those of his immediate predecessors, may be a purposeful allusion to, and acknowledgement of, the efforts of his predecessors in controlling and/or uniting Egypt (Bestock

2009). Aha's successors Djer and Djet moved progressively south with their tombs, and constructed their funerary enclosures near Aha's approximately one mile to the north, in what is known as the North Cemetery, as did Merneith, presumed mother of Den and wife of Djet (Bestock 2011). The location of the North Cemetery, much closer to the settled area of Abydos than Umm el-Qaab, a mile or so farther out into the desert, may have significance for the rituals performed in these funerary enclosures and the visibility of such rituals (see discussion of audience in Chapter 3). The later kings of the First Dynasty are less well-known, though their tombs are also at Umm el-Qaab. If these kings had funerary enclosures as well, they have either been destroyed or not yet found or securely identified.

Tombs, Enclosures, and Subsidiary Burials

It is a common practice to group all of the subsidiary graves together as one group for analysis, or at least one type of mortuary practice. And while the analysis of both Petrie (1900) and Reisner (1936) make it clear that certain trends are apparent in the construction of the subsidiary tombs, it is equally clear that there are important differences between the subsidiary graves around the tombs and those around the funerary enclosures. Broadly, the subsidiary graves overall do exhibit important similarities, in that they tend to contain one individual, with a few objects, usually including one or more pottery vessels and often include objects that have been interpreted as indicating the profession of the deceased. The subsidiary graves are made of mudbrick and tend to be roofed with wood, as were most of the royal burials, and at least some of the subsidiary burials had stelae and/or the name of the occupant painted on the interior wall of the grave to indicate who was buried there (W. M. F. Petrie 1900, 1925). Beyond this, however, the graves show a great range of variation. It is immediately obvious that the subsidiary

graves are organized differently around the Abydos tombs than around the funerary enclosures: while the graves around the enclosures consist a ring (or more accurately a rectangle) around a large, rectangular empty space, the graves around the royal tomb tend to be arranged in rows or banks, either around the tomb or stretching away from it. With the later kings of the First Dynasty, such as Qa'a and Semerkhet, the subsidiary graves do ring the central tomb but are still several graves deep in some places and in any case are part of the main tomb itself. The exception is Merneith, the only woman accorded burial in this sacred space, presumably due to a regency for her son, Den; her tomb and enclosure are both ringed by a single row of subsidiary burials. While the contents of the subsidiary graves around the tombs seem to depend in part on proximity to the main tomb (i.e. tombs with more valuable objects are located closer to the king's tomb, while those with less valuable objects are farther away), this organizational scheme does not really work for the subsidiary graves around the funerary enclosures, though variation in the quality and quantity of grave goods is also found in the enclosure subsidiary graves.

With this variation in mind, these tombs will first be treated as separate groups, associated with their focal monument (either the royal tomb or the funerary enclosure) rather than as a manifestation of just one phenomenon. The royal tombs and funerary enclosures themselves have been addressed in detail and at length by many other scholars, and thus will only be summarized here for comparative purposes.

The Royal Tombs

Though little of the earliest royal tombs remains on the surface, the basic elements can be deduced through careful archaeological analysis. It seems that each tomb consisted of a subterranean chamber with mudbrick walls, and may have had a superstructure, though none of

these superstructures remain today (Bestock 2009, 2011; Reisner 1936). Interior rooms of the subterranean tombs were often made of wood, and in some tombs there is evidence of roof beams that may have supported a roof of matting or perhaps even wooden boards (Bestock 2011; Reisner 1936). It should be noted that while many of the First Dynasty royal tombs show significant similarities, no two are exactly alike (Bestock 2011). Aha's tomb has three main chambers, but for the next three generations of kings, the royal tombs had only one main chamber, until the reintroduction of multiple chambers with tomb of Anedjib (Bestock 2011). Likewise, none of the royal tombs are exactly the same size, and while all are vaguely rectangular, some (such as that of Djer and Merneith) are nearly square.

It is also unclear how these tombs may have appeared on the surface. Little evidence remains of any superstructures; though Djet's tomb had a retaining wall that apparently would have held a mound of sand, Bestock (2011) remarks that this mound would have been entirely subterranean, so we do not know if a similar or more permanent mound would have also served as the tomb's superstructure. Such structures would have been relatively ephemeral, though it seems likely that some sort of superstructure existed for the other royal tombs as well (Dreyer 1990).

The construction of the royal tombs has been discussed in detail elsewhere (Bestock 2009; W. M. F. Petrie 1900, 1901; Reisner 1936), and such is not the purpose here. Surrounding these royal tombs were rows of subsidiary graves, which are clearly clustered around the main royal tombs rather than simply existing as part of an independent cemetery (see Figure 7) (Bestock 2011).

Subsidiary Graves around the Royal Tombs

Aha was the first to include subsidiary burials with his royal tomb, a pattern followed through the end of the First Dynasty (Figure 21). The number of subsidiary graves associated the rulers rose quickly and dramatically, peaking with Djer, Aha's successor, and then declined irregularly for unknown reasons (discussed in Chapter 6). Though the tombs were heavily plundered over the centuries, and excavated several times by scholars of varying skill and experience, it is possible to trace changes in the way that the subsidiary burials were constructed in relation to the royal tomb, e.g. directly attached to the royal tomb, to each other, or independent constructions.

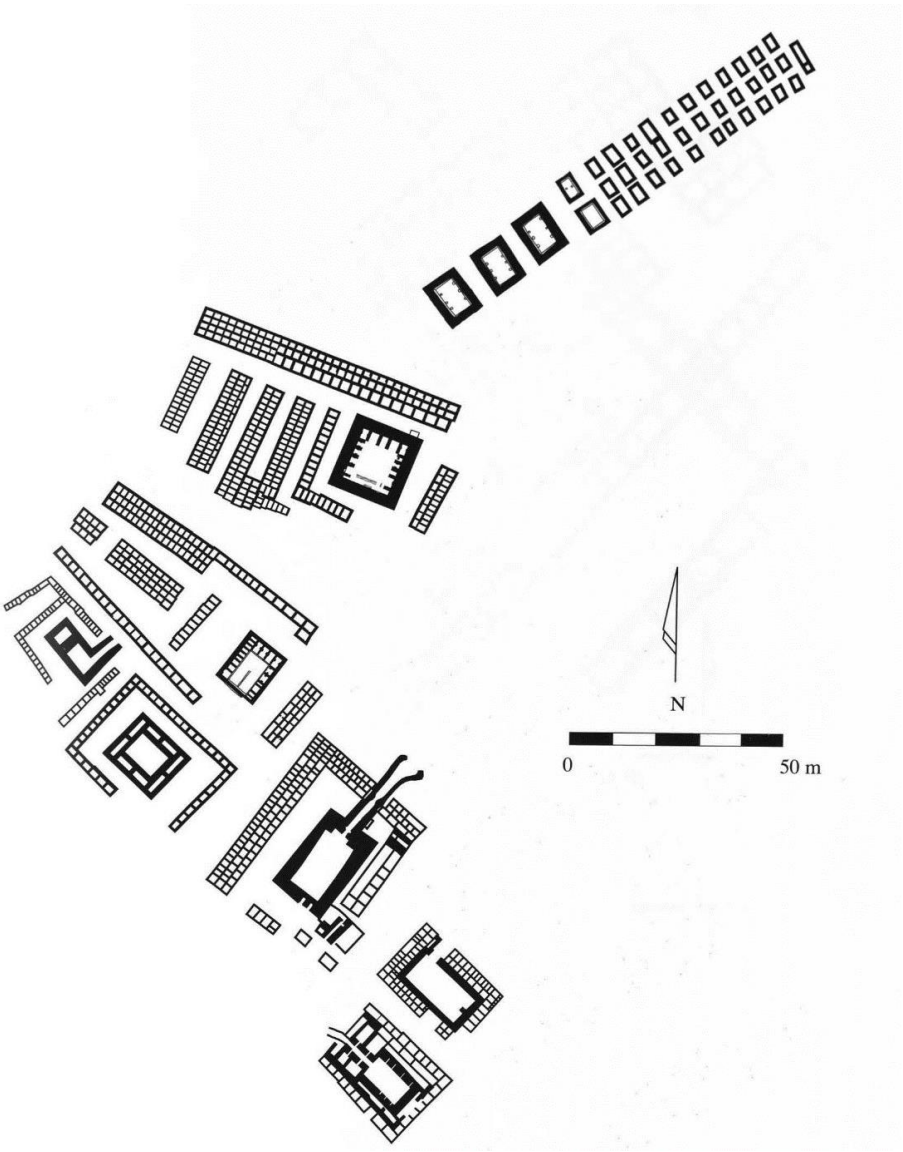


Figure 21: The tombs and subsidiary burials of the First Dynasty rulers (after Bestock 2009, Figure 12).

Aha's retainers all had individual tombs, but this process may have proved too slow and painstaking for Djer, who increased the number of retainers so dramatically that the subsidiary tombs are arranged in rows and blocks rather than individualized structures. The next few kings followed suit, though with fewer retainers, as did Merneith. Anedjib's sixty-three retainers were

buried in orderly banks of graves with narrow walls that immediately abutted the king's tomb, a trend followed by the two subsequent pharaohs (Bestock 2011). Semerkhet had sixty-nine individuals to accompany him to the afterlife, and the subsidiary burials associated with his tomb are directly attached to the king's own tomb (Reisner 1936, 96). His successor Qa'a, the last pharaoh of the First Dynasty, took only twenty-six retainers into the afterlife, and the practice seems to have died with the end of the dynasty (Bestock 2011, 142). Architecturally, then, the subsidiary graves around the First Dynasty royal tombs may be categorized as follows:

> Aha: individual graves
> Djer: trench graves arranged in blocks
> Djet: trench graves arranged in blocks
> Merneith: trench graves
> Anedjib: small, trench graves arranged around the central tomb
> Semerkhet: graves arranged around the central tomb, covered by the same superstructure as the royal burial chamber
> Qa'a: graves arranged around the central tomb, covered by the same superstructure as the royal burial chamber

Aha

The subsidiary burials of Aha were constructed in a single long row, three graves wide (Figure 22) rather than in a row or rows surrounding the tomb, as would be the pattern adopted by his successors. The total number of subsidiary graves is 36, and although the graves vary somewhat in size, they are all roughly rectangular in shape (Bestock 2011; van Dijk 2007).

These subsidiary graves were constructed independently and do not share walls, so it is not entirely clear whether they were constructed all at once or over an extended period of time (Bestock 2011). This construction method also means that we cannot use these tombs as evidence for or against the practice of human sacrifice, as the tombs could feasibly have been filled over time, as the intended occupants died naturally. Bestock notes that there appears to be a hierarchical structure present in the way the tombs are arranged, most notably in their proximity

to the main royal tomb (Bestock 2011). The tombs closest to the royal tomb are both larger and contained more valuable items than those farther away, suggesting that proximity to the king had various layers and hierarchies even in death.

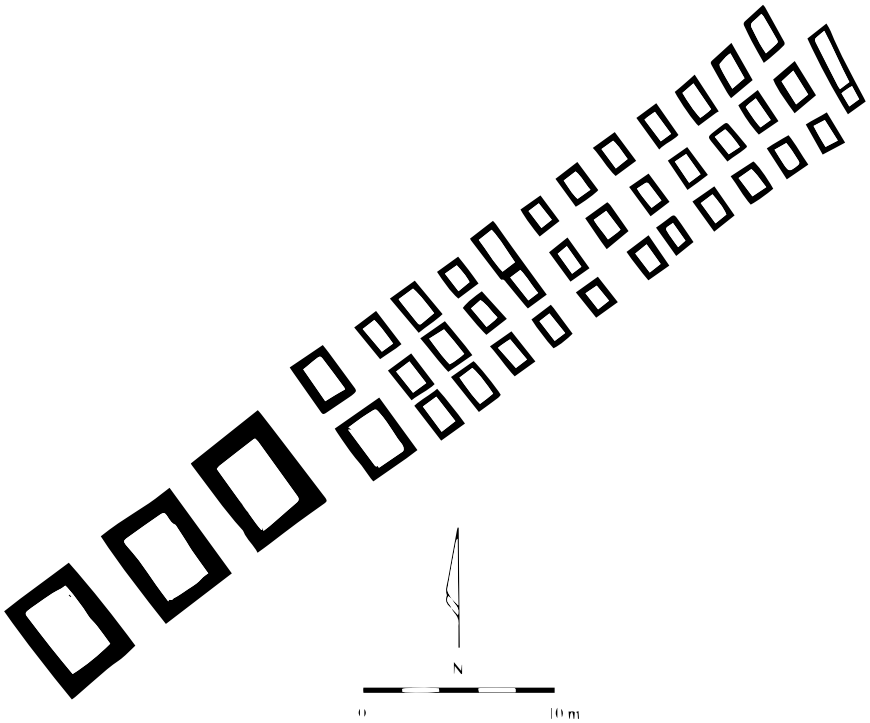


Figure 22: The three tomb chambers (left) and subsidiary graves of Aha (Bestock 2009, Figure 9).

Djer

A fundamental shift in the construction of the subsidiary graves comes with the tomb of Djer, Aha's successor (Figure 23). The most noticeable difference is in the number of subsidiary graves, which jumps from 36 to 318.

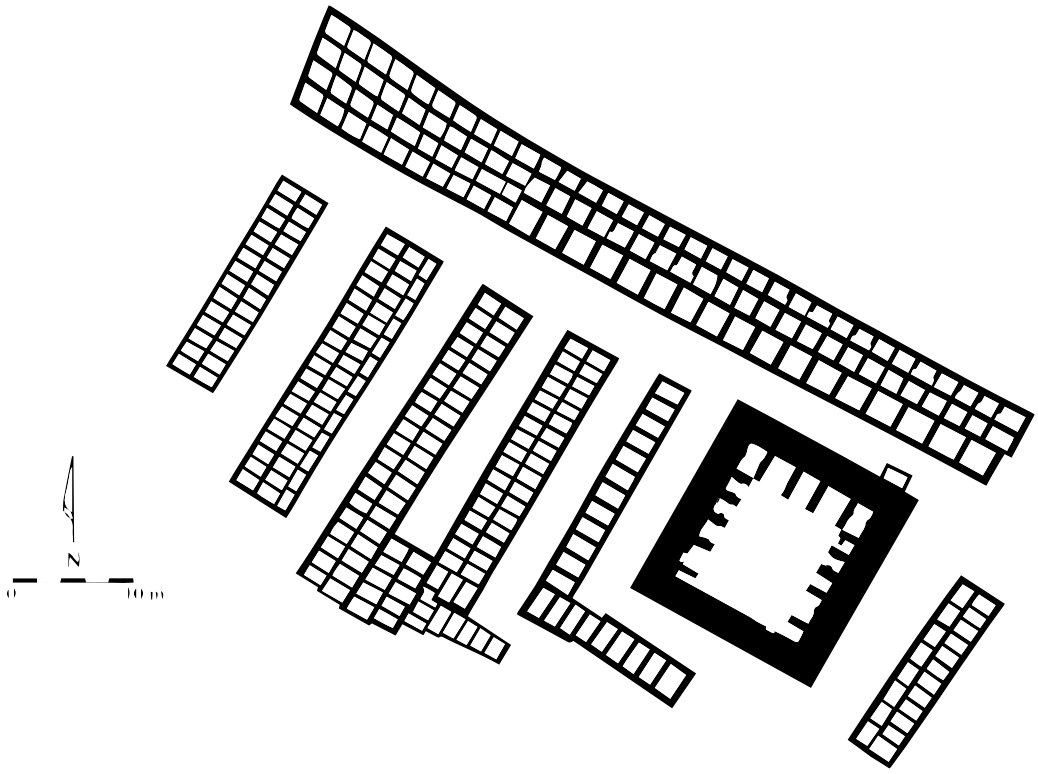


Figure 23: The tomb and subsidiary graves of Djer (after Bestock 2009, Figure 11).

Even ignoring (for the moment) the nearly equal number around Djer's funerary enclosure, this is a nearly a ten-fold increase, compared to Aha, in the number of graves that must be constructed. It is worth pointing out that even with this enormous increase in labor and time to create the tombs, each retainer still receives his or her individual tomb, rather than numerous individuals being dumped or placed into a large grave or pit.

The construction of the subsidiary tombs changes with Djer, however; instead of single tombs constructed independently, the subsidiary burials are now built as long trenches, lined with mudbrick and then divided into compartments by mudbrick walls slotted into the trench (W. M. F. Petrie 1900, 1901; Reisner 1936). This method of construction was not limited to Djer's subsidiary burials, though this is the first appearance of such a method among the subsidiary tombs. Reisner (1936, 75) notes that from Djer to Qa'a at least, "Most of these [subsidiary]

graves are not independent constructions but walled-off compartments in long lined trenches, some of which contain four rows of graves." These trenches must be analyzed as a very different phenomenon than individual graves. For one thing, as Reisner notes, the practice of digging a long trench, lining it with brick or mud plaster walls, and then building dividers at various points throughout to create numerous individual tombs is "very much cheaper," and certainly more efficient, than building individual tombs (Reisner 1936, 104). It makes sense that Djer would be the first to implement this strategy, since he also had the most retainers buried with him; transitioning from the few dozen individuals of Aha to the hundreds of individuals who accompanied Djer into the afterlife may have necessitated a different strategy.

Reisner (1936), after assessing the construction of the subsidiary tombs, considered 63 of the graves to be probable cases of human sacrifice (i.e. 63 were graves were closed simultaneously or at least in one event, necessitating the deaths of 63 individuals within a very short time) and 99 of the graves to be possible cases of human sacrifice.

Djet

Djet followed a similar pattern to Djer in his subsidiary burials, with two long rows oriented north-south (according to the Nile) and shorter rows and blocks between these rows (Figure 24). Djet included 174 subsidiary graves around his tomb, which Petrie (1900, I:8) noted were "all built of mud brick, with a coat of mud plaster over it, and the floor is of sand, usually also coated with mud."

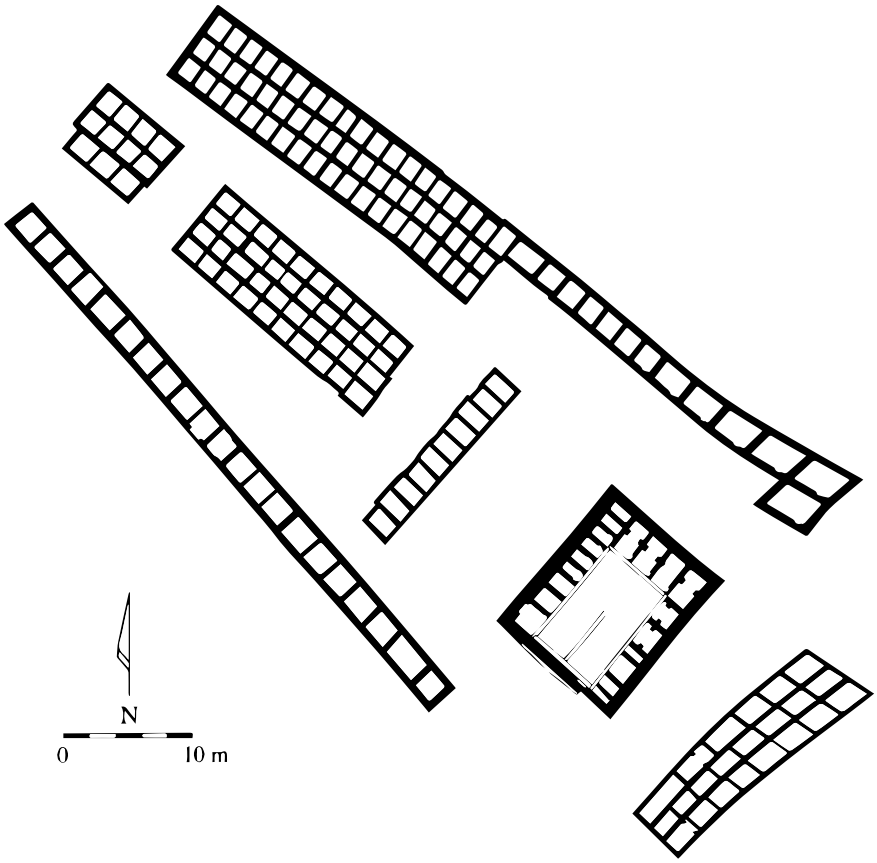


Figure 24: Plan of Djet's tomb and subsidiary burials (after Bestock 2009, Figure 13).

Based on his study of the architecture and construction of these tombs, Reisner (1936) concluded that 14 probably reflected the occurrence of human sacrifice (i.e. were closed at the same time), and 99 additional subsidiary graves possibly reflected this practice.

Merneith

Merneith's tomb is much simpler than those of her First Dynasty neighbors, both preceding and subsequent. The pattern of her subsidiary burials at her tomb (Figure 25) is almost identical to the pattern at her funerary enclosure: on both cases, the main structure or area is surrounded by a single row of burials, rather than the ranks of burials seen in the subsidiary graves of Djer and Djet. Merneith included 41 subsidiary burials surrounding her tomb. Petrie

(1900, I:11) points out the gap in the southwest corner of the subsidiary graves, similar to the gap in the retaining wall at Djet's tomb, and suggests that perhaps the funerary procession approached the main tomb through this gap.

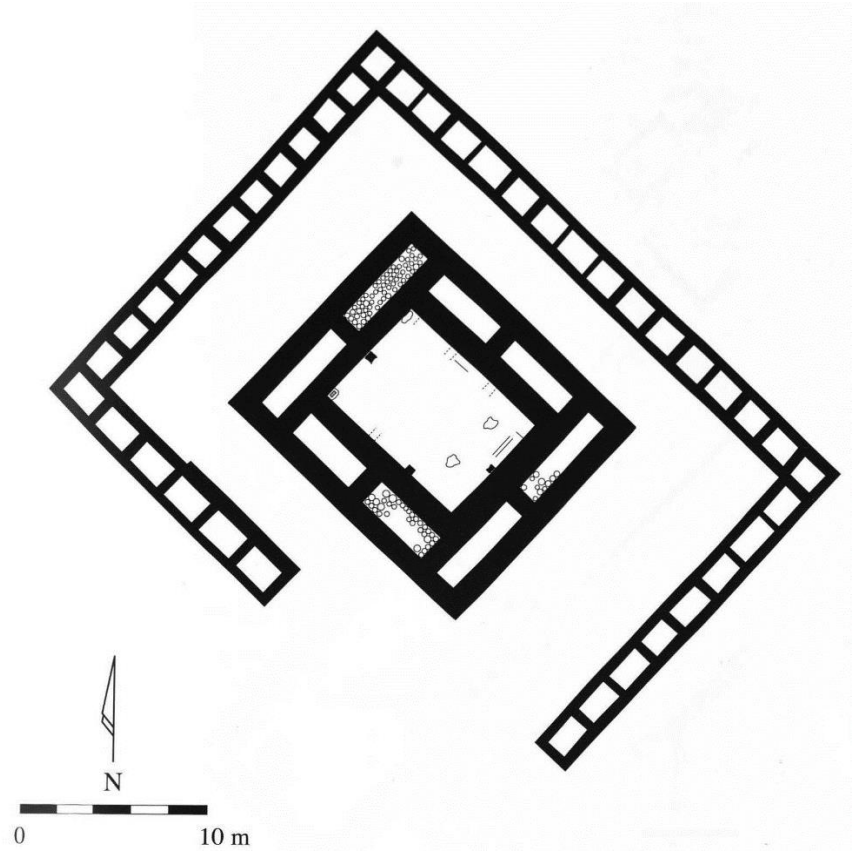


Figure 25: The tomb and subsidiary burials of Merneith (after Bestock 2009, Figure 14).

Though Petrie did find stelae in the subsidiary graves, none of the graves had any evidence for the names painted on the walls in red, as had been the case in Djet's subsidiary burials. Reisner (1936) thought that 33 of the 41 subsidiary graves were probably sacrificial in nature.

Den

The tomb of Den at Abydos is remarkable for several reasons, not least of which is that Den has the largest of the First Dynasty burial chambers at Abydos (Bestock 2011). He also organized the 133 subsidiary graves around his tomb in "banks" or connected rings, three graves deep on two sides and fewer but larger tombs on the other two sides (Figure 26) (Bestock 2011). Though Bestock (2011) points out that all indications are that Den's reign "was a long and important one," little is known about this king. Numerous private stelae were found in association with the subsidiary burials, and Petrie notes that the royal tomb itself "appears to be one of the most costly and sumptuous," including a partial lining or pavement of red granite in the burial chamber (W. M. F. Petrie 1900, I:11).

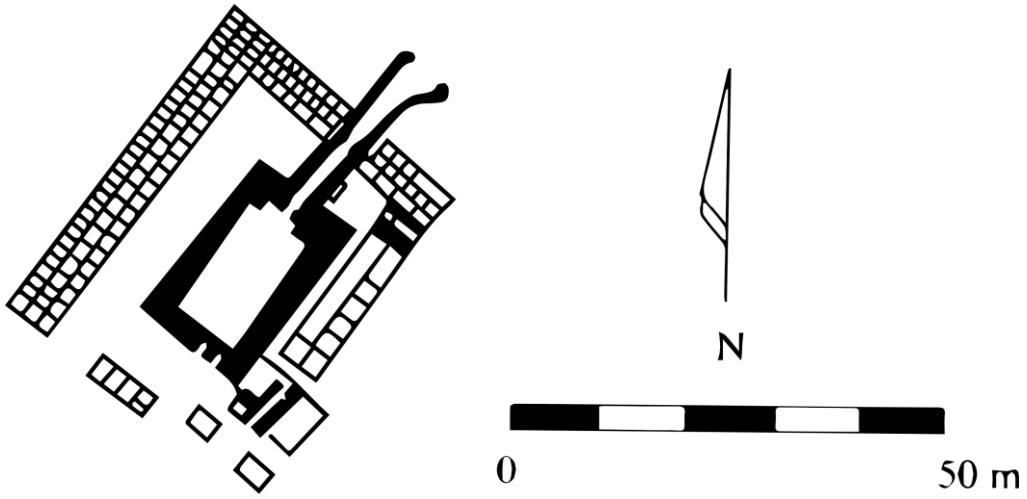


Figure 26: Tomb of and subsidiary graves of Den (after Bestock 2009, Figure 12).

Though Petrie excavated the subsidiary tombs, he seemed little interested in the details (or perhaps they were so damaged that little remained), writing that "Of the various rows of graves around the great tomb there is nothing to record in detail" (W. M. F. Petrie 1901, II:11).

Reisner (1936) viewed 40 of these subsidiary graves as probably reflective of human sacrifice, and a further 83 as possible evidence for such a practice.

Anedjib

It is generally agreed that Anedjib's tomb seems to have been constructed in haste, perhaps due to the untimely death of the king. The tomb itself consists of a simple chamber, with 63 subsidiary burials on lines on each side (Figure 27). Petrie (1900, I:12) notes that the suggestion of haste is also apparent in the subsidiary tombs, which "are all irregularly built; the sides are wavy in direction , and the divisions of the long trench are slightly piled up, of bricks laid lengthways, and easily overthrown." He does not record any contents of the subsidiary tombs.

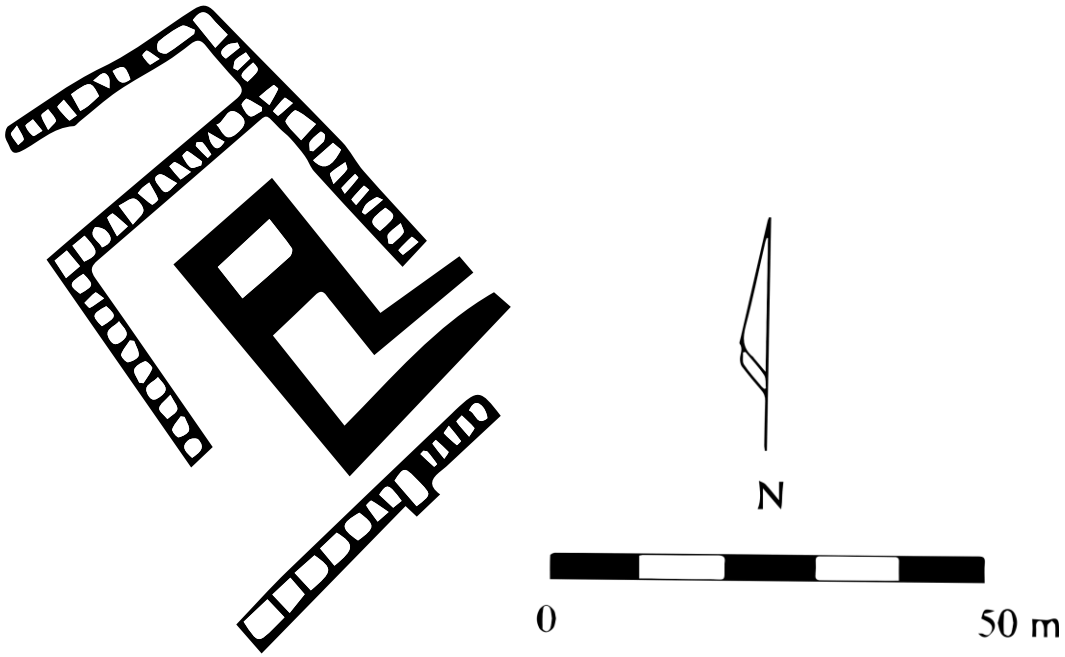


Figure 27: The tomb and subsidiary burials of Anedjib, immediately next to (and encroaching upon, in the case of the subsidiary burials) that of Merneith (Morris 2007).

Anedjib's subsidiary cemetery is significantly smaller than those of his predecessors, "a mere travesty on the great cemeteries of his predecessors" in the words of Reisner (1936, 117). In fact, Anedjib's subsidiary cemetery is even smaller than those of his successors, Semerkhet and Qa'a, which were covered over by a superstructure (see below), indicating that even the need to cover all the graves at once (to limit the size and maintain structural integrity of the superstructure) was more complicated than it might at first appear (Reisner 1936). The simplest explanation, of course, is that Anedjib was a weaker or less wealthy king than the others of his dynasty, but it should already be clear that quantity was not the only measure of success and political power. There may have been other factors beyond economics that influenced the construction of Anedjib's subsidiary graves, which will be explored further in Chapter 7.

Semerkhet

The royal tombs of Semerkhet and Qa'a stand out for several reasons. Perhaps most notably in the context of this dissertation, both of these tombs include subsidiary burials that were covered by the same superstructure as the tomb of the king himself, indicating that the occupants of the subsidiary graves had to be deposited at the same time (or at least no later than) the king himself (Figure 28) (W. M. F. Petrie 1900; Reisner 1936). Semerkhet's subsidiary graves (perhaps more correctly termed chambers of the main tomb) contained the remains of 68 retainers, only a few more than his predecessor Anedjib. Petrie records seven stelae which were found in the tomb chambers, two of which belonged to dwarves, according to the stelae inscriptions (W. M. F. Petrie 1900, I:13).

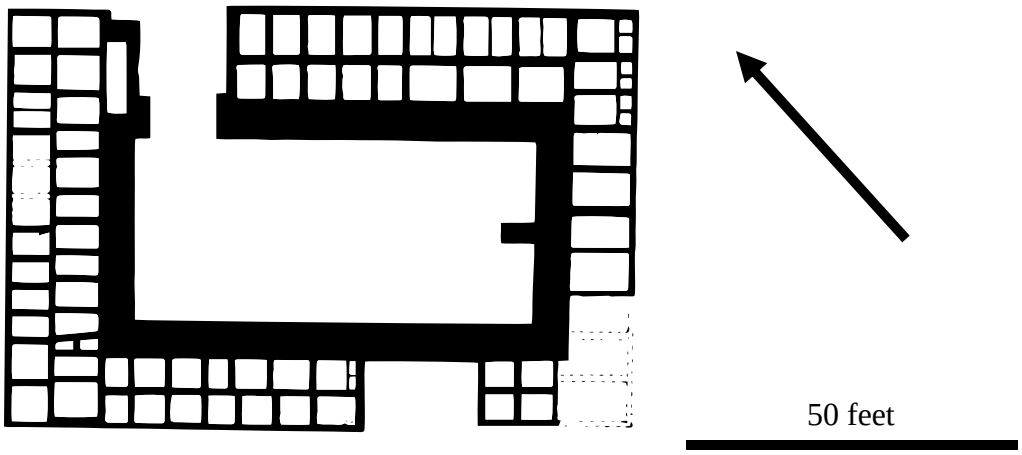


Figure 28: The tombs and subsidiary graves of Semerkhet (after Morris 2007).

Qa'a

The tomb of Qa'a was excavated by Petrie, though like that of Semerkhet it was badly damaged and plundered before he arrived (Figure 29) (W. M. F. Petrie 1900). Petrie (1900, I:14) described the tomb of Qa'a as having "a more developed stage than the others" but also as being "hasty and defective" regarding construction techniques, suggesting that the tomb had been constructed while the mudbricks were not completely hardened, causing the walls to eventually collapse.

Though Qa'a had the fewest subsidiary graves of any of the known First Dynasty kings, Reisner (1936, 115) points out that "the number and size of the large graves is notable." One "very large grave W 2" retained a stele naming an official of the harem, Sabef, who was likely buried either in this tomb (perhaps the most likely given the presence of his stele) or nearby (Reisner 1936, 115). Reisner (1936, 115) believed that the row where Sabef's stele was found was intended for "male officials and attendants," while the graves on the east and the south of the

main tomb chamber were likely for women of the harem, organized by their respective rank in the harem and in the king's favor.

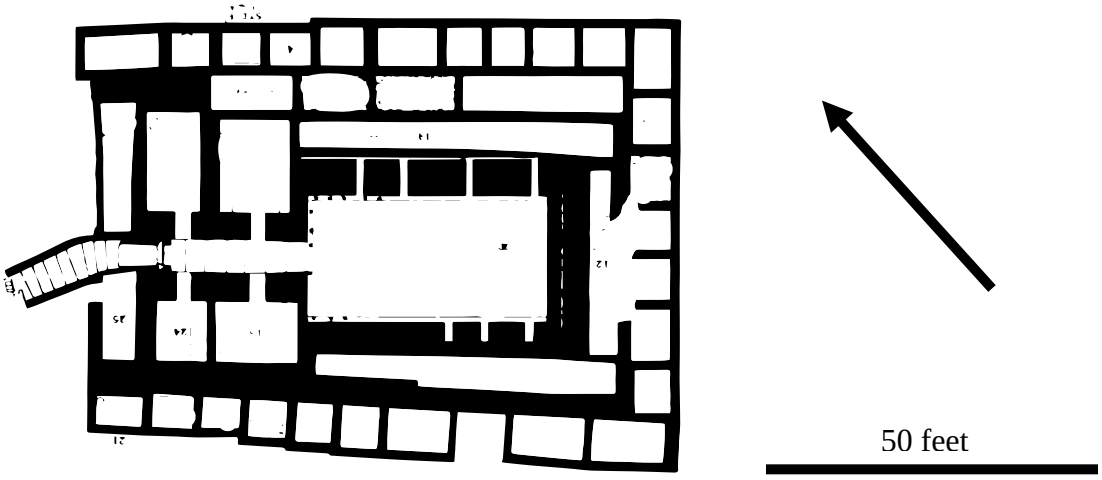


Figure 29: The tomb of Qa'a, showing the central chamber surrounded by other rooms, some of which contained subsidiary burials (after Morris 2007).

Petrie noted that the rooms around the burial chamber still contained "several" burials, all of which showed a contracted body position; five of these individuals had their head to the north, and one to the south, suggesting a total of 6 retainers (W. M. F. Petrie 1900, I:14). Apparently none of the retainers had any jewelry, or if they originally did such ornaments had long since been removed, and only three private stelae were found (Petrie 1900). At least some of the bodies had been placed in coffins; while Petrie does not specify exactly how many bodies had coffins, his phrasing ("the boxes in which the bodies were placed") suggests that all six of the bodies had coffins (W. M. F. Petrie 1900, I:14). Perhaps most intriguingly, the bodies fit poorly within the coffins, perhaps suggesting that the coffins were made in haste as a generic box form that did not fit all sizes. Petrie wrote "But the coffins can hardly have been made separately to fit the bodies; in grave 8 the body his bent back-outward, naturally, but the head has been twisted

round so as to bring the face to the back; perhaps it was actually cut off, as the atlas was an inch beyond the foramen" (W. M. F. Petrie 1900, I:14).

Understanding Subsidiary Burials at the Royal Tombs

The above discussion clearly indicates that the disturbance of the royal tombs has left us relatively little information regarding the tombs and subsidiary burials associated with them. Petrie wrote very little about the human remains, focusing instead on the objects, the grave stelae (which he describes in detail), and the royal tombs themselves (W. M. F. Petrie 1900).

From at least the reign of Aha to Den, the rulers also constructed what have been termed funerary enclosures in the North Cemetery. Anedjib, Qa'a, and Semerkhet do not appear to have had funerary enclosures, or at least if such structures/areas existed they have not been found or securely tied to either of these kings.

The Royal Funerary Enclosures

As discussed earlier in this chapter, the funerary enclosures of the early First Dynasty follow a fairly standard form: a rectangular, mudbrick structure with a niched façade, surrounding a large open area that apparently contained one or more cult structures, probably also made of mudbrick (Bestock 2009). Outside of this rectangular structure were the subsidiary burials. The space surrounded by the enclosures is quite large. Petrie (1925, 3) notes that "The enclosure of [Djer] along is as great an area as that of four of the Royal Tombs with all their subordinate graves." Enclosures have only been securely identified (based on artifacts bearing the name of the ruler) for three First Dynasty kings (Aha, Djer, and Djet) and Merneith, who may or may not have ruled in her own right.

As with the royal tombs, Aha's enclosure differed slightly from those of his predecessors and successors. Perhaps most notably, Aha built three separate funerary enclosures, one larger than the others (Bestock 2011, 141).

In keeping with the pattern of increasing size and extravagance demonstrated by Djer's tomb as compared to his predecessor Aha's, Djet's funerary enclosure is much larger than Aha's and has significantly more subsidiary burials (269 surround Djer's enclosure compared to the 6 or at most 12 associated with Aha's funerary enclosure(s)). Djet's enclosure is very similar to Djer's, even down to the arrangement of subsidiary graves outside the enclosure.

Merneith's funerary enclosure has been largely destroyed, and had the least number of subsidiary graves surrounding it. On the one hand, it is not surprising that a woman in Egyptian patriarchal society would have fewer subsidiary graves accompanying her tomb than a man; what is surprising is that Merneith was accorded an enclosure and a tomb that mimic those of the nearby kings, unlike any other known female at this time. It is now generally assumed that Merneith likely ruled as regent for her son Den, and thus was accorded the unusual honor of burial among the kings of the First Dynasty (Bestock 2009; 2011). As Bestock (2009) notes, Merneith's structures are simultaneously like those of a king, and not like those of a king: the tomb and funerary enclosure of Merneith closely mimic those of the other rulers, but in both cases are smaller and simpler than the similar, kingly structures. Merneith was allowed the enormous honor of a burial in the kings' cemetery, a funerary enclosure, and even subsidiary burials, but was still marked as not quite a king. A funerary enclosure for Den has not been discovered at Abydos (see the section earlier in this chapter titled "Macramallah's Rectangle" for a possible candidate for Den's enclosure). Neither Semerkhet nor Qa'a appear to have constructed an enclosure at Abydos.

Subsidiary Graves around the Funerary Enclosures

Unfortunately, the heavy plundering of most of the subsidiary graves, combined with numerous instances of construction over older sites, has made determining the precise layout somewhat problematic. Nevertheless, it is apparent that the subsidiary graves were not laid out in a haphazard fashion, but were carefully arranged with relation to the focal point of the king's tomb or enclosure. Many of the subsidiary graves also seem to have been oriented at least somewhat towards the cardinal points (Reisner 1936:81). Within the subsidiary burials themselves, individuals seem to have been arranged with some attention to differential status (Bestock 2011). Petrie noted that the subsidiary graves were constructed "by cutting a trench in the ground, lining it with brickwork, and dividing it by crosswalls," and noted that "In the less careful work of the last square [of Merneith] the trench is mostly left unlined, and merely divided by brick crosswalls" (W. M. F. Petrie 1925, 2). Reisner (1936) conducted a thorough study of the construction of these graves, the details of which are discussed in each ruler's section below.

Reisner (1936) compares the funerary enclosures and their associated subsidiary burials to the cemetery surrounding Giza V, which also features rows of graves that are parallel to the main tomb, are separated at each corner on three sides but on the remaining west side were created in a single long trench. Even the smaller clusters at Giza V are built as trench graves, perhaps suggesting that human sacrifice occurred here as well (Reisner 1936). Reisner (1936) believed that this tomb, which dates to the time of Djet, might in fact have belonged to one of Djet's queens (an attribution also put forth by van Dijk 2007), though it seems unusual and perhaps unlikely that one of the queens would be buried not only so far from the king's tombs, but so far from other royal tombs of this period.

Though the subsidiary graves around the funerary enclosures at first seem very similar to those around the royal tombs, there are some important differences that may change how these are interpreted. For one thing, in some cases the construction of the tombs is not as hasty as it might appear. Around Djer's funerary enclosure, the graves appear to have been built with the cheap and quick trench system, but closer examination convinced Reisner that in fact the graves were built one or two at a time and simply added on to previous constructions along the same axis (Reisner 1936). This is also the case with the graves around the funerary enclosures Djet and Merneith (Reisner 1936, 90, 112). Merneith's in particular appears somewhat disorderly, the graves not even in a straight line, and was perhaps even unfinished.

Aha

The largest of Aha's three enclosures, probably built for Aha himself, had six individual, richly appointed subsidiary graves, while the two smaller enclosures each had three associated subsidiary burials. Bestock (2009, 2011) has suggested that the two smaller enclosures may have been intended for queens. If so, this would be the only known example of a funerary enclosure at Abydos for someone who did not rule Egypt (Merneith almost certainly seems to have ruled at least as regent for her son Den, if not in her own right).

All of the subsidiary graves associated with Aha's two smaller enclosures and the main enclosure are "centred [sic] on the axes of the enclosure and are a consistent distance from the enclosure walls," with the exception of the southeastern grave by the small southwestern enclosure (Figure 30) (Bestock 2008:1101). This grave is much closer to the enclosure wall than the others, and is displaced to the southwest of the enclosure's main axis (Bestock 2008:1101-1102). Bestock (2008:1102) hypothesized that the displacement of this grave was probably due

to the prior construction of Aha's main enclosure, whose northern subsidiary burial conflicted with what would have been the location of the southern subsidiary burial for the smaller enclosure.

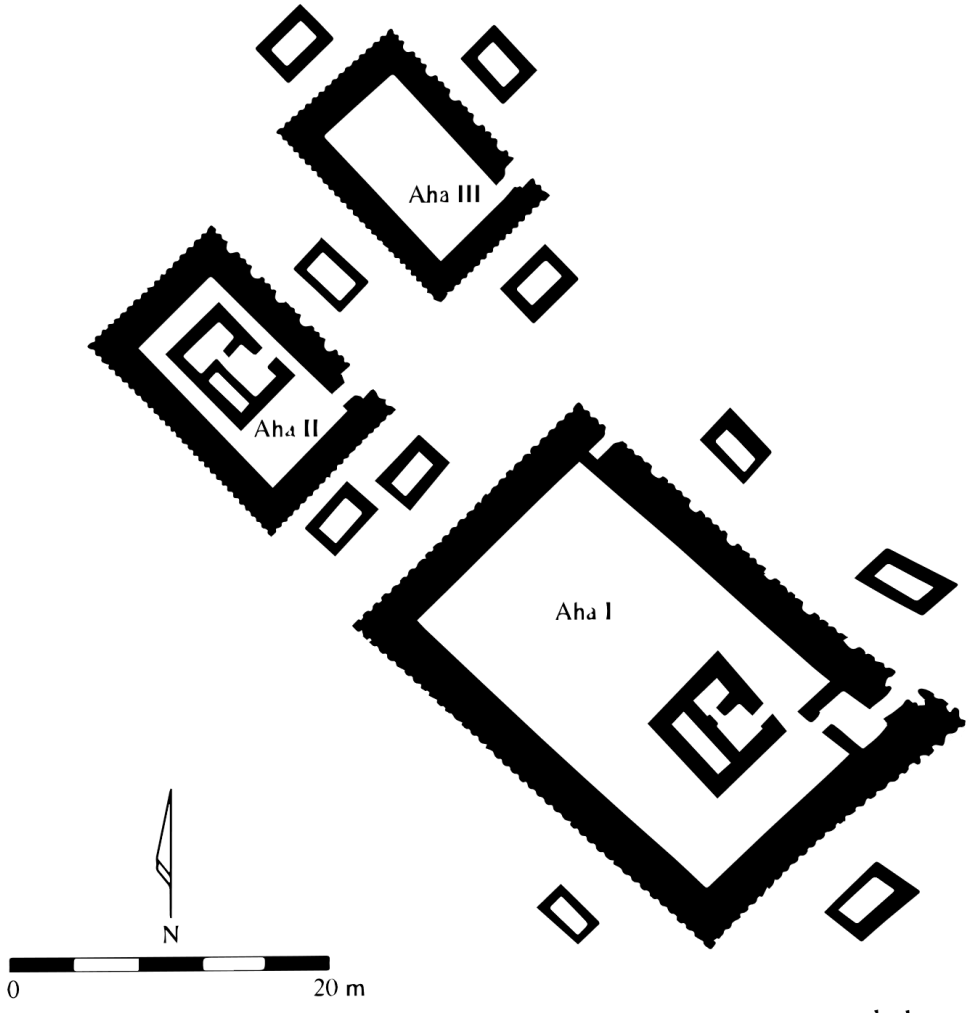


Figure 30: Funerary enclosures of Aha (after Bestock 2009).

Each enclosure had its own subsidiary graves: six "quite rich" graves for the main enclosure and three "notably poorer" subsidiary graves for each of the smaller enclosures"

(Bestock 2011, 141). All of the subsidiary graves were individually constructed, even those around the smaller enclosures (Bestock 2011).

Djer

Djer's funerary enclosure was originally surrounded by 269 subsidiary graves, arranged either one- or two-graves deep. Only 68 of the graves still held "anything notable" by the time Petrie excavated them (W. M. F. Petrie 1925, 2). Petrie also noted that two of the corners of the lines of graves appear to have been left incomplete. While the graves appear to be based on the trench system, in fact Reisner (1936) concluded that the tombs were added in sections, 1 or 2 graves at a time.

The subsidiary burials surrounding Djer's funerary enclosures vary somewhat in size, leading Reisner (1936) to suggest that the subsidiary graves were arranged hierarchically. Reisner (1936) suggested that the larger subsidiary graves (presumably of the more important individuals) may have been flanked by the smaller graves of their own attendants. Reisner (1936, 112) noted that all of the subsidiary graves around this enclosure are "rather smaller than would be expected for high administrative officials and royal princes from the sizes of the known private graves in other cemeteries." Reisner (1936) believed that none of the subsidiary burials at Djer's enclosure were indicative of human sacrifice.

The crania retained by Petrie from the subsidiary tombs around Djer's enclosure and analyzed in this dissertation derive from graves on the north, east, and west sides (based on the orientation of the tombs rather than cardinal directions) (Figure 31). Five of the graves were located on the eastern side of the enclosure, near the northeastern corner, with six others located on the northern side near the same corner. Though not present in the Leverhulme's collection,

Petrie also published photographs of six graves also from the northeastern corner. An additional eight crania derived from the western side, as does a lone mandible (704), for a total of 19 crania and 1 mandible from the original two hundred sixty-nine subsidiary tombs.

Figure 31: Funerary enclosure and subsidiary burials of Djer (plan after Bestock 2009, Figure 18).

Djet

The funerary enclosure of Djet was originally surrounded by 161 retainer burials (154 according to Petrie), of which 40 retained objects before Petrie's excavations (W. M. F. Petrie 1925). All four corners of the rectangular area lack subsidiary graves, seemingly on purpose, and "a broken row is added on the west" (W. M. F. Petrie 1925, 2). While Djer had several larger graves that have been interpreted as those of higher status retainers, Djet had only one large subsidiary grave (as categorized by Reisner) around his funerary enclosure (Reisner 1936). Reisner (1936) was of the opinion that none of the subsidiary graves around Djet's funerary enclosure reflected the practice of human sacrifice.

As with Djer's subsidiary burials, the crania retained by Petrie from Djet's enclosure and analyzed in this dissertation derive from graves on the north, east, and west sides (again based on tomb orientation) (Figure 32). Only one cranium (from grave 396) is present from the northern bank of graves, while four crania (131, 132, 135, and 146) and one mandible (122) originate from the eastern graves, and the remaining eighteen crania (graves 412, 413, 426, 428, 429, 432, 433, 436, 437, 442, 443, 444, 445, 446, 447, 449, 452, and 454) and one mandible (417) came from graves along the western side. Two graves, one on the northern side (387) and one on the western side (425), were photographed and published (Petrie 1925).

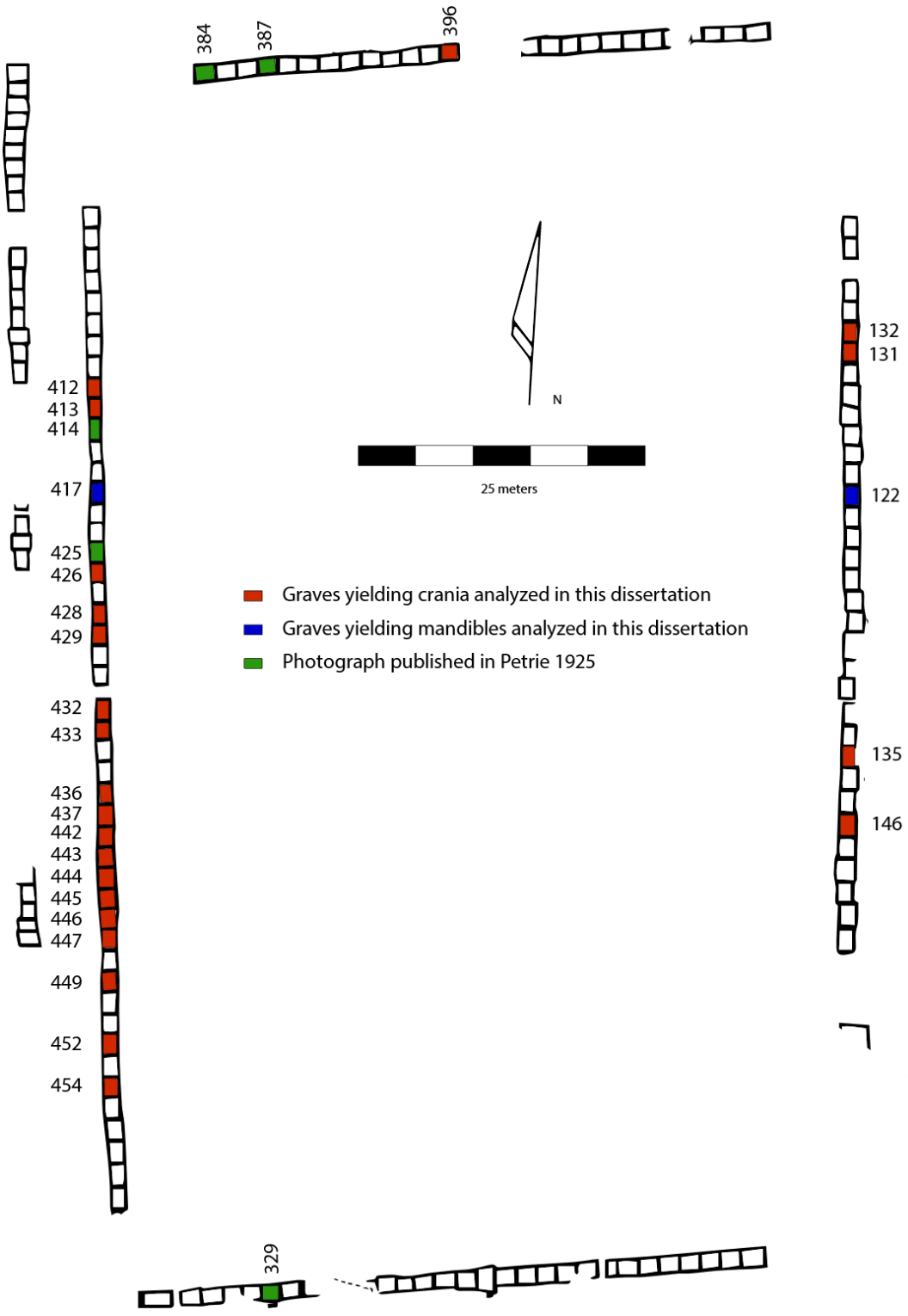


Figure 32: Funerary enclosure and subsidiary burials of Djet (plan after Bestock 2009, Figure 17).

Merneith

Merneith's funerary enclosure is both the smallest and the most badly damaged by later intrusions. Originally including 79 burials, Petrie noted that the subsidiary graves "had nothing of value left" (W. M. F. Petrie 1925, 2). Though Petrie "long searched for" any evidence of a line of subsidiary graves on the western side, no traces of such graves could be found, perhaps suggesting that no graves were originally placed on the western side (W. M. F. Petrie 1925, 2). Reisner (1936) pointed out that all the graves were oriented north-south, a consistency which is not seen in the other enclosures.

Merneith's subsidiary graves were fewer in number to begin with, and much damaged by later tombs and excavations, so only four crania were available for analysis from this group of retainer burials (Figure 33). Two crania (numbers 205 and 305) derive from graves on the northern side, one (229) from the eastern side, and one (254) from the southern side.

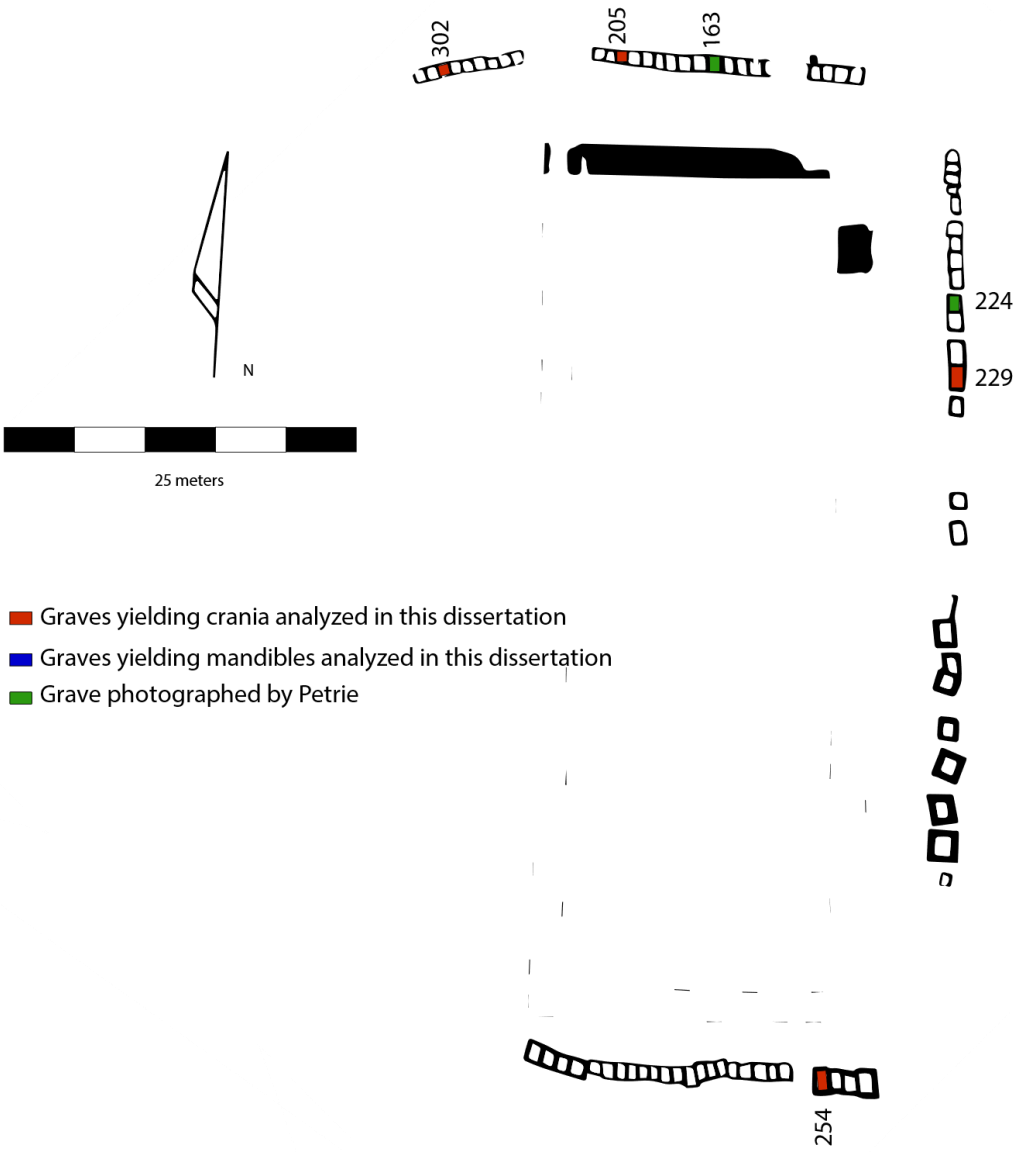


Figure 33: Funerary enclosure and subsidiary burials of Merneith (after Bestock 2009, Figure 16).

Because the graves around the funerary enclosure were constructed individually, Reisner (1936, 120) was convinced that these subsidiary graves "certainly did not contain" sacrificial victims.

Directionality and Orientation

Some mention must be made of the orientation of the subsidiary graves, as well as the orientation of the bodies within (discussed in Chapter 5). Based on the relative size of the tombs and the investment in construction (e.g. trench burial versus individual tomb), (Reisner 1936) believed that the southeast corner and the south side were the most prestigious locations in general, though individuals of importance were also buried in the northwestern corner in the cemeteries of Djer and Merneith. Reisner (1936) suggested that these locations may have been related to offering places for the cult of the deceased king.

O'Connor (2009, 174) pointed out that the graves near the enclosures of Djer, Djet, and Merneith "all leave a particularly conspicuous gap in the vicinity of the east corner entrance; in addition, the largest and hence implicitly most prestigious subsidiary graves are also found in this area." According to O'Connor (2009, 174), this arrangement suggests that 1) the east corner entrance to the main enclosure was used for a period of time after the funeral, and thus needed to be easily accessible, and 2) the subsidiary graves may have had some kind of associated superstructure that would have impeded access to the enclosure, "or at least was considered inappropriate to it." In contrast, Reisner (1936, 107) believed that the most important retainers were buried on the south side in the case of Djer, Djet, and Merneith, and Semerkhet, with a few additional high officials in the northwestern corner of Djet and Merneith's subsidiary cemeteries.

Another area where subsidiary graves are conspicuously absent is near the south corner of the royal tombs (O'Connor 2009, 174). Other seeming gaps in the arrangement of the subsidiary burials seem less consistent. Both Djet and Merneith have gaps in the subsidiary graves "on the east corner of their enclosures, where there was an entrance; but Djer's enclosure had a similarly located entrance, yet has a continuous line of subsidiary graves in its vicinity"

(O'Connor 2009, 174). All three of these complexes have gaps in subsidiary burials near the west corner of the funerary enclosure, but no trace of a structure or entrance has been found in this area (O'Connor 2009, 174).

Morris (2007, 18) hypothesized that "the spatial patterning of the retainers in death quite likely reflected the positions of these individuals in the funeral itself and perhaps, in some cases at least, their arrangement with respect to the king at state ceremonies." At the rear of the column of subsidiary graves for Aha's tomb were found seven graves containing the bodies of seven young lions, prompting Morris (2007, 19) to suggest that this arrangement was meant to immortalize and perpetuate the journey of the king and his bodyguard towards the sacred realm to the southwest, through the break in the cliffs that resembled the Egyptian hieroglyph for the horizon (Morris 2007, 19). Later tombs, such as that of Djer, seem to have preserved this clear path to the southwest, though the composition of the Djer's subsidiary burials was markedly different, consisting mainly of women and dwarves (Morris 2007, 19, Petrie 1901, pls. 26-27). Djet's subsidiary burials also preserved a path toward the southwest (Reisner 1936, 106). Perhaps this open area to the southwest as intended to provide a clear path for the king and his retainers to process towards the cliffs at Abydos and into the sacred beyond (Morris 2007, 20). Reisner believed that this open area was intended for the funerary procession to approach the cemetery, but it seems more likely that the procession would have come from the direction of the Nile and moved west, toward the land of the dead, thus approaching the cemetery on its eastern side (Reisner 1936, 106).

The arrangement of graves in Macramallah's rectangle, while not surrounding a known enclosure, nevertheless probably surrounded an area that symbolically or actually contained the body of Den (Macramallah 1940; Morris 2007). Morris (2007, 22) postulated that the neat rows

of subsidiary burials "suggest[ed] a funerial choreography meant to mimic the highly proscribed arrangement of individuals at state ceremonies." Of course, the orientation still poses some issues; for instance, would the king have faced his retainers as if he were in court, or would he have faced the same direction and thus his retainers were arrayed behind him as in a procession? Since the retainers are arranged to face the south, it seems logical that the king also would have faced this direction, prepared to make his final journey into eternity.

Another important consideration in the arrangement of the retainer burials was the position of honor to the right of the king. Throughout Egyptian history, this position was reserved for the most important individual, next to the king; this is demonstrated in statuary when in dyads, the most important individual is on the right, and in triads the most important individual is in the center with the next highest-ranking individual to his right (Morris 2007, 23). This may also have been demonstrated in the layout of Macramallah's rectangle, for if the king did indeed face the same direction as his retainers, the most prestigious graves (Group E, see Figure 5) would have been located to his right (Morris 2007, 23). Of course, without the body of the king, this cannot be securely determined, but it is a plausible argument.

Reisner (1936, 109) suggested that we might also consider organization according to various court factions. Citing the western cemetery at Giza as an example, he pointed to examples of individual princes whose tombs created a nucleus around which their "adherents" or followers were buried, in addition to the larger clustering with the king's tomb as the focus. He pointed out, however, that the royal retinue was also grouped by various roles: members of the harem, security personnel, and all the other members of a royal court (Reisner 1936).

Grave goods

In some cultures, such as the Aztec and the Maya, sacrificial victims were obtained from outside cultures, and this may be represented in the types of grave goods, as well as any clothing or accessories that may be present (Geller 2011) (see Chapter 2 for more discussion of these particular sacrificial practices). This does not seem to the case with the retainer graves of the First Dynasty in Egypt, however. Despite the multiple disturbances suffered by these graves, in some cases it has been possible to associate objects, if not with a specific subsidiary grave, at least with a specific group of the subsidiary burials (for a more thorough list of the objects found in these tombs, see the appendices). In many cases, grave stele have been found which display names and sometimes titles (Bestock 2011; W. M. F. Petrie 1900, 1925; Reisner 1936). Objects within the tombs have included fragments of jewelry, game pieces, objects presumed to be associated with profession (e.g. chisels and paintbrushes), as well as ceramic vessels. In every case where objects were found with human remains, it seems that the objects are Egyptian in character.

Exclusion and Inclusion

It is worth noting here that in all cases, the subsidiary graves are located *outside* any known or preserved walls of these funerary enclosures. This has important implications when considering how visible these graves would have been, and who may have been privy to the deposition of the bodies (and perhaps the actual death of the interred), and who had access to the subsidiary graves before and after they were constructed. Of course a more temporary wall of perishable material may have shielded these subsidiary graves from viewers, but no evidence of such a structure has persisted in the archaeological record.

Subsidiary Graves: Sacrifice or No?

Given the preceding discussion, what sort of evidence do the subsidiary graves provide for or against the occurrence of human sacrifice? The traditional argument, which has repeated for decades many times at least since Petrie's publication of the subsidiary graves, has been that the rows of subsidiary tombs were all roofed in a single event (W. M. F. Petrie 1900, 1925). Particularly in cases where the subsidiary graves numbered in the hundreds, it is extremely unlikely that so many individuals would have died naturally, close enough in time to all be buried at once. Bestock (2011, 139) notes that because the graves all share walls with one another in contiguous rows, "it would have been difficult if not impossible to roof such graves selectively, making it probably that all the individuals buried in them died at the same time. Sacrifice is the most plausible explanation."

The issue may be more complicated, however. Reisner (1936) noted that around the funerary enclosures, the graves could potentially have been roofed in sections, e.g. four or five graves at a time. While this certainly extends the timeline a great deal, it does still suggest that bodies were perhaps preserved for some time after death in order to be laid to rest as a group. While artificial mummification was not really taking hold in Egypt at this time, there are numerous examples of bodies that were wrapped in linen, and it is possible that the Egyptians could have taken advantage of the effects of the arid climate to preserve bodies for a short time before they were interred. Since the remains found by archaeologists were in all cases completely skeletonized (at least as far as we can tell from the excavation records), it is not possible to tell if the bodies had naturally mummified in some way. Given that Bestock (2009, 2011) not only worked in Abydos for so many years, but also excavated the enclosures of Aha as they were discovered, I am slightly more inclined to take her interpretation, but we must also consider the alternative that different methods may have been used for the tombs than for the

enclosures. Even if only a few graves were roofed at a time, this need not rule out human sacrifice, since a team of workers could simply roof a section and then move on, working rapidly down the lines of tombs. The roofs seem to have been fairly simple constructions of wooden beams sometimes covered with mats and then mounds of sand, so even roofing section by section would have been relatively quick and efficient. If superstructures such as those at Saqqara existed, these too were not terribly complicated, consisting only of mudbrick walls filled with rubble and topped with a rounded roof. At Saqqara, though, the tombs tend to be constructed individually rather than in lengthy rows, and thus may have taken longer to make (or at least were somewhat less efficient to make).

This is a key point that should be emphasized: had the retainer burials simply been filled as their occupants died naturally, there would have been no particular reason to construct them quickly (and cheaply, for while the Egyptians may have valued thrift in some arenas, construction of royal burials does not appear to be one of them). In addition, if the tombs were all made at once, this suggests that the king (or at least the architect responsible for building these tombs for the king's retainers) already knew how many graves would be needed. It is not impossible that a number of favored individuals were selected and buried as they died, but this would not account for changes in the court composition or shifting loyalties within the court, which must certainly have occurred from time to time.

Use of the trench system also has interesting implications for the amount of investment dedicated to the construction of retainer burials. Reisner (1936, 104) notes that "The great cemetery of [Djer] produces an impression of far great size, but it is entirely constructed on the trench system," while others include more large, individual graves, and thus "the effect of the large number of 318 subsidiary graves is therefore to be discounted to a certain extent." Djet, on

the other hand, though he had just over half as many subsidiary graves, included far more large graves in the subsidiary burials around his royal tomb (Reisner 1936). For Djer, the emphasis may have been on quantity rather than quality. It was more important to have hundreds of retainers accompany the king the afterlife than it was to have higher-quality, arguably more individualized tombs that took more effort and time to create. This could also represent a change in strategy; individualized tombs mean that the occupants do not necessarily have to be killed to accompany their king to the afterlife (though they certainly still could have been, and an individual tomb does not preclude the occurrence of sacrifice). (Reisner 1936, 105) thought that variation in size between cemeteries of the same king, as well as within a single cemetery, likely had a relationship with the relative significance of different parts of the cemetery, and perhaps provided "some indication of the situation of the chief offering-place of each main tomb."

The caveat here, of course, is that we are equating tomb size with importance and/or value. While this is not an absolute rule, in ancient Egypt it does tend to be the case that size is closely linked to importance and social standing (e.g. throughout Egyptian history, size of figures in artistic depictions denotes their relative importance). Within the cultural context, then, this seems to be a reasonable assumption.

For the graves that were constructed individually (as in the case of those around the funerary enclosures of Djer, Djet, and Merneith), the tombs themselves could have been constructed at any time, before or after the king's death. Given the heavily disturbed context, even before official excavations began, there appears to be no way of securely determining whether the royal tomb or the subsidiary graves were constructed first, nor whether the subsidiary graves were constructed very rapidly even though they were made individually rather than in bulk, as it were. Thus, we cannot determine from the architecture and construction of

these tombs whether human sacrifice occurred.

On the other hand, even the trench system, clearly designed to be cheap and efficient, may not necessarily indicate that all of the divisions were covered at the same time and is not an absolute indicator of human sacrifice. Reisner (1936, 118) believed that the subsidiary graves around the tombs of Djer and Djet, at least, "were finished solid blocks which appear to have been made at one time on a plan drawn up with the number and sizes of the graves indicated on the plan," suggesting that the number of occupants, if not the actual names and occupations, was known at the time the tombs were constructed. Reisner (1936) was also of the opinion that while the name stelae found near these simple tombs would have been on the surface after burial (a reasonable assumption), due to the heavy plundering of the tombs, it is not possible to ascertain how the superstructure (if any) of these trenches might have appeared. Perhaps the superstructure was actually built in different pieces or chunks at different times, thus allowing individuals to be interred in the tombs at more than one occasion. In fact, (Reisner 1936) provides a detailed description of the possible construction of some of these graves to suggest that in fact the subsidiary tombs could have been roofed only a few at a time with the use of heavy beams.

The tombs of Anedjib, Semerkhet, and Qa'a, which covered not only the main burial but also the subsidiary graves, are the most convincing architectural evidence of human sacrifice. Reisner (1936, 105) even notes that in the tombs of Semerkhet and Qa'a, "The faces of the substructure form in fact the inner wall of the subsidiary graves." This has enormous implications for the question of whether these individuals were killed to accompany their king into the afterlife or simply died naturally. While it is not entirely out of the realm of possibility that these individuals died naturally before (or perhaps slightly after) their king, and were preserved until the event of the king's death (e.g. there is evidence of preservation in some of the

bodies of retainers from the royal tombs at Ur, (Baadsgaard et al. 2011), it does seem unlikely that so many individuals would be preserved for an indefinite amount of time (perhaps years) until the king eventually died. In addition, if the remains had been preserved for display, it seems unlikely that the position of the bodies would have such strong suggestions of hasty interment.

Based on this evidence, it seems at quite possible that retainer sacrifice and sacrificial burial were practiced for the royal tombs of Djer, Djet, Anedjib, Semerkhet, and Qa'a, while the circumstances surrounding the subsidiary burials of these same kings' funerary enclosures, as well as the tomb and funerary enclosure of Merneith and Den, remain uncertain. We must now turn, then, to the individuals within the tombs themselves.

Chapter 6-The Occupants of the Subsidiary Graves

Introduction

Having considered the graves of the retainers at Abydos and Saqqara, let us now turn our attention to the bodies themselves. Even when these graves were first analyzed in the early 20th century, the burials had been disturbed numerous times over the millennia, thus limiting the data available.

In some cases, such as the subsidiary burials of Aha, the remains were analyzed and published by other scholars, and in such cases the published data are presented here in order to provide comparanda for the skeletal data that I recorded myself. In other cases, the human remains were recorded by the original excavators in the early 20th century, and my own analysis was forced to rely on these descriptions and photographs from these excavators. Despite this wide variation in quality and quantity of data, it is still possible to get some idea of the identity of the individuals in the subsidiary graves.

Previous Interpretations of Retainer Identity

Theories about who might have been buried in the subsidiary graves tend to run along the same lines as the early interpretations of Petrie and Reisner. Though the idea that the inhabitants were slaves seems to have taken hold of the popular imagination, in reality most scholars believe that the inhabitants of the subsidiary graves were elites of varying ranks, if not higher-ranking members of the court such as advisors and wives. The general consensus is that the occupants of these subsidiary burials were likely members of the harem, members of the royal retinue, and court officials, and indeed, this pattern is more or less what we find in other examples of retainer sacrifice, such as that at Ur (Bestock 2009, 2011; M. A. Murray 1956; W. M. F. Petrie 1900,

1925; Reisner 1936; Wilkinson 2001). Reisner (1936, 109) went so far as to state that “The persons buried in the subsidiary royal cemeteries at Abydos were without any doubt members of the harem and of the court.” While this is not unreasonable, a closer look at this assumption and at the evidence gleaned from the occupants of the burials themselves is long overdue.

Of course, there is also variation between the royal tombs and funerary enclosures, not only in number of subsidiary graves but in the occupants of those graves. Petrie (1900) believed that the graves around the royal tombs contained the women of the harem, while the graves around the funerary enclosures contained lower ranking officials and members of the royal court. Reisner (1936) was of the opinion that the occupants of the subsidiary graves around the funerary enclosures of Djer, Djet, and Merneith were those of priests, who had served the funerary cult of the deceased king. This is likely due in part to Reisner’s designation of these funerary enclosures as “valley shrines” of the First Dynasty Kings (Reisner 1936). Reisner (1936, 112) also hypothesized that the larger subsidiary graves were those of “the original appointees to the chief offices in each class,” while the smaller graves were those of “the successors of the original appointees,” and “assistants…buried in the adjoining small graves.” Even the wives of these officials may have been included in these rows of subsidiary burials (Reisner 1936).

It has long been assumed that if human sacrifice was practiced, one of the primary victims would have been the wife of the deceased king, his closest companion, not just in Egypt but throughout the world. Reisner (1936, 120) believed that likely all of the important and high-ranking officials would have been sacrificed to accompany their king into the afterlife, with the possible exception of "the mother of the heir to the throne.” This position, however, not only assumes that the king would have chosen his attendants in death before his own demise (a

reasonable, if unprovable, assumption), as explicitly stated by Reisner (1936), but also assumes that his orders would have been followed exactly *after* he died, by the new king. It is certainly possibly that politically at least, the new king would be in no rush to sacrifice his own mother, as unless she was still of childbearing age there was little chance of her bearing a new rival for the throne, and even less chance of her taking the throne for herself in a society that had clearly already established kingship as a (primarily, if not solely) male role. However, we must remember here that burials are created by the living, and at least in archaeological terms, are far more reflective of the beliefs and ideas of the living than of the deceased, who was in no position to argue. This is a point that should be borne in mind, and to which we will return in Chapter 6.

Retainers at Saqqara

Emery's excavations at Saqqara are fortunately well-photographed and relatively well-published, particularly in the context of his predecessors and contemporaries. The human remains from the subsidiary burials were all described separately (Emery 1954, 1958), with the sex and general age category (i.e. child, young adult, adult, old/elderly adult) listed, as well as the body position, the presence or absence of a coffin, and the associated burial goods. In some cases the remains were too badly plundered to identify, but many of the graves were at least relatively intact.

Tomb 3504

At Tomb 3504, forty-eight of the original sixty-two tombs still contained human remains (Table 9) (Emery 1954). Of these forty-eight, 38 (77%) were identified by Emery as males, five

(10%) as female, and five (10%) were not assigned a sex (Emery 1954). Emery recorded forty-six adults (96% of the sample) as adults and 2 children (Emery 1954). Two of the adults (4% of the total sample) were described as "old adults," 25 (52%) as "adult," 16 (33%) as "young adult" and 1 (2%) as "young person" (what the distinction between "young adult" and "young person" is, if any, is not recorded). The age of two individuals is listed as "undetermined." The inclusion of children in 2 of the subsidiary graves is unusual based on the burial populations of the other subsidiary burials discussed in this study, though unfortunately Emery did not record the ages of such children, so we do not know if they were quite young, or possibly teenagers. The bodies are consistently in a contracted position on the left side (only one individual, in Burial 2, is lying on his right side), with 21 of the burials 44%) being too disturbed to determine the original position of the body within.

Burial Number	Plundered (Y/N)	Sex of Occupant	Age Category	Position of Body
1	Y	Undetermined	Undetermined	Undetermined
2	Y	Male	Adult	Contracted, right side, head south
3	Y	Female	Adult	Undetermined
4	Y	Male	Old adult	Undetermined
6	Y	Male	Old adult	Undetermined
7	Y	Male	Young adult	Undetermined
8	N	Male	Adult	Contracted, left side, head north
9	Y	Female	Adult	Contracted, left side, head south
10	N	Male	Adult	Contracted, left side, head north
11	Y	Male	Adult	Contracted, left side, head north
12	N	Female	Adult	Contracted, left side, head north
13	Y	Male	Adult	Contracted, left side, head north
14	N	Male	Adult	Contracted, left side, head north
16	Y	Male	Adult	Contracted, left side, head north
17	Y	Male	Adult	Undetermined
18	Y	Male	Adult	Undetermined
19	Y	Female	Adult	Contracted, left side, head north
24	N	Male	Young adult	Contracted, left side, head west
25	Y	Male	Young adult	Contracted, left side, head west
26	Y	Male	Young adult	Undetermined
27	Y	Male	Young adult	Undetermined
28	Y	Male	Young adult	Undetermined
29	Y	Male	Young adult	Undetermined
30	Y	Male	Adult	Undetermined
32	Y	Male	Adult	Contracted, left side, head west

34	N	Male	Young adult	Contracted, left side, head west
35	Y	Undetermined	Young adult	Contracted, left side, head west
36	N	Male	Elderly adult (55+)	Contracted, left side, head north
38	Y	Male	Young adult	Contracted, left side, head north
39	Y	Male	Adult	Contracted, left side, head north
40	Y	Male	Adult	Contracted, left side, head north
41	Y	Male	Adult	Contracted, left side, head north
42	Y	Male	Young adult	Contracted, left side, head north
47	Y	Male	Adult	Contracted, left side, head north
48	Y	Male	Adult	Undetermined
50	Y	Male	Young adult	Undetermined
51	Y	Male	Young adult	Undetermined
52	Y	1) Female 2) Undetermined	1) Adult 2) Undetermined	Undetermined
53	Y	Undetermined	Child	Undetermined
54	Y	Undetermined	Child	Undetermined
55	Y	Male	Young adult	Contracted, left side, head north
56	Y	Male	Adult	Contracted, left side, head north
57	N	Male	Adult	Contracted, left side, head north
58	N	Male	Adult	Contracted, left side, head north
59	Y	Undetermined	Young person	Undetermined
60	Y	Male	Young adult	Undetermined
61	Y	Male	Young adult	Contracted, left side, head north
62	Y	Male	Adult	Undetermined

Table 9: Summary of the demographics and burial patterns of the occupants of the subsidiary burials surrounding Tomb 3504 at Saqqara, based on descriptions by Emery (1954).

Emery does not record any evidence of trauma in the human remains, though since 39 (63%) of the graves were disturbed in some way, it is possible that such evidence would be lost when the remains were disturbed or scattered.

Tomb 3503

Of the twenty subsidiary burials excavated by Emery from around Tomb 3503, only one was completely empty due to later disturbance, though seven others had been plundered or disturbed in some way. Eighteen of the remaining 19 tombs yielding objects held traces of a wooden coffin for the occupant (Burial T had a skeleton but no evidence of a coffin) (Emery 1954). The demographic patterns are similar to those of Tomb 3504. Most of the individuals

were male (13 or 68%), 2 (11%) were identified by Emery as female, and 4 individuals (21%) were listed as "undetermined" sex. With the exception of three individuals whose age was listed as "undetermined," the rest of the individuals (16, or 84%) were listed as adults. The burial position is almost always contracted (2 bodies were semi-contracted, and for two of the individuals the contraction of the body is not listed), with the body on the left side, though the head may face in different directions (Table 10).

Burial	Plundered (Y/N)	Sex of Occupant	Age Category	Position of Body
A	N	Male	Adult	Contracted, left side, head east
B	N	Male	Adult	Contracted, left side, head east
C	Y	Undetermined	Adult	Contracted, left side
D	N	Male	Adult	Semi-contracted, left side, head south
E	N	Male	Adult	Contracted, head south
F	Y	Undetermined	Undetermined	Contracted, left side, head north
G	Y	Male	Adult	Contracted, left side, head north
H	Y	Male	Adult	Contracted, left side, head north
I	Y	Male	Adult	Contracted, left side, head north
J	Disturbed by later burial	Male	Adult	Contracted, left side, head north
K	N	Female	Adult	Semi-contracted, left side, head west
L	N	Undetermined	Undetermined	Contracted, left side, head east
M	N	Male	Adult	Contracted, left side, head east
N	N	Male	Adult	Contracted, left side, head south
O	N	Female	Adult	Contracted, left side, head south
P	N	Male	Adult	Contracted, left side, head north
Q	N	Male	Adult	Contracted, left side, head south
R	Y	Male	Adult	Left side, head north
T	N	Undetermined	Undetermined	Left side, head north

Table 10: Summary of the demographics and burial patterns of the occupants of the subsidiary burials surrounding Tomb 3503 at Saqqara, based on descriptions by Emery (1954).

Regarding the retainers around Tomb 3503, Emery (1954, 143) notes:

> There is every indication that the mass burial of what were presumably the servants of the owner of Tomb 3503 took place at the same time. No trace of violence was noted on the anatomical remains, and the position of the skeletons in no case suggested any movement after burial. It would therefore appear probable that when these people were buried they were already dead and there is no evidence for any question of their having been buried alive. The absence of any marks of violence on the remains suggests that they were killed by poison prior to burial."

It is uncertain exactly how Emery reached this conclusion of sacrifice by poison, when he notes just a few pages earlier that the subsidiary tombs at Tomb 3503 seem to have been constructed in different groups, i.e. not necessarily in one event. Given the fact that most excavators have identified sacrificial burial in Egypt based on observations of many tombs closed in a single event, which does not seem to be the case here, it may be that Emery was basing his conclusion on the similarity of these subsidiary graves to all the other subsidiary graves of the First Dynasty. There is also the possibility that small markers of violence (e.g. cut marks or indications of sharp force trauma, blunt force trauma such as radiating fractures that could have been interpreted as postmortem taphonomic damage, etc.) were missed or misidentified as taphonomic damage, as Emery does not mention any indication of trauma in the human remains.

Tomb 3506

Tomb 3506 had only ten subsidiary burials, each constructed individually (Emery 1958). Here again, however, the demographic patterns are almost identical. The occupants were almost exclusively adults, with 7 (70%) identified as adults, 2 (20%) as young adults, and one as a child (10%). Males (5, or 50%) again outnumber females (2, or 20%), with 3 individuals (30%) whose sex could not be determined. Four of the bodies (40%) lay on the left side in contracted (2 or 20%) and semi-contracted (2 or 20%) positions, the exception being the adult female in grave 3 who lay on her back with her legs flexed and spread apart (Table 11). Just over half of the burials (6, or 60%) were found undisturbed, providing excellent data about the original state of these burials. Emery does not record any evidence of trauma in these remains.

Burial Number	Location	Plundered (Y/N)	Sex of occupant	Age Category	Position of Body
1	East	N	Male	Adult	Semi-contracted, left side, head north
2	East	N	Male	Adult	Semi-contracted, left side, head north
3	East	N	Female	Young Adult	On back with legs apart and flexed, head north
4	East	Y	Female	Adult	Contracted, left side, head north
5	North	N	Undetermined	Child	Flexed [contracted], left side, head west
6	North	Y	Undetermined	Young Adult	Scattered, head west
7	North	Y	Male	Adult	Scattered
8	East	Y	Male	Adult	Scattered
9	East	Y	Undetermined	Adult	Scattered
10	East	Y	Male	Adult	Scattered

Table 11: Summary of the demographics and burial patterns of the occupants of the subsidiary burials surrounding Tomb 3506 at Saqqara, based on descriptions by Emery (1958).

Macramallah's Rectangle

If Macramallah's Rectangle, also dating to the reign of Den, does indeed comprise subsidiary burials around a funerary enclosure or space, the patterns are more or less in keeping with the other subsidiary burials at Saqqara. The graves contained small numbers of women and children (particularly groups A-D), and most of the adults in all groups were between the ages of 16 and 24 (Macramallah 1940; Morris 2007). The burials seem to have hierarchically organized based on status, as Morris (2007) notes that the richest subsidiary burials were those nearest and to the right of the proposed location of the king's body (i.e., to the king's right if he was facing the same direction as the sacrificial victims). Group D, farthest from the central space, contained the poorest burials; many individuals did not even have coffins, but were wrapped in reed mats, without any grave goods to take into the afterlife (Morris 2007, 26). Graves of increasing status seemed to be located to the south, in Groups E and F (Morris 2007, 26).

Tomb 3500

As with the royal tombs and funerary enclosures at Abydos, the numbers of retainers at the Saqqara tombs decreases as the First Dynasty draws to a close. Tomb 3500, dated to the reign of Qa'a, included only four, separate subsidiary burials (Table 12). One of these was plundered long before Emery reached it, and yielded no objects, but the other three were undisturbed. Though it is difficult to draw conclusions from such a small sample size, the general demographic patterns seem to hold: the burials contain two males (50%) and one female (25%), all adults (described as "middle age" in the case of one male and "old" in the case of the female and the second male), buried in a contracted position. The female and one male are lying on their left side, with the remaining male was lying on his right side.

Burial Number	Location	Plundered (Y/N)	Sex of occupant	Age Category	Position of Body
1	South	N	Male	Middle-age	Contracted, left side, head south
2	South	N	Female	Old	Contracted, left side, head south
3	South	N	Male	Old	Contracted, right side, head south
4	South	Y	Empty	Empty	Empty

Table 12: Summary of the demographics and burial patterns of the occupants of the subsidiary burials surrounding Tomb 3500 at Saqqara, based on descriptions by Emery (1958).

Burial Trends at Saqqara

The overall impression gained from the subsidiary burials at Saqqara in uniformity. With only a few exceptions, the occupants of the subsidiary graves are adults, usually male, and are almost always buried in a contracted position.

Males vastly outnumber females: of the 81 individuals excavated by Emery from Tombs 3504, 3503, 3506, and 3500, 58 (72%) were male, 10 (12%) were female, and 13 (16%)

displayed ambiguous characteristics regarding biological sex. Comparisons based on age are more difficult to assess, since Emery did not specify the numeric ages he associated with his categories of child, young adult, adult, and elderly adult. It is also not entirely clear whether he used the same system of categorization for all four tombs discussed here, since older individuals are described both as "Elderly Adult" (grave 36 at Tomb 3504, where Emery does specify that the individual was over the age of 55) and "Old Adult" (Tombs 3504, 3503, and 3500); it may be that Emery used "Old Adult" as an intermediate category between Adult and Elderly Adult, or that both Old Adult and Elderly Adult referred to anyone older than Emery's category of "Adult." Likewise it is not clear at what age Emery separated young adults from adults.

If we attempt to use Emery's age categories, it seems that 3 individuals (4%) are described as children, 1 (1%) as a "Young Person," 18 individuals (22%) as "Young Adults," 48 (59%) as simply "Adults," 1 (1%) as "Middle Age," 4 individuals (5%) are described as "Old" or "Old Adults," and 1 (1%) individual is described as "Elderly Adult." An additional 5 individuals are listed as being of "Undetermined Age."

Though Emery does not record evidence of trauma on any of the remains, this need not indicate that trauma was not actually present. Linear fractures of the cranium could easily be interpreted as postmortem damage by an inexperienced observer (or even an experienced observer depending on the preservation of the remains), as may be the case with the individuals from the retainer graves at Abydos (see below). The disturbance of many subsidiary graves also means that evidence for trauma could be lost as the human remains were moved and sometimes removed. In addition, as discussed later in this chapter as well as in Chapter 7, it is quite possible to kill someone without leaving any marks on the skeleton. It is also possible that these individuals perished of disease.

Given the evidence that is available, and without access to the human remain themselves, it is not possible to determine whether the individuals in the subsidiary burials at Saqqara were the victims of sacrifice or not. If we take Emery's assessment of no evidence for trauma at face value, and consider the implications of the architectural design of the subsidiary tombs as discussed in the previous chapter, there is really no evidence to support the occurrence of human sacrifice; on the other hand, there is no evidence that explicitly argues against this practice either. The inclusion of children, as well as older adults, may indicate that the graves were simply filled as their intended occupants died naturally, i.e. perhaps the children were related to the deceased in some way, as were the adults.

The case for Macramallah's Rectangle (Figure 34) remains inconclusive. On the one hand, Morris (2007) presents some convincing arguments regarding the hierarchical arrangement of the burials. Even if Morris's assertions about the hierarchical arrangement of the burials at Macramallah's Rectangle are correct, as seems likely, this need not mean that the individuals in these burials were sacrificed. Indeed, the separation of each tomb may argue that the tombs were filled over time, as members of the court or the elite died of various, presumably natural, causes. As discussed in the previous chapter, the layout of Macramallah's Rectangle seems different enough from the other First Dynasty enclosures that it may not be part of the same group or pattern.

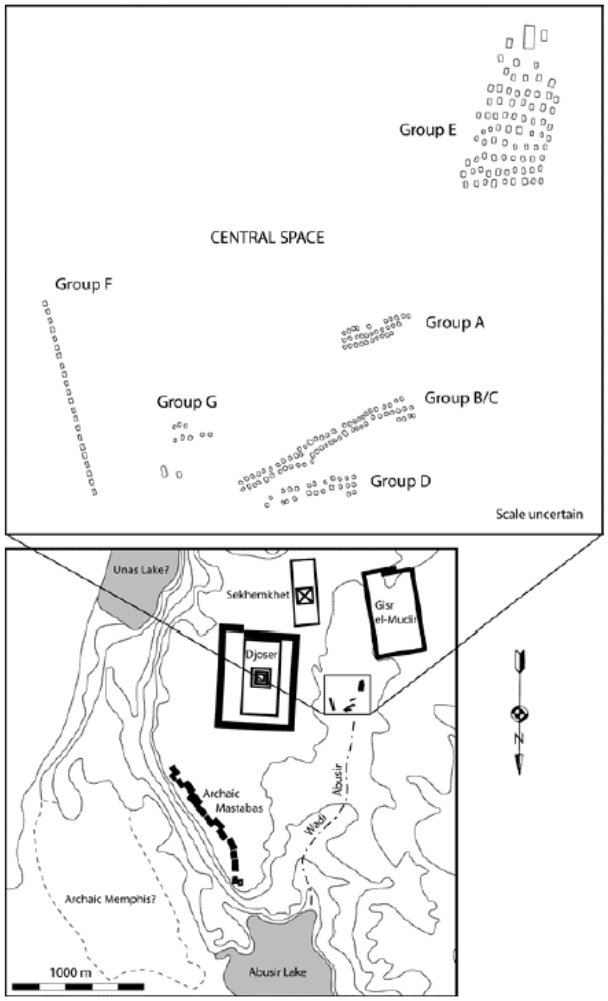


Figure 34: Macramallah's Rectangle, showing the irregular central spaced surrounded by graves (after Morris 2007, Fig. 2.4)

Even considering the plundering of some of the subsidiary graves, a remarkable amount of information is available from the tombs at Saqqara, thanks largely to the careful methods and detailed publications of Emory. For a variety of reasons, this wealth of information does not continue at Abydos.

Retainers at Abydos

Unlike the subsidiary burials at Saqqara, almost none of the retainer graves at Abydos were undisturbed by the time they were excavated in the 20th century. Much of the disturbance of these tombs was due to looting and intrusive, though still ancient, grave shafts, but some of the blame must also be laid at the feet of early excavators such as Amélineau, who not only rarely photographed finds but also failed to record findspots for many objects, thus rendering them completely without context.

Subsidiary Burials at the Royal Tombs versus the Funerary Enclosures

Even the early excavators noted the demographic differences between the subsidiary graves of the royal tombs and those of the funerary enclosures. Even when the actual human remains have been examined, disagreement has persisted regarding something as simple as the sex distribution of the individuals in the subsidiary burials. Morant (1925), studying the remains from the subsidiary burials a few years after they were excavated, noted that his analyses of the 48 individuals at Cambridge differed somewhat from Petrie's assessment:

> "We were at first much inclined to make the whole series *male* [emphasis in original], but have finally admitted ten to be female. There is no archaeological evidence of sex, and failing this, we feel compelled to retain as a minimum four-fifths of the material as male" (Morant 1925, 23)

This statement by Morant is important for several reasons. First of all, it hints at the bias many archaeologists and Egyptologists have applied to these remains, assuming the demographic trends (sometimes before the remains are even analyzed) based on individual ideas of who *should* be buried in these subsidiary burials. Secondly, Morant's (1925) statement that "there is

no archaeological evidence of sex" highlights both the importance of having a trained physical anthropologist assess human remains and, when such a specialist is not available, the reliance of Egyptologists and non-anthropologists on supposedly gendered objects in their assessment of biological sex (it should be noted here that this is not a phenomenon that is restricted to Egypt or Egyptology).

Within each subsidiary cemetery, there may also have been purposeful and/or hierarchical arrangements of the inhabitants. Bestock (2011) suggested that such a hierarchy was particularly evident in the graves around the main tombs of Aha, Djer, and Djet. We will return this point in Chapter 6, when we discuss human sacrifice as a cultural and social phenomenon of ancient Egyptian society.

Petrie (1925, 3) insisted that the difference between the subsidiary burials at the tombs and enclosures could not be in regards to status, as the graves around the enclosures yielded high quality items such as a "great ivory comb of [Djet] and large royal tools of copper [which] show that people of some consideration were buried here." High officials such as "a seal-bearer, a carver, and two chief officials" were also found in the enclosure subsidiary graves" (W. M. F. Petrie 1925, 3).

Reisner (1936, 115-116) believed that the occupants of the subsidiary graves were likely grouped as follows:

- Royal Tombs:
  - Djer: great and lesser harem, harem retinue, female and male servants in service groups, and service companies
  - Djet: more or less the same composition as Djer, "but omits groups of service companies and adds household officials (?), group e and group d
  - Merneith: "persons of the household of the queen, probably including stewards and chamberlains and servants
  - Den: chief harem, lesser harem, harem servants, and officials

    - Anedjib: undescribed
    - Semerkhet: harem and palace officials and servants
    - Qa'a: same as Semerkhet
- Funerary Enclosures:
    - Semerkhet: harem and palace officials and servants
    - Djer: "certain important persons flanked by apparently small graves of person apparently subsidiary to the great tombs; apparently family groups, but probably funerary priests beginning with royal princes"
    - Djet: "probably funerary priests beginning with one important person and continuing with persons of small importance"
    - Merneith: funerary priests

Reisner's (1936) use of the term "harem" reflects the fashion for Orientalizing ancient societies in the 19th and early 20th century (Russell 2011; Said 1979; Still 2009). It is now generally accepted that harems, as such, were not really a feature of ancient Egyptian society, though the Egyptian king might have numerous wives of varying rank at any one point in time (Robins 1993; J. A. Tyldesley 1995).

Both Petrie (1925) and Reisner (1936) also noted that of the 70 stelae that were found in the subsidiary graves around Djer's tomb, 60 or more showed the names of females. If this is a true representation of the composition of the subsidiary graves (an extrapolation that is unprovable due to the disturbance and destruction of so many of the graves), Reisner (1936) suggests that nearly 85% of the burials around this tomb may have been those of women, and that perhaps other groups were comprised mainly of men. Perhaps, as Petrie (1925) suggested, the burials around the royal tombs contained individuals within intimate circle of the ruler, while those around the funerary enclosures may have been officials who were closely involved with the court but perhaps not in constant contact with the monarch. Reisner (1936, 116) also noted the seeming absence of the "chief administrative officials" for each king, as based on other tombs of the period for such officials, he expected "that the tombs of great administrative officials if included in the royal subsidiary cemeteries would have been larger than the tombs assigned

above to the great ladies." He suggested that perhaps these individuals were buried separately, possibly in the cemetery he called Abydos M (Reisner, 116).

Royal Tomb Subsidiary Burials

Published data for the human remains from First Dynasty burials at Abydos varies widely in its detail and its breadth of information. In almost all how many cases, adult males dominate the samples, as is the case with the remains from Saqqara. In some cases, however, there is little or no information available about the individuals within the subsidiary burials. For the royal tombs excavated by Petrie, he notes that each royal tomb was surrounded by "small chambers in rows, in which were buried the domestics of the king" (W. M. F. Petrie 1900, I:4). He also points out that in style,

Aha

The tomb of Aha was accompanied by 36 subsidiary graves, all of which contained the remains of young adult males between the ages of 20 and 25 (van Dijk 2007). Van Dijk (2007, 138) argued that this lack of variation in age and sex "is a strong indication that they were all killed simultaneously, apparently by strangulation." This reference to strangulation cites Nancy Lovell's assessment of at least some of the remains from the subsidiary burials, which does not appear to have been published independently but is cited by both Bard (2004) and Galvin (2005) (see Chapter 7 for a discussion of possible evidence for strangulation).

Djer

Petrie notes that "The great ranks of domestics around this tomb [of Djer] had been nearly cleared out by the plunderers of the past," with only a few tools and small objects left

behind (W. M. F. Petrie 1901, II:9). He does not record how many individuals he excavated or how many sets of human remains he recovered.

Djet

The subsidiary graves around Djet's tomb were much plundered, though some stelae were recovered that bore the names of some of the interred (Figure 35).

Figure 35: Examples of the stelae from Djet's subsidiary burials (Petrie 1900, Plate XXXIV).

In addition to the grave stelae that were associated with many of these subsidiary tombs, Petrie also wrote that "there were often the names inscribed in red paint on the walls…These painted names are always on the south walls of the chamber, close to the top of it" (W. M. F. Petrie 1900, I:8). White plaster (Petrie calls it "whitewash") was painted on the chamber wall before the names were painted on in red, sometimes so soon after the white that the red turned to pink (Petrie 1900). Petrie also notes that unlike the stelae, these painted names have no titles (with one exception, which includes the phrase *ka akh* or "glorified akh"), and that most of these patches were badly damaged and illegible when Petrie found them (W. M. F. Petrie 1900, I:8).

Merneith

The subsidiary graves around Merneith's tombs were too damaged to yield many objects when Petrie discovered these tombs. Only two grave stelae were found, and there was no evidence of the red-painted names, as Petrie had found in the subsidiary graves of Djet (W. M. F. Petrie 1900).

Den

Like those of the kings before him, the subsidiary graves of Den at his tomb were much disturbed. As indicated in Chapter 5, Petrie found little of interest in these plundered tombs and makes no mention of any human remains.

Qa'a

The tomb of Qa'a was excavated by Petrie (1900), who seems to have been relatively uninterested in this plundered and much damaged tomb. Petrie does not record any information regarding human remains from the subsidiary burials

Semerkhet

The only occupants of subsidiary graves mentioned by Petrie are two dwarfs from the subsidiary graves of Semerkhet; two stelae showing dwarfs were found, but only one skeleton remained relatively intact (W. M. F. Petrie 1900).

Funerary Enclosure Subsidiary Burials

Enclosures have only securely identified for the rulers of the first half of the First Dynasty: Aha, Djer, and Djet, as well as Merneith. If the other kings of the First Dynasty also had funerary enclosures, at Abydos or elsewhere, these enclosures have not yet been found or securely tied to one of these kings.

Aha

The six subsidiary burials around the main enclosure of Aha contained the remains of a man, three women, and a child, who retained remnants of ivory bracelets and lapis beads (Bestock 2009; Galvin 2005; Morris 2007). Fieldwork in 2004 and 2005 near Aha's main enclosure revealed two additional enclosures bearing this king's name, each with three associated subsidiary burials (Bestock 2008, 1094 and 1096).

Skeletal Data from the Enclosures of Djer, Djet, and Merneith

The human remains analyzed in this study derive from subsidiary graves located around the funerary enclosures of Djer and Djet, and around the funerary enclosure of Queen Merneith (Figure 36). When this area of the North Cemetery was excavated by W.M.F. Petrie in 1922, there were originally 269, 154, and 79 graves surrounding the enclosures of Djer, Djet, and Merneith, respectively. Of these remains, most were badly disturbed, and even then Petrie saved only those remains he considered to be the best preserved or most interesting, so only a small portion of the original burial population were available for this analysis. The postcranial remains, according to Petrie, were almost all reburied in the funerary enclosure of Khasekhemwy (now known as Shunet el-Zebib) which is located just southwest of the other three funerary enclosures.

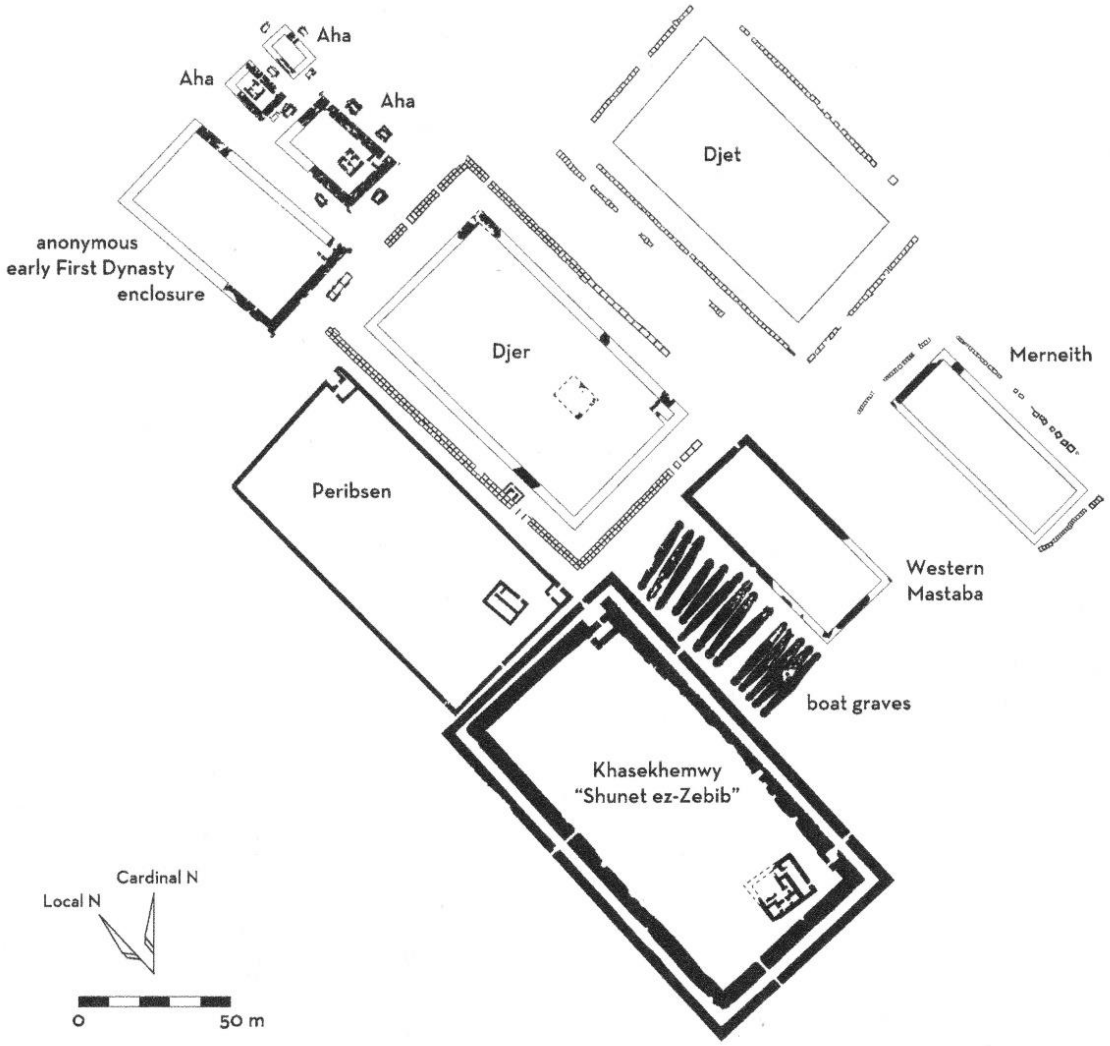


FIGURE 15.3. Plan of the Abydos North Cemetery showing all known funerary enclosures. Courtesy of the

Figure 36: First Dynasty funerary enclosures and subsidiary graves (after Bestock 2009, Figure 15).

While the remains from the subsidiary burials of the First Dynasty rulers are often all lumped together, in the following sections I have purposely separated the remains according to the associated ruler, before later discussing broader patterns of the groups all together. I believe that it is important to consider each group separately, as well as part of the aggregate, because

there not only were the decisions of each ruler independent (to some degree) regarding who accompanied them into the afterlife, but there are also clear differences in the architecture of the tombs between rulers. Only by examining these groups individually will we be able to accurately assess the evidence for or against human sacrifice with each ruler, and only by looking at the individuals as actual individuals, as well as members of both their ruler's group and possibly the larger group of sacrificed retainers, can we gain an understanding of why and how these particular individuals were chosen to accompany their ruler into the afterlife.

Results of Skeletal Analysis

It is important to note here that while I have readily compared distribution of age, sex, and pathology patterns within the 48 individuals analyzed here, I have exercised great caution in extrapolating this information to the broader population of the subsidiary burials as a whole. While others such as Reisner (1936) have attempted this feat, I am strongly of the opinion that it is better to be cautious, particularly when we are dealing with a data set that is compromised in a wide variety of ways, from preservation to selection bias to the unavoidable effects of taphonomy and grave disturbance. In addition, it is clear that in no way do the occupants of the subsidiary burials represent a "normal" population distribution, not only with regard to age and sex but also social status. For these reasons, extrapolations of the patterns observed here to the hundreds of individuals not available for analysis are avoided, except in a few clearly noted cases where informed speculation is considered as an avenue for understanding.

Djer's Retainers

Twenty individuals from Djer's subsidiary burials are available for analysis at the Leverhulme (Table 13). One of these individuals is represented by a lone mandible, while the others comprise a cranium and, in most cases, a mandible. Altogether these 20 individuals represent 7% of the retainers originally buried around Djer's funerary enclosure.

Grave Num.	Location	Element	Sex	Age	Petrie Photograph Citation	Body Position	Associated Objects
461	East side, northeast corner	Cranium + mandible	Male	Middle adult	N/A	Unknown	Weight, ceramics, stone objects, copper objects
470	East side, northeast corner	Cranium + mandible	Female	Young adult	Unpublished photograph in Petrie Museum	Semi-flexed, right side, face turned downwards	Vessels
484	East side, northeast corner	Cranium only	Male	Young adult	N/A	Unknown	Arrows, ivory objects, adze, carnelian beads
510	East side, northeast corner	Cranium + mandible	Male	Young adult	N/A	Unknown	Ceramic vessels, adze, saw, weights, carnelian beads
511	East side, northeast corner	Cranium + mandible	Male	Young adult	N/A	Unknown	Seal, stele, ceramic vessel(s), adzes, carnelian beads
530	North side, northeast corner	Cranium + mandible	Possibly Female	Older adult	Unpublished photograph in Petrie Museum	Semi-flexed, right side, head tilted back	Vessels
533	North side, northeast corner	Fragmented cranium	Male	Young adult	Petrie 1925, Plate XX	Unknown	Ceramic vessel(s), flint
538	North side, northeast corner	Cranium + mandible	Female	Young adult	Unpublished photograph in Petrie Museum	Semi-flexed, right side, head tilted downwards	Unknown

543	North side, northeast corner	Partial cranium + mandible	Male	Older adult	N/A	Unknown	Unknown
602	North side, northeast corner	Cranium only	Male	Young adult	Unpublished photograph in Petrie Museum	Semi-flexed, right side	Vessel(s), stone objects, flakes
603	North side, northeast corner	Cranium + mandible	Possibly Male	Young adult	N/A	Unknown	Unknown
675	West side, middle	Cranium + mandible	Male	Young adult	N/A	Unknown	Unknown
704	West side	Mandible only	Possibly Male	Middle adult	N/A	Unknown	Unknown
740	West side, southwest corner	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
745	West side	Cranium + mandible	Male	Young adult	N/A	Unknown	Unknown
746	West side	Cranium + mandible	Male	Young adult	N/A	Unknown	Unknown
756	West side, southwest corner	Cranium + mandible	Male	Young adult	N/A	Unknown	Unknown
760	West side, southwest corner	Cranium + mandible	Female	Middle adult	N/A	Unknown	Unknown
763	West side, southwest corner	Cranium + mandible	Male	Young adult	N/A	Unknown	Unknown
776	West side, middle	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown

Table 13: Summary of the individuals from the subsidiary burials around Djer's funerary enclosure whose crania were analyzed in this research.

Age and Sex Distribution

Of the 20 individuals analyzed from the subsidiary burials of Djer, 14 are male, 2 are possibly male, 1 is possibly female, and 3 are female. This means that those individuals classified as male or possibly male make up 80% of this sample from Djer's enclosure, with those individuals classified as female or possibly female making up the remaining 20%.

Calculating the age at death of Djer's retainers proved to be challenging. Assessment of the degree of cranial suture closure yielded a mean age of 34.96 years. Thirteen individuals (65%) were classified as young adults (age 20-34 years at death), 5 (25%) individuals were

classified as middle adults (age 35-49 years at death), and 2 (10%) as older adults (age 50+ years at death).

Non-metric Traits

While not a certain indicator of relatedness by any means, expression of the metopic suture has been linked to relatedness or familial relationships (Hauser and De Stefano 1989; Landman 1991). Eight individuals (42% of those with extant crania) show partial expression of the metopic suture. Seven of these individuals are males and one is a female; there appears to be no significant correlation between the presence or absence of the metopic suture and sex (Fischer's Exact Test, p=0.6027; two-tailed; N=19).

Pathology

Nineteen of the 20 individuals analyzed from Djer's enclosure show evidence of some type of pathology (Table 14).

Grave Number	LEH	Caries	Dental Abscess	AMTL	Alveolar Retraction	PH	Trauma	Other
461	X	X					X	
470	X			X	X	X	X	TMJD, bone growth medial to right maxillary third molar
484	X (?)					X	X	
510	X			X				
511	X			X			X	Button osteoma (2)
530	X			X		X	X	
533						X	X	Parietal thinning
538	X						X	Pitting on endocranial surface
543	X						X	Parietal thinning

602						X	X	
603	X					X	X	
675	X		X	X	X	X	X	
740	X			X		X		
745	X	X				X	X	
746	X				X		X	Button osteoma
756	X	X						Parietal thinning
760	X	X	X		X		X	Parietal thinning
763	X					X	X	
776	X						X	Destructive lesions

Table 14: Summary of the pathologies observed in the retainers of Djer.

Sixteen individuals (80% of Djer's retainers analyzed in this study) show evidence of at least one linear enamel hypoplasia (LEH), with one additional individual (the male from grave 484) who may display LEH, but due to the presence of wax or calculus on the dentition the presence or absence of LEH could not be determined with certainty. The definite cases of LEH are present in ten males/probable males and in 4 females/probable females, but the occurrence of LEH does not appear to be correlated with sex (Fischer's Exact, $p=0.2675$; two-tailed; $N=20$). In some cases, multiple instances of severe stress affected the individuals, and more than one line of LEH is present (the most extreme being the individual from grave 530, who has four distinct bands of LEH) (Figure 37).

Figure 37: Image showing the linear enamel hypoplasias on the left mandibular canine of the individual from grave 530.

Four individuals (20%), 3 males and 1 female) show evidence of caries as well as LEH; no individuals show caries without the occurrence of LEH. Caries do not appear to be correlated with sex (Fischer's Exact Test, p=1.00; two-tailed; N=20). The female from grave 760 also has a dental abscess (Figure 38), as does the male from grave 675.

Figure 38: An abscess has exposed the roots of the left mandibular second premolar and first molar of the individual from grave 760.

Six individuals (30%), 4 males and 2 females, demonstrate antemortem tooth loss (AMTL). Retraction of alveolar bone (perhaps indicative of periodontal disease) is observable in four individuals, from graves 470, 675, 746, and 760 (Simon Hillson 1996).

Ten out of 19 individuals (53%), 8 males/possible males and 2 females/possible females, with extant crania show evidence of porotic hyperostosis. The occurrence of porotic hyperostosis does not appear to correlate with sex (Fischer's Exact Test, p=1.0; two-tailed; N=19).

Two males, from graves 511 and 746, have distinctive button osteomas (Figure 39). Button osteomas are a benign neoplastic formations of lamellar bone, usually less than 2cm in diameter and almost always occurring on the skull (Ortner 2003; Waldron 2009). One of the

lesions on the posterior left parietal of the individual from grave 511 is somewhat unusual in its size, as it measures approximately 3cm in diameter. Button osteomas are not uncommon even in living populations, and are generally asymptomatic, though largest osteoma on the parietal of the individual from grave 511 may have been palpable under the scalp (Ortner 2003; Waldron 2009). Button osteomas are more common in individuals over the age of 40, although they may occur in individuals of all ages, and show no preference for males or females (Waldron 2009).

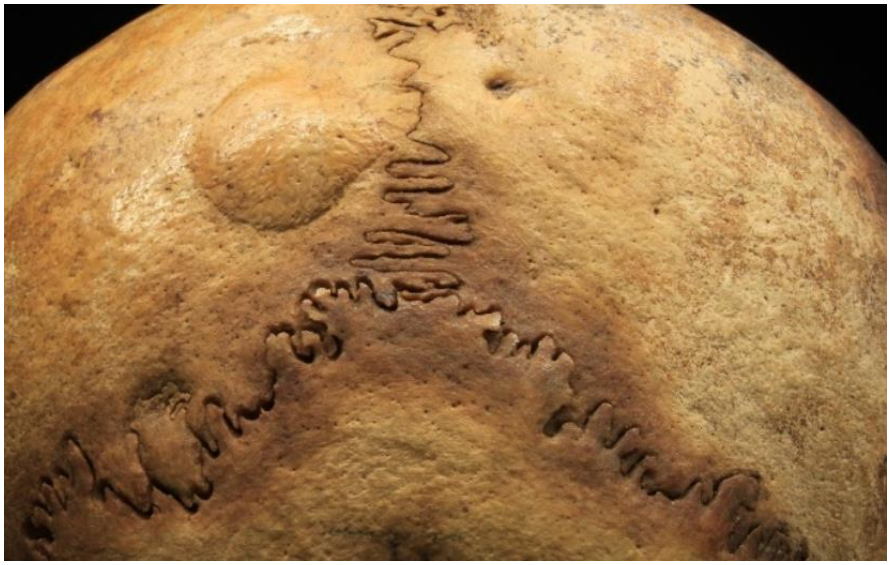


Figure 39: A button osteoma on the posterior left parietal, superior and lateral to lambda, of the individual from grave 511.

The male from grave 543 shows extensive evidence of bilateral parietal thinning (Lodge 1967; Phillips 2007) (Figure 40). This individual also displays cranial porosity and depressions characteristic of ongoing systematic infection. The males from grave 533 and 756, as well as the female from grave 760, also show evidence of parietal thinning, bringing the percentage of Djer's retainers in this sample with parietal thinning to 20%.

Figure 40: Bilateral parietal thinning on the individual from grave 543.

Though in most samples bilateral thinning of the parietals tends to occur nearly twice as often in females as in males, in this sample only one female from Djer's retainers show evidence of this condition (a finding consistent with those of Camp and Nash) (Camp and Nash 1944; Tae Lim and Sohn 2001; Yiu Luk et al. 2010).

One individual, the male from grave 776, shows distinctive lytic lesions of unknown etiology (Figure 41). These lytic lesions show destruction of both the outer table and the diploe, though in this case they have not penetrated the inner table (other examples from the retainers of Djet show lesions that have penetrated all layers of cranial bone). The margins of these lesions are irregular but smooth, indicating that they occurred antemortem.

Figure 41: Lytic lesions on the parietal of the individual from grave 776.

The individual from grave 756 has dark purple spots on the cranial vault, and the exposed dentine of the maxillary teeth is a bright purple. This phenomenon also appears in individuals from other subsidiary graves and is discussed later in this chapter.

Trauma

Sixteen individuals (80%) of the 20 individuals from Djer's funerary enclosure subsidiary burials) show signs of trauma in the form of cranial fractures (Table 15). Of these 15 individuals, half (n=8) display injuries that are certainly perimortem, with 6 individuals showing injuries that could be perimortem but due to wax application in the fractured area, the timing of injury cannot

be determined with certainty. Five individuals (25% of the 20 individuals), 2 females and 3 males, have injuries that were clearly incurred antemortem and have started to heal, as demonstrated by evidence of bone remodeling at and around the fracture line.

Grave Number	Trauma Type	Location	Timing	Lethal Y/N	Notes
461	1) BFT 2) SFT	1) Left spheno-frontal suture 2) Left zygomatic	1) Perimortem 1) Perimortem	1) Y 2) N?	
470	BFT	Central mandible	Antemortem	N	Healed but fracture lines still visible
484	BFT	Left frontal	Possibly perimortem	?	Fracture could also be antemortem and partially healed, but wax over area makes it difficult to say for certain
511	BFT	Right parietal boss	Perimortem	?	Radiating fractures may be partially postmortem but central injury is perimortem
530	BFT	Left zygomatic	Possibly perimortem	N?	Inferior portion of the break is postmortem but superior portion is a depressed fracture and appears to be perimortem
533	BFT	Cranial vault	Perimortem	Y?	Fracture lines stretching medially from the left parietal boss and forward down the frontal
538	BFT	Cranial vault	Perimortem	Y?	Horizontal fracture line across posterior parietals
543	BFT	Cranial vault	Perimortem	Y?	Horizontal fracture line across posterior parietals
602	(1) SFT (2) BFT	(1) Right spheno-frontal (2) cranial vault	(1) Perimortem (2) Possibly perimortem	Y?	Fragments that appear to be peeling are wax, but margins of defect are sharp and clean suggesting perimortem timing
603	BFT	Central mandible	Possibly perimortem	N	Uncertain timing due to wax covering the area
675	BFT	Central mandible	Antemortem	N	Healed but fracture lines still visible
745	BFT	Central mandible	Antemortem	N	Healed but fracture lines still visible
746	(1) SFT (2) possible BFT	(1) left orbital margin (2) left temporal	(1) perimortem (2) possibly perimortem	Y	(2) uncertain timing due to wax covering the area
760	BFT	Central mandible	Antemortem	N	Healed but fracture lines still visible
763	BFT	Occipital near foramen magnum	Possibly perimortem	?	Uncertain timing due to wax covering the area
776	BFT	(1) Coronal suture, radiating	(1) Perimortem (2) Antemortem	(1) ? (2) N	

		fracture projects posteriorly on right parietal (2) Central mandible			

Table 15: Summary of the traumatic injuries visible in Djer's retainers.

All individuals who had traumatic injuries (12 males and 4 females) had at least one injury due to blunt force. Four individuals (20% of the 20 individuals) have more than one injury: the individual from grave 461 has perimortem BFT and SFT, the individuals from grave 602 and 746 have both blunt force (possibly perimortem) and sharp force (perimortem) injuries, as does the individual from grave 602, and the individual from grave 776 has two blunt force injuries (1 antemortem, 1 perimortem). All of the individuals with two different traumatic injuries are male, two of which are young adults (the individuals from grave 602 and 746) and two of which are middle adults (the individuals from graves 461 and 776).

The individual from grave 511 shows evidence of a BFT injury that has caused a depressed fracture of the right parietal boss (Figure 42). The small focus of the injury, along with the presence of detached and depressed fragments, suggests the injury was caused by a weapon with a relatively small area of impact but without a blade, which would have produced cut marks and/or sharp margins.

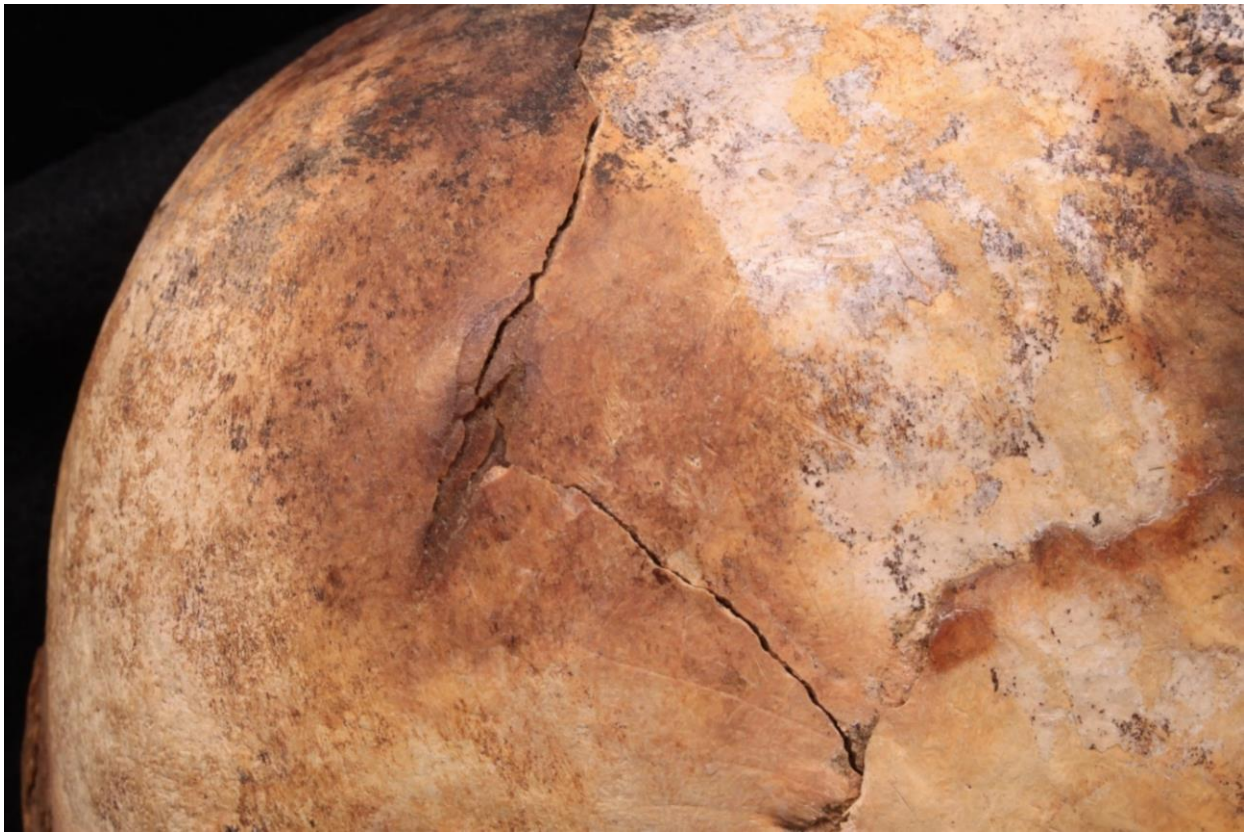


Figure 42: Perimortem BFT (depressed fracture with radiating fracture lines) on the right parietal boss of the individual from grave 511. The radiating fractures have extended postmortem. Anterior is to the right.

The individual from grave 533 shows an extensive fracture that has traverse the entire cranial vault laterally (Figure 43). The hinging apparent in two places along this fracture is characteristic of the response of fresh bone in perimortem injury (Figure 44). At least some parts of the fracture on the frontal may be due to taphonomy, but since wax covers almost the entire frontal, the timing of these fractures is difficult to determine, and it seems likely that some of the fractures extended postmortem.

Figure 43: Image showing the left parietal and lambda of the individual from grave 533, showing the long horizontal fracture (left image) that stretches to the right parietal. Arrow points to hinging that is characteristic of perimortem bone fracture.

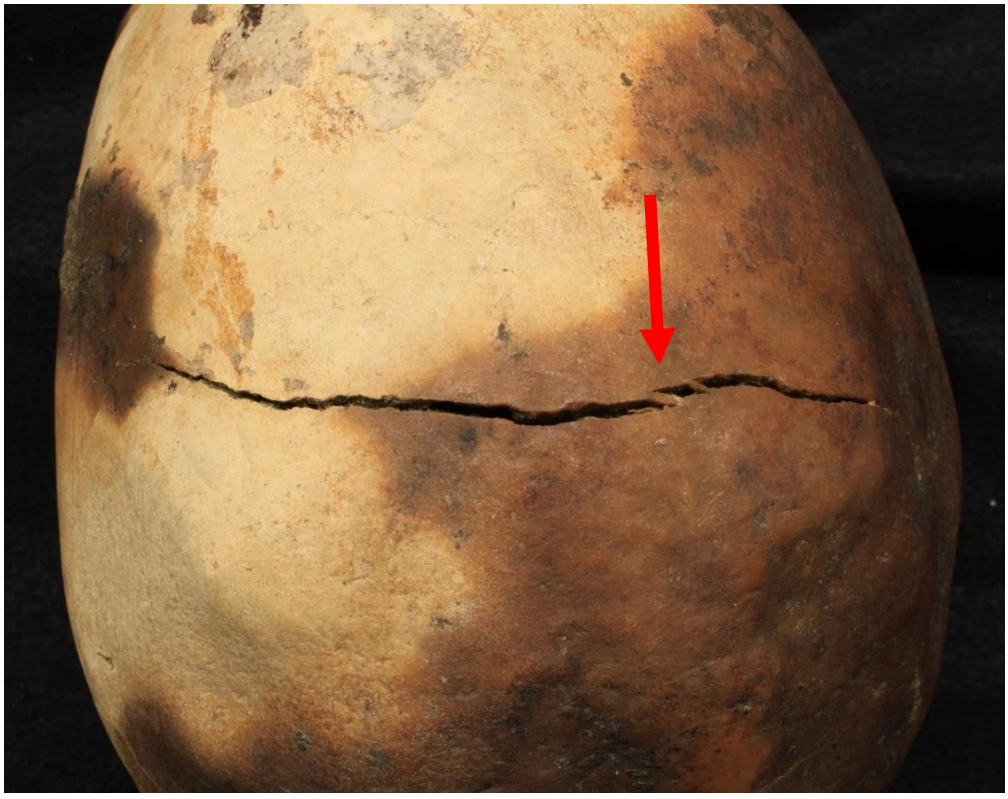


Figure 44: View of the superior vault (anterior is at the top of the image) of the individual from grave 543, showing large fractures stretching across the vault. The arrow points to an area of hinging.

The male from grave 602 displays a SFT injury to the right spheno-frontal suture that has penetrated all layers of bone into the cranial vault (Figure 45). Though the curled fragments visible in the image appear to represent plastic bone response, closer examination reveals that these small fragments are in fact wax. However, the diagnosis of the injury as perimortem is still supported by the anterior margin of the defect, which is sharp and shows characteristics of fresh bone injury.

Figure 45: Perimortem SFT on the right spheno-frontal suture of the individual from grave 602. Anterior is to the right.

The male from grave 746 shows injuries from both sharp force and blunt force trauma (Figure 46). The sharp force injury has removed the right superior orbital margin and shows clear perimortem bone response (Figure 46). The larger injury on the left parietal is due to BFT. While the posterior part of this defect has clearly broken postmortem, the anterior portion of this defect (the frontal) shows plastic response of the parietal suggestive of perimortem injury (Figure 47).

Figure 46: Perimortem SFT to the left orbital margin of the individual from grave 746.

Figure 47: Plastic response of the left frontal bone at the squamous suture of the individual from grave 746.

The male from grave 461 also shows evidence of SFT as well as BFT, both of which appear to be perimortem (Figure 48). The sharp, clean edges of the SFT on the left zygomatic strongly suggest a perimortem injury, despite the wax that has been applied over the area. A BFT injury to the left spheno-frontal suture has almost certainly broken postmortem at the coronal suture, leaving a large hole where the fracture bone has been lost, but the fracture radiating away from this area onto the frontal shows the characteristics of fresh bone breakage.

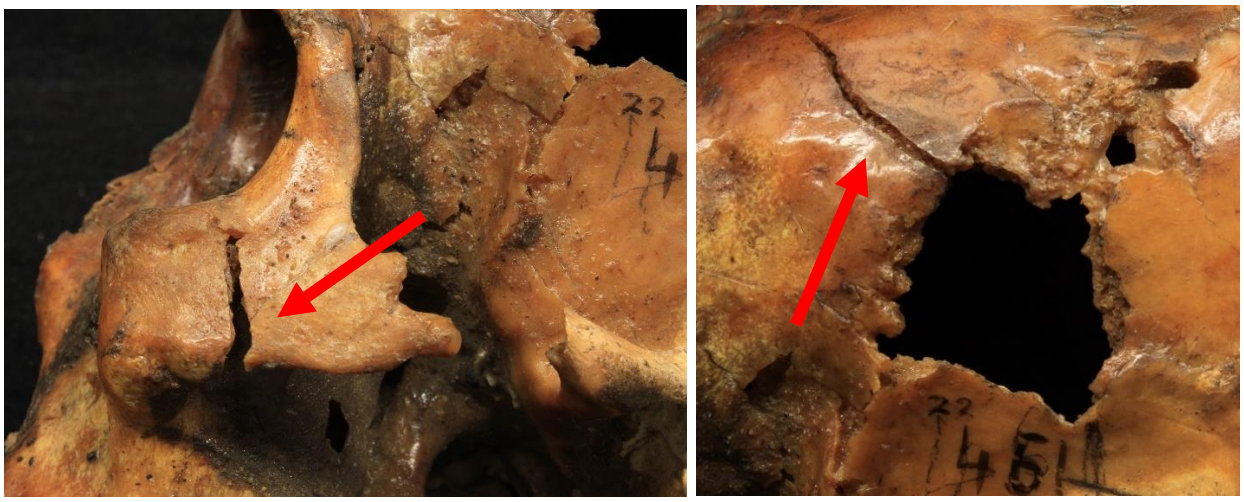


Figure 48: Sharp force trauma to the left zygomatic (left) and blunt force trauma to the left spheno-frontal suture (right). Anterior is to the left.

The fracture on the left frontal of the individual from grave 484 is probably perimortem, but may be an antemortem fracture that had just started to heal at the time of death (the margins of the fracture are unfortunately obscured by wax, which has also caused darkening of the fractured area) (Figure 49).

Figure 49: Possible perimortem fracture of the left frontal of the individual from grave 484.

Two individuals, from graves 745 and 760, also suffered antemortem fractures to the central mandible shortly before death (Figure 50). Though the fractures are in both cases mostly healed, the line(s) of fracture are still clearly visible.

Figure 50: Antemortem fractures of the central mandible in the individuals from graves 745 (left image) and 760 (right image).

The occurrence of trauma does not appear to be associated with sex (Fischer's Exact Test, p=0.2675; two-tailed; N=20). Ten males (including those identified as possible males) (71% of the individuals with trauma and 50% of the individuals analyzed from Djer's enclosure) and four females (including possible females) (29% of the individuals with trauma and 20% of the total individuals analyzed from Djer's enclosure) show evidence cranial fracture. and both of the individuals who also had sharp force trauma injuries were males. There also does not appear to be a correlation between sex and the timing of the injury (Fischer's Exact Test, p=0.5165; two-tailed; N=15).

Remains Not Analyzed

For the 13 individuals whose remains were photographed by Petrie but are not at the Leverhulme, limited information can be obtained (Table 16). It is not possible to determine the sex or exact age of the individuals from the published photographs, though the absence of any obviously open epiphyseal surfaces (primarily on the long bones) suggests that the individuals were likely adults, or at least older juveniles whose epiphyseal surfaces had fused enough not to separate due to taphonomy. Body position was assessed from the photographs, as was the presence or absence of any associated objects within the tomb. In some cases, it appears that a coffin may have been present, though this is based solely on my own observations, since the presence or absence of a coffin was not always noted by Petrie.

Grave Number	Location (side)	Photograph Citation	Sex	Age	Body Position	Associated Objects
420	East side, northeastern corner	Unpublished photograph in Petrie Museum	Unknown	Unknown (probably adult)	Semi-flexed, right side, head slightly down	Vessels
422	East side, northeastern corner	Unpublished photograph in Petrie Museum	Unknown	Unknown (probably adult)	Tightly flexed, right side	Vessel
423	Northeastern corner	Unpublished photograph in Petrie Museum	Unknown	Unknown (probably adult)	Semi-flexed, right side	Vessels
531	North side	Unpublished photograph in Petrie Museum	Unknown	Unknown, probably adult	Semi-flexed, right side, head east, facing south	Ceramic vessels, stone objects, copper "girdle knife", flint flakes
534	North side, northeastern corner	Unpublished photograph in Petrie Museum	Unknown	Unknown (probably adult)	Semi-flexed, right side, head raised, head west, facing north	Ceramic vessels, stone objects, "2 girdle" knives
537	North side	Petrie 1925, Plate XIV	Unknown	Unknown (probably adult)	Face down, legs tied to thighs, head up, hands under head, head west, facing north	Vessel
539	North side	Petrie 1925, Plate XIV	Unknown	Unknown (probably adult)	Flexed, on back and slightly right side, head west, facing south	Vessel(s)
540	North side	Unpublished photograph in Petrie Museum	Unknown	Unknown (probably adult)	Semi-flexed, right side	Coffin?
541	North side	Petrie 1925, Plate XIV	Unknown	Unknown (probably adult)	Semi-flexed, left side, head west, facing north	Coffin?
542	North side	Petrie 1925, Plate XIII	Unknown	Unknown (probably adult)	Semi-flexed, left side, face down, head west, facing north	Vessel, coffin?
544	North side	Petrie 1925, Plate XIV	Unknown	Unknown (probably adult)	Semi-flexed, left side, head extended, head west, facing north	Not listed

601	North side, eastern corner	Petrie 1925, Plate XIII	Unknown	Unknown (probably adult)	Semi-flexed, left side, head east, facing south	Ceramic vessels, adze, saw, flint items, weights
607	North side, northeastern corner	Unpublished photograph in Petrie Museum	Unknown	Unknown (probably adult)	Tightly flexed, right side	Unknown

Table 16: Summary of the individuals around Djer's funerary enclosure who are not represented in the Duckworth Collection, but whose burials are shown in various photographs by Petrie, both published and unpublished.

Djet's Retainers

Twenty-five individuals from Djet's funerary enclosure were available for analysis at the Leverhulme, including two individuals who were represented only by mandibles (Table 17). The remaining 23 individuals all had crania and at least part of the mandible present. These 25 individuals represent 16% of the original burial population from Djet's enclosure.

Grave Num.	Location	Element	Sex	Age	Petrie Photograph Citation	Body Position	Associated Objects
122	East side	Mandible only	Possibly Female	Young adult	N/A	Unknown	Ivory game piece(s)
131	East side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
132	East side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
135	East side	Cranium + mandible	Female	Middle adult	N/A	Unknown	Alabaster object, large flint flake
146	East side	Cranium + mandible	Male	Young adult	N/A	Unknown	Unknown
396	North side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
412	West side	Cranium + mandible	Male	Young adult	N/A	Unknown	Unknown
413	West side	Cranium + mandible	Male	Middle adult	Unpublished	Head south, facing west	Flint object(s), coffin
417	West side	Mandible only	Ambig.	Young adult	N/A	Unknown	Unknown

426	West side	Cranium + mandible	Male	Young adult	N/A	Unknown	Ivory label, ivory lions, copper needle
428	West side	Cranium + mandible	Possibly Female	Young adult	N/A	Unknown	Ceramic vessel(s), flint flakes, model granaries, coffin
429	West side	Cranium + mandible	Male	Young adult	N/A	Unknown	Copper "girdle knife," coffin, wand, rod
432	West side	Cranium + mandible	Male	Older adult	N/A	Unknown	Unknown
433	West side	Cranium + mandible	Male	Young adult	N/A	Unknown	Ceramic vessel(s), dog in grave
436	West side	Cranium + mandible	Male	Young adult	Unpublished photograph in Petrie Museum	Semi-flexed, right side, head slightly twisted and propped up	Vessels, coffin?
437	West side	Cranium + mandible	Female	Young adult	N/A	Unknown	Sealing
442	West side	Cranium + mandible	Male	Young adult	N/A	Unknown	Ceramic vessel(s), stele
443	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
444	West side	Cranium + mandible	Female	Young adult	N/A	Unknown	Ceramic vessel(s)
445	West side	Cranium + mandible fragment	Female	Young adult	N/A	Unknown	Ivory comb, ivory object, flint flakes
446	West side	Cranium + mandible fragment	Possibly Male	Middle adult	N/A	Unknown	Coffin, mark
447	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
449	West side	Cranium + mandible	Male	Young adult	N/A	Unknown	Unknown
452	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
454	West side	Cranium + mandible	Female	Young adult	N/A	Unknown	Ceramic vessel(s), model granaries

Table 17: Summary of the individuals from the subsidiary burials around Djet's funerary enclosure whose crania were analyzed in this research.

Age and Sex Distribution

Of the 25 individuals analyzed in this study, 16 are male, 1 is possibly male, 1 is ambiguous, 2 are possibly female, and 5 are female. Males or possible males thus make up 72% of this sample, with females or possible females accounting for 24% of this sample and the remaining individual identified as ambiguous representing the final 4%.

Fifteen individuals (60%) were classified as young adults, while 9 (36%) were classified as middle adults, and 1 (4%) as an older individual. The average age at death for all individuals was 34.59 years.

Non-metric Traits

Ten individuals (43% of the individuals with extant crania) show persistence of a partial metopic suture, with 1 individual (4%) showing a complete metopic suture. Eight individuals with the partial metopic suture are males and two are female; the lone individual with a complete metopic suture is a male. There is no correlation between sex and presence or absence of the metopic suture (Fischer's Exact Test, p=1.00; two-tailed; N=23)

Pathology

Djer's retainers display a wide variety of pathologies, some of which may have affected the individuals very little, and other which would certainly have caused ongoing discomfort and pain (Table 18).

Grave Number	LEH	Caries	Dental Abscess	AMTL	Alveolar Retraction	PH	Trauma	Other
122					X			
131						X	X	Destructive lesions

132				X			X	Porosity and osteophyte formation on occipital condyles
135				X		X	X	
146	X		X	X			X	
396	X				X			TMJ
412	X	X		X				Destructive lesions
413	X							
426	X		X		X	X		
428					X	X		Destructive lesions, TMJ, bony nodule inside frontal
429	X			X	X		X	Bony growth on right parietal, porosity behind left occipital condyle, parietal thinning
432				X		X		
433						X		
436	X					X		
437	X	X						
442	X					X	X	
443		X	X	X	X			
444	X							Destructive lesions
445								Destructive lesions
446						X		
447	X			X		X		Destructive lesions
449				X				
452	X		X		X			Destructive lesions
454	X						X	Destructive lesions

Table 18: Summary of the pathologies observed in Djet's retainers.

Thirteen individuals (52%), 10 males and 3 females, show at least one incidence of LEH on their dentition (Figure 51). There is no statistical correlation between LEH and sex (Fischer's Exact Test, p=0.3945; two-tailed; N=24). All individuals with LEH were classified as middle adults.

Figure 51: Lines of LEH, as well as retraction of alveolar bone, visible on the left mandibular canine and premolars of the male from grave 429.

Three individuals (12% of Djet's retainers analyzed in this study), 2 males and 1 female, show evidence of caries, with four individuals (16%), all males, showing dental abscesses (Figure 52). Interestingly, only one individual (the male from grave 443) shows evidence for both caries and a dental abscess, with the other individuals showing either caries or an abscess but not both. In two individuals (the male from grave 146 and the male from grave 443), the abscess has caused AMTL.

Figure 52: Left maxilla of the individual from grave 146, showing extensive bone loss, resorption of alveoli, and AMTL of the second and third right maxillary molars due to an abscess.

Nine individuals (36% of Djet's retainers analyzed in this study), 8 males and 1 female, show evidence of AMTL (Figure 53). AMTL does not correlate with sex (Fischer's Exact Test, p=0.4198; two-tailed; N=24), and all but one of the individuals displaying AMTL were classified as middle adults. Retraction of alveolar bone greater than 2 mm is observable in 7 individuals (28%), from graves 122, 396, 426, 429, 428, 443, and 452.

Figure 53: Antemortem loss of the left mandibular first molar and resorption of the alveolus visible in the individual from grave 146.

Two bone growths are visible on the left side of the cranium of the individual from grave 146. One growth is located on the temporal line of the left frontal (Figure 54), while the other is located at the end of the superior temporal line (Figure 55). The location of both of these bone growths may suggest that they are related to overdevelopment of the *temporalis* muscle (frontal) and the fascial sheet over this muscle, the *temporal fascia* (parietal). The bone growth on the frontal has areas of rough and lighter-colored bone that may suggest the growth was originally larger but broke postmortem.

Figure 54: Bony growth visible along the temporo-mandibular line of the left frontal in the individual from grave 146.

Figure 55: Oval bone growth on the posterior left parietal of the individual from grave 146 (left) and a close-up of the bony growth (right). Anterior is to the left in both images.

Another bony growth is visible on the right parietal of the individual from grave 429, just above the squamous suture (Figure 56). Though this bone is generally of the size and appearance of a button osteoma, the lack of clearly delimited margins may indicate an alternative cause for this growth.

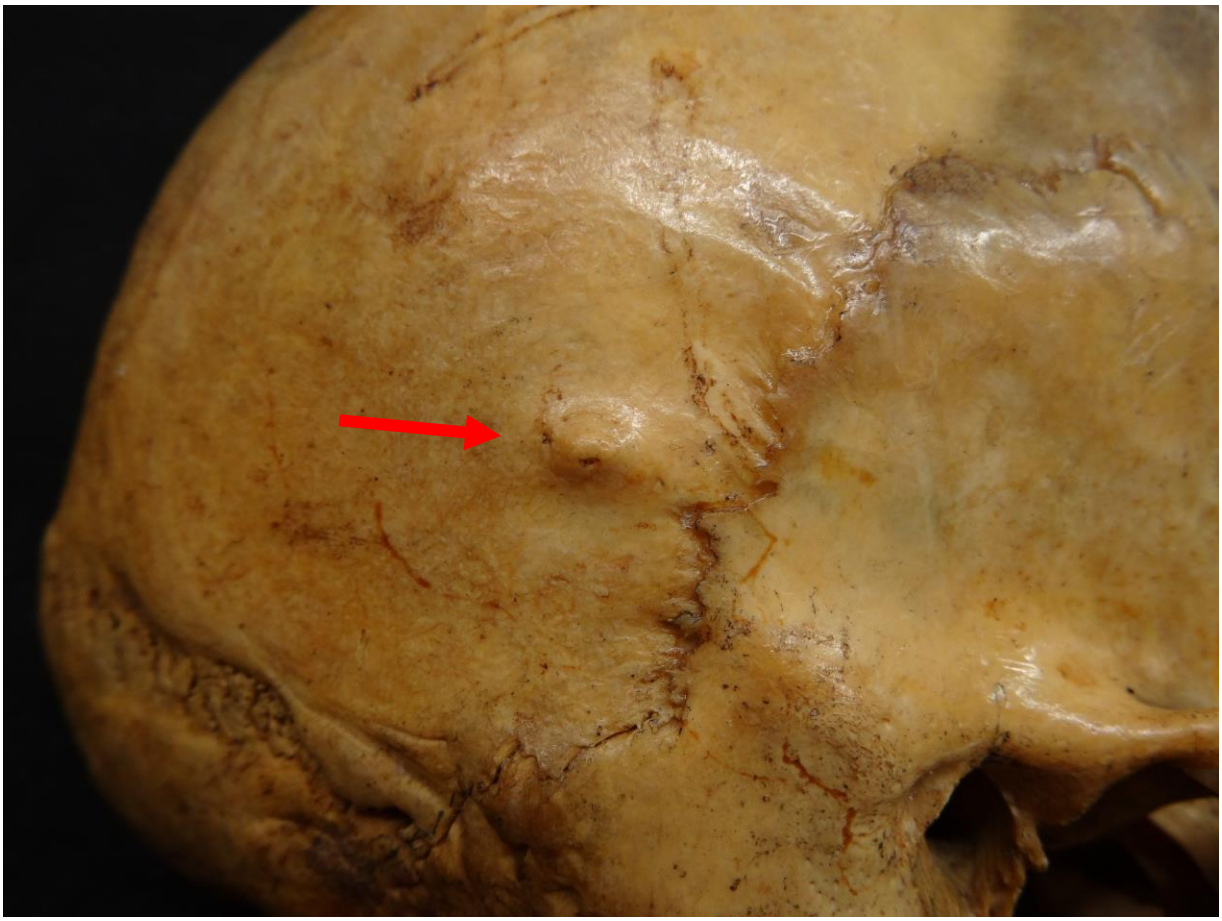


Figure 56: Bony nodule on the posterior right parietal of the individual from grave 429. The lack of a clear border may indicate that the lesion is not a button osteoma.

A growth of bone on the endocranial surface of the frontal is visible along the frontal crest of the male from grave 428 (Figure 57). The surface of this lesion is uneven and relatively rough, but a secure diagnosis cannot be made due to the presence of much sand and wax around the lesion.

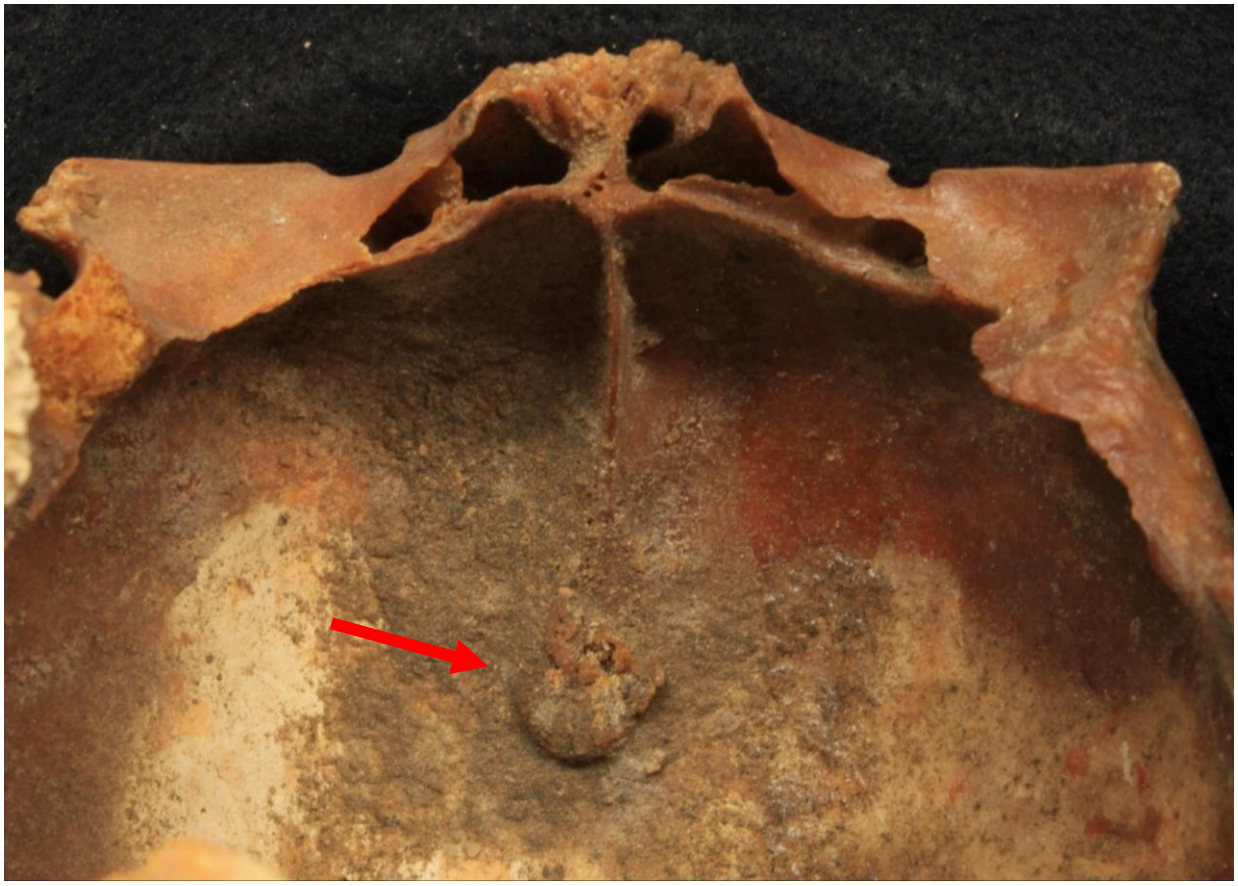


Figure 57: Bony nodule inside the central frontal bone of the individual from grave 428.

Ten (43%) of the individuals with extant crania show evidence of porotic hyperostosis: 9 males/possible males and one female. Sex does not appear to be correlated with the occurrence of PH (Fischer's Exact Test, p=0.3394; two-tailed; N=23). Three individuals (from graves 428, 436, and 442) show cranial porosity with depressions on the endocranial surface, suggesting a persistent infection of the soft tissue.

Figure 58: PH on the occipital of 131 (healing). The large destructive lesion (see discussion below) on the right parietal is visible in the upper right corner of the photo.

Eight individuals (32% of Djet's retainers analyzed in this study), 5 males and 3 females, show lytic lesions like those seen in the male from grave 756 at Djer's enclosure (Figure 59-24). The lesions appear to be a combination of lytic and blastic responses, as there is clear destruction of the outer table and diploe, sometimes extending to the inner table, but also sclerosis of the diploe and blastic response along the lesion edges to create smooth margins. Lesions range in size from less than a centimeter in diameter to nearly 5cm across, and show darkening of the exposed diploe. The etiology of these lesions is unknown, and a differential diagnosis is difficult (and risky) with only the crania, as identification of many diseases in the skeleton depends on patterns of lesion distribution that cannot be accurately assessed without most or all of the

skeleton being available for analysis. Sex does not appear to be correlated with the presence or absence of these lesions (Fischer's Exact Test, p=0.3618; two-tailed; N=24).

Figure 59: Large destructive lesion on the posterior right parietal of the individual from grave 131.

Figure 60: Destructive lesions on the right frontal (left image) and mandibular body (right image) of the individual from grave 412.

Figure 61: Irregular destructive lesions on right frontal bone of the individual from grave 444.

Trauma

Only one individual from Djet's retainers shows clear perimortem trauma, though 5 others show evidence of trauma that could have been perimortem but cannot be determined with certainty due to wax in the area (Table 19).

Grave Number	Trauma Type	Location	Timing	Lethal Y/N	Notes
131	BFT	Cranial base	Possibly perimortem	?	Timing of injury difficult to determine with certainty due to wax covering the area
132	BFT?	Right temporal	Possibly perimortem	?	Possible plastic response indicative of perimortem injury
135	BFT	(1) Left zygomatic (2) Right zygomatic	(1) Possibly perimortem (2) Possibly perimortem	(1) N (2) N	Similar to 146
146	BFT	Left zygomatic	Possibly perimortem	N	Similar to 135

396	BFT?	Posterior to left occipital condyle	Possibly perimortem	?	Sharp edges appear to indicate perimortem injury but wax covering the area makes it difficult to say for certain
429	BFT	Left zygomatic	Antemortem	N	Holes with smooth edges in the fractured area indicate fragments of a depressed fracture that were absent or displaced during the healing process
442	BFT	Cranial vault	Possibly perimortem	?	
454	BFT	Right parietal boss	Perimortem	?	Small depression fracture has caused horizontal fractures to radiate away from the point of impact

Table 19: Summary of the traumatic injuries observed in Djer's retainers.

Eight individuals (32%), 6 males and 2 females, show evidence of trauma. All traumatic injuries appear to be due to blunt force trauma (BFT). Only one injury, a small depression fracture of the right parietal boss of the female from grave 454, is certainly perimortem; five other individuals (from graves 131, 132, 135, 146) have injuries that may be perimortem, but secure identification of injury timing is precluded by taphonomic damage and the application of wax to the crania. The individual from grave 131 shows evidence of a cranial base fracture that may be perimortem (Figure 62).

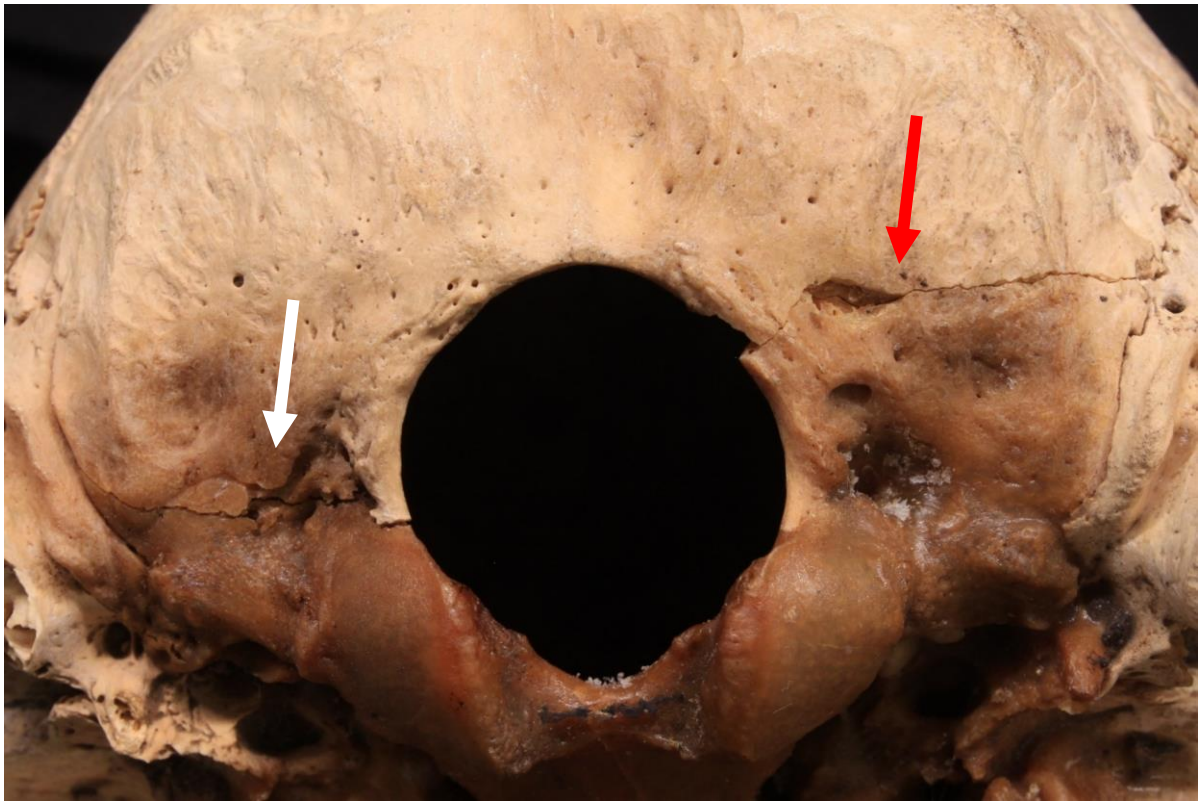


Figure 62: Cranial base of the individual from grave 131. The suture on the left side (white arrow) has opened postmortem, perhaps due to a blow that also caused the fracture on the right side (red arrow). Anterior is down.

The individual from grave 132 also has an injury that may have been incurred perimortem (Figure 63). Though the posterior of the defect (on the right temporal) clearly shows the brightly colored bone and rough edges of postmortem breakage, the sphenoidal angle of the right parietal is curled inward, a reaction suggestive of the plastic response of fresh bone. This reaction may indicate that at least part of this hole was created perimortem, though there is also clear evidence of postmortem breakage.

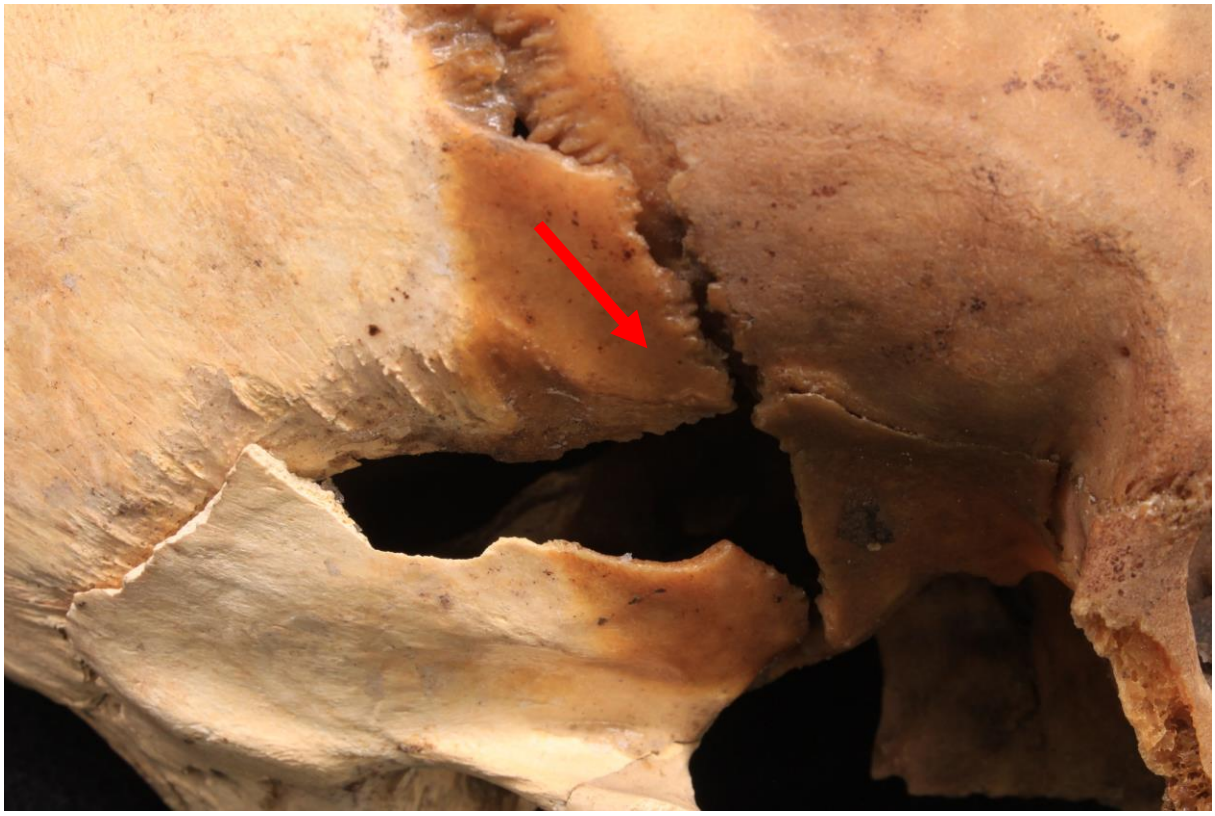


Figure 63: Slight inward bending of the right parietal at the sphenoidal angle on the individual from grave 132 may indicate plastic response of fresh bone characteristic of perimortem trauma.

The female from grave 135 has fractures of both zygomatic processes, inferior to the infraorbital foramina. The fracture of the right zygomatic process is almost certainly postmortem, while the fracture of the left zygomatic displays depressed fragments of bone that are characteristic of perimortem, 'fresh' bone fracture (the rectangular area of missing bone on the left side of the image reflects postmortem damage).

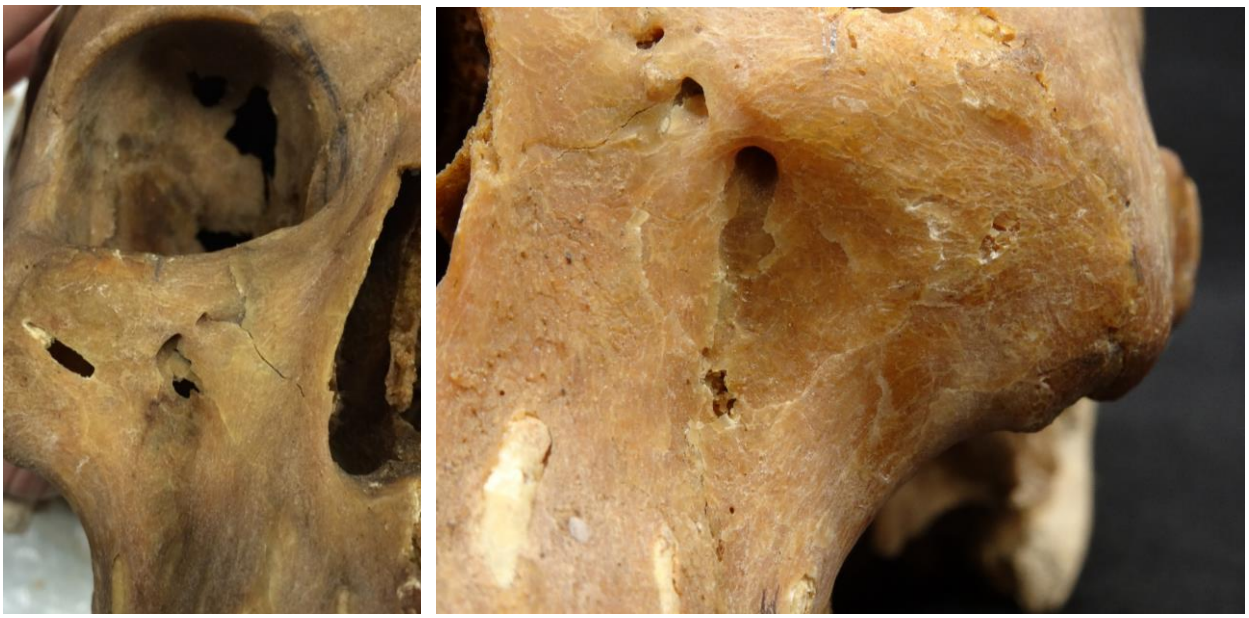


Figure 64: Fractures of the right (left image) and left (right image) zygomatic processes of the individual from grave 135.

A similar fracture with almost identical placement is visible in the left zygomatic process of the individual from grave 146 (Figure 65). The superior portion of the fractured area shows the bright bone characteristic of postmortem breakage, but the central and lower part of the fracture shows concentric radiating fractures characteristic of perimortem injury.

Figure 65: Depressed perimortem fracture of the left zygomatic of the individual from grave 146.

The individual from grave 429 has an antemortem depressed fracture of the left zygomatic that was still in the process of healing at the time of death, as evidenced by the smooth edges of the fractured surface (Figure 66). The holes are indicative of fragments of a depressed fracture that did not fit back into place properly during the healing process.

Figure 66: Antemortem fracture of the left zygomatic of the individual from grave 429.

Clear evidence of perimortem BFT may be observed in the vault of the female from grave 454 (Figure 67). Several fractures extend away from the initial point of impact on the right parietal boss, with radiating fractures extending laterally across the cranial vault. The fracture extended away from the point of impact and when the fracture interested the sagittal suture, the fracture followed the path of least resistance across the suture before continuing to the left parietal (Figure 68).

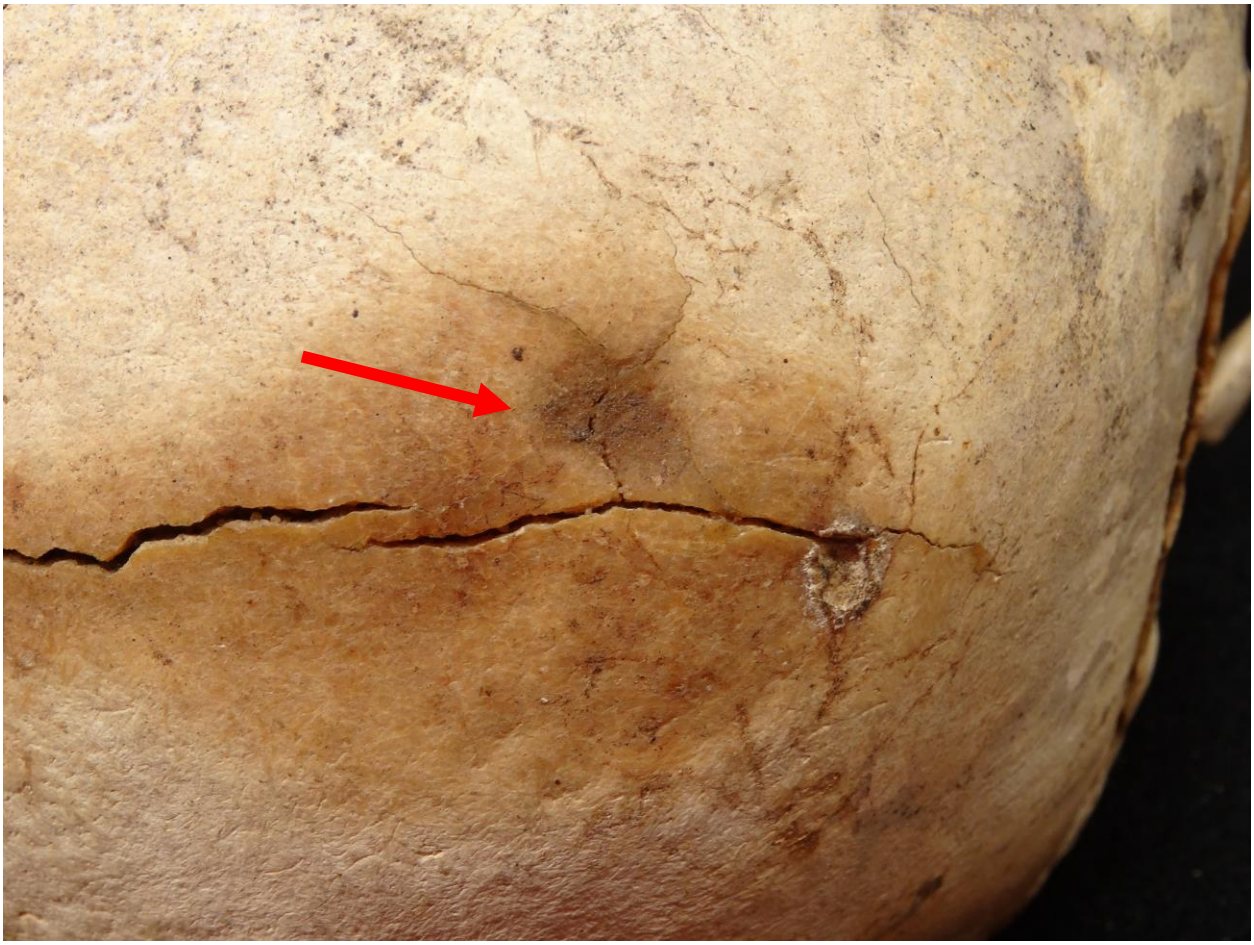


Figure 67: Perimortem fractures and lesion on the right parietal boss of the individual from grave 454. The point of impact is show by the red arrow. A small destructive lesion can also be seen lateral and inferior to the impact site. Anterior is up.

Figure 68: Image showing nearly the full extent of the fracture across the parietals of the individual from grave 454.

An injury to the cranial base of the male from grave 396 is more difficult to assess (Figure 29). A circular section of the occipital is absent, and while the anterior edge of the fractured area (immediately posterior to the occipital condyle) has the clean edge characteristic of perimortem fracture, the posterior of the area clearly shows the lighter bone characteristic of postmortem fracture. Wax covering the anterior portion of the area makes positive identification of the timing of the injury problematic.

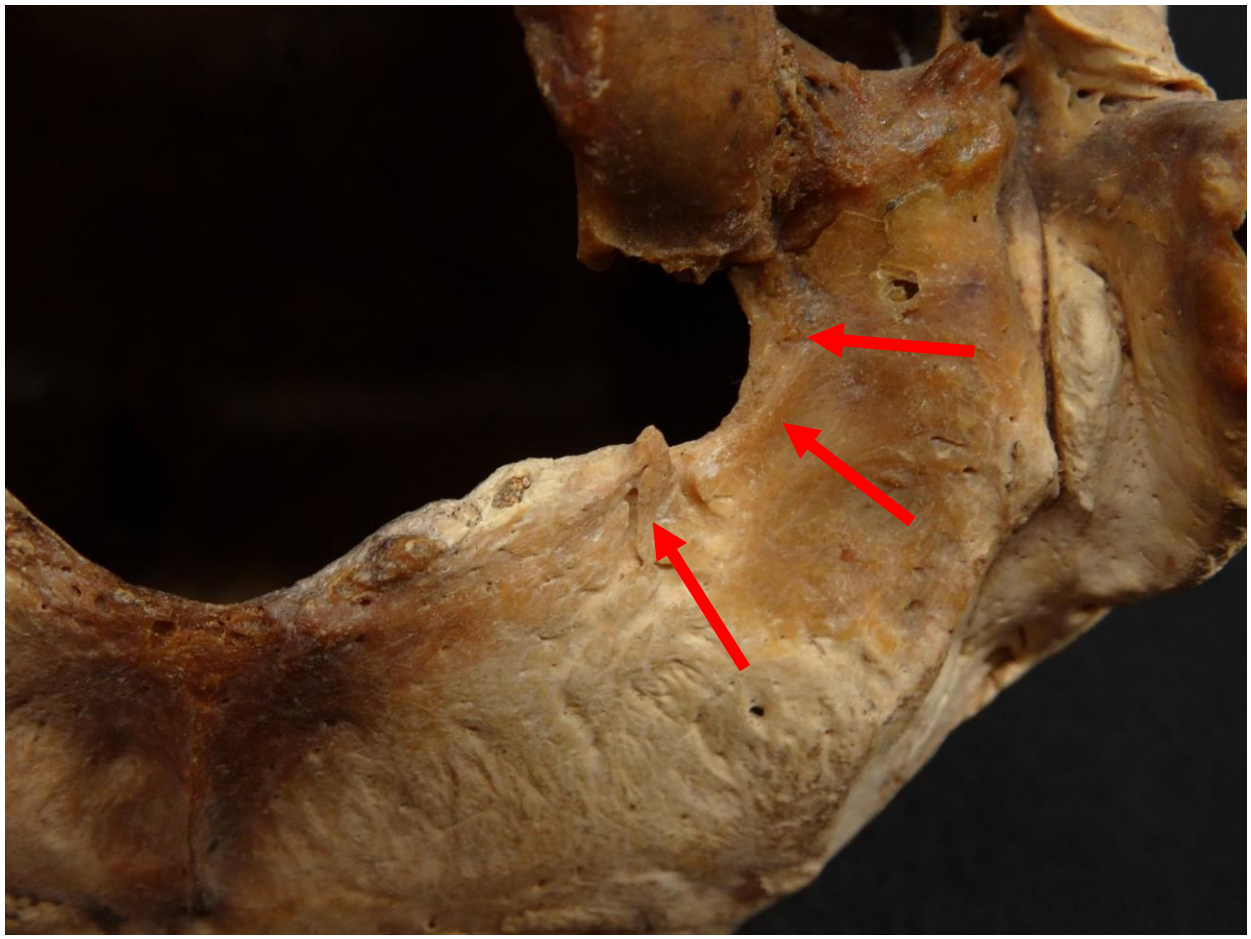


Figure 69: Possible perimortem fracture of the area posterior to the left occipital condyle of the individual from grave 396. Anterior is up.

Purple staining of dentine is visible on 3 individuals, from graves 396, 428 and 444, with similar purple stains on the cranial bone of the individuals from graves 396, 444, and 432 (Figure 70). The origin of this coloration is uncertain, but also appears in individuals from graves at other enclosures. The enamel is unaffected. Possibilities for this coloration are discussed later in this chapter.

Figure 70: Image showing the purple staining of dentine (left and right images) and bone (left image) in the individual from grave 396.

Remains Not Analyzed

Five of the retainers from the funerary enclosure subsidiary graves were photographed by Petrie but are not present in the Leverhulme (Table 20). Age and sex are not possible to determine with precision, though all of the individuals appear to be adults, or possibly older juveniles whose epiphyseal surfaces have mostly fused.

Grave Num.	Location	Photograph Citation	Sex	Age	Body Position	Associated Objects
329	South side	Petrie 1925, Plate XIII	Unknown	Unknown (probably adult)	Semi-flexed, left side, facedown, head west, facing north	Needles, stone object, flint flake, coffin, model granary, weights
384	North side, northwestern corner	Petrie 1925, Plate XIII	Unknown	Unknown (probably adult)	Tightly flexed, left side, face slightly down, head east, facing south	Ceramic vessels, model granary

387	North side, northwestern corner	Unpublished photograph in Petrie Museum	Unknown	Unknown (probably adult)	Tightly flexed, right side and partly prone, head east, facing south	Vessels, copper objects, axe, adze bearing Djet's name
414	West side	Petrie 1925, Plate XIII	Unknown	Unknown (probably adult)	Semi-flexed, left side, head south, facing west	Vessels, flint object
425	West side	Unpublished photograph in Petrie Museum	Unknown	Unknown (probably adult)	Semi-flexed, right side, cranium absent in photo	Unknown

Table 20: Summary of the individuals around Djet's funerary enclosure who are not represented in the Duckworth Collection, but whose burials are shown in various photographs by Petrie, both published and unpublished.

In a photograph of grave 425, the skeleton appears to be missing its cranium; as Petrie does not note this in his publication or notebook, it is impossible to say whether the cranium was lost before, during, or after excavation. It seems most likely that the cranium was present when Petrie excavated the grave, though perhaps fragmented and thus was removed from the grave before the rest of the skeleton, as a missing cranium was not likely to escape Petrie's notice.

Merneith's Retainers

Only four individuals from the subsidiary graves are around Merneith's funerary enclosure are stored at the Leverhulme and available for analysis (Table 21). These four individuals together account for 5% of the total retainers buried around Merneith's enclosure.

Grave Num.	Location	Element	Sex	Age	Petrie Photograph Citation	Body Position	Associated Objects
205	North side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
229	East side	Cranium + mandible	Female	Middle adult	N/A	Unknown	Unknown
254	South side	Cranium + mandible	Female	Middle adult	N/A	Unknown	Ceramic vessel(s), coffin

302	North side	Cranium + mandible	Female	Young adult	N/A	Unknown	Unknown

Table 21: Summary of the individuals from the subsidiary burials around Merneith's funerary enclosure whose crania were analyzed in this research.

Age and Sex Distribution

Of the four individuals examined here, 3 are female and 1 is male. Females thus make up 75% of this sample, while males account for 25%. The male and the females in graves 229 and 254 are middle adults, with all three having a mean age of 43.4 years at death. The female from grave 302 is somewhat younger, with a mean age of 30.2 years at death.

Non-metric Traits

Only one individual, the male from grave 205, shows partial expression of the metopic suture. The individual from grave 254 has several extra sutural bones, but the other three individuals have none.

Pathology

Merneith's retainers exhibit a variety of the expected markers of systemic stress as well as specific infection (Table 22).

Grave Number	LEH	Caries	Dental Abscess	AMTL	Alveolar Retraction	PH	Trauma	Other
205							X?	Ectocranial depression
229	X		X	X		X	X?	
254				X		X		Bone growth on mandibular body
302	X	X			X	X		

Table 22: Summary of the pathological conditions observed in the remains of Merneith's retainers.

Two (50%) of the individuals from Merneith's subsidiary graves (females from graves 229 and 302) demonstrate multiple lines of LEH on the dentition (Figure 71). As was the case with the retainers of Djer and Djet, the occurrence of LEH does not appear to be correlated with sex (Fischer's Exact Text, p=1.00; two-tailed; N=4). One case of caries (the female from grave 302) is also present, as is one abscess (from grave 229); neither of these conditions is correlated with sex (Fischer's Exact, p=0 for both; two-tailed; N=4). The abscess in visible in the female from grave 229 has completely revealed the buccal roots of the right mandibular first molar (Figure 71).Alveolar retraction greater than 2mm is observable in the female from grave 302.

Figure 71: Left maxillary dentition of the female from grave 229, showing clear examples of LEH on the dentition (left) and a severe abscess, which has revealed the root of the right mandibular first molar, surrounded by reactive bone (right).

The three females (from graves 229, 254, and 302) show evidence of porotic hyperostosis, and the male from grave 205 displays porosity and a depression on the ectocranial surface of the posterior right parietal, suggesting ongoing infectious response (Figure 72).

Figure 72: Small depression (~1cm diameter) and porosity on the right posterior parietal of the male from grave 205. Anterior toward the top of the photo.

The female from grave 229 has a round, smooth-edged defect on the ventral side of the mandibular body, below and slightly posterior to the right third molar, and just anterior to the gonial angle (Figure 73). The smooth border of this small (~0.75cm in diameter) indicate that it was formed antemortem. The most likely diagnosis for this defect is that of a Stafne's defect, a condition that is still incompletely understood but seems to form as a result of pressure by the submandibular salivary gland against the mandibular body (Mann and Hunt 2013).

Figure 73: Antemortem cavity with smooth margins in the right mandibular body of the female from grave 229, probably an example of Stafne's defect.

The individual from grave 254 has vivid purple dentine as well as purple stains on the cranial bone, while the individual from grave 302 has purple stains on the cranial bone but not the dentine.

Trauma

Two (50%) of the four individuals analyzed from Merneith's subsidiary graves show evidence of trauma (Table 23). Both individuals, from graves 205 and 229, show evidence of blunt force trauma that may be perimortem. In both cases, however, the determination of timing is somewhat difficult.

Grave Number	Trauma Type	Location	Timing	Lethal Y/N	Notes
205	BFT	Left parietal	Possibly perimortem	N?	
209	BFT	Occipital	Possibly perimortem	?	

Table 23: Summary of the traumatic injuries observed in Merneith's retainers.

The female from grave 209 displays fractures that appear to be perimortem (Figure 74). These concentric fractures are located on the base of the scale and radiate away from the foramen magnum. Because the base of this cranium is covered with wax, it is difficult to be certain of the timing of these cracks.

Figure 74: Inferior occipital of the individual from grave 229, showing radiating fractures that may have occurred perimortem.

Remains Not Analyzed

Only two individuals are shown in photographs and not represented in the Leverhulme (Table 24). Both appear to be adults or older juveniles; though it is not possible to determine the biological sex of these individuals on the basis of the photographs, Petrie does list the individual in grave 224 as a male. Both bodies were tightly flexed.

Grave Number	Location (side)	Photograph Citation	Sex	Age	Body Position	Associated Objects
163	North side	Unpublished photograph in Petrie Museum	Unknown	Unknown (probably adult)	Tightly flexed, right side	Unknown
224	East side	Petrie 1925, Plate XIII	Male (Petrie 1925 Plate XIII)	Unknown (probably adult)	Tightly flexed on his/her back, head and legs turned to the left, head north, facing east	Coffin, stele or seal,

Table 24: Summary of the individuals around Merneith's funerary enclosure who are not represented in the Duckworth Collection, but whose burials are shown in various photographs by Petrie, both published and unpublished.

Individuals of Unknown Origin

There are two individuals present at the Leverhulme whose grave numbers cannot be matched to any on Petrie's diagrams for the funerary enclosures of Djer, Djet, or Merneith. The grave numbers recorded for these individuals are 153A and 153B, suggesting perhaps two individuals from either the same tomb, or from chambers which were connected in some way, causing Petrie to associate the two individuals rather than separate them as he did with all the others.

Comparing Skeletal Data from Three Enclosures

Only with great care and great skepticism should we compare the data from these three enclosures. The most important reason to avoid such comparisons is the very low percentage of remains that were available for analysis, compared to the original number of retainers who were

interred around the funerary enclosures of Djer, Djet, and Merneith. This disparity means that any trends seen in the data here are not necessarily applicable to the rest of the burial population.

An additional caveat, which has previously been mentioned, is the selection bias present in those remains where were available for analysis. While not entirely a random selection (i.e. some of the remains were buried in adjacent tombs, and the remains that were kept were well-preserved), the fact remains that even all of the remains that Petrie intended to save do not appear to have survived the journey to England, thus leaving with a somewhat randomized sample. This is underlain by the selection of preservation, however; not only were most of the tombs disturbed by later tombs, but many were robbed. This may suggest that the tombs which were more or less intact when Petrie found them were actually lower ranking than those which had been robbed. Nevertheless, bearing in mind the potential unreliability of our conclusions, it is worth assessing any trends apparent in the remains that are left to us and seeing what we might learn.

Body Position

The subsidiary burials at the Saqqara tombs seem to be more standardized than those found in the subsidiary graves of Djer, Djet, and Den (see Tables 1-3 earlier in this chapter). The body positions at Saqqara are almost invariably flexed, typically on the left side, though the direction of the head varies somewhat. There is also a much higher frequency of coffins in the Saqqara subsidiary burials. It may be that this is simply an accident of preservation, since the Saqqara tombs were much less disturbed than any of the subsidiary burials at Abydos, but the presence of a coffin in nearly every subsidiary burial is nevertheless noteworthy. The other possibility is that the individuals at Abydos has just as many or more burials that contained coffins, but that these were not noted by Petrie as completely as Emery recorded the presence of coffins at Saqqara.

In contrast, the funerary enclosure and royal tomb subsidiary graves excavated by Petrie at Abydos seem to show greater variation in some regards. The bodies still tended to be in flexed or semi-flexed positions, of which the individual in grave 224 is described by Petrie as "the most contracted skeleton found" (W. M. F. Petrie 1925, 7) (Figure 75). Yet many individuals have their arms or even their legs separated and flung out (see Figure 39). Petrie did write that only two individuals, from graves 539 and 728, lay on their right side, but does not specify if all the others were on their left side, prone, or supine, or in some other position (Petrie 1925).

While many bodies were placed in coffins, it seems likely that some of the coffins at least were shallow and lidless (Petrie 1925). In the case of Grave 414 (bordering Djer's enclosure), Petrie wrote that the knees of the individual "project[ed] beyond the line of the coffin," as was the case with the elbow of the individual in Grave 542, noting further that these positions "do not mean that there was any attempt at movement, but only that the coffin was shallow, without a lid" (W. M. F. Petrie 1925, 7). One individual, in Grave 224, was in a very tightly flexed position, perhaps suggesting a coffin that was too small for the occupant (see Figure 5). In contrast, other individuals are sprawled in more awkward positions. While the legs generally are together, the arms may be in a variety of positions, and the crania face upwards, downwards, and to the side (Figure 75).

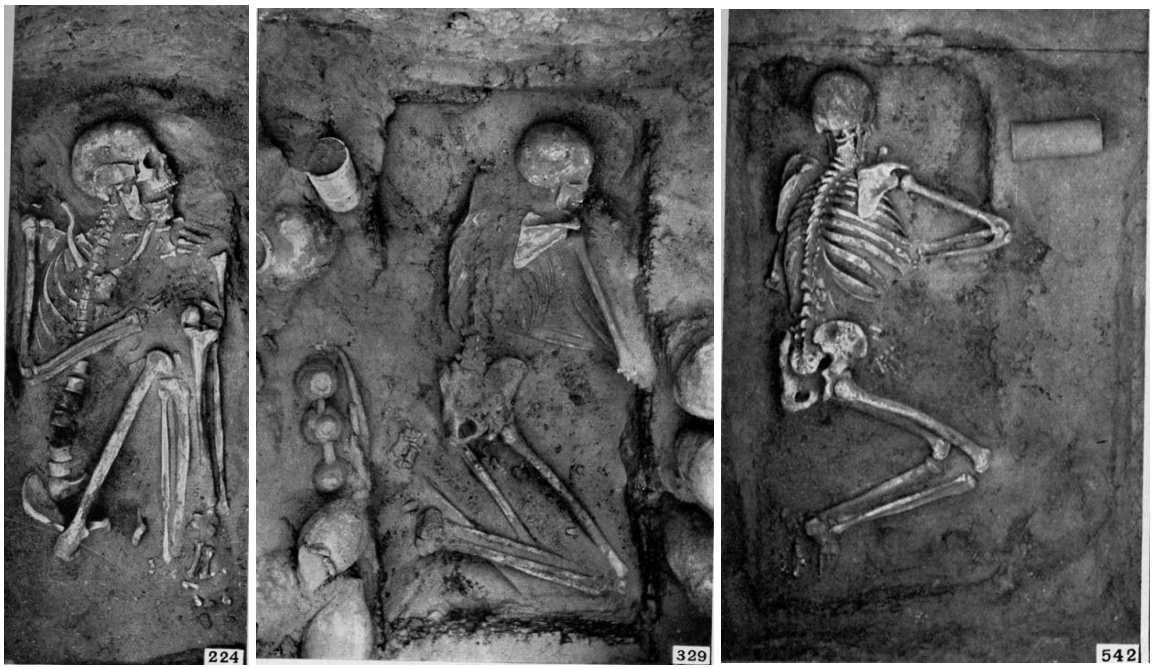


Figure 75: Examples of retainer burials from Petrie (1925, Plate XV). From left to right: Burial 224 (from Djer's enclosure), 329 (Djer's enclosure), and 542 (Djet's enclosure).

In some cases, Petrie wrote that the body positions "show a suggestion of movement" (W. M. F. Petrie 1925, 8). The individual in grave 533 "was remarkable for the knee being raise up; the femur we here propped by bricks to keep it in position as found" (W. M. F. Petrie 1925, 8). In grave 541, Petrie noted that "the upper elbow pushed up high, and the hand spread out on the ground, as if raising the arm" (Figure 77) (W. M. F. Petrie 1925, 8). The "out-stretched fore-arm, and the other hand outspread" visible in the position of the individual in grave 544 suggested to Petrie that "there was some consciousness at burial" (W. M. F. Petrie 1925, 8).

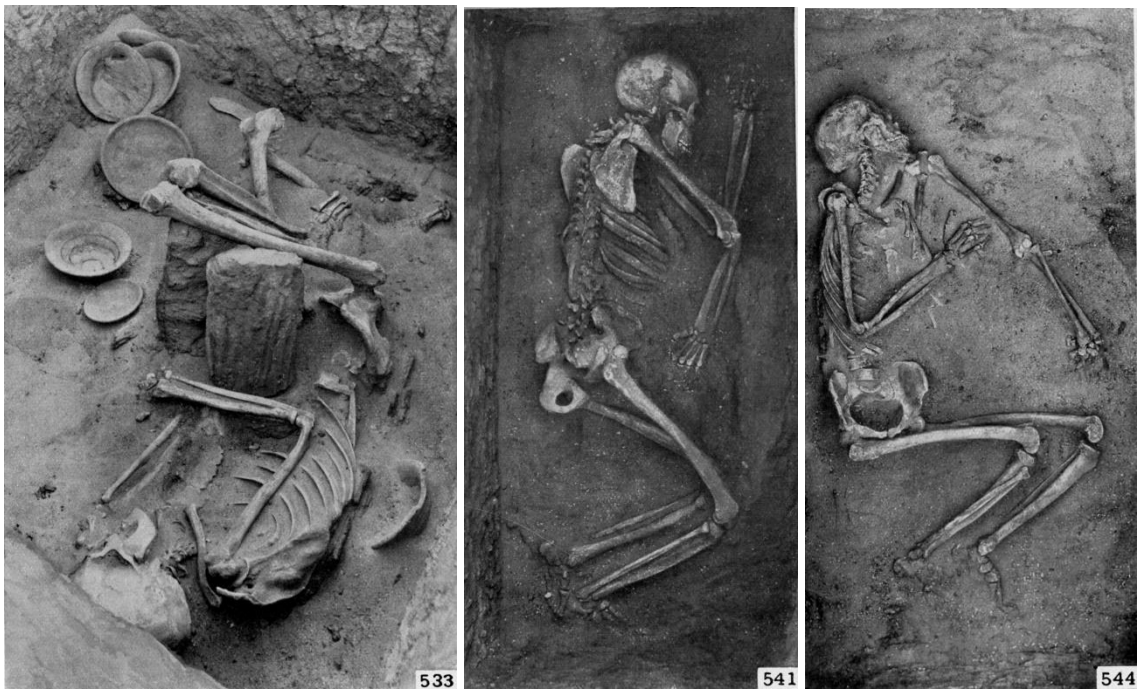


Figure 76: Burial positions of retainers at Djer's enclosure that suggested to Petrie the possibility of live burial: Grave 533 (left), 541 (center), and 544 (right) (Petrie 1925, Plate XIV).

The individual in Grave 537 had his or her head propped up and twisted to the side, with the right hand in front of the face (Figure 77) (Petrie 1925). Petrie also wrote that "the heels have been tied tight back to the hips to prevent action; the body was thrown in, chest down, over a large boulder in the soil; the head has been twisted round upright, and at right angles to the spine laterally; the left arm has been thrust up from below with the hand before the face" (W. M. F. Petrie 1925, 8). Petrie made sure to note that he "was careful to verify that the skull rested truly on the atlas vertebra, and that all the vertebrae of the neck were in articulation down to the straight line of the spine." Based on his observation that "the double twist of the head at right angles was entirely made while the body was fresh," and in accordance with "a medical opinion," Petrie concluded that "the position proved that this man had been endeavoring to raise his head above the earth as the grave was being filled" (W. M. F. Petrie 1925, 8).

Figure 77: Two views of the individual in subsidiary grave 537 both from Djer's enclosure (Petrie 1925, Plate XIV).

These burial positions, which admittedly are not within the normal range of variation seen not only in retainer burials of the First Dynasty but in Early Dynastic burials in general, are indeed perplexing. Whether they do suggest the possibility of live burial or not is considered further in Chapter 7.

Age and Sex Distribution

Of the individuals whose skeletal remains could be analyzed in this study, overall there is a clear preponderance of males over females. Of the 49 individuals who could be assigned to a specific grave and royal funerary enclosure (including those represented only by mandibles), 31 are male, 3 are possibly male, 1 is ambiguous, 3 are possibly female, and 11 are female. Individuals identified as males or possibly males thus make up 69% of the burial population analyzed here, while females or possibly females make up 29% (the single individual identified as "ambiguous sex" being the outlier and accounting for the remaining 2%). The difference in numbers of males/possible males and females/possible females between the enclosures of Djer and Djet is not statistically significant (Fischer's Exact, p=0.7344; two-tailed; N=44). However, the male-to-female ratios at the enclosures of Djer and Merneith are significantly different (Fischer's Exact, p=0.0235; two-tailed; N=25), as is the sex distribution of Djet's subsidiary burials compared to those of Merneith (Fischer's Exact, p=0.0357; two-tailed; N=29). The possible reasons for these differences are discussed in Chapter 7.

All of the individuals analyzed in this study were categorized as young adults (29 individuals, 59% of the total retainer population analyzed here), middle adults (17 individuals, or 35%), or older adults (3 individuals, or 6%). There is no evidence of any children buried in the subsidiary burials of Djer, Djet, and Merneith's funerary enclosures.

Markers of Health and Disease

Eight individuals (16%) showed evidence of caries, in various stages and in various locations. The actual incidence may be somewhat higher, as the application of wax to some of the crania obscured the interstitial spaces where small carious lesions might occur. Seven individuals (14%) displayed dental abscesses, in some cases very severe and leading to

antemortem tooth loss. Antemortem tooth loss (AMTL) was observed in 13 individuals (27%). There does not appear to be a significant correlation between caries and AMTL (Fischer's Exact, p=0.6938; two-tailed; N=49), nor between abscesses and AMTL (Fischer's Exact, p=0.2172; two-tailed; N=49). Retraction of alveolar bone, likely due to periodontal disease, was observed in 11 individuals (22%).

Thirty (61%) of the 49 individuals showed at least one example of linear enamel hypoplasia (LEH) in the dentition. The presence or absence of LEH does not correlate with sex (Fischer's Exact, p=0.7401; two-tailed; N=48).

Exactly half (24) of the individuals analyzed in this study showed evidence of porotic hyperostosis. Of the individuals who showed the characteristic porosity of PH, 5 were identified as female, 1 as possibly female, 15 as male, and 2 as possibly male. There does not appear to be a correlation between PH and sex (Fischer's Exact, p=1.0; two-tailed; N=48).

As a non-specific marker of stress that is believed to originate in childhood (Stuart-Macadam 1985), PH might be expected to correlate with LEH, which reflects periods of stress during the formation of dental enamel in childhood and adolescence. However, a Fischer's Exact Text (p=0.5672; two-tailed; n=49) indicates that there is no significant correlation between PH and LEH, suggesting that the theory regarding childhood origin of these two conditions may need to be re-examined.

Nine individuals (18%) displayed lytic lesions of unknown etiology. Interestingly, all but one of the individuals who exhibit the unidentified destructive lesions are from the subsidiary burials of Djet (the last is one of the retainers of Djer). These almost always occur multiple times

on a single individual. These lesions do not appear to be correlated with sex (Fischer's Exact, p=0.6873; two-tailed; N=48).

Two individuals, both from the subsidiary burials at Djer's enclosure, displayed button osteomas. Both of the individuals were males, one buried on the east side (grave 511) one on the west side (grave 746).

Parietal thinning was observed on 5 individuals, 3 from the enclosure of Djer and 1 from the enclosure of Djet. This uncommon condition tends to manifest as gradual loss or resorption of the outer table and diploe on portions of the parietal, particularly near the parietal boss or along the sagittal suture, and is almost always bilateral (Camp and Nash 1944; Cederlund, Andrén, and Olivecrona 1982; Dutta 1969; Epstein 1953; Yiu Luk et al. 2010; G. E. Smith 1907; Wilson 1947; Yiu Luk et al. 2010), though unilateral cases have also been reported (Camp and Nash 1944; Wilson 1947). Modern medical cases indicate that this condition is painless and generally asymptomatic, though dizziness has been reported (Yiu Luk et al. 2010). Opinions on the origin and causation of parietal thinning vary, with some scholar believing the condition is a congenital dysplasia of the diploe that is non-progressive (Dutta 1969; Greig 1926; G. E. Smith 1907) and others believing the condition is acquired and progressive and may be related to senility and particularly post-menopausal osteoporosis (Cederlund, Andrén, and Olivecrona 1982; Dutta 1969; Epstein 1953; Yiu Luk et al. 2010). Others have suggested that parietal thinning may be caused by pressure from the exterior or the temporal artery, and/or may be hereditary (Durward 1929). Despite being relatively rare in most populations, parietal thinning appears to have been relatively common among ancient Egyptian populations (G. E. Smith 1907).

Trauma

Trauma was observed in much higher rates than expected, given Petrie's (1925) statement that there was no trauma visible on any of the remains. This discrepancy is likely due to the improved methods of analysis in modern times, which have the benefit of forensic and experimental cases with known causes of injury for comparison.

Blunt force trauma was observed in over half (53%, n=26) of the individuals under study, with a further 3 individuals possibly showing BFT (in some cases application of wax or other taphonomic processes obscured markers that might have indicated the timing of the injury).

Of the individuals who suffered from blunt force injuries, 21 individuals (81%) had injuries that were either definitely perimortem or possibly perimortem. Six antemortem BFT injuries were also identified, based on evidence for fracture repair prior to death. Seventeen males/possible males (35% of the total sample) show evidence for perimortem or possibly perimortem trauma, compared to 7 females/possible females (15%). However, there appears to be no significant correlation between sex and the presence or absence of perimortem BFT (Fischer's Exact Text, p=1.00; two-tailed; N=48).

Sharp force trauma is far less common, appearing only 3 individuals, all males, from the enclosure of Djer. In both cases the wound is perimortem and could have been lethal. In one case (the male from grave 756), a further defect may represent a perimortem BFT injury in addition to the SFT injury, but taphonomic damage makes this BFT injury more difficult to identify and determine timing accurately. There does not appear to be any correlation between the occurrence of SFT and sex (Fischer's Exact Test, p=1.00; two-tailed; N=3).

Based on Petrie's notes and photographs, it does not appear that dismemberment was practiced in any of the burials discussed in this dissertation, and while almost all the burials were disturbed, many of the skeletons were still articulated and largely intact when they were excavated, according to the excavation photos (W. M. F. Petrie 1925). The exception to this is the individual in grave 425 on the west side of Djet's enclosure, which appears to be missing the cranium in Petrie's photograph (Figure 78). There is also no evidence of thermal alteration.

Figure 78: Unpublished photograph of the individual in grave 425, with no evidence of the cranium. Image courtesy of the Petrie Museum, London.

Mode and Manner of Death

In the cases perimortem, possibly lethal trauma, the mode of death is almost certainly related to the trauma, e.g. in the case of blunt force trauma, hemorrhage due to brain injury. The

three cases of sharp force trauma could certainly have been lethal, as the wounds penetrated from the outer table of bone directly through the inner table and likely into the dura as well. In many cases, however, even the head trauma suffered might not have instantly killed the victim, but could have stunned him or her or caused a loss of consciousness which may have led to death. In any case, the evidence of blunt force and sharp force trauma argues strongly for a manner of death that was purposeful, rather than natural.

In some of the crania, there was no evidence of perimortem lethal trauma. In the absence of obvious, perimortem lethal trauma, we must consider the various ways by which these individuals may have been dispatched. Of course, there are many ways for a person to die without leaving marks on the skeleton, much less on the cranium. Sharp or blunt force trauma to the postcrania cannot be ruled out, particularly in the absence of any postcranial remains for analysis. Strangulation or poison would have left little or no mark on the skeleton. A less sinister manner of death, perhaps from disease, is also a possibility. The implications of these various modes of death are considered in Chapter 7.

Modern Interventions

At least four individuals (from graves 412, 445, 446, and 447) appear to have been subjected to some kind of destructive sampling, evidenced by the absence of a triangular portion of mandibular body that was clearly removed postmortem with modern cutting tools (Figure 79). The edges of these defects show the sharp edges and lighter bone characteristic of postmortem removal. As this sampling was not documented, and the results not returned to the Leverhulme, the purpose, date, and outcome of the sampling are unknown.

Figure 79: Image showing the right mandible of the individual from grave 412, with a red box highlighting the area that appears to have been removed for sampling (left image). The image on the right shows a detail view of the cut area.

Another unusual aspect of some of these crania is the presence of dark purple spots on 6 of the crania (from graves 254, 302, 396, 428, 432, and 756) and a similar purple color in the exposed dentine in 5 individuals (from graves 254, 396, 428, 444, and 756) (Figure 80). The origin of this color is still unknown. Pink dentine has been attested in cases of traumatic strangulation (Beeley and Harvey 1973; Borrman, Du Chesne, and Brinkmann 1994; Clark and Law 1984; Dumser and Türkay 2008; Dye, Lucy, and Pollard 1995; Kirkham et al. 1977; Sainio et al. 1990; Soriano et al. 2009; Stavrianos et al. 2011; Van Wyk 1987), but tends to fade over time, and in any case the color of the dentine in the Abydos individuals is clearly dark purple rather than any shade of pink. The teeth of leprous individuals have also sometimes been described at pink (G. Cole and Waldron 2016; Dye, Lucy, and Pollard 1995). The patterning (or lack thereof) and appearance of the purple-stained areas does not suggest a pathological cause for the coloration (G. Cole and Waldron 2016).

Figure 80: Purple dentine visible in the right mandibular dentition of the individual from Grave 254 (left) and purple spots visible on left interior mandible (right) of the individual from grave 396.

While pink staining of bone has been attested in archaeological samples, purple is far less common (Brash 1934; G. Cole and Waldron 2016; Dobson 1948; Steckoll et al. 1971; Richter 1937). Cole and Waldron (2016) analyzed some bone that had been stained bright purple from a medieval site in England. The purple color was evident on bone from a variety of individuals throughout the circular Chapter House that was excavated, and seemed to show no patterning regarding age or sex (G. Cole and Waldron 2016). This purple color penetrated all layers of bone and maintained consistent coloration and intensity (G. Cole and Waldron 2016).

Shortly before completion of this study, Dr. Trish Biers (Biers 2019) suggested that this unusual color might be caused by dye used by anatomists in the 19th and 20th centuries, and sometimes even today, in order to highlight specific features for identification and study. Cole and Waldron (2016) note that pink and purple coloration of bone from some sites may be due to modern techniques used by anatomists to create casts of features such as blood vessels. Such a source would explain the apparent random distribution of the dye (even within one individual's dentition, not all teeth show purple dentine, even in adjacent teeth). The origin, use, and

application of this dye, as well as its effect on skeletal material, will be explored further in a future study.

Another possibility is that the purple color is due to the presence of tartrate resistant acid phosphatase (TRAP) enzyme, a member of the purple acid phosphatase (PAP) enzyme family (G. Cole and Waldron 2016). These enzymes do sometimes cause purple coloration of organic material, and were identified as the most likely cause in the purple bones from the medieval Chapter House (G. Cole and Waldron 2016; Schenk et al. 2013). Whether this enzyme was also the cause of the purple coloration in the Abydos crania is uncertain. An argument against PAP as a cause of the Abydos purple is that in the example from England, the purple color penetrated all layers of bone equally and occurred in large areas, patterns which hare not observed in the Abydos remains. The remains from England also do not appear to show similar coloration in the dentine. Cole and Waldron (2016) do note, however, that PAPs could be responsible for the at least some of the pink teeth observed in archaeological and forensic remains, particular in a case recorded by Camps (1953) who described the teeth of strangulation victims as more purple than pink. It is clear that the effect of PAPs on human skeletal material is still incompletely understood and provides much promise for future research.

A Note on Place of Origin

The possibilities for the place of origin of the retainers bears mention. All material indications (objects, names, etc.) suggest that the occupants of these graves were considered Egyptian, if not by ancestry at least by affiliation. When names are present, they are consistently Egyptian ((W. M. F. Petrie 1900, 1901, 1925). Gardiner believed that some of the names reflected origins in the Delta (Gardiner 1966; Keita 1992). The objects within the tombs also appear to be Egyptian. Petrie does mention foreign pottery, but the evidence for trade outside of

the Nile Valley suggests that already in the Predynastic Period goods and raw materials were being exchanged between Egypt and her neighbors, particularly the Levant (Hoffman 1979; Kemp 2005; Beatrix Midant-Reynes 2000).

Determining the origin of the individuals themselves is more complex. Keita (1990, 1992) studied groups of Egyptian crania from various sites and times periods, including some of the crania from the First Dynasty subsidiary burials (though whether these crania derived from subsidiary graves around the funerary enclosures versus the royal tombs is not stated), and noted that the Abydos crania seemed to represent a mixture of traits from tropical African groups (generally termed "Negroid" by past scholars) and groups in northern Egypt. While the Abydos crania do represent some population admixture, they consistently display more characteristics of southern Egyptian and tropical African populations than of the northern Egyptian populations (Keita 1992). This has important implications for the origin of the retainers buried at Abydos, which will be discussed further in Chapter 7.

A more secure assessment of origin and population movement may be constructed through isotopic analysis. Unfortunately, isotopic analysis was not possible within the time and budget constraints of the present study, but plans are underway to conduct isotopic analysis of these remains to assess whether their geographical place of origin or residence was within Egypt (and if so, where) or outside of Egypt, and how the area(s) of origin may have been reflected (or not) in the mortuary treatment.

Retainers at Abydos and Saqqara

Due to the variation in the amount and detail of data collected at Saqqara and from the royal tomb subsidiary burials at Abydos compared to the data that could be gathered from the

extant crania analyzed here, it can be difficult to draw comparisons between the burial populations at Abydos and Saqqara. Some comparisons are possible, however, particularly regarding sex and relative age. Males clearly predominate in both the Saqqara and Abydos retainers, forming 83% of the retainers at Saqqara and 71% of the retainers at Abydos funerary enclosures (not counting Aha, where exact numbers were not available). Likewise, adults vastly outnumbered juveniles in both locations, with 73 adults and 3 children at Saqqara (90% and 4%, respectively, of the burial population of the four tombs discussed here) and 49 adults (100% of the sample) at Abydos.

Though there is no evidence of trauma recorded for the burials at Saqqara, Petrie also wrote that there was no visible trauma in the remains from Abydos, a statement that has been disproven here. It is certainly possible that the retainers from Saqqara also suffered from blunt force or sharp force trauma, the evidence of which was obscured by taphonomy or plundering or was missed by excavators not trained in physical anthropology. As Emery did not record any information regarding general health status or pathology of the remains from Saqqara, it is not possible to draw comparisons between the Abydos populations and those buried at Saqqara.

Conclusions

It is clear that the population distribution represented here is not that of a "normal" population. The prevalence of adult males over adult females, and of adults in general over juveniles or children, suggests a carefully selected sub-group (or sub-groups) of the larger population. Many individuals show evidence of both prolonged and discrete periods of physiological stress, as well as cases of localized infection and pathology.

Combined with the evidence for overall high status in the grave goods and burial location so near the king, it seems clear that the retainers around the funerary enclosures were elites, probably of varying levels and privileges, who were selected to accompany their king in death. The high incidence of perimortem trauma suggests that this selection, while it may have been more or less voluntary in some cases, was not necessarily without some level of force or coercion. The inconsistent application of force, or apparent lack of force (at least in the available evidence) is worth exploring in some detail. The following chapter will combine the skeletal data with the data from the burials and attempt to determine how and why these individuals ended up together with their king in death.

Chapter 7-Considering the Evidence for Human Sacrifice in First Dynasty Egypt

Introduction

In the preceding chapter, the information gathered about retainers at both Saqqara and Abydos suggest an abnormal population distribution in the retainer graves, particularly at Abydos. The preponderance of adult males, as well as the evidence for lethal (or possibly lethal) perimortem blunt force trauma on many of the remains suggests that these individuals were intentionally killed. This chapter will explore the possible ways these individuals might have been killed, and the meanings behind such methods. In addition, the social context of human sacrifice in First Dynasty Egypt will be explored.

Mode and Manner of Death: A Survey of the Possibilities

It is interesting that different methods of killing seem to have been used, as one might expect a highly ritualized action to display some level of consistency. What might have been the reasons for such variation? The fact that such variation exists may indicate that there was no protocol dictating that retainers had to die in a specific way. Alternatively, perhaps there was such a protocol, but for the sake of expediency or individual preference of the executioner, other methods were also used. Particularly in the case of Djer, where hundreds of individuals were entombed, perhaps multiple individuals were responsible for ending the lives of these retainers.

Another possibility is that there was a protocol for how these people should die, and that very protocol required variation depending on some factor or combination of factors. If indeed different social classes were sacrificed at the tomb subsidiary burials versus those at the

enclosure, we may wonder if the sacrifice would have looked different in practice. Even within a single ruler's enclosure there seem to be a variety of professions and perhaps social strata there are represented, which could have impacted the way that these individuals died. At this point, however, such theories must remain little more than conjecture, given the small sample size in comparison to the larger subsidiary grave burial population and the incomplete nature of the evidence available for analysis.

It is also possible that more than one instance of trauma could have been used against a retainer. Certainly at least one individual (from grave 756) shows both blunt force and sharp force trauma, either of which might have been sufficient to cause death. Since we do not have the postcranial remains, it is impossible to be certain in the other cases whether multiple instances of trauma were present.

It is also noteworthy there are no correlations between sex and the occurrence or type of trauma, nor does there appear to be a relationship between age and trauma. Perhaps this suggests that efficiency or protocol were the most important factors to consider, possibly above markers of social status, gender, or occupation.

Blunt Force Trauma

Blows to the head, particularly the face, are very frequently associated with interpersonal violence rather than accidental injury (Walker 1989). Petrie's (1925) suggestion that the retainers may have been stunned by blows from sandbags cannot be entirely discarded, particularly as several of the radiating fracturs indicative of blunt force trauma do not appear to have a small focal point, i.e. the blow may have been struck with a large implement rather than a smaller item.

Blows to other parts of the body could also have caused death, particularly if they were directed at the thorax. Broken ribs or clavicles could have punctured a lung and caused asphyxiation. This scenario seems somewhat unlikely, however, since it would be unusual for Petrie to miss something as obvious as a broken rib, and it takes far more effort to kill someone with blows to the postcranial skeleton when a single, forceful blow to the head will generally be effective.

Sharp Force Trauma

Sharp force trauma to other parts of the body is a plausible explanation for the death of these individuals for several reasons. First of all, the marks of sharp force trauma are easily obscured by taphonomic damage, and are also easily missed; stabbing someone in the abdomen, for example, could easily cause death (albeit somewhat slowly), but would have left few, if any, marks on the skeleton. Even stabbing someone in the heart could be unidentifiable in skeletal remains, as small cutmarks on ribs are easily missed or confused with taphonomic damage by inexperienced excavators. Cutting the throat is a quick and efficient way of causing death that leaves little to no evidence on the skeleton. The downside from an Egyptian perspective, of course, is that this method causes a great deal of blood loss and could potentially render the victim less suitable for service in the afterlife, as the victim was now fragmented or broken, a state of being that was greatly feared in Egyptian religion at later periods (R. A. Campbell 2018). However, this may have been a minor (or at least less important) concern in cases such as that of Djet, where hundreds of individuals needed to be interred in a short time.

Projectile sharp force trauma, i.e. if the victims were shot with arrows, execution style, is also a possibility. However, it seems likely that in such cases the arrows would either 1) remain

with the human bodies, in which case Petrie likely would have found the projectile points, or 2) the projectile points would have been retrieved for reuse, which would have been a considerable expense of effort and time given the sheer number of individuals in the subsidiary graves and the difficulty of removing a small projectile point that is lodged into human flesh.

Other Types of Trauma

The absence of other types of trauma (e.g. thermal trauma) is not surprising. All of the evidence points to the importance of preservation of the corpse as a recognizable human body to enter into the afterlife (Assmann 2005; Dunand and Zivie-Coche 2005; Ikram 2015; Ikram and Dodson 1998). Burning of a body would have rendered it not only unrecognizable but would prohibited the person from performing service for their lord in the afterlife. There is some evidence that burning may have been used as a punishment for particularly heinous crimes later in Egyptian history, though this is difficult to prove and support given the lack of physical evidence (Willems 1990). None of the excavators of the subsidiary burials record any evidence of thermal alteration, suggesting that thermal trauma at least may be discarded both as a potential manner of death and also as a possible mortuary treatment.

Strangulation

Strangulation has also been presented as a possible manner of death for these retainers. Manual or ligature strangulation seems more likely than hanging, which does not seem to have been used in ancient Egypt. Either method could potentially leave little or no mark on the skeleton, though there are a few possible markers of strangulation from comparative forensic literature. Batrawi (1935) found evidence of strangulation, namely the remains of ropes around

the neck, in human remains from retainer sacrifices at Ballana and Qustul. In the absence of such material evidence, how might we assess the possibility of strangulation in the retainers from Abydos?

Victims of sudden, traumatic death may exhibit pink teeth; in particular, strangulation, hanging, and suffocation, as well as drowning, may cause vasodilation and hemorrhage of blood vessels into the tissue of the pulp chamber of the victim's teeth, causing the now-reddened pulp (and sometimes dentine) to make the enamel appear pink (Beeley and Harvey 1973; Kirkham et al. 1977; Sainio et al. 1990). Experimental studies have indicated that the teeth may begin to appear pink macroscopically around six days after death (Sainio et al. 1990; van Wyk 1988). While this phenomenon tends to occur in cases of traumatic death, pink teeth may also occasionally occur in victims of natural death, not only due to hemolysis but also to the burial environment and position of the body, i.e. a head-down position favoring blood accumulation in the mouth and teeth (Brøndum and Simonsen 1987; Sainio et al. 1990). Overall, two main factors seem to contribute to the appearance of pink teeth: 1) severe physical trauma, typically causing death (Beeley and Harvey 1973; Dye, Lucy, and Pollard 1995; Kirkham et al. 1977; Van Wyk 1987), and 2) a moist environment, sometimes considered the most important factor (Beeley and Harvey 1973; Brøndum and Simonsen 1987; Campobasso et al. 2006; Kirkham et al. 1977). Dye and colleagues (1995) examined archaeological material which suggested that in some cases, fungi in dentine may also produce a slightly pinkish hue.

Nancy Lovell, who assessed the human remains from the subsidiary burials of Aha, suggested that the stains evident on the victim's teeth may indicate that these people died by strangulation (as cited by Bard 2004 and Galvin 2005). She is likely referring here to the so-called "pink teeth phenomenon," first described by Thomas Bell in 1829 (T. Bell 1829). In some

forensic cases where victims were murdered, the teeth of the victims demonstrated a distinct and noticeable pinkish hue, mainly visible in the enamel of the tooth crowns but sometimes in the root as well (Beeley and Harvey 1973; Clark and Law 1984; Dye, Lucy, and Pollard 1995; Kirkham et al. 1977; Miles et al. 1953; Sainio et al. 1990; Soriano et al. 2009; Van Wyk 1987; van Wyk 1988). This phenomenon is more common in younger individuals, who generally have wider and more vascularized pulp cavities, and may affect even adjacent teeth differently (Beeley and Harvey 1973; Sainio et al. 1990). In addition, teeth that are affected by caries tend to be more resistant to turning pink, likely due to insufficient blood supply to the pulp of these decayed teeth (Kirkham et al. 1977; Sainio et al. 1990). While living individuals may also have pink teeth, this phenomenon is typically due to different factors, such as infectious disease (particularly typhoid) and certain congenital conditions (Miller 1957; Sainio et al. 1990; Stones 1962).

Though the skeletal remains from Aha's subsidiary burials were not available for analysis for this dissertation, there are several problems with the interpretation that these individuals may have been strangled due to coloration of the teeth. As a respected expert in trauma analysis, it is unlikely that Lovell would be unaware of the forensic literature regarding pink teeth, and it seems likely that she was misquoted or misunderstood in Galvin's (2005) article. In almost all documented cases and all forensic literature regarding the pink teeth phenomenon, the importance of a moist or wet environment in the development of the pink color is emphasized. And while strangulation is commonly cited as a cause of pink teeth, Brøndum and Simonsen (1987, 129) stated outright that "manual strangulation, such as hanging, is not likely to promote red coloration." While blood congestion in the head (as might occur in a drowned corpse who is head-down, or in a person who is hanged) may cause red teeth, it does not in every case, and

other conditions that cause similar accumulation of blood in the head (such as acute fatal heart failure) do not tend to produce red or pink teeth (Brøndum and Simonsen 1987). Most scholars now agree that while pink teeth may be related to cause of death, they are not a secure or consistent indicator of cause of death and must thus be considered a nonspecific phenomenon (Borrman, Du Chesne, and Brinkmann 1994; Cole and Waldron 2016; Stavrianos et al. 2011). In addition, Beeley and Harvey (1973) noted that in one of the victims of the Christie murders in 1953, the pink color of the teeth faded after approximately one year of the remains being stored (subsequent to exhumation about 3 ½ years after the murder actually occurred). It seems unlikely, then, that such coloration would persist nearly 5000 years the individuals in the retainer burials of First Dynasty Egypt were laid to rest. If Dr. Lovell did indeed see pink coloration of the retainers' teeth, it seems more likely that this coloration was due to another source, such as the fungi mentioned by Dye et al (1995).

Another possible indicator of strangulation is fracture of the hyoid (Aldhouse Green 1973; Guernsey 1954; Luke 1967; Gonzales 1933; Hänsch 1977; Härm and Rajs 1981; Olmstead 1949; Szeremeta and Morovati 1991; Ubelaker 1992). Fracture of the hyoid occurs most frequently as a result of manual strangulation (i.e. rather than hanging or ligature strangulation), but reported frequencies for this type of fracture vary widely in the forensic literature, ranging from as low as 17% of cases to as high as 71% (Aldhouse Green 1973; Ubelaker 1992). In general, these fractures are more common in older individuals than younger adults or adolescents, but factors such as the height and weight of the strangler and the strangled also affect not only how the hyoid might fracture, but if it fractures at all (Härm and Rajs 1981; Lebreton-Chakour et al. 2013). Given the difficulty of observing hyoid fracture even during autopsy, as well as the added complication of late or non-union of the greater horns in many

individuals even in their third decade of life or beyond, it would be difficult to find such evidence in the archaeological record, and it is clear that hyoid fractures do not occur in every case of strangulation, manual or otherwise (Ubelaker 1992). Ubelaker (1992) estimated that hyoid fracture may only occur in about 34% of all manual strangulations, suggesting that while fracture of the hyoid may indicate death by strangulation, it may also be due to some other cause (see Ozturk et al. 2018 and Szeremeta and Morovati 1991 for discussion of hyoid fractures due to strong force to the neck area, in these cases due to vehicular accidents rather than strangulation)), and the absence of hyoid fracture cannot reliably be used as an indicator of death by strangulation. Because Petrie did not retain any hyoids (or any postcranial remains at all), it was not possible to assess hyoid fracture in this study. It bears mention here, however, as a method of killing that could easily leave little or no mark on the skeleton, and thus go undetected even by a careful archaeologist such as Petrie, who might be unaware of the variable evidence for strangulation in the human skeleton

In practical terms, it would have been a monumental endeavor to manually strangle, via ligature or otherwise, the hundreds of individuals in some of these subsidiary cemeteries (particularly those of Djer and Djet), one that would likely have taken many hours, if not days. Of course, for an eternity of serving the king, a few hours or days would be of little consequence to those orchestrating the royal funeral (the participants, however, may have felt differently). In some ways, strangulation provided an ideal way to dispatch the victims with minimal bloodshed and damage to the body.

Poison

Several scholars (e.g. Matthew Adams as cited by Galvin 2005) have suggested that those interred in the subsidiary graves may have been drugged, either as a way to make them compliant as they were placed into the tomb still alive, or as a method of quickly and efficiently killing a large number of people. This suggestion primarily stems from two sources: Petrie's statement that some of the bodies appear to have moved after burial, suggesting that they were still conscious when the graves were closed (an interpretation that is addressed in the next section of this chapter), and Woolley's initial interpretation of the Ur retainers as having died after peacefully drinking poison (Woolley and Burrows 1934).

Poison would arguably have been the most efficient method of dispatching hundreds of individuals, since theoretically each retainer would have been the instrument of his or her own demise. In practical terms, this means that each individual would either have to be willing, or coerced, into ending their own life, which merits some discussion. Though we have little to no evidence for the use of poison in ancient Egypt, this does not meant that poison was unknown, or was not used; poisons were certainly known in the ancient world, particularly those that naturally occurred in plants or animals, such as venomous snakes (Mayor 2003). In the second century BCE, a priest of Apollo in Asia Minor named Nicander compiled a list of twenty known poisonous snakes, with descriptions of corresponding snake bites and recommended treatments, though many victims did not recover (Mayor 2003). Various poisonous plants were described with such accuracy by authors such as Hippocrates that modern scholars are able to identify the species of these toxic plants (Mayor 2003). Hellebore, described by Pliny the Elder, comes in two varieties that in high doses could cause asphyxia and heart failure (Mayor 2003). Such toxins were described by many authors in the Greek and Roman world as an effective addition to arrowheads, to maximize the damage inflicted on enemy forces during conflict, and Pliny

describes a nomadic North African tribe that extracted toxin from poisonous frogs and toads (Mayor 2003). Snake venom was particularly feared in the ancient Mediterranean, and Strabo records an Ethiopian tribe that hunted elephants by using arrows dipped in serpent venom (Mayor 2003).

While it seems likely that the ancient Egyptians were very aware of poisonous plants and creatures in their midst, it would require also the resources to make an enormous quantity in order to dispatch hundreds of individuals at once. Poison cannot be definitively dismissed as a method of dispatching the retainers who show no perimortem, lethal trauma, but neither is it a particularly convincing explanation. The relatively high rates or perimortem trauma even in this small sample of retainer burials suggests that there was not a strong aversion to violence in many, if not all, cases. Alternatively, poison could have been used for specific individuals, perhaps differentiated by status or some other distinction that has been lost in the archaeological record.

Live Burial

Petrie's (1925) original theory was that at least some of the retainers had been buried alive, albeit not necessarily conscious. This theory has been frequently repeated, likely due at least in part to the deep-seated fear shared by many individuals of being buried alive, a fear that was particularly widespread in the late 19th and early 20th century (Bondeson 2002). While it is true that the body positions of the retainers are in many cases highly unusual, a careful assessment of the remains and an understanding of forensic taphonomy is vital in determining whether these individuals may have been buried alive. It is not uncommon for archaeologists or researchers unfamiliar with the details of decomposition to interpret so-called life-like positions

of a corpse as evidence of live burial. This is particular true when the corpse appears to be grasping an object or in a posture that appears fearful or defensive. As Knüsel and colleagues (1996, 126) noted, "Because these positions are similar to those assumed in life, researchers have often interpreted them as having been buried when conscious (e.g. 'buried alive')."

A phenomenon known as cadaveric spasm does sometimes occur in victims of sudden, traumatic death. Unlike rigor mortis, which does not set in for some hours after death, cadaveric spasm is believed to be an instantaneous rigor of certain muscle groups (rather than the entire body, as in rigor mortis), and typically manifests as the victim still clutching an object in their hand, particularly in cases of self-inflicted suicide (e.g. the victim may still be grasping the gun or knife) and drowning (Bedford and Tsokos 2013; Chauhan et al. 2017; C. J. Knüsel, Janaway, and King 1996; Sangvichien and Subhavan 2017). This phenomenon is not completely understood, and in fact some scholars have suggested that rather than a type of instantaneous rigor, the occurrence of supposed cadaveric spasm is in fact due to other factors, e.g. in the case of suicide by gunshot, the victims may still be grasping the weapon due to massive brain damage that prohibits the hand muscles from relaxing their grip immediately after death (Bedford and Tsokos 2013).

In at least some of the cases that were interpreted by Petrie as possible live burial, careful analysis and an understanding of skeletal biology and forensic taphonomy may provide another explanation. For example, Petrie (1925, 8) noted that in Grave 541, "the upper elbow pushed up high, and the hand spread out on the ground, as if raising the arm, looks like a conscious action." However, close examination of the published photograph (Petrie 1925, plate XIV) of this grave indicates that the hand in question (the right hand) is in supination (i.e. palm upwards), which is not a position one would expect if this individual had been attempting to push themselves

upward (in which case the palm would almost certainly be down to gain greater leverage and not strain the wrist join). The individual in Grave 533, according to Petrie (1925, 8), was in an usual position with "the knee being raised up; the femur we here propped up by bricks to keep it in position as found." Though Petrie does not mention a coffin for this burial, close examination of the published photo suggests that the remains of a coffin may have been present; the remains of vertical boards appear to be present all along the spine of this individual, and possibly near this individual's feet as well. If the coffin was too short and narrow for this individual, as seems to be the case in other burials (see the discussion above about Body Position), the legs of the individual in Grave 533 may have been propped up against the side of the coffin in order to make the body fit. It should also be pointed out here that the end of the coffin, if there was a coffin present, was within a few inches of the end of the grave (see Plate XIV of Petrie 1925); even if there was not a coffin present, the legs of this individual could not have been outstretched, as the grave was too small for the outstretched body to fit. Flexed burial was still the preferred body position for burials of the First Dynasty, so small coffins for flexed bodies are not particularly out of the ordinary (Petrie 1900, 1901). What is unusual is how poorly the bodies seem to fit in the coffins, if the assumption was always that a coffin would be designed for a flexed body. To my mind, the two most likely explanations for the discordance between coffin and body are as follows: 1) The coffins could have been made rapidly and/or in large batches rather than for specific occupants, such that taller individuals were then forced into smaller coffins or the coffins themselves were simply not an appropriate size for a burial, or 2) Perhaps the bodies were not immediately placed into the coffins, such that rigor mortis had begun to stiffen the limbs and make the bodies less malleable. In the latter scenario (which is admittedly conjecture and likely unprovable), perhaps the sheer number of bodies, or the continuation of

other funerary activities and rituals, meant that the bodies were not placed immediately into the coffins, but were allowed to sit for up to a few hours, by which time rigor mortis had begun to stiffen the limbs and make manipulation of the bodies more difficult. If the bodies were all placed in their coffins immediately, the effects of rigor mortis would likely be invisible.

In cases where a coffin was not present (or at least not recorded by Petrie), the bodies may have been thrown into the graves, as suggested by the sprawled arms of the individual in Grave 544 (Figure 81). Arguing against this are the flexed legs, which would have been expected to also sprawl if the whole body was unbound and tossed unfettered into the grave. This position, with the legs flexed but the arms spread out, has several possible explanations. The bodies may not have been thrown into the grave per se, but rather tossed, perhaps by two individuals holding the arms and legs. In at least one case (the individual from grave 537, see below for further discussion), Petrie (1925) notes that the legs were bound, so it is also possible that other individuals also had their legs bound and the bondage material decayed or went unnoticed by Petrie and his team.

Figure 81: The individual in grave 544, in a semi-flexed position with arms flexed. From Petrie 1925, Plate XIV.

In many cases, the "life-like" position of the body was due not to live burial, but to an attempt to fit a body into a coffin or grave that was not designed to hold a fully extended human body. I would suggest that instead of live burial, what we have here is a case of prioritization of speed and efficiency of burial. If the graves were constructed quickly ahead of time, and perhaps the coffins as well, the process of depositing the bodies within the graves could have been streamlined: kill the retainer, force their body to fit into the nearest available coffin, deposit the coffin into the designated grave, and cover the tomb(s).

The possibility that the victims were semi-conscious cannot be ruled out entirely, however (Figure 82). Grave 537 is perhaps the most troubling in this regard.

Figure 82: Two views of the Individual in grave 537. Petrie 1925, Plate XIV.

Petrie's (1925) description of the feet being tied to the thighs to prevent movement may or may not have any bearing on live burial; after all, the victim could have been bound before death, killed, and then simply not untied before deposition. It is unclear how and why the head is raised, as Petrie does not mention any coffin (nor is one visible in the published photos), and

from both the photographs and Petrie's description it seems that the body is lying directly on top of a large stone within the grave (Petrie 1925). While it is difficult to determine from a low-resolution, black-and-white photograph, the fractures in the ribs just above the point of contact between the thorax and the large stone could be related to the impact of the body hitting the stone (regardless of whether the fractures were sustained at the time of death or are taphonomic fractures due to pressure over time, perhaps acting on hairline fractures incurred perimortem).

The position of the hands near or perhaps covering the face has a parallel in the retainer burials at Kerma, excavated by Reisner around the same time as Petrie's excavations at Abydos. Reisner (1923, 66) suggested that the retainers at Kerma had been buried alive, due in large part to their body positions, noting specifically that "The hands were usually over the face or at the throat, sometimes twisted together, sometimes clutching the hair." Had the retainers already been deceased when their bodies entered the tomb, Reisner argued, their bodies would have been "neatly arranged" in the favored position, as demonstrated by the primary deceased: "right side, head east, with the right hand under the cheek and the left hand on or near the elbow" (1923, 70). He further elaborates:

> The only possible conclusion is that these persons died in the grave…many of these bodies are in attitudes which could only be the result of fear, resolution under pain or its anticipation, or of other movements which would naturally arise under pain or its anticipation, or of other movements which would naturally arise in the body of perfectly well persons suffering a conscious death by suffocation. It must be remembered that in those cases where the body was covered directly, the close pressure of the earth would have prevented all but the smallest movements, even those produced by convulsion, and death, or at any rate unconsciousness, would have been a matter of a few minutes…The convulsive movements which take place in a body dying of suffocation will only have been possible in a few cases by accidents of position and chance inequalities in the process of filling the grave." (Reisner 1923a, 70)

In other cases, Reisner noted that the body had almost certainly moved after deposition, as in the case of a woman in tomb K1000A who "is shown by the position of her legs to have been originally on her right side, head east, [but] has turned her body over on the stomach with the head twisted around to lie on its left cheek, facing south instead of north; the arms are stretched down with the left hand on the buttocks and the right apparently grasping the left foot" (Reisner 1923a, 71).

This rather chilling description by Reisner brings up another important point: we do not, in fact, know exactly how the subsidiary burials at Abydos were covered, i.e. were they roofed, such that soil and sand crept in naturally over the millennia, or were they filled with sand or soil before being roofed. In the former scenario, live burial at Abydos seems less likely, as the roofs of the subsidiary tombs (likely being constructed of timber and perhaps plant mats; see Chapter 4) would hardly have been airtight. In the cases of cranial trauma, Petrie's (1925) suggestion that the retainers were stunned and then buried before they had expired could be plausible, as the retainers likely would have lost consciously quickly, if not immediately, due to brain damage and/or hemorrhage. If the graves were filled before they were roofed, live burial and subsequent suffocation would certainly be possible, and perhaps this is why several individuals have their hands near or covering their faces or their heads turned down (see Chapter 6). Unfortunately, we cannot satisfy our curiosity in this regard, as the graves were so ancient and so damaged by the time they were recorded that we do not know for certain how they were covered or filled. Given the observation that most Egyptian tombs proper are not filled but closed, while shallow graves (i.e. without architectural structures) tend to be filled, it seems plausible that these graves were not filled but simply roofed (Dodson and Ikram 2008; Grajetzki 2003). Even if the individuals

were buried while still alive, albeit probably unconscious, death would have likely occurred due to trauma or some other cause rather than suffocation.

With an understanding of the possible methods for dispatching the retainers, we next turn our attention to human sacrifice as a ritual practice in Early Dynastic Egypt. Why did this practice begin, only to be abandoned a few generations later?

Development and Decline of Human Sacrifice in Egyptian History

Retainer sacrifice, at least in the form observed in the First Dynasty royal tombs and funerary enclosures at Abydos, seems to have been restricted solely to the First Dynasty. Though some scholar suggested that the practice may have continued into the Second Dynasty, the evidence for this consists mainly of apparently "extra" human bones in some of the royal tombs (particularly that of Peribsen, the first king of the Second Dynasty to build his tomb at Abydos), and given the disturbance of these tombs as well as the lack of analysis by a qualified physical anthropologists, this argument seems tenuous at best (Reisner 1936; van Dijk 2007). Reisner (1936) also suggested that Khasekhemwy may have included subsidiary burials in his tomb at Abydos, but again the disturbance of the tomb makes this hypothesis unsupportable with the evidence currently available. In theory, it is certainly possible that these kings included a few subsidiary burials and/or practiced retainer sacrifice, particularly Khasekhemwy. Generally credited with the final unification (or perhaps reunification) of Egypt, Khasekhemwy could have returned to the practices of his forebears as he returned to their burial patterns, building both a tomb and an enclosure at Abydos, as a way of establishing his royal and divine lineage.

With the rise of the Old Kingdom, courtiers began building their own, individual tombs, contracting the construction and decoration while they were still alive, rather than being interred

en masse at the death of their king (Dodson and Ikram 2008; Grajetzki 2003; Reisner 1936). The practice of retainer sacrifice, as such, never appears again in pharaonic Egypt, at least not in any form that we recognize. During the Middle Kingdom, or perhaps even earlier, small anthropoid figurines called "shabtis" or "ushabtis" began to be included in tombs of royalty (and sometimes high elites); these shabtis were intended to accompany the deceased into the afterlife and perform manual labor or service in the afterlife on behalf of the deceased (Stewart 2008). The use of these figurines continued well into the Late Period, with numbers sometimes in the hundreds in a single tomb (Cole, Barr, and Campbell 2018; Stewart 2008). This is clearly not a perfect parallel, though functionally the shabtis fulfill a similar purpose to the retainers, i.e. the performance of labor or services for the primary deceased in the afterlife. Ideologically shabtis are distinct from retainers in a very important way: while retainers seem to have been expected to retain some level of individuality, at least regarding their skills and/or professions, shabtis were crafted with the (highly idealized and formulaic) likeness of the deceased, and were intended to actually stand in for the deceased in the afterlife when any type of labor was required (Cole, Barr, and Campbell 2018; Stewart 2008).

Here we should consider an aspect of First Dynasty retainer burial that is never really addressed. While much attention is given to the introduction and abandonment of the practice of human sacrifice, the duration of the practice is often minimized. We must remember that this practice continued for over a century, long past the life time of any one person at that time. This suggests that the practice not only became somewhat entrenched, but also created a cultural memory of correct practice. As Berggren (2017) notes, "Incorporated social practice may be implicit…and thus remain unquestioned. There is a certain inertia built into bodily practices that may explain how a practice may stay unchanged for long periods of time."

Given the obvious trend for subsidiary burials to rise sharply and then decline towards the end of the First Dynasty, the tendency has been to assume that power and access to resources declined towards the end of the dynasty. This explanation, while it may not be entirely off the mark, is also very simplistic. As Reisner (1936) notes, both Semerkhet and Qa'a have fewer subsidiary graves than their predecessors, but these later kings also have much larger tombs than Djet (and almost as large as Djer's). It is clear, then, that simply attributing the decreasing numbers of subsidiary burials to a corresponding decrease in royal power or importance is simplistic at best, and likely is downright incorrect. Instead, let us shift our focus to understanding how human sacrifice may have been used to manufacture power in ancient Egypt, and why the practice was eventually no longer necessary.

The Manufacture of Power and Status in Egyptian Society

How did human sacrifice function as a ritual in ancient Egyptian society? Certainly displays of wealth and social status in funerary preparations were an integral part of Egyptian mortuary beliefs, and just as funerary art and objects could provide guidance, protection, or assistance in the afterlife, so the sacrifice of human lives (much more valuable from an economic standpoint than any object) would have been a staggering display of social power and prestige (Cooney 2007). As Cooney (2007, 281) points out in relation to elites, though such mechanisms were also applicable for royalty, "Funerary display was one of the chief ways for elite individuals and families to separate themselves from the rest of society, as well as a method of moving status from this world and the next." This prestige, of course, also enhanced the reputation of the successor, since it was almost certainly the subsequent king and perhaps remaining court officials who were responsible for carrying out the mass sacrifices

accompanying the demise of the previous ruler. Kemp (2005, 107) points out that the elaborate tomb complexes of the early Egyptian kings created "an arena for the eternal pageantry of kingship as it was experienced on earth."

If funerary display was the only motivation for human sacrifice, however, the practice would be expected to persist, at least on some level, through the rest of pharaonic history. Not only is this not the case, but human sacrifice (at least in the form of retainer sacrifice) did not even persist into the Second Dynasty. As discussed in Chapter 2, human sacrifice frequently occurs with the birth of a state, as disparate groups are unified (in theory if not in reality) under one government. Such a situation, particularly in concert with the death of a ruler, could easily account for the occurrence of human sacrifice at the beginning of Egyptian state history and abandonment of the practice later. The subsidiary burials at Abydos and Saqqara were created at the very genesis of the Egyptian state, and certainly this new governmental system was a dramatic change from the relatively independent polities that had previously existed throughout Egypt. Perhaps, with the death of the previous king, the new king felt the need to assert his power to prevent disintegration of the relatively new Egyptian political system.

Sacrificing numerous human lives served as a form of conspicuous consumption, a way to demonstrate the king's command of resources and his ability to waste (in terms of the earthly economy, at least) dozens or hundreds of human lives. The inclusion of grave goods and stelae in some of the subsidiary indicate that many of those in the subsidiary tomb were elite craftsmen and officials, members of the royal court (Morris 2007; Petrie 1925).

In addition to the lives lost in such a ritual, the experience must have been a powerful one for the observers, as hundreds of individuals, some young and relatively healthy, were laid to rest. At least some individuals seem to have perished of blows to the head, and some were not

only bludgeoned but stabbed with a bladed weapon. Were these moments shielded from the audience, or were they on full view, a chilling reminder of the cost of an eternity with the king?

Such an impressive display of royal power would have created a lasting cultural memory, and reinforced upon the members of this newly united (more or less) kingdom the position of their divine ruler. Regardless of whether the king's divinity was fully established or accepted at this point, his power to control life and death was certainly apparent. As Wilkinson (2016, 544) points out, "The mechanisms by which Egypt's early monarchs translated their theoretical power into practical authority were surely a great deal more pertinent to their subjects than abstruse notions of theology."

Here we must exercise caution, however. As Roderick Campbell (2012) points out, insisting on human sacrifice as a direct product of early states is not only not useful, but is detrimental to a true understanding of the cultural and social context of such practices. Certainly human sacrifice often occurs in early states, but this is by no means the only context in which this practice appears. Human sacrifice is, however, an effective tool of power for a ruler looking to expand and demonstrate his control over potentially reluctant or unwilling citizens. In times of crisis, public sacrifices can also serve as a tool to maintain and reaffirm community identity and social boundaries (Ying 2009).

Another aspect to consider is the effect of human sacrifice *before* it happened: given that several generations of Egyptian kings appear to have conducted human sacrifice, we can be virtually certain that at least some individuals knew this ritual would be conducted at the king's death. The evidence for individual names at many of the tombs and the apparent absence of unused tombs suggests that the number of retainers was known in advance, a pattern that is also reflected in the retainer burials at Kerma (W. M. F. Petrie 1900, 1925; Reisner 1923a). How

might this knowledge have affected those in the royal court, particularly those officials who may have known that they were likely or certain to be sacrificed when their king died? Did the intended victims know that they were destined to die? If so, how might this level of anxiety been purposely (or accidentally, though this seems less likely) cultivated by the kings to increase their own power? Robin Law notes that the sacrifice of attendants in some West African cultures served not only as a form of conspicuous royal consumption, but also to create "an air of fear around the royal office" (1985, 74).

Selection for Eternal Service

It has generally been assumed that the king, while living, selected those of his court who would follow him into death, or alternatively that upon a king's death, his entire court and harem, with no other selection criteria, were sent to the grave with him. Reisner (1936, 110) noted that even the grouping of the burials themselves were likely decided by the king along with "his favourite [sic] associates male and female" to reflect subdivisions within the court structure. While this is certainly a reasonable assumption, let us consider another aspect of this selection process. Even a cursory look at the literature of funerary archaeology reminds us that it is the living, not the dead, who ultimately create a burial, imparting their own views, opinions, and biases (Binford 1971; Brown 1995; Chapman, Kinnes, and Randsborg 1981; Pearson 2000).

The practical aspects of such mass sacrifice at the death of one ruler and the accession of another should not escape our notice. While the mass sacrifice of so many individuals with the death of each king would have undoubtedly made a powerful show of kingly control and power, the potentially negative aspects of such sacrifice should not be overlooked. Most of the individuals in the supposedly sacrificial tombs are young or middle-aged adults, and in relatively

good health. The culling of these individuals would have had a massive economic impact on the fledgling Egyptian state, as scores of those responsible for working the fields, fighting battles, and increasing the Egyptian population were slain almost every generation to accompany the newly deceased king. As van Dijk (2007, 153) notes, "the sacrifice of a servant does not only despatch [sic] an easily replaceable human body to the other world but also deprives the surviving community of his professional skills and experience." Perhaps once royal authority had been emphasized with hundreds of human sacrifices, the Egyptian kings felt secure in abandoning this economically expensive, and perhaps socially divisive, custom. Or perhaps, as Matthew Adams has suggested, the elite rebelled, objecting to such a degree that the king acquiesced (Galvin 2005).

It is worth considering where these individuals may have come from, and how their origins (social, geographical, or cultural) may have impacted the process of selecting individuals to accompany the deceased king into the afterlife. Metric analyses of Egyptian human remains from a variety of time periods indicate a range of variation along the Nile Valley, reflecting the greater influence of southern populations from what is now Sudan in the south and from the populations of the Levant in the north (Angel 1972; Gardiner 1966; Giuffrida-Ruggeri 1915, 1916; Keita 1990; Strouhal 1971; Stoessiger 1927; Thomson 1905; Thomson and Randall-MacIver 1905). Early scholars tended to treat remains that show clear sub-Saharan characteristics as foreigners, and thus excluded them from studies of Egyptian remains (Collett 1933; Morant 1928). Morant (1925) assessed Egyptian crania from various time periods throughout Egypt and determined that there were distinct Upper and Lower Egyptian types (which he called "races") based on cranial morphology. While Morant's conclusions may not have been based on sound theory (he was working during the heyday of phrenology and similar

pursuits), there are clear morphological and metric differences within the Egyptian population from an early period, though the variation tends to take the form of a cline rather than discrete groups.

More recently scholars have moved away from the problematic studies of supposed races and focused more on the movement and interaction of people as a range of variation (Keita 1990; 1992). In particular, the idea that an outside "Dynastic Race" came to the Nile Valley from elsewhere to found the pharaonic civilization has been rightly abandoned as a relic of the more racist elements of early anthropology and Egyptology (Keita 1992; Petrie 1917, 1925, 1937). Modern research has instead focused on assessing movement of people into, out of, and within the Nile Valley. The consensus has been that both morphologically and metrically, northern Egyptian populations are more closely related to populations of the Levant and greater Middle East, while southern Egyptian populations tend to be more closely related to the populations of what is now Sudan (Keita 1990; 1992). It is important to note, however, that features which may be interpreted as Near Eastern (such as narrow faces and noses), do not always indicate migration or population movement, but may simply reflect variation within the indigenous population (Keita 1992).

It has already been noted that while the retainers from Abydos show a close affinity to southern Egyptian and African populations, they also have characteristics of northern Egyptian populations. Both Petrie (1939) and Gardiner (1966) suggested that political marriages between the north and south may have strengthened support for the early kings of a newly unified First Dynasty Egypt. Keita (1992, 252) notes that "it is probably not possible to view the Abydos royal tomb sample as representative of the general southern Upper Egyptian population of the time," but nor do they seem to be definitively northern Egyptians, as Morant (1925) believed.

It is also possible that the retainers came from somewhere besides Abydos. All the individuals need not have had the same geographic origin; (Keita and Boyce 2006) noted significant differences in overall health between the individuals buried around the funerary enclosures and those around the royal tombs, suggestive of diverse backgrounds, and resource access, in these individuals' childhood and adolescence.

While definitive data on the origins of these individuals must wait for isotopic analysis, it is clear that there is considerable variation within the groups of retainers regarding status and, potentially, origin. It is important to also consider the identification of these individuals as Egyptians overall; while it seems most likely that they did all at least live in what is now Egypt, we cannot be certain that the retainers considered themselves to be Egyptian, at least in the sense of people who lived in the same cultural entity or polity. It seems more likely, at this early stage of Egyptian history, that individuals from Abydos considered those from the Delta to be even more "foreign" than the Nubians, who differed culturally but had interacted with southern Egyptian populations for centuries by the onset of the First Dynasty. The retainers may have come from various regions throughout the Nile Valley, and entered the king's service willingly or otherwise.

While such a theory must remain in the domain of conjecture at present, it does have interesting implications for the concepts of depersonalization, discussed in Chapter 3. If the retainers were viewed as outsiders by those conducting or viewing the sacrifice, it likely would have made the mass killings easier to accept for those participating in or viewing the killings. While we do not know who was doing the actual killing of the retainers, it seems most likely that other officials, or perhaps security personnel of some kind, were responsible for the killings. In many cultures, including Iron Age western Europe, priests or professional religious officials

were involved with, and probably responsible for, sacrificial killing (Aldhouse Green 2001). There are no records of executioners as a professional group in ancient Egypt, and indeed it seems that death sentences were handed out in relatively rare circumstances (J. Tyldesley 2000). If the retainers being sacrificed were outsiders, either unknown or somehow perceived as foreign to those responsible for actually committing the killing, it is likely that less persuasion would have been required than if the officials were locals, or from the same community as their killers.

Presumably the act of sacrifice was ultimately credited to the king, just as the high priest in every Egyptian temple was symbolically enacting the king in his royal role of high priest. In the context of temple offerings, sacrifice in general was a way for the king to reify and reaffirm "his position within the social order" (Wegner 2017, 88). Images of the king giving offerings to deities "legitimated his political authority and social preeminence" (Wegner 2017, 90). Even if the king himself was credited with killing the retainers of the previous king, however, it seems unlikely that he would have personally executed every single retainer.

Coercion or Compliance?

Leaving aside the impossibility of an answer for archaeological context, the question of whether victims of sanctioned violence were willing or reluctant deserves mention here. In some cultures it was a great honor for families to provide a sacrificial victim. There is evidence that Mayan sacrificial victims, for instance, were treated with great honor and, at least based on the available evidence, do not appear to have struggled or resisted death (Geller 2011). In some West African cultures, wives and attendants fought for the honor of committing voluntary suicide to join the deceased in death (Dapper 1668; Law 1985). Regardless of their actual feelings, Davies (1988, 17) notes that in many cases, victims probably had to at least *seem* willing, pointing out

that “The gods would have been outraged if men chosen for their service had to be dragged kicking and screaming up the side of a pyramid or led to the altar fighting every inch of the way.” While this statement may be a bit too broad to apply to all cases, the willingness of the victim as it relates to the method of sacrifice or sacrificial burial and the appearance of these rituals in the archaeological record is worth considering.

As we have no records of human sacrifice in ancient Egypt, we can only speculate about the willingness of the victims and their families. Perhaps the families of victims were awarded honor or some measure of social status or economic rewards. Perhaps the rewards for voluntary sacrifice were simply spiritual, i.e. the chance to enter the afterlife with the king rather than have a lower-class afterlife or none at all (we do not fully understand the religious beliefs regarding the afterlife of lower-class individuals at this time) (Teeter 2011b). It could be that the variation in methods used to kill the retainers are in fact due to their relative compliance or non-compliance. In any case, the relative compliance or resistance of the victim would likely be difficult, if not impossible, to discern in the archaeological record. As Law (1985) notes, even if a victim was reluctant, the weight of social expectations and public disapproval for failing to fulfill those expectations could have outweighed personal misgivings, a problem that was likely exacerbated in situations were victims were required to volunteer as victims based on their social position or political role.

I would argue that in the case of retainer sacrifice in ancient Egypt, the quiescence of the victim had little or no impact on how the remains were processed, because the *process* of the violence was more important that the individual actors. In ancient Egypt (as in other ancient cultures), the act of sanctioned violence was part of an established system, with physical and spiritual obligations that needed to be fulfilled. The willingness of the victim, then, was

irrelevant, because the process of violence (be it sacrifice, execution, or some other form of violence) needed to be completed. The processing of the body before and after death was part of the ritual, and had to be carried out for the requisite obligations to be fulfilled. Porter (2013, 197) has noted that, at least in the case of human sacrifices at Ur in Mesopotamia, the sacrifice itself was "subordinate to the need to make the tableau." In the American Southwest, excavations at a site dating to the Pueblo I Period (approximately 710-825 A.D.) revealed that execution victims were first tortured by severe blows to the feet and ankles, effectively hobbling the victim (Osterholtz 2012). This was likely a performative act designed to highlight and increase the helplessness of the victim and the power of the aggressor or aggressive party (Osterholtz 2012).

Human Sacrifice as Risk Aversion

The death of a ruler, particularly a king who was supposed to be at least semi-divine, would obviously be a time of ideological and political crisis. As (Morris 2007, 15) notes, "the paradox of the mortality of the body natural and the immortality of the body politic must be faced, reconciled, and triumphed over if order is to return to society." Ideologically, the king was supposed to be immortal, and a weakening, aging, and final dead king was fundamentally opposed to the idea of a divine being. The Egyptians constructed the concept of the divine ka, which persisted in the office of kingship from one earthly office-holder to the next, to deal with the obvious fragility and mortality of the king's earthly body (Bell 1985; Winnerman 2018). Politically, the death of the king could also cause confusion and chaos. In later time periods, the hereditary nature of kingship was such that we have little evidence for serious competition for the throne (the assassination of Ramses III by members of his harem and possibly their sons is an obvious exception to this, though other, less clear examples also exist); while such competition

almost certainly took place, it seems to have come to very little in terms of actual transfers of power, at least as far as we can see. In the First Dynasty, however, the transition of power may or may not have been as smooth. Certainly the office of kingship already seems to have been hereditary, even at this early stage, and it is quite possible that this was a holdover from hereditary leadership in Predynastic cultures (Beatrix Midant-Reynes 2000; Wilkinson 2016). Yet massive changes had been implemented by this new leadership system; settlement patterns were changed, burial patterns and cemeteries were modified or replaced, new social hierarchies began to be implemented (Morris 2007)

As Morris (2007, 15) point out, however, "If the death of a king invites anarchy, the king's funeral and his successor's coronation are designed specifically to restore order and, moreover, to promote this order, publicly, as crucial to the population as a whole." The task of the new king was to not only maintain order and quell any ambitious competitor, but to continue imposing the new system of rule on a far-flung and diverse population. The stakes were perhaps higher than at any other point in Egyptian history, and thus, as Morris (2007, 16) points out, "one can hardly imagine an ideological performance that would have been more carefully scripted or more highly charged than a royal funeral in First Dynasty Egypt."

Ultimately, it was the new king, or at least the new person or people (we cannot rule out the possibility of puppet kings or at least powerful officials behind the throne) in power, who controlled who was sacrificed and who was not. After all, it is highly unlikely that the retainers were slain and buried *before* the death of their ruler. Certainly the deceased king likely made his wishes known during life, but whether they were followed or not is, at present, unknowable. It is not too far-fetched to wonder if the incoming ruler chose his own siblings and the officials of his predecessors (and thus possible competitors for the throne) as sacrificial victims in a bid to

solidify his power. Retainer sacrifice thus served multiple purposes: providing attendants for the deceased king in the afterlife, ridding the new king of potential competitors or those who might scheme against him, and impressing upon the population at large the necessity of submitting to this new god king.

Perhaps the Egyptian kings of the First Dynasty were not as powerful as they would have us believe. Certainly they were able to sacrifice hundreds of individuals to accompany them into the afterlife, but this practice was not only-short lived but not consistent, the numbers of attendants dwindling rapidly as the dynasty came to a close. Could this practice have been the mechanism of its own demise? While it is pure speculation at present, could it be that the First Dynasty kings became increasingly unable to command their courts to die? If so, and if the elites became emboldened to resist this practice, perhaps this contributed to the struggles of Khasekhemwy, who seems to have struggled to maintain a unified Egypt, and perhaps even to have engaged in battles for that purpose. Perhaps the elites finally resisted human sacrifice so forcefully that the practice was abandoned in the Second Dynasty as a way for the king to retain power but also compromise and retain the services and loyalty of his elites.

The alternative, of course, is that the kings did not lose power at all, but simply chose to discontinue the practice of human sacrifice. This also makes a certain amount of sense, as the loss of hundreds or even dozens of experienced court officials who were sent to the afterlife could have hampered the functioning of the new royal court. Presumably new specialists, in all of the crafts and administrative skills attributed to the sacrificed retainers, would have to be located, possibly trained, and integrated into the new royal court, probably every generation or even more frequently. It is likely no coincidence that figurines of servants begin to be included after retainer sacrifice ceases, though not immediately (S. E. Cole, Barr, and Campbell 2018).

If the sacrificial victims were kinsmen of the deceased king, and thus potential competitors for the throne, it would behoove the new king to sacrifice any possible threats as quickly and effectively as possible. As Wilkinson points out (2016, 547-548):

> "While the king's male relatives may have had a vested interest in maintaining the royal family's grip on power, they also had the most to gain from a change at the top and the best opportunities for effecting such a change. Nobody else, save the king's closest relatives, would have had both the motive and the means to depose a monarch…Kings must have instinctively realized that their nearest relatives posed the greatest threat, and for much of pharaonic history, senior male members of the royal family were deliberately excluded from the inner sanctum for that very reason. The meagre evidence from the Early Dynastic Period does not point conclusively one way or the other, but to have restricted the highest offices of state to royal kinsmen would have been to fly in the face of common sense and bitter experience."

We must then ask why this practice ceased; perhaps the establishment of hereditary kingship became more explicitly defined and/or more restricted, limiting the competition for the throne. Certainly this competition always existed, however, even after the institution of divine kingship had existed for thousands of years, as the assassination of Ramses III indicates (Hawass et al. 2012). Perhaps the kings of the Second Dynasty simply found a way to redirect the efforts of their competitors into other channels of administration or competition.

It is noteworthy that one of the only statistically significant correlations found in the skeletal analysis of Djer, Djet, and Merneith's retainers is that of sex distribution, where Merneith is clearly the outlier. Despite the small sample size (which is corrected through the Fischer's Exact Test), the results found in this study are consistent with a model of Merneith having more women around her enclosure, and Djer and Djet having more men. Why this might have been the case is open to discussion. Perhaps the rulers did choose their sacrificial victims before death, and their wishes were followed; if such was the case, perhaps Merneith had more female attendants, or selected more women as a way of limiting the pool of potential mothers of

kings who might usurp her or her son's power. Alternatively, the same argument might apply to her son Den, who presumably oversaw the sacrificial rituals at Merneith's death. Perhaps so many women were sacrificed as a way to avoid potential new competitors for the thrones, i.e. sons they might bear.

Here we must once more exercise caution, however, as the presumed familial ties between the king and his counselors or inner circle is based on very little substantive evidence (Wilkinson 2016). If the royal circle contained members of the king's immediate or extended family, this relationship was certainly not unambiguously advertised on monuments or tombs that we have found; in fact it seem that in every case, care was taken to separate the king from anyone else to emphasize his unique divinity (Wilkinson 2016).

Some scholars have suggested that the king's divinity may also have led to his downfall, and to a similar fate to that of his retainers (Autuori 1996; Barta 1975). Perhaps, the theory goes, the early kings were tested in some early version of the *heb sed* festival (enacted in later periods to demonstrate the king's virility and divine right to rule), to ensure that they were physically (and divinely) fit to rule (Autuori 1996; Barta 1975). If the king failed this test somehow, he may have been put to death and replaced with a new, fitter, presumably younger king (Autuori 1996; Barta 1975). Such practices have been documented among various civilizations in Central and West Africa up until relatively recently (see Chapter 2 for further discussion of this practice) (de Heusch 1986). This theory, while interesting and certainly plausible, cannot be supported or denied on the basis of the existing evidence for ancient Egypt, since none of the bodies of the early kings have been found, and none of the extant texts make clear reference to such a practice.

Human Sacrifice as Community Building

An alternative theory to the idea that the retainers were the king's own officials and craftsmen has been proposed by van Dijk (2007). Perhaps, says van Dijk, the retainers were in fact offered up by elite families, as a way of participating in the funerary ritual, and, presumably, gaining social status and royal favor. Such contributions would have made retainer sacrifice "a collective form of sacrifice, a symbol of group unity emphasizing the social bonds of the participants, their shared belief that by sacrificing some of their servants they contributed to the king's continued existence in the hereafter and thereby to the prosperity of the state, and their loyalty to the king's successor" (van Dijk 2007, 153). How might such a system have worked? Would the lower elites offer only one or two retainers, while the higher elites offered more? What relationship might such a hypothesized system have on the fluctuating numbers of retainer burials seen in the First Dynasty tombs and enclosures?

Such a theory has intriguing implications regarding the retainers themselves; presumably, such a practice would mean that the retainers would show a diversity of backgrounds (social and perhaps geographical) that might be reflected in their relative health. Even if isotopic analyses are conducted in the future revisions of this study, as is currently the plan, this question may not be resolved, as neither diverse nor similar geographic origins of the retainers would necessarily prove or disprove this hypothesis. While we cannot disprove or prove this theory at present, I would speculate that the retainers were likely not "donated" from elite families, primarily due to the absence of any records indicating such practice. While there are also no records for human sacrifice itself, had noble families offered up their own retainers, we could reasonably expect to see some mention of the royal favor gained by this generous act. Egyptian elites were quick to mention (and sometimes describe in detail) even seemingly minor interactions with royalty, including such details as the king's permission to construct a tomb and rather mundane instance

where an individual named Rawer tripped over the king's staff at an event, causing the king to inquire after the individual's well-being, which apparently was meaningful enough to be inscribed on stone in the individual's tomb (Strudwick 2005). Since so many of the retainers had their own stelae indicating their name and sometimes title, had the noble families provided the victims I would certainly expect these stelae to contain some mention of the family's generosity and the hope that they would gain royal, possibly eternal favor for their actions.

Conclusion

Given the evidence in the preceding chapters, as well as our discussions of human sacrifice, especially retainer sacrifice, in cultures around the world, we are now able to consider human sacrifice in Egypt in the context of systems of royal power and state-sanctioned violence throughout the world. How might this broader anthropological perspective shape the way that we view Egypt going forward?

Chapter 8- Power Transfer and Royal Prerogative in Human Sacrifice

Introduction

In the preceding chapters, we have given some consideration to the evidence for human sacrifice in ancient Egypt. And while the evidence is not always conclusive, it does seem that human sacrifice is the most likely explanation for the patterns that we see in these subsidiary burials. The social, cultural, and political context of the First Dynasty fit perfectly with the model of retainer sacrifice as practiced by other cultures around the world, i.e. the establishment of a state where one did not previously exist, the state of crisis occasioned by the death of a ruler, and the absolute power of the monarch over life and death. The architecture of the Egyptian subsidiary tombs, at least in some cases, hints at the practice of many burials, perhaps hundreds, covered in a very short time. The relative haste with which many of the subsidiary graves were constructed (not only with the trench system but even in the individually constructed tombs) suggests that these tombs were not designed for individual display of status and wealth, but rather as part of a larger display of the king's power and wealth. The presence of individual names both in the tombs and on grave stelae do indicate that the individual aspects of each burial occupant, i.e. his or her name, title, and possibly occupation, were considered important enough to record and, at some level, preserve and advertise. Individual burials also suggest that the number of intended victims was planned in advance, whether their exact burial location (i.e. which small tomb or chamber) was or not.

The inclusion of sacrificial victim in a royal funeral also fits with the view of the Egyptian king as divine being, capable of controlling life and death. Incorporating the graves of officials who died naturally is still a statement of status and power (both for the king and the

officials), but being able to dictate the moment of death for the officials advertises supreme royal and divine power. Green (1975, 117) questions theories that the occupants of the subsidiary burials were incorporated as they died naturally: "If, then, the god departs to his "Other World" to carry on his natural functions as the preserver of his people, is it conceivable that his immediate domestic attendants would follow him at "their" discretion, when they succumb to natural death?" Such a situation, while not necessarily damaging to royal power, would not necessarily enhance the authority of the king either.

The demographics of the individuals interred in the subsidiary burials do not represent the typical population that one might expect in a village or town cemetery, a conclusion supported by the fact that all the occupants seem to be minimally low-level elites, with many ranking as higher elites with relatively rich burials. Some of the crania from the subsidiary tombs around the funerary enclosures show clear evidence of perimortem trauma that was almost certainly lethal in most cases. The body positions within the burials, at least in some cases, seem to suggest hasty deposition and lack of care for the body's final resting place. While we cannot prove human sacrifice, it seems that at least in some of the Egyptian cases, a careful assessment of the evidence allows us to be virtually certain that human sacrifice occurred.

The Value of Reassessing Old Data

Though many authors have considered the possibility that human sacrifice occurred in ancient Egypt, scholars have accepted the century-old conclusions of the original excavator. This is at least partly understandable: Petrie was a thorough excavator in most cases, and exemplary for his time in taking photographs and writing notes during the excavation process. It is also somewhat understandable given the state of the remains, which are sometimes fragmented,

frequently covered in wax, and certainly do not represent a significant portion of the original burial population. Yet none of these are reasons to accept without question conclusions that were formed a century ago. In our ever-changing world of technological advances, open access research, and greater access to collaborative research than ever before, there is always the possibility that old data may yield new information.

In this case, advances in methods of osteological analysis have enabled me to form new conclusions about the lives and deaths of the individuals who were buried in the First Dynasty subsidiary graves at Abydos. While broken long bones are easily detected by most excavators, fractures of the cranium are likely often attributed to postmortem breakage rather than perimortem trauma. Brothwell (1986, 34) points out that particularly in material that has already been excavated, "we tend in general to underestimate the significance of broken heads in excavated skeletons." This is understandable, particularly given Brothwell's (1986, 34) added observation that "it is by no means easy to distinguish bones broken in life from breakage and collapse of the skull following burial and decay." The presence of wax at the site of most of the cranial fractures from the Abydos retainers, as well as around cranial sutures that were not completely fused, suggests that Petrie did indeed see most of the cranial fractures described here, but assumed they were incurred postmortem, and poured the wax over these areas in an attempt to stabilize the remains and keep the fragile parts of the crania intact.

The presence of high rates of perimortem blunt force trauma found in this study suggest that many of these individuals were not peacefully laid to rest after a natural death, but were stunned or killed with blows to the head, before being laid to rest in small tombs near that of their deceased king. The efficient and relatively quick building methods used to construct the tombs, even when they were constructed individually, as well as the ill-fitting coffins apparent in

some tombs and the awkward position of some of the skeletons, all suggest an element of haste, or at least a concern with efficiency, in the deposition of the subsidiary burials. Stelae naming the deceased were found near some of the subsidiary tombs, and a few had the name of the individual within painted on the wall of the tomb itself (Petrie 1925). The objects within the tomb suggest the retainers were presented as craftsmen and elites of various ranks, if not in the land of the living then certainly in the land of the dead. Yet for all this evidence that points toward human sacrifice, there are no clear references to such a practice in the plethora of Egyptian texts and images that have been found from all time periods. Why might this be, and what might this say about those who governed Egypt and had control of information and information sharing?

Human Sacrifice and Royal Power

It is clear from the examples discussed in Chapter 2, as well as the evidence presented here, that commanding the life or death of attendants, wives, and officials is the prerogative of the very powerful, who are often (but not always) royalty. Law (1985, 74) notes that in West African groups, "The practice of human sacrifice on an especially large scale was commonly linked to royal authority, and to the development of highly centralized monarchies." As van Dijk (2007, 151) points out, "The custom [of retainer sacrifice] occurs…only in societies with centralized power in the person f a king or chief who has control over the lives of his retainers, and who is seen as having a special relationship with the supernatural, not in more egalitarian societies."

Trigger's (1993, 89) asserted that retainer sacrifice is only found "in societies where human beings were regularly sacrificed to the gods," a statement that is repeated by van Dijk

(2007, 151), who adds that "when cultic human sacrifice is no longer practiced, retainer sacrifice also dies out." This does not seem to be the case in Egypt, however, where we have little or no reliable evidence for other types of human sacrifice in Egypt until much later, perhaps as late as the Roman Period (Griffiths 1948).

Memory, Violence, and Hidden Violence

It seems we must place ancient Egypt firmly within the realm of authoritarian states everywhere, who have used violence to manufacture power in a variety of ways over the millennia. In Egyptian royal art, violence is celebrated, and it is clear that a certain level of violence, in specific circumstances, is required of the king (Bestock 2017). Enormous images of the pharaoh, riding courageously into battle and crushing enemies beneath his chariots to emerge heroic and victorious, adorn the walls of temples all over Egypt. The smiting motif was used by Egyptian rulers as early as the Predynastic period, and conveys a powerful image of the mighty pharaoh about to smash the heads of subdued enemy prisoners or rulers. We must not forget Davis' (1992) caution here, however, that such images were specifically created to craft a revisionist history, or at least a somewhat modified version of events, that was in line with royal ideology and conformed to the history and memory that the king wanted to propagate.

Sometimes the violence required of the king was even present in his name or titles. Meltzer (1972, 339) suggests that we may read Den's very name as ""Cutter" or "One who severs (heads)," a name in keeping with the images of violence adopted by Narmer and other early kings. We cannot know at present if these names were designed to inspire fear and obedience or reflected real aspects of this king's (and others') reign; the most likely explanation is that reality was a bit of both.

Yet this proliferation of violent imagery and language completely omits the practice of human sacrifice, to such a degree that some scholars have denied its existence in ancient Egypt entirely (J. Tyldesley 2000). Why might this be the case? Given the almost complete lack of textual or artistic reference to human sacrifice in ancient Egypt (I would argue that the Den label is ambiguous at best, since it could refer to various other types of state-sanctioned killing and not necessarily human sacrifice), I think we must consider the idea that the Egyptians wanted the violence of human sacrifice to be forgotten. As Kuchler (1993) notes, "In the construction of history, it is not just what is remembered, but also what is forgotten, that is important." As the First Dynasty kings crafted their realm and their legacies, they also manipulated the record of such events, "creating the past," as Berggren (2017, 37) describes it, by using "things and places [that] play important roles both in the collective memory and in forgetfulness." This type of violence was very different from that used to defeat enemies of the king; the violence of retainer sacrifice may not have even been viewed as violence at all, at least not in the way we think of violence, but rather simply a necessary step in the journey to eternal royal service.

Reassessing Ancient Egypt as a Sacrificial State

I would argue that based on the evidence presented here, we must stop lumping human sacrifice in with the smiting motif and other images of royal violence (Baud and Etienne 2000; Bestock 2017; te Velde 2007) as well as from descriptions or depictions of capital punishment (Assmann 1992; Leahy 1984; te Velde 2007; Willems 1990). It seems that human sacrifice was at least sometimes a violent affair in Egypt, as evidenced by the blunt force trauma suffered by the retainers at Abydos, but perhaps the Egyptians did not categorize it as violence, or at least not as the same kind of violence.

Te Velde (2007, 132) describes human sacrifice, or at least ritualized killing of "criminals, rebels, people who did not follow the cosmic order" as "ceremonial execution packaged in religion." While this may certainly apply to ritualized killing of enemies (perhaps smiting scenes in image or reality) and perhaps in the execution of criminals as well, I would argue that this is not really an adequate description for retainer sacrifice in Egypt. Certainly the killing of the retainers was almost certainly ceremonial and religious in nature, but use of the word "execution" implies a punitive undertone in the killing itself. On the contrary, it seems that the sacrifice of the retains was not viewed as punitive at all, since the 'victims' were afforded a burial location very near their king, burial goods which were sometimes of high quality (and sometimes even bore the king's name), and personal identifiers such as stelae. These were privileged individuals, allowed to enter an afterlife by hanging onto the metaphorical coattails of their king.

As te Velde (2007, 128) points out, offerings and sacrifices in the ancient Egyptian conceptions are "not so much something presented by people to the gods but rather a ritual act by which men can contribute to the restoration or maintenance of cosmic harmony in the world." Perhaps instead of viewing retainer sacrifice as violence, the Egyptians looked upon this practice as a way to continue *ma'at*, as the king continued into the afterlife with his faithful craftspeople and attendants, who had likely served him during life as well. The violence that we see in the death of the retainers may have been viewed very differently by the Egyptians, perhaps as the quickest and easiest way to enter the afterlife while also maintaining the correct balance of the universe.

Conclusion

For Egyptian kings, some level of violence was necessary. The defeat of enemies and slaughter of captives was to be celebrated and widely broadcast on monumental inscriptions and temple walls, while other types of violence, such as human sacrifice, were masked. No clear record of the practice has survived, the bodies and graves do not appear to show excessive violence (e.g. dismemberment or overkill), and the practice certainly was not advertised in any way that has survived in the archaeological record. We must at least consider the idea that human sacrifice and sacrificial burial were not necessarily considered to be as violent as other forms of violence, and in fact the practices may have been considered to be non-violent.

The First Dynasty subsidiary graves and the bodies within, as well as the cultural context of the time, provide strong evidence for the practice of human sacrifice and sacrificial burial at the birth of the Egyptian state. To assume that human sacrifice was not practiced because the bones do not always show evidence of extreme violence or overkill is to misunderstand the complex and varied nature of sacrificial ritual, not only in Egypt but throughout the world. We must not assume that the ancient Egyptians were any more or less violent than their neighbors; the human species has been creating reasons to slaughter itself for thousands, even millions of years, and it seems that no human group is completely free of some sort of sanctioned violence. And while we are quick to think that we ourselves would not engage in such activities, this study has shown that humans throughout time and space are capable of many acts of violence in the right circumstances. We are remarkably adept at shifting categories of identity to form groups of insiders and outsiders, us versus them, and of course we are always one of the "us." As Terry Pratchett wrote:

"…he wanted there to be conspirators. It was much better to imagine men in some smoky room somewhere, made mad and cynical by privilege and power, plotting over the brandy. You had to cling to this sort of image, because if you didn't then you might have to face the fact that bad things happened because ordinary people, the kind who brushed the dog and told their children bedtime stories, were capable of then going out and doing horrible things to other ordinary people. It was so much easier to blame it on Them. It was bleakly depressing to think that They were Us. If it was Them, then nothing was anyone's fault. If it was Us, what did that make Me? After all, I'm one of Us. I must be. I've certainly never thought of myself as one of Them. No one thinks of themselves as one of Them. We're always one of Us. It's Them that do the bad things."

Terry Pratchett, *Jingo*

Appendix A: New Light on Old (Imperfect Data)

The arid climate of Egypt has meant that scholars are left with no shortage of the remains of ancient Egypt's actual inhabitants. Mass excavations of large cemeteries in the late 19th and early 20th centuries yielded hundreds of remains from all periods of Egyptian history. Yet all too often, the artifacts and data recovered by earlier archaeologists are ignored by modern scholars, either in favor of new and exciting discoveries, or dismissed as hopeless cases of lost information and incomplete analysis. Even in cases where previous archaeologists were, perhaps, less methodical in their collection methods (so often the case with early Egyptologists in particular), it may be possible to glean new data from old remains. This is certainly the case with human remains, where vastly improved osteological techniques and knowledge of pathology, as well as the abandonment of early, quite racist theories about the peopling of Egypt, may provide new and deeper insights into the lives and deaths of Egypt's early inhabitants. It is with just such a group of previously excavated human remains that this dissertation will address.

This study certainly addresses a data set that is imperfect in a variety of ways. In addition to the nature of the sample itself, which was heavily disturbed and incompletely retained by excavators, the remains themselves were subjected to a variety of treatments that were not always recorded in detail (e.g. paraffin wax and possibly the application of anatomical dye in some cases) and in some cases have limited the information that may be obtained from the remains. The crania were also not completely cleaned, and in some cases were then coated with paraffin wax, causing such materials as teeth, small beads for measuring cranial capacity, and even a dead moth to be trapped in the paraffin wax within various cranial vaults.

It is my firm belief that despite the many imperfections of this data set, a new approach is still worthwhile. Osteological methods have advanced significantly since these remains were excavated in the early 20th century, and our understanding of how to identify trauma and our knowledge of pathology has increased tenfold. In addition, the application of scientific techniques for data recovery, rather than stating interpretations or opinions about archaeological and bioarchaeological remains as facts or statements, as some early scholars were wont to do, is always worthwhile. The purpose of this study, then, has been not only to shed light on the lives of the individuals in these subsidiary burials and restore some measure of identity and dignity to their lives, but also to highlight the importance of revisiting datasets that may be less than appealing for a variety of reasons, with a complete understanding of the inherent limitations, in order to glean new information about life in the past.

Appendix B: Subsidiary Burials of Djer

Summary of Individuals in This Study

Crania Burial Numbers (19): 461, 470, 484, 510, 511, 530, 533, 538, 543, 602,603, 675, 740, 745, 746, 756, 763, 760, 776

Mandible only: 704

Photos by Petrie (grave numbers): 420, 422, 423, 531,540,607,534,423,422

Individuals assessed in this study:

Grave Num.	Location	Element	Sex	Age	Petrie Photograph Citation	Body Position	Associated Objects
461	East side, northeast corner	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
470	East side, northeast corner	Cranium + mandible	Female	Middle adult	Unpublished photograph in Petrie Museum	Semi-flexed, right side, face turned downwards	Vessels
484	East side, northeast corner	Cranium only	Male	Middle adult	N/A	Unknown	Unknown
510	East side, northeast corner	Cranium + mandible	Male	Young adult	N/A	Unknown	Unknown
511	East side, northeast corner	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
530	North side, northeast corner	Cranium + mandible	Possibly Female	Middle adult	Unpublished photograph in Petrie Museum	Semi-flexed, right side, head tilted back	Vessels
533	North side,	Fragmented cranium	Male	Middle adult	Petrie 1925, Plate XX	Unknown	Unknown

	northeast corner						
538	North side, northeast corner	Cranium + mandible	Female	Young adult	Unpublished photograph in Petrie Museum	Semi-flexed, right side, head tilted downwards	Unknown
543	North side, northeast corner	Partial cranium + mandible	Male	Older adult	N/A	Unknown	Unknown
602	North side, northeast corner	Cranium only	Male	Adult	Unpublished photograph in Petrie Museum	Semi-flexed, right side	Vessel
603	North side, northeast corner	Cranium + mandible	Possible Male	Adult	N/A	Unknown	Unknown
675	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
740	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
745	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
746	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
756	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
763	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
776	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
704	West side	Mandible only	Possibly male	Middle adult	N/A	Unknown	Unknown

Photographs of Individuals not assessed in this study:

Grave Number	Location (side)	Photograph Citation	Sex	Age	Body Position	Associated Objects
420	East side, northeastern corner	Unpublished photograph in Petrie Museum	Unknown	Unknown (probably adult)	Semi-flexed, right side, head slightly down	Vessels
422	East side, northeastern corner	Unpublished photograph in Petrie Museum	Unknown	Unknown (probably adult)	Tightly flexed, right side	Vessel
423	Northeastern corner	Unpublished photograph in Petrie Museum	Unknown	Unknown (probably adult)	Semi-flexed, right side	Vessels
531	North side	Unpublished photograph in Petrie Museum	Unknown	Unknown, probably adult	Semi-flexed, right side	Vessels
534	North side, northeastern corner	Unpublished photograph in Petrie Museum	Unknown	Unknown (probably adult)	Semi-flexed, right side, head raised	Vessels
537	North side	Petrie 1925, Plate XIV	Unknown	Unknown (probably adult)	Face down, legs tied to thighs, head up, hands under head	Vessel
539	North side	Petrie 1925, Plate XIV	Unknown	Unknown (probably adult)	Flexed, on back and slightly right side	Vessel
540	North side	Unpublished photograph in Petrie Museum	Unknown	Unknown (probably adult)	Semi-flexed, right side	Coffin?
541	North side	Petrie 1925, Plate XIV	Unknown	Unknown (probably adult)	Semi-flexed, left side	Coffin?
542	North side	Petrie 1925, Plate XIII	Unknown	Unknown (probably adult)	Semi-flexed, left side, face down	Vessel, coffin?
544	North side	Petrie 1925, Plate XIV	Unknown	Unknown (probably adult)	Semi-flexed, left side, head extended	Unknown

601	North side, eastern corner	Petrie 1925, Plate XIII	Unknown	Unknown (probably adult)	Semi-flexed, left side	Vessels
607	North side, northeastern corner	Unpublished photograph in Petrie Museum	Unknown	Unknown (probably adult)	Tightly flexed, right side	Unknown

Grave 461

Provenience Information

Burial Number: 22 461

Duckworth Accession Number: Af.11.4.30

Burial Location: East side, northeast corner

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Bekh

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Middle adult (mean: 39.4, range 24-60)

Pathology Summary:

- Destructive lytic lesions on the right parietal, small lesion on the frontal
- Cribra orbitalia on occipital and on frontal

Dental Pathology Summary:

- Calculus accumulation on buccal surface of maxillary dentition
- Code 6 caries on the buccal CEJ of the right third molar
- LEH on the left maxillary canine
- Periodontal disease

Trauma Summary:

- Perimortem fracture on left temporo-sphenoid junction with fracture line radiating to the frontal bone
- Perimortem sharp force trauma to the left zygomatic

Nonmetric Traits:

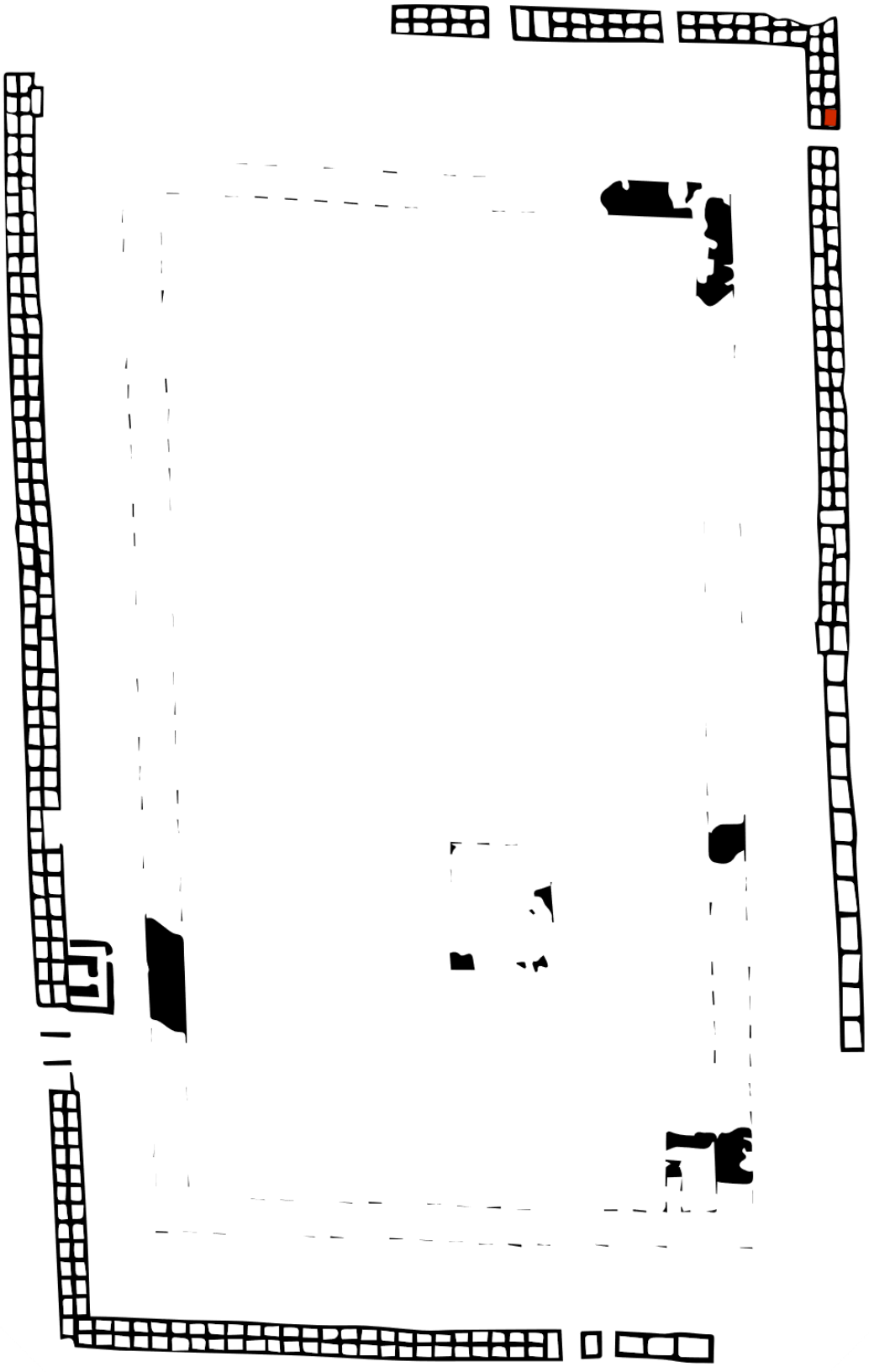
- Metopic Suture: 0
- Supraorbital structures
    - A
        - L:1
        - R: 1
    - B
        - L:0
        - R:0
- Infraorbital Suture
    - L: 9
    - R: 1
- Multiple Infraorbital foramina
    - L: 9
    - R: 1

- Zygomatico-facial foramina
    - L: 9
    - R: 1
- Parietal foramen
    - L: 0
    - R: 0
- Sutural bones:
    - A:
        - L: 9
        - R: 0
    - B:
        - L: 0
        - R: 0
    - C:0
    - D:0
    - E: 0
    - F: 0
        - L:
        - R:
    - G:
        - L: 1 (2 present)
        - R:0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 9 due to breakage
    - R: 9 due to dirt and wax
- Divided hypoglossal canal
    - L: 9
    - R: 0
- Flexure of superior sagittal sulcus: 9
- Foramen ovale incomplete
- Foramen spinosum incomplete
- Auditory extosis
    - L: 0
    - R: 9
- Mastoid foramen
    - A
        - L: 1
        - R:1
    - B
        - L: 1
        - R:1
- Mental Foramen
    - L: 9
    - R: 9

- Mandibular Torus
    - L: 9
    - R: 9
- Mylohyoid Bridge: 9
    - Location
    - Degree

Associated Objects: ceramics, stone objects, copper objects, weight

Location of Grave 461



Grave 470

Provenience Information

Burial Number: 22 470

Duckworth Accession Number: Af.11.4.31

Burial Location: East side, northeast corner

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown **Inventory:** Cranium + mandible **Body Position:** Semi-flexed, right side

Sex Estimation: Female **Age Estimation:** Young adult (mean 32, range 19-48)

Pathology Summary:

- TMJD of the left mandibular condyle
- PH on the occipital

Dental Pathology Summary:

- LEH
- AMTL
- Periodontal disease
- Slight calculus accumulation on the buccal surface of the mandibular molars and maxillary dentition
- Bone nodule on the palatine just medial to the right maxillary third molar

Trauma Summary:

- Antemortem healed fracture of the central mandible (slightly right of mandibular eminence)

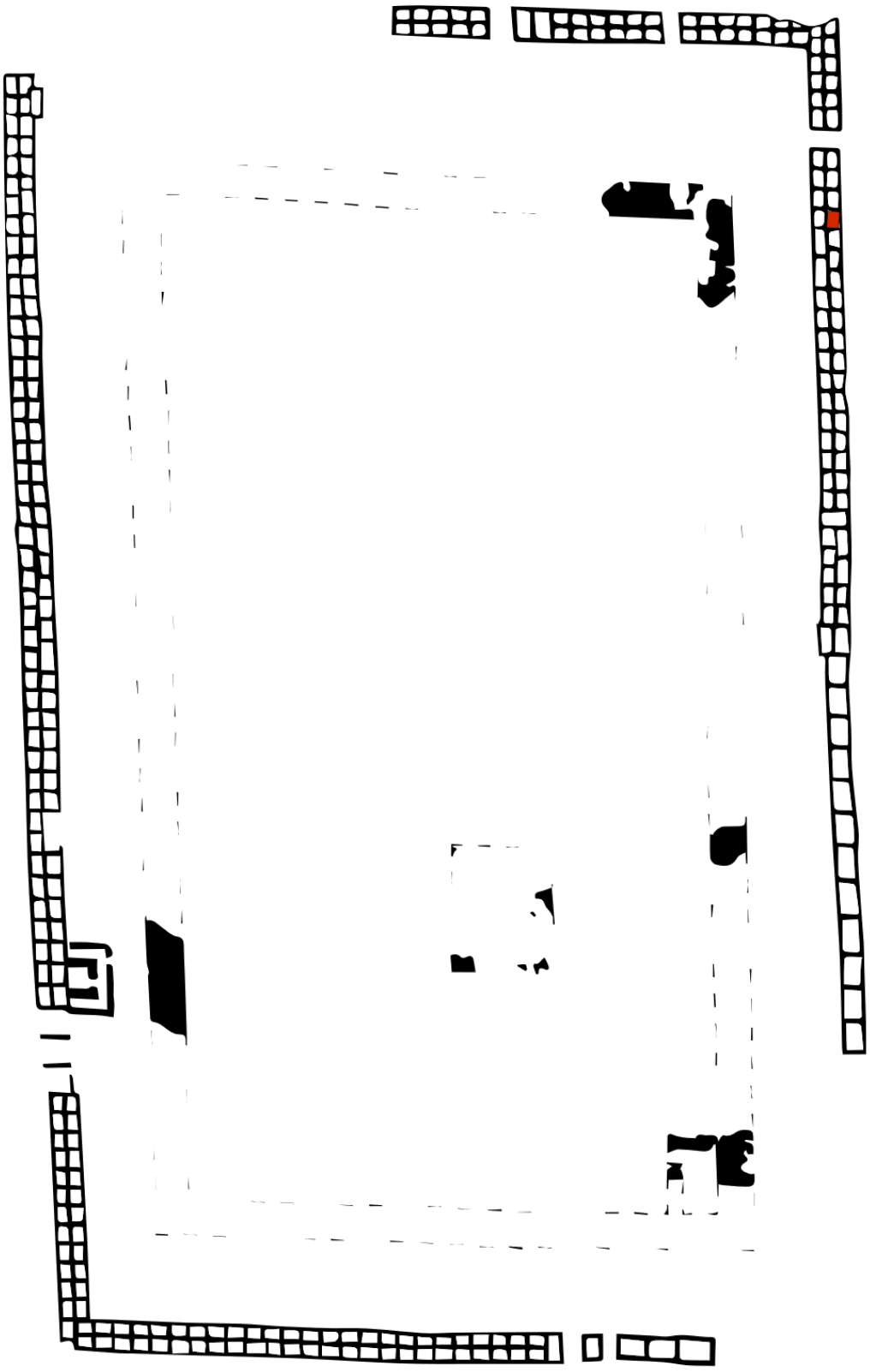
Non-metric Traits:

- Metopic Suture: 0
- Supraorbital structures: all 9 due to breakage
- Infraorbital Suture
    - L: 0
    - R: 2
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 1
    - R: 1
- Parietal foramen: one exactly in the midline
    - L: 0
    - R: 0

- Sutural bones:
    - A: 0
    - B: 0
    - C: 0
    - D: 0
    - E: 0
    - F: 0
        - L: 1 (1 present)
        - R: 0
    - G: 0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 9 due to wax
    - R: 0
- Divided hypoglossal canal
    - L: 9 due to wax and dirt
    - R: 0
- Flexure of superior sagittal sulcus: 9
- Foramen ovale incomplete
- Foramen spinosum incomplete
- Auditory extosis
    - L: 0
    - R: 0
- Mastoid foramen
    - A
        - L: 0
        - R: 0
    - B
        - L: 0
        - R: 0
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus: 0
- Mylohyoid Bridge
    - Location
        - L:3
        - R: 0
    - Degree
        - L: 2
        - R: 0

Associated Objects: Vessels

Location of Grave 470



Grave 484

Provenience Information

Burial Number: 22 484 **Duckworth Accession Number:** Af.11.4.32

Burial Location: East side, northeast corner **Associated Monarch:** Djer

Excavator: W.M.F. Petrie **Excavation Date:** Dec. 1921 - February 1922

Individual Assessment

Name: Unknown **Inventory:** Cranium only **Body Position:** Unknown

Sex Estimation: Male **Age Estimation:** Young adult (mean 32, range 18-48)

Pathology Summary:

- Cribra orbitalia evidence on parietals and occipital

Dental Pathology Summary:

- Accumulation of calculus on the first and second left maxillary molars

Trauma Summary: No visible trauma

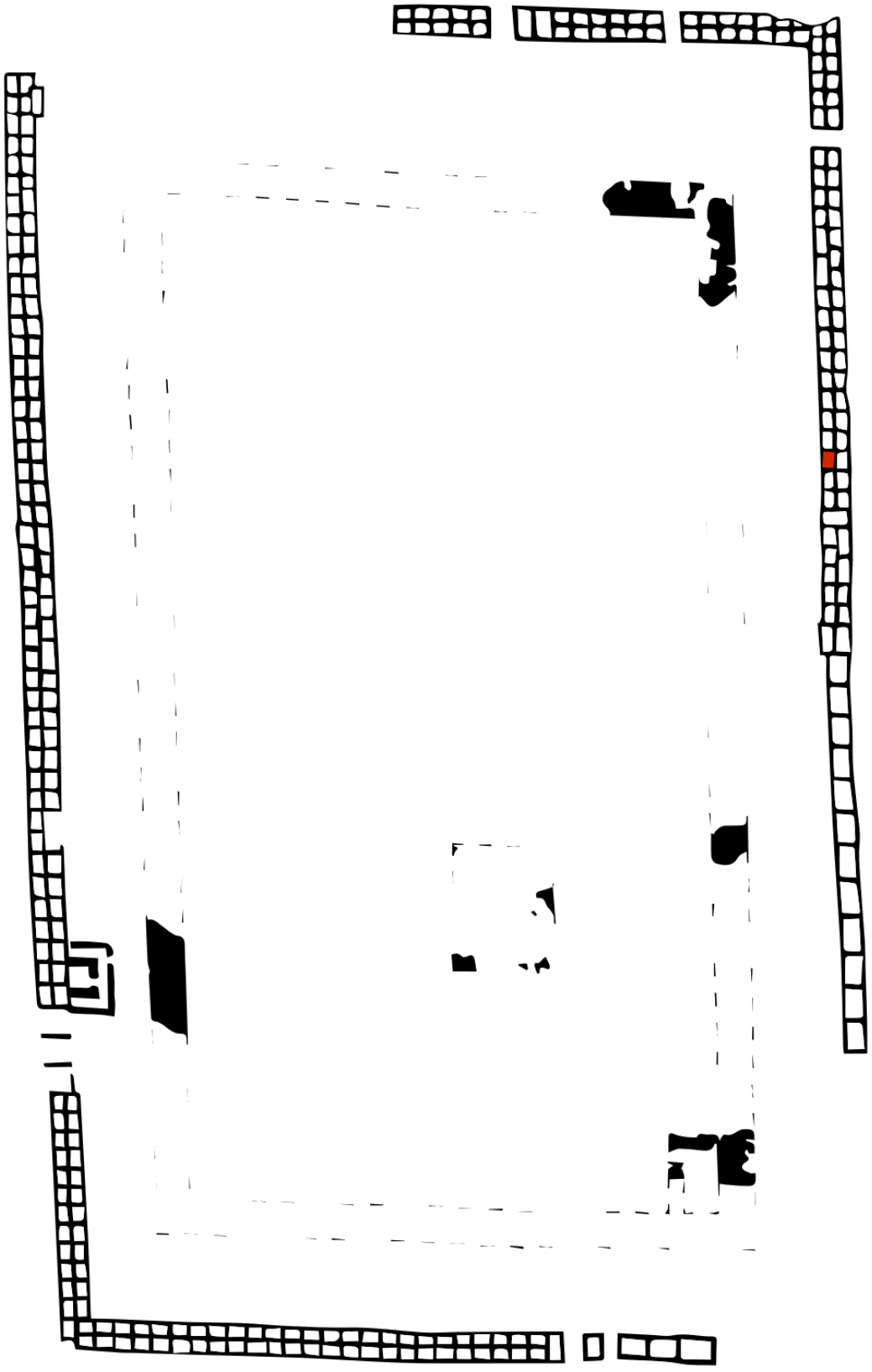
Non-metric Traits:

- Metopic Suture: 0
    - Supraorbital structures
        - A
            - L: 2
            - R: 0
        - B
            - L: 1
            - R:0
- Infraorbital Suture
    - L: 2
    - R: 2
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 0
    - R:1
- Parietal foramen
    - L: 1
    - R: 0
- Sutural bones:
    - A: 0
    - B: 0
        - L:
        - R:

    - C: 0
    - D: 0
    - E: 0
    - F:
        - L: 0
        - R: 1 (1 tiny one present)
    - G: 0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 0
    - R: 0
- Divided hypoglossal canal
    - L: 9
    - R: 0
- Flexure of superior sagittal sulcus: 1
- Foramen ovale incomplete
- Foramen spinosum incomplete
- Auditory extosis
    - L: 9 due to wax and dirt
    - R: 9 due to wax and dirt
- Mastoid foramen
    - A
        - L: 1
        - R: 4
    - B
        - L: 9
        - R: 2
- Mental Foramen
    - L: 9
    - R:9
- Mandibular Torus
    - L: 9
    - R: 9
- Mylohyoid Bridge: 9
    - Location
    - Degree

Associated Objects: ivory objects, arrows, adze, carnelian beads

Location of Grave 484



Grave 510

Provenience Information

Burial Number: 22 510

Duckworth Accession Number: Af.11.4.33

Burial Location: East side, northeast corner

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Ankh-ka

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Young adult (mean 30.5, range 18-45)

Pathology Summary

- Reactive bone around and behind the L occipital condyle
- TMJD of the left mandibular condyle
- Roughened circle of bone (0.5 cm diam) just anterior to L mental foramen
- Cribra orbitalia on parietals and occipital

Dental Pathology

- LEH
- AMTL
- Some calculus accumulation at CEJs of maxillary teeth dentition
- Heavy accumulation of calculus at CEJs of mandibular molars and right premolar

Trauma Summary: No visible trauma

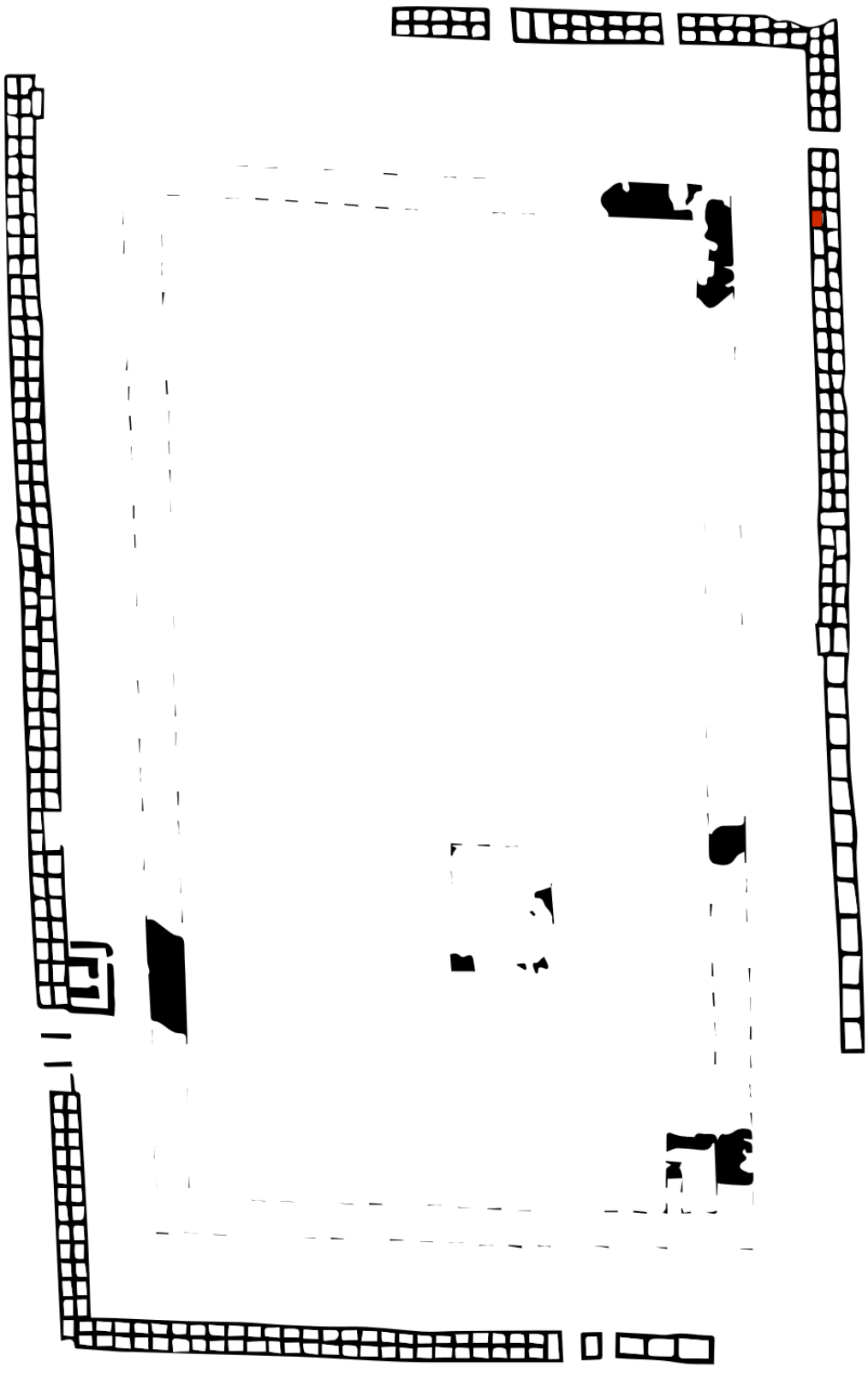
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A
        - L: 1
        - R: 4
    - B
        - L:0
        - R:0
- Infraorbital Suture
    - L: 1
    - R: 1
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 1

    - R: 1
- Parietal foramen
    - L: 0
    - R: 1
- Sutural bones:
    - A: 0
    - B: 0
        - L:
        - R:
    - C: 0
    - D: 0
    - E: 0
    - F:
        - L: 0
        - R: 1
    - G: 0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 0 (but also reactive bone in this region)
    - R: 0
- Divided hypoglossal canal
    - L: 0
    - R: 0
- Flexure of superior sagittal sulcus: 1
- Foramen ovale incomplete
- Foramen spinosum incomplete
- Auditory extosis
    - L: 3
    - R: 9 due to wax and dirt
- Mastoid foramen
    - A
        - L: 4
        - R: 4
    - B
        - L: 1
        - R: 2
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus: 0
- Mylohyoid Bridge: all 0

Associated Objects: ceramic vessels, adzes, saw, 3 weights, 2 carnelian beads

Location of Grave 510



Grave 511

Provenience Information

Burial Number: 22 511

Duckworth Accession Number: Af.11.4.34

Burial Location: East side, northeast corner

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Young adult (sutures too open to estimate accurately)

Pathology Summary

- 2 button osteomas on posterior left parietal, immediately superior to lambda

Dental Pathology Summary

- Moderate to heavy calculus accumulation on the buccal CEJs of the mandibular molars and somewhat less on the buccal surfaces of maxillary molars and the right maxillary premolars
- LEH visible on maxillary dentition
- AMTL

Trauma Summary:

- Perimortem blunt force trauma to the right parietal boss

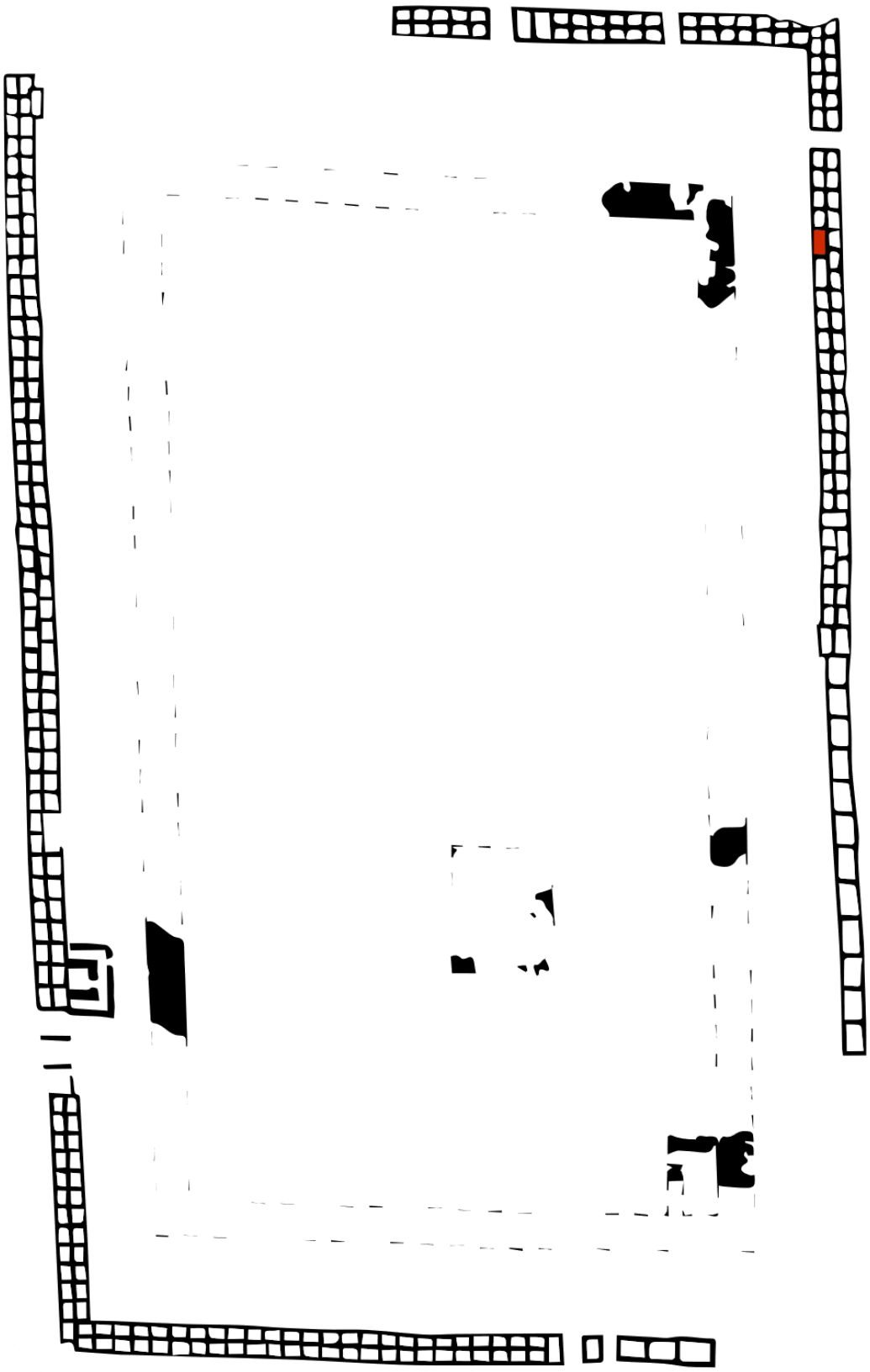
Nonmetric Traits:

- Metopic Suture: 1
- Supraorbital structures
    - A
        - L:1
        - R: 0
    - B
        - L:1
        - R:0
- Infraorbital Suture
    - L: 2
    - R: 2
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 4 (2 large, 2 small)
    - R: 4 (2 large, 1 small)
- Parietal foramen

    - L: 0
    - R: 1
- Sutural bones:
    - A: 0
    - B: 0
    - C:0
    - D:0
    - E: 0
    - F:
        - L: 1 (1 present)
        - R: 0
    - G: 0
    - H: 0
    - I:
        - L:1
        - R:0
- Inca bone: 0
- Condylar canal:
    - L: 9 due to breakage
    - R: 9 due to breakage
- Divided hypoglossal canal
    - L: 0
    - R: 0
- Flexure of superior sagittal sulcus: 2
- Foramen ovale incomplete
- Foramen spinosum incomplete
- Auditory extosis
    - L: 3? Or maybe wax, can't tell for sure
    - R: 9 due to wax and dirt
- Mastoid foramen
    - A
        - L: 5
        - R: 0
    - B
        - L: 2
        - R: 9
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus: 0
- Mylohyoid Bridge: 0

Associated Objects: seal, stele, ceramic vessel(s), adzes, carnelian beads

Location of Grave 511



Grave 530

Provenience Information

Burial Number: 22 530

Duckworth Accession Number: Af.11.4.35

Burial Location: North, northeast corner

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown **Inventory:** Cranium + mandible **Body Position:** Semi-flexed, right side

Sex Estimation: Possibly Female **Age Estimation:** Older adult (mean 41.1, range 23-68)

Pathology Summary:

- Porotic hyperostosis of parietals and occipital

Dental Pathology Summary:

- LEH visible on mandibular and maxillary dentition
- AMTL

Trauma Summary:

- Small area of missing bone on the inferior left zygomatic, possibly due to a perimortem crush or depression fracture

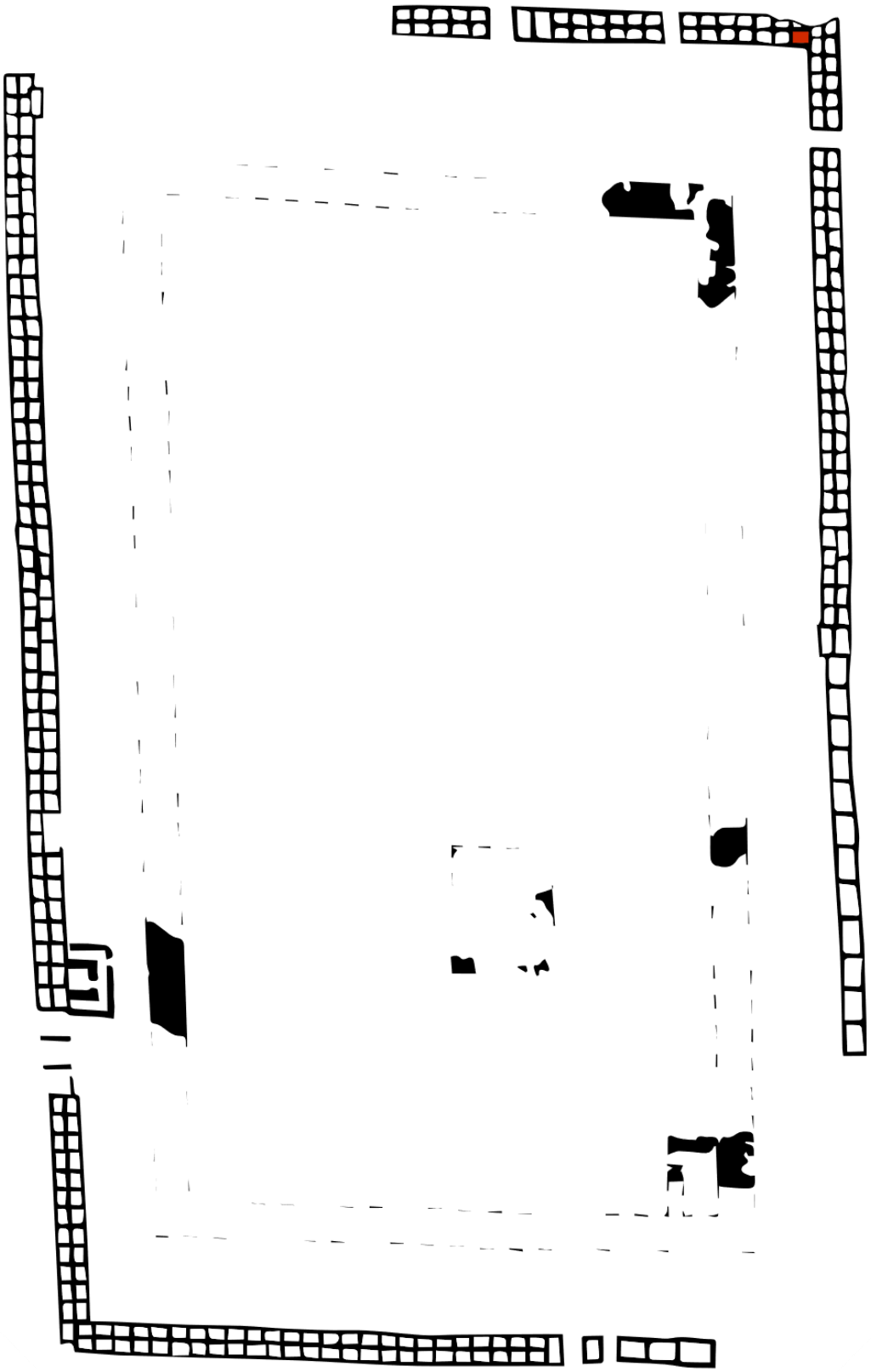
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A
        - L: 9 due to damage
        - R: 4 (2 notches)
    - B
        - L: 9
        - R:0
- Infraorbital Suture
    - L: 1
    - R: 9
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 1
    - R: 9 due to breakage
- Parietal foramen
    - L: 1

    - R: 0
- Sutural bones:
    - A: 0
    - B: 0
        - L:
        - R:
    - C:0
    - D:0
    - E: 0
    - F:
        - L: 1 (1 present)
        - R: 0
    - G: 9
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 1
    - R: 1
- Divided hypoglossal canal
    - L: 0
    - R: 0
- Flexure of superior sagittal sulcus: 9
- Foramen ovale incomplete
- Foramen spinosum incomplete
- Auditory extosis
    - L: 9
    - R:9
- Mastoid foramen
    - A
        - L: 0
        - R: 4
    - B
        - L: 0
        - R: 1
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus: 0
- Mylohyoid Bridge: 0

Associated Objects: vessels

Location of Grave 530



Grave 533

Provenience Information

Burial Number: 22 533

Duckworth Accession Number: Af.11.4.36

Burial Location: North side, northeast corner

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Fragmented cranium

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Young adult (mean 32.0, range 19-48)

Pathology Summary:

- Porotic hyperostosis on parietals and occipital
- Thickening of frontal bone
- Parietal thinning

Dental Pathology Summary: No teeth are present

Trauma Summary:

- Perimortem BFT: radiating fractures on the cranial vault

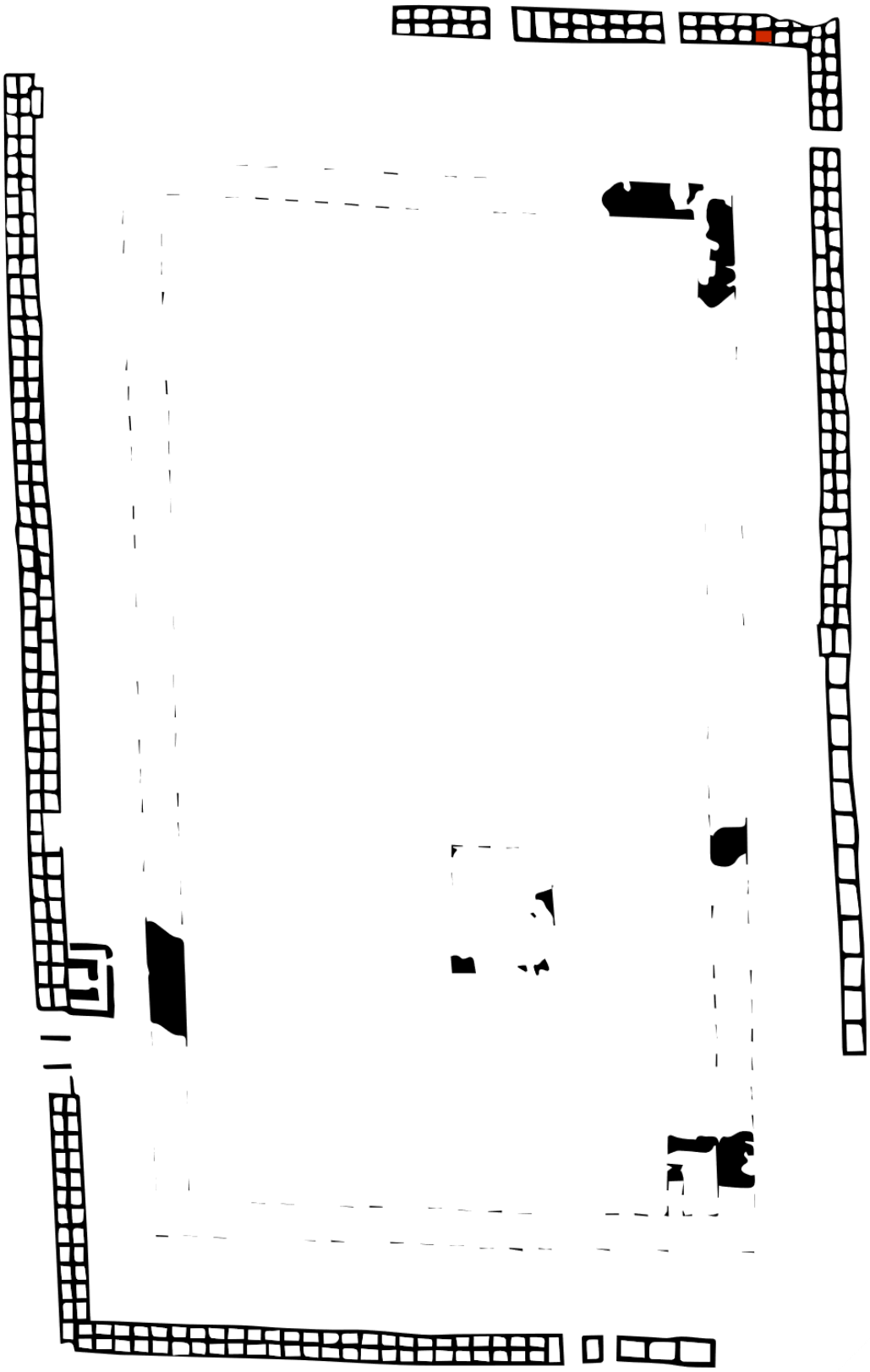
Nonmetric Traits:

- Metopic Suture: 1
- Supraorbital structures
    - A
        - L:1
        - R: 1
    - B
        - L:0
        - R:0
- Infraorbital Suture
    - L: 9
    - R: 9
- Multiple Infraorbital foramina
    - L: 9
    - R: 9
- Zygomatico-facial foramina
    - L: 1
    - R: 9
- Parietal foramen
    - L: 1
    - R: 1
- Sutural bones:

    - A: 0
    - B: 0
        - L:
        - R:
    - C:
        - L: 0
        - R: 9
    - D:0
    - E: 0
    - F:
        - L: 1 (2 present)
        - R: 1 (1 present)
    - G: 0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 9
    - R: 9 due to dirt and wax
- Divided hypoglossal canal
    - L: 9 due to wax and dirt
    - R: 2
- Flexure of superior sagittal sulcus: 1
- Foramen ovale incomplete
- Foramen spinosum incomplete
- Auditory extosis
    - L: 9 due to wax and dirt
    - R: 9 due to wax and dirt
- Mastoid foramen
    - A
        - L: 1
        - R: 9
    - B
        - L: 1
        - R: 9
    - Mental Foramen: unobservable (mandible absent)
    - Mandibular Torus: unobservable (mandible absent)
    - Mylohyoid Bridge: unobservable (mandible absent)

Associated Objects: ceramic vessels, flint object

Location of Grave 533



Grave 538

Provenience Information

Burial Number: 22 538

Duckworth Accession Number: Af.11.4.37

Burial Location: North side, northeast corner

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown **Inventory:** Cranium + mandible **Body Position:** Semi-flexed, right side

Sex Estimation: Female **Age Estimation:** Young adult (mean 30.5, range 18-45)

Pathology Summary:

- Small pits indicative of infectious response

Dental Pathology Summary:

- LEH on the maxillary dentition

Trauma Summary:

- Perimortem BFT: radiating fractures on the frontal and across the parietals

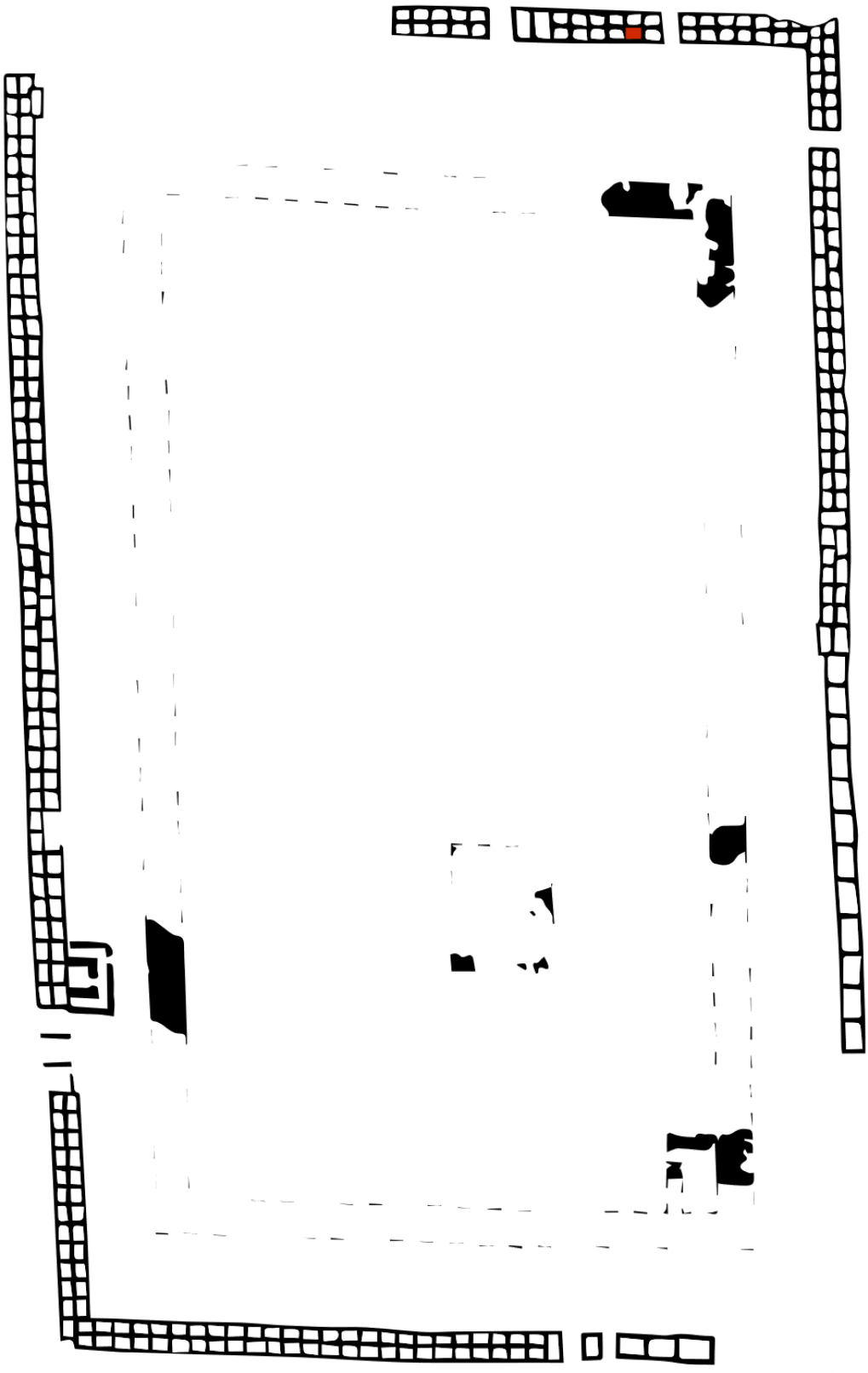
Nonmetric Traits:

- Metopic Suture: 1
- Supraorbital structures
    - A
        - L:1
        - R: 1
    - B
        - L:1
        - R:1
- Infraorbital Suture
    - L: 2
    - R: 2
- Multiple Infraorbital foramina
    - L: 2
    - R:0
- Zygomatico-facial foramina
    - L: 1
    - R: 1
- Parietal foramen
    - L: 0
    - R: 0
- Sutural bones:

    - A: 0
    - B: 0
        - L:
        - R:
    - C:0
    - D:0
    - E: 0
    - F: 9
        - L:
        - R:
    - G: 9
    - H: 9
    - I:
        - L: 9
- Inca bone: 1
- Condylar canal:
    - L: 9
    - R: 9
- Divided hypoglossal canal
    - L: 9
    - R: 9
- Flexure of superior sagittal sulcus: pretty sure it's a 3 but hard to say for sure due to wax and dirt
- Foramen ovale incomplete
- Foramen spinosum incomplete
- Auditory extosis
    - L: 9
    - R: 2
- Mastoid foramen
    - A
        - L: 9
        - R: 9
    - B
        - L: 9
        - R: 9
- Mental Foramen
    - L: 1
    - R: 9 due to break
- Mandibular Torus
    - L: 0
    - R: 9 due to break
- Mylohyoid Bridge
    - Location
        - L: 9 due to break
        - R: 9 due to absence

Associated Objects: Unknown

Location of Grave 538



Grave 543

Provenience Information

Burial Number: 22 543

Duckworth Accession Number: Af.11.4.38

Burial Location: North side, northeast corner

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown **Inventory:** Partial cranium + mandible **Body Position:** Unknown

Sex Estimation: Male **Age Estimation:** Older adult (mean 56.2, range 34-68)

Pathology Summary:

- Evidence of extensive parietal thinning

Dental Pathology Summary:

- LEH

Trauma Summary:

- Perimortem BFT: At least three radiating fractures moving from the left side of the vault (temporal region) to the right side, one parallels the coronal suture

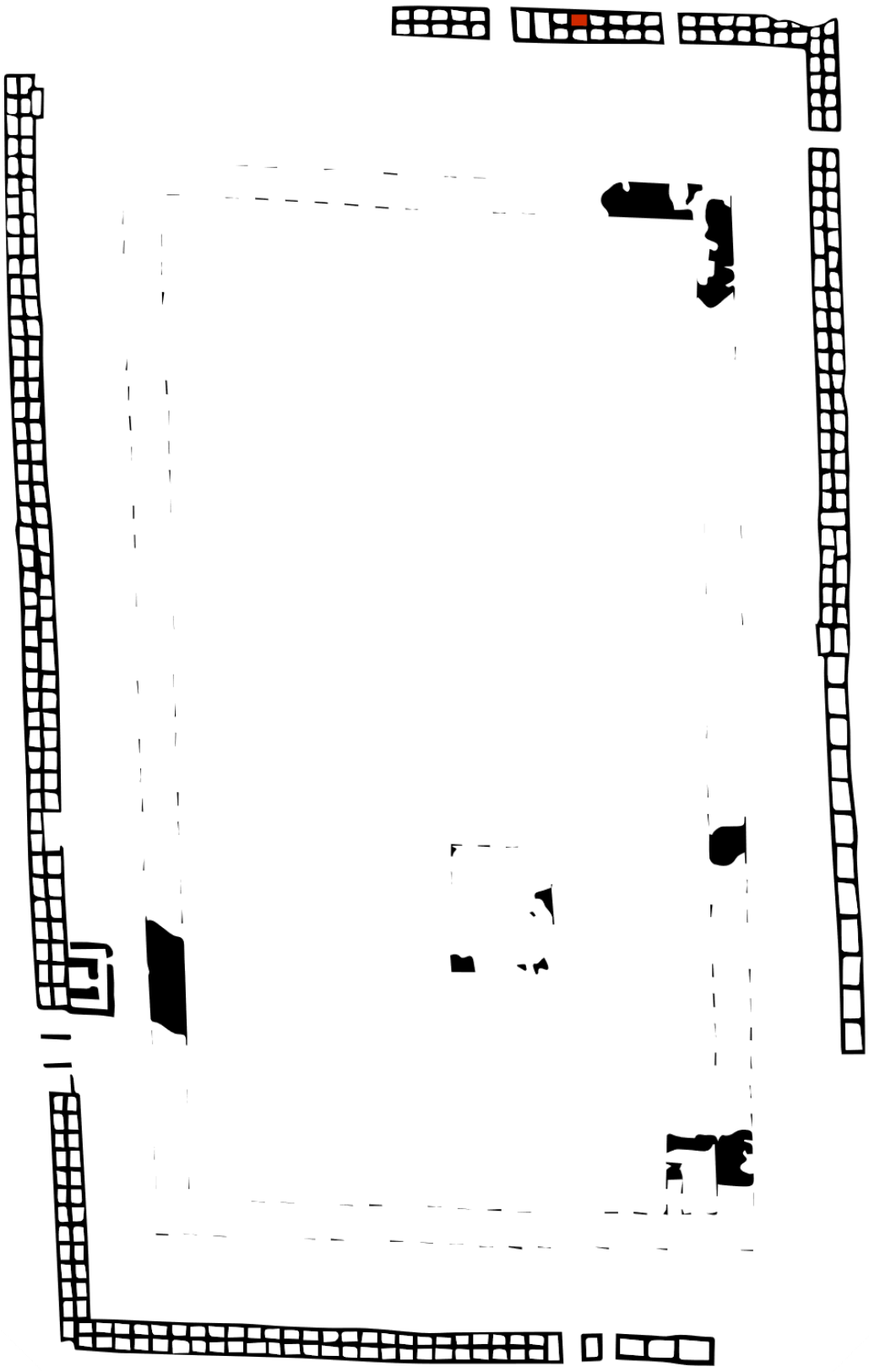
Non-metric Traits:

- Metopic Suture: 1
- Supraorbital structures
  - A
    - L: 2
    - R: 1
  - B
    - L:0
    - R:1
- Infraorbital Suture
  - L: 9
  - R: 9
- Multiple Infraorbital foramina
  - L: 9
  - R: 9
- Zygomatico-facial foramina
  - L: 9
  - R: 9
- Parietal foramen
  - L: 0
  - R: 1

- Sutural bones:
    - A: 0
    - B: 0
    - C:0
    - D:0
    - E: 0
    - F: 0
        - L:
        - R:
    - G: 0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 9 due to absence
    - R: 9 due to damage
- Divided hypoglossal canal
    - L: 9 due to absence
    - R: 0
- Flexure of superior sagittal sulcus: 3
- Foramen ovale incomplete
- Foramen spinosum incomplete
- Auditory extosis
    - L: 9
    - R: 3
- Mastoid foramen
    - A
        - L: 4
        - R: 4
    - B
        - L: 3 (3 present)
        - R: 3 (3 present)
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus
    - L: 0
    - R: 0
- Mylohyoid Bridge: 0

Associated Objects: Unknown

Location of Grave 543



Grave 602

Provenience Information

Burial Number: 22 602

Duckworth Accession Number: Af.11.4.39

Burial Location: North side, northeast corner

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown **Inventory:** Cranium only **Body Position:** Semi-flexed, right side

Sex Estimation: Male **Age Estimation:** Young adult (sutures too open to estimate accurately)

Pathology Summary:

- Porotic hyperostosis

Dental Pathology Summary:

- LEH on maxillary dentition

Trauma Summary:

- Sharp force trauma to the right temporal-frontal-sphenoid junction
- Possible blunt force trauma to the base of the cranium with radiating fractures, causing the lambdoidal suture to separate

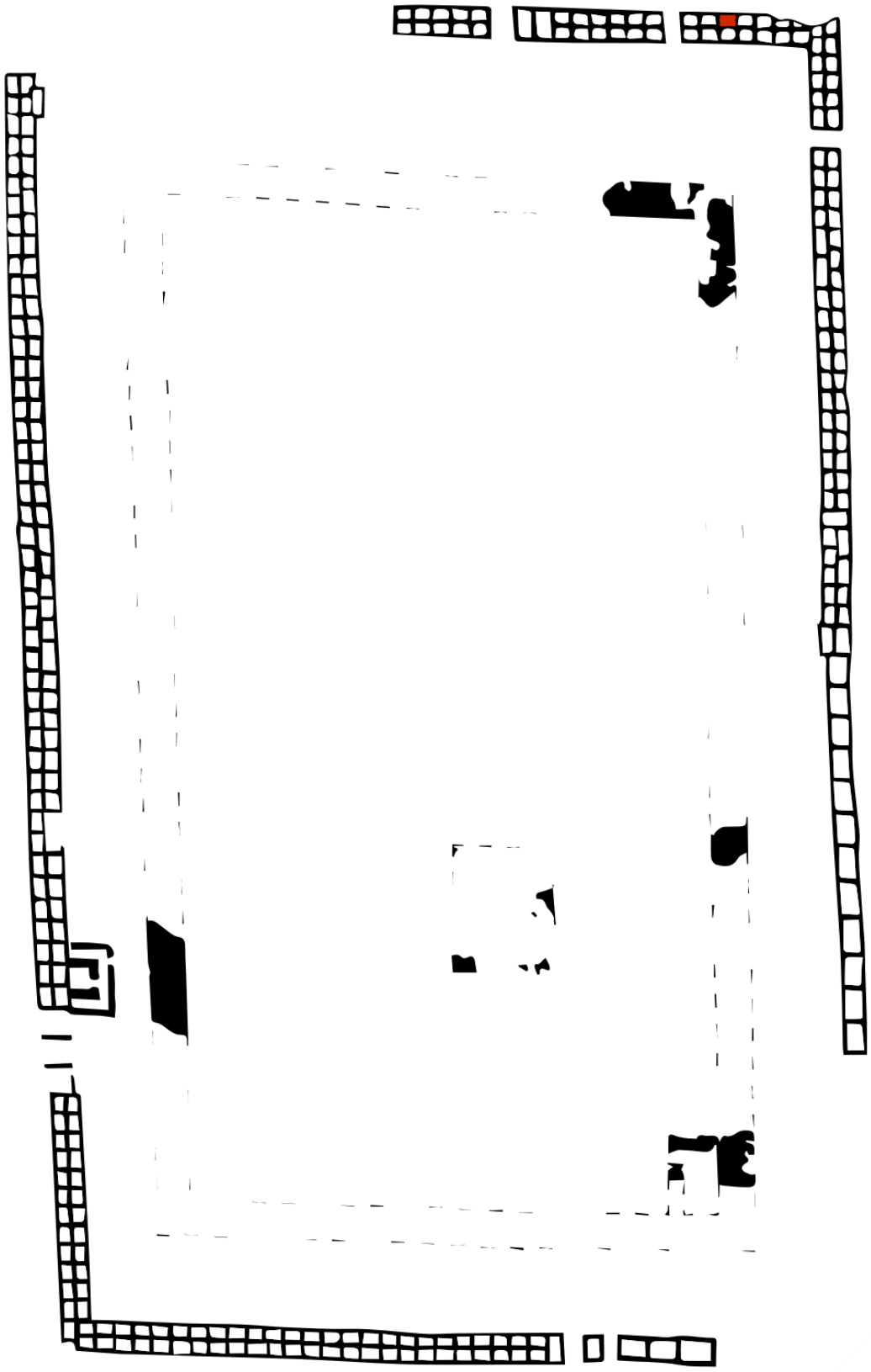
Non-metric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A
        - L:1
        - R: 1
    - B
        - L: 2
        - R: 2
- Infraorbital Suture
    - L: 2
    - R: 0
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 1
    - R: 1
- Parietal foramen
    - L: 0

    - R: 1
- Sutural bones: 0
- Inca bone: 0
- Condylar canal:
    - L: 9
    - R: 1
- Divided hypoglossal canal
    - L: 1
    - R: 3
- Flexure of superior sagittal sulcus: 2
- Foramen ovale incomplete
- Foramen spinosum incomplete
- Auditory extosis
    - L: 2
    - R: 3
- Mastoid foramen
    - A
        - L: 9
        - R: 0
    - B
        - L: 9
        - R: 9
    - Mental Foramen: unobservable
    - Mandibular Torus: unobservable
    - Mylohyoid Bridge: unobservable

Associated Objects: stone objects, flakes of flint, vessel(s)

Location of Grave 602



Grave 603

Provenience Information

Burial Number: 22 603

Duckworth Accession Number: Af.11.4.40

Burial Location: North side, northeast corner

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown **Inventory:** Cranium + mandible **Body Position:** Unknown

Sex Estimation: Possibly Male **Age Estimation:** Young adult (sutures too open to estimate accurately)

Pathology Summary:

- Porotic hyperostosis

Dental Pathology Summary:

- LEH visible on mandibular and maxillary dentition

Trauma Summary:

- Antemortem fracture of the mandibular body, healed

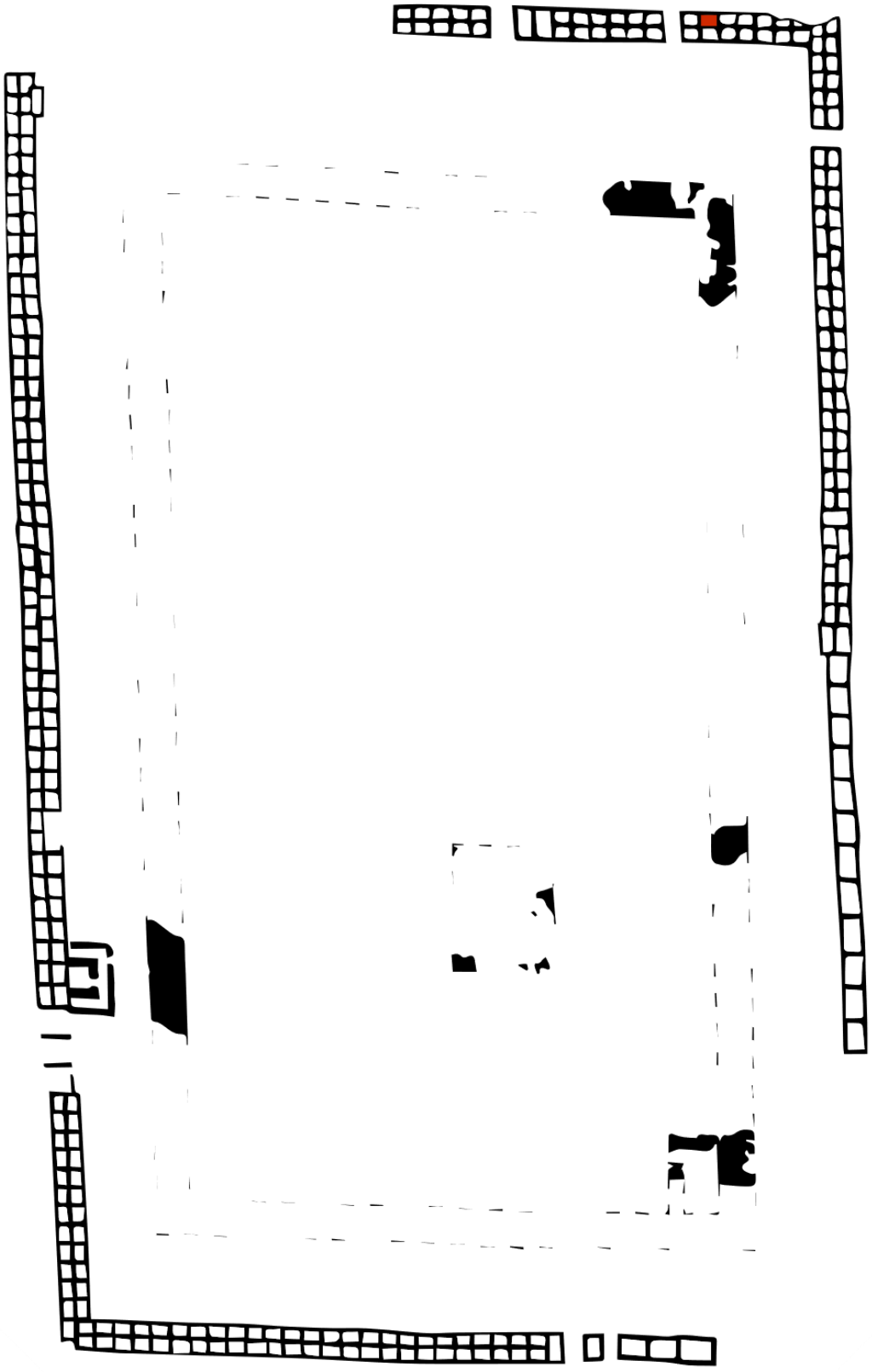
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A
        - L:1
        - R: 1
    - B
        - L:1
        - R:1
- Infraorbital Suture
    - L: 2
    - R: 2
- Multiple Infraorbital foramina
    - L: 0
    - R: 9
- Zygomatico-facial foramina
    - L: 1
    - R:0
- Parietal foramen
    - L: 1
    - R: 0
- Sutural bones:

    - A: 0
    - B: 0
        - L:
        - R:
    - C:0
    - D:0
    - E: 0
    - F: 0
        - L:
        - R:
    - G:
        - L: 0
        - R: 9
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 1
    - R: 0
- Divided hypoglossal canal
    - L: 9
    - R: 0
- Flexure of superior sagittal sulcus: 9
- Foramen ovale incomplete
- Foramen spinosum incomplete
- Auditory extosis
    - L: 9 due to wax and dirt
    - R: 0
- Mastoid foramen
    - A
        - L: 2
        - R: 9 due to damage
    - B
        - L: 1
        - R: 9 due to damage
- Mental Foramen
    - L: 1
    - R: 2
- Mandibular Torus: 0
- Mylohyoid Bridge: 0

Associated Objects: Unknown

Location of Grave 603



Grave 675

Provenience Information

Burial Number: 22 675

Duckworth Accession Number: Af.11.4.41

Burial Location: West side

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Young adult (mean 32, range 19-48)

Pathology Summary:

- Porotic hyperostosis

Dental Pathology Summary:

- LEH
- Dental abscess
- AMTL
- Alveolar retraction

Trauma Summary:

- Antemortem fractures of the central mandibular body, mostly healed but the fracture lines are still visible

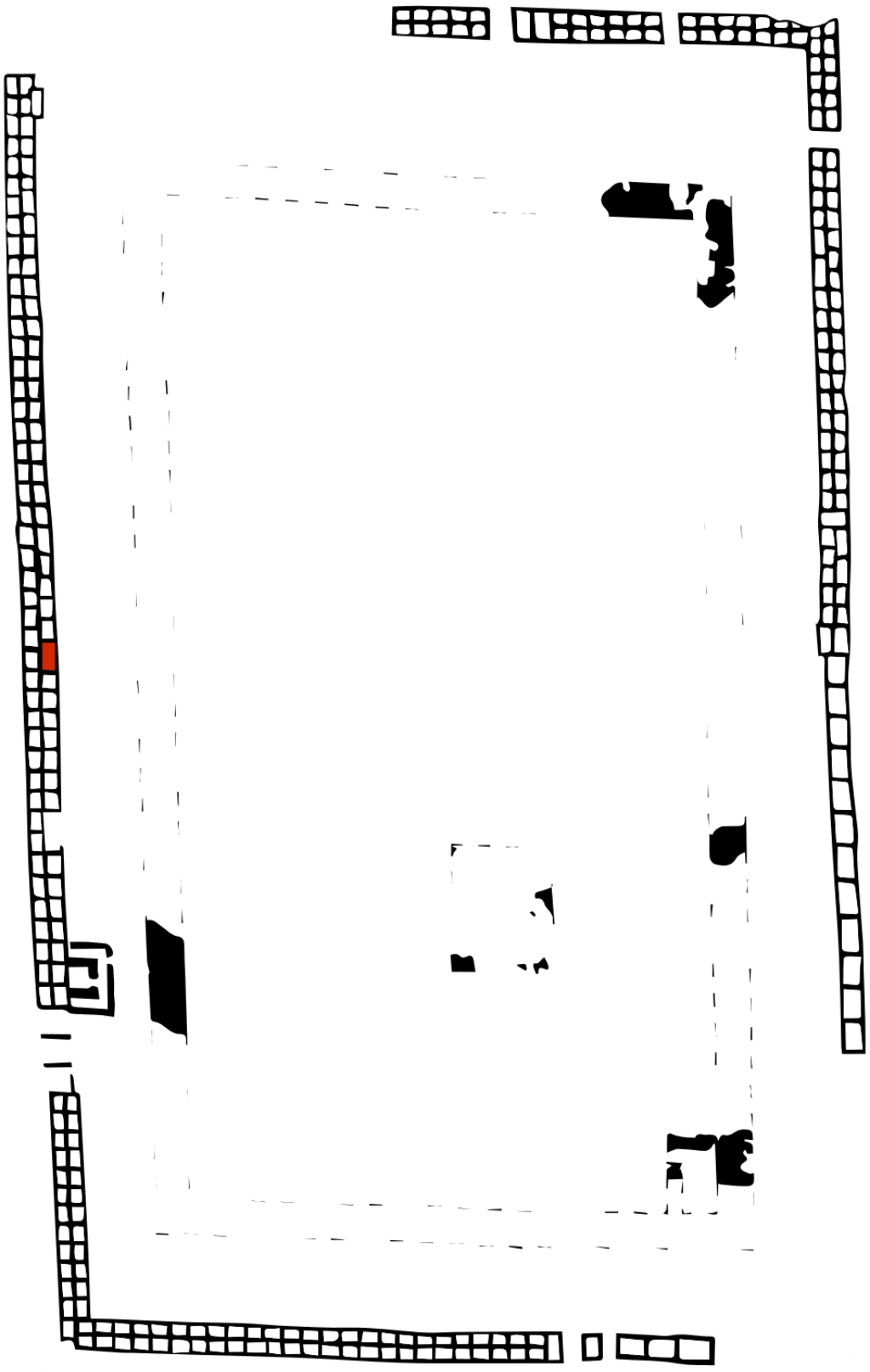
Nonmetric Traits:

- Metopic Suture: 1
- Supraorbital structures
    - A
        - L: 4
        - R: 4
    - B
        - L:1
        - R:2
- Infraorbital Suture
    - L: 1
    - R: 2
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 1
    - R: 1

- Parietal foramen: 1
    - L:
    - R:
- Sutural bones:
    - A: 0
    - B: 0
    - C: 0
    - D: 0
    - E: 0
    - F:
        - L: 0
        - R: 1
    - G:
        - L: 1
        - R: 0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 0
    - R: 9
- Divided hypoglossal canal
    - L: 0
    - R: 0
- Flexure of superior sagittal sulcus: 1
- Foramen ovale incomplete
- Foramen spinosum incomplete
- Auditory extosis
    - L: 1
    - R: 9 due to dirt and wax
- Mastoid foramen
    - A
        - L: 0
        - R: 2
    - B
        - L: 0
        - R: 1
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus: 0
- Mylohyoid Bridge: 0

Associated Objects: Unknown

Location of Grave 675



Grave 704

Provenience Information

Burial Number: 22 704

Duckworth Accession Number: Af.11.4.51

Burial Location: West side

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Mandible only

Body Position: Unknown

Sex Estimation: Possibly Male

Age Estimation: Middle adult

Dental Pathology:

- Severe calculus accumulation

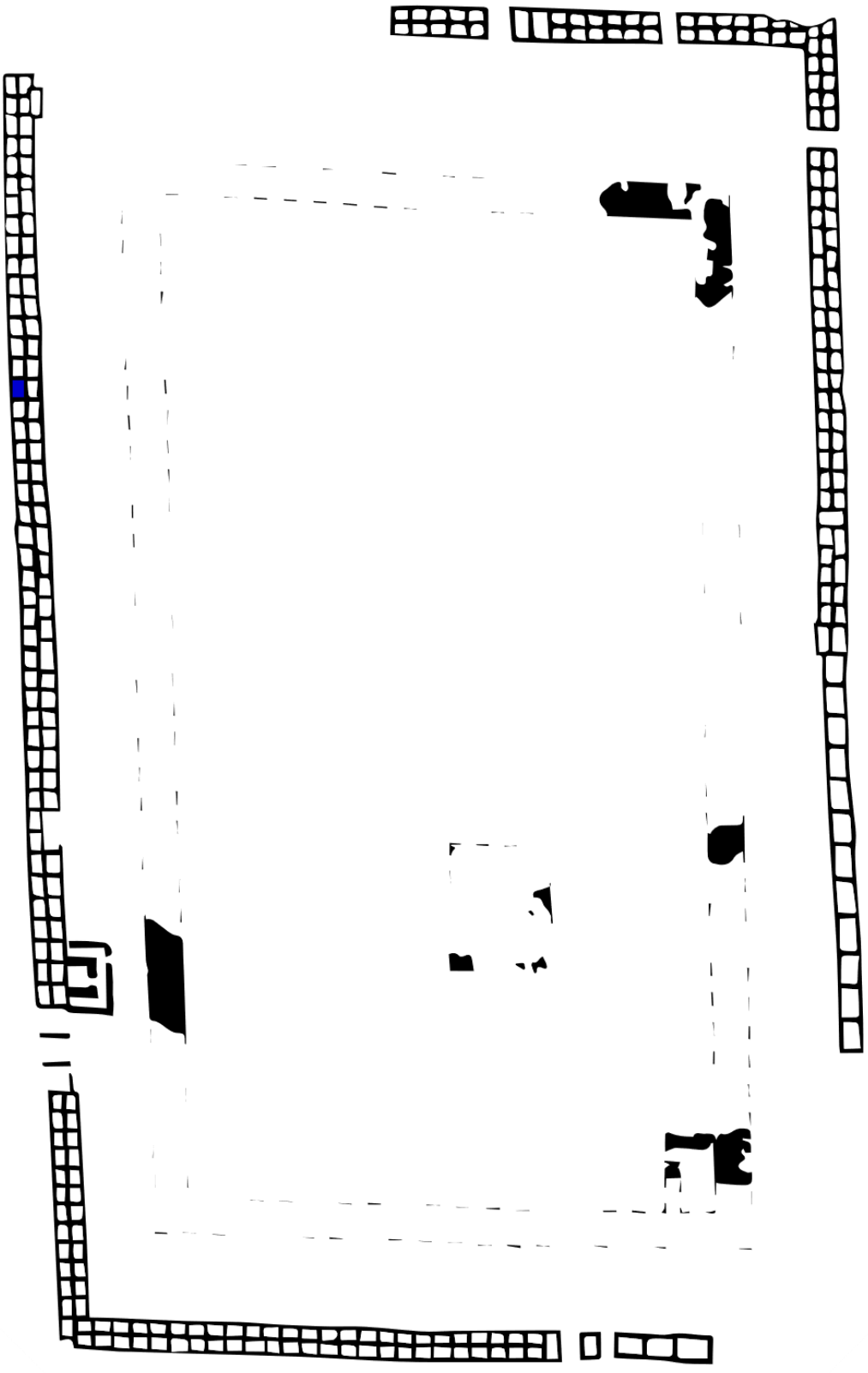
Trauma summary: No visible trauma

Nonmetric Traits:

- Mental Foramen
  - L: 2
  - R: 1
- Mandibular Torus
  - L: 0
  - R: 0
- Mylohyoid Bridge
  - Location
    - L:0
    - R:0
  - Degree
    - L:0
    - R:0

Associated Objects: Unknown

Location of Grave 704



Grave 740

Provenience Information

Burial Number: 22 740

Duckworth Accession Number: Af.11.4.42

Burial Location: West side, southwest corner

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Middle adult (mean 34.7, range 22-48)

Pathology Summary:

- Porotic hyperostosis
- Reactive bone on mandibular body

Dental Pathology Summary:

- LEH
- AMTL
- Alveolar retraction
- Calculus accumulation on mandibular dentition

Trauma Summary: No visible trauma

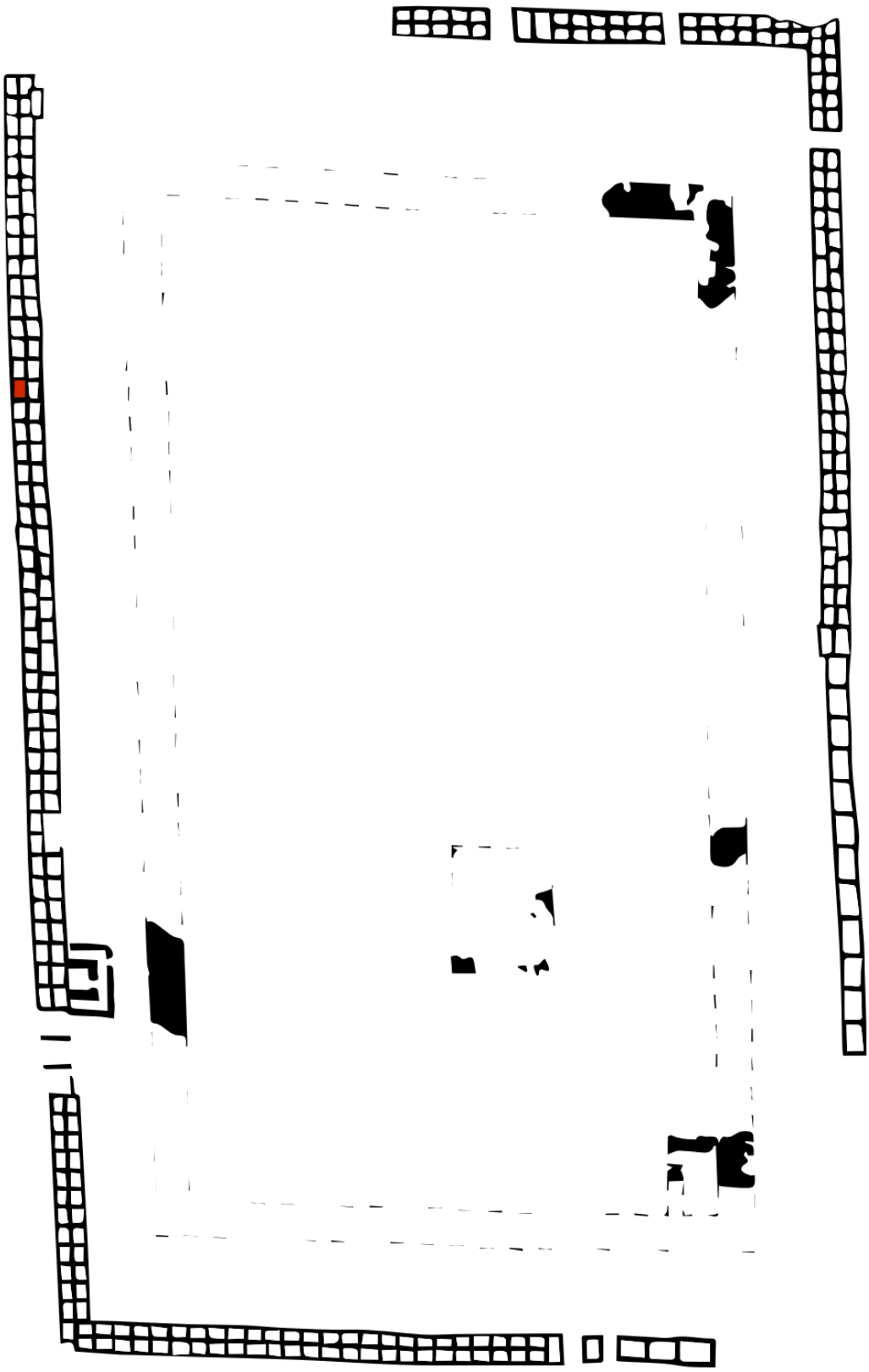
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A
        - L: 0
        - R: 1
    - B
        - L: 1
        - R: 1
- Infraorbital Suture
    - L: 0
    - R: 9
- Multiple Infraorbital foramina
    - L: 1
    - R: 0
- Zygomatico-facial foramina
    - L: 2 (1 large, 1 small)
    - R: 2 (1 large, 3 small)
- Parietal foramen: 0

- Sutural bones:
    - A: 0
    - B: 0
    - C: 0
    - D: 0
    - E: 0
    - F:
        - L:1 (1 present)
        - R: 0
    - G:
        - L: 1 (1 present)
        - R: 1 present
    - H:
        - L: 1 (1 present)
        - R: 0
    - I: 0
- Inca bone: 0
- Condylar canal: 9
- Divided hypoglossal canal: 9
- Flexure of superior sagittal sulcus: 1
- Foramen ovale incomplete
- Foramen spinosum incomplete
- Auditory extosis
    - L: 1
    - R:0
- Mastoid foramen
    - A
        - L: 4
        - R: 4
    - B
        - L: 2
        - R: 2
- Mental Foramen
    - L: 1
    - R: 1
    - Mandibular Torus: 0
    - Mylohyoid Bridge
        - Location
            - L:1
            - R:1
        - Degree
            - L: 2
            - R: 2

Associated Objects: Unknown

Location of Grave 740



Grave 745

Provenience Information

Burial Number: 22 745

Duckworth Accession Number: Af.11.4.43

Burial Location: West side

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Young adult (mean 32, range 19-48)

Pathology Summary:

- Infectious bony response in the right mastoid process
- Porotic hyperostosis

Dental Pathology Summary:

- Caries
- LEH visible on some of the anterior teeth

Trauma Summary:

- Possible antemortem fractures (mostly healed but the fracture lines are still visible) on the central mandibular body

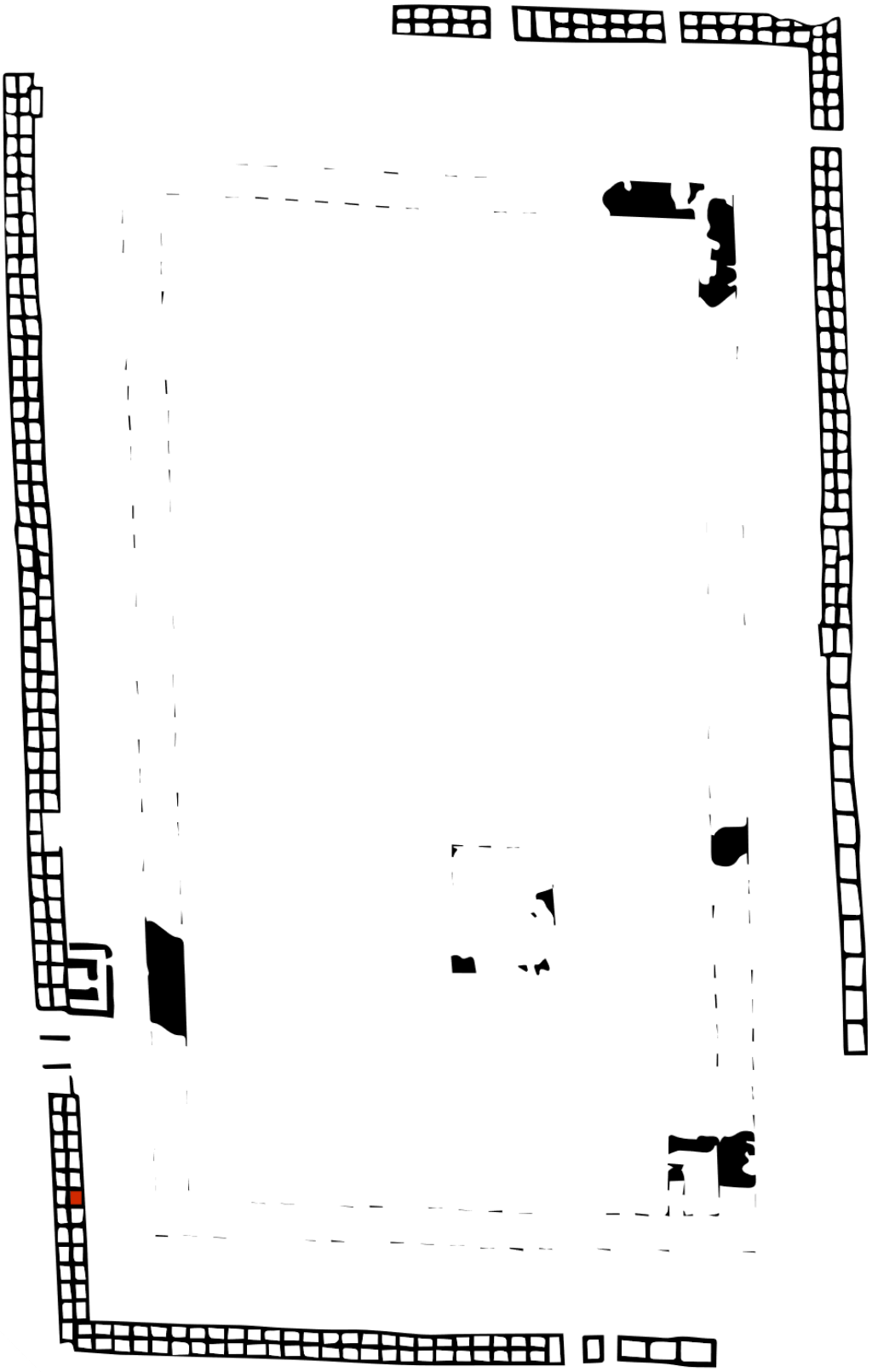
Nonmetric Traits:

- Metopic Suture: 1
- Supraorbital structures
    - A
        - L: 0
        - R: 1
    - B
        - L:1
        - R: 0
- Infraorbital Suture
    - L: 1
    - R: 0
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 1
    - R: 0
- Parietal foramen

    - L: 9
    - R: 0
- Sutural bones: all 0
- Inca bone: 0
- Condylar canal:
    - L: 0
    - R: 0
- Divided hypoglossal canal
    - L: 0
    - R: 9
- Flexure of superior sagittal sulcus: 3
- Foramen ovale incomplete
- Foramen spinosum incomplete
- Auditory extosis
    - L: 9
    - R: 9
- Mastoid foramen
    - A
        - L: 3
        - R: 0
    - B
        - L: 1
        - R: 0
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus: 0
- Mylohyoid Bridge: 0

Associated Objects: Unknown

Location of Grave 745



Grave 746

Provenience Information

Burial Number: 22 746

Duckworth Accession Number: Af.11.4.44

Burial Location: West side

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Young adult (mean 32, range 19-48)

Pathology Summary:

- Porotic hyperostosis
- Button osteoma

Dental Pathology Summary:

- Severe calculus accumulation on the lingual surface of the mandibular molars
- LEH on mandibular dentition
- Alveolar retraction

Trauma Summary:

- Perimortem sharp force trauma to the left superior orbit, shearing off the superior orbital margin
- A large missing chunk out of the left temporal may be the combine result of perimortem and postmortem trauma
    - Beveling and the inferior edge of the margin suggests a perimortem fracture, while the superior edge demonstrates clear features of postmortem fracture (differential coloration, etc.), suggesting perhaps a depressed fracture that retained some of the fragments but then broke completely sometime after death or perhaps during excavation and transport

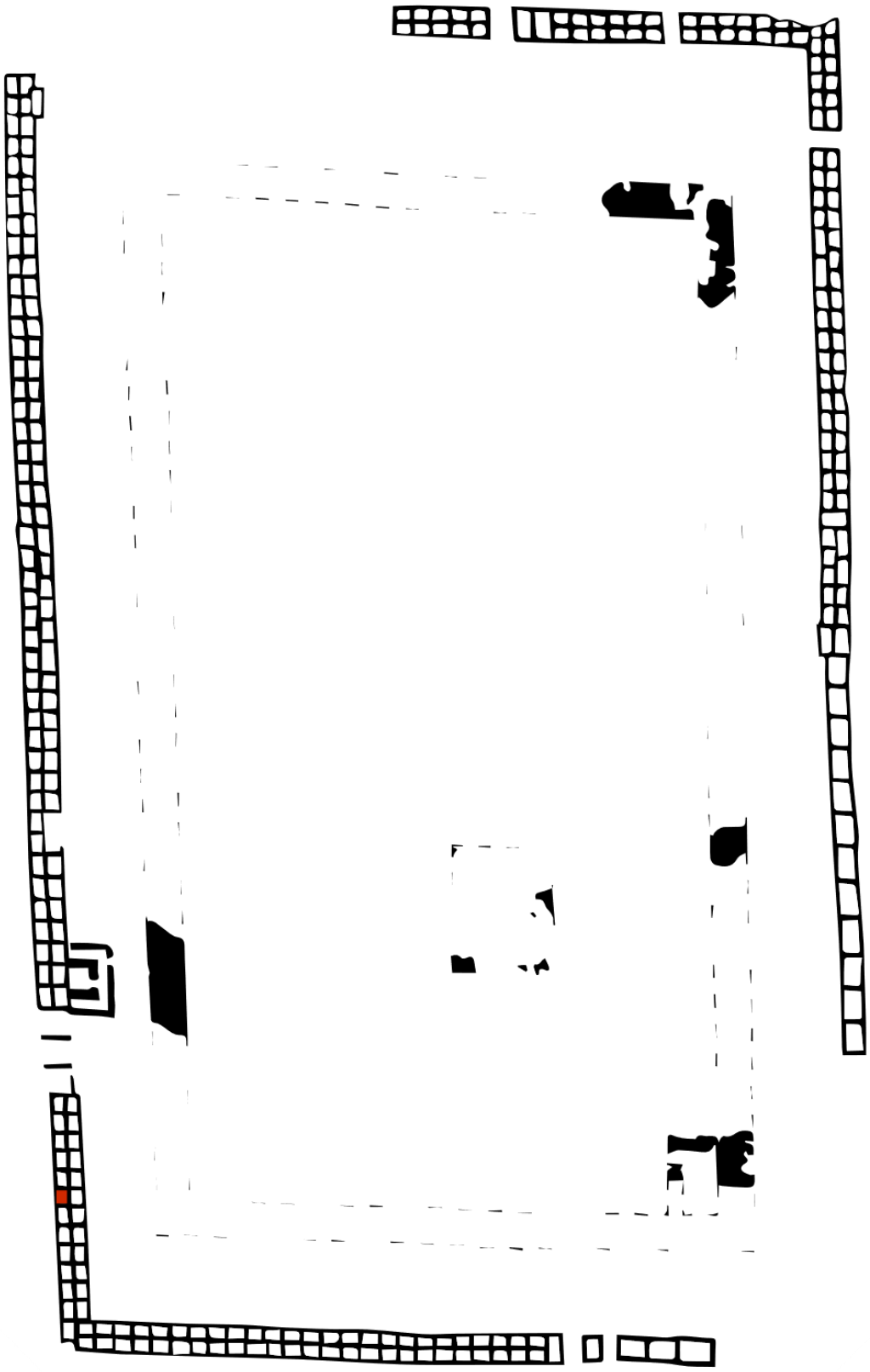
Nonmetric Traits:

- Metopic Suture:
- Supraorbital structures
    - A
        - L: 9
        - R: 0
    - B
        - L: 9
        - R: 1
- Infraorbital Suture
    - L: 9
    - R: 0
- Multiple Infraorbital foramina

    - L: 9
    - R: 0
- Zygomatico-facial foramina
    - L: 9
    - R: 5
- Parietal foramen: 0
- Sutural bones:
    - A:
        - L:9
        - R:0
    - B: 0
    - C:0
    - D:0
    - E: 1
    - F: 0
    - G: 0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 1
    - R: 1
- Divided hypoglossal canal
    - L: 3
    - R: 1
- Flexure of superior sagittal sulcus: 1
- Foramen ovale incomplete
- Foramen spinosum incomplete
    - Auditory extosis
        - L: 3
        - R: 9
    - Mastoid foramen
        - A
            - L: 1
            - R: 1
        - B
            - L: 1
            - R: 2
    - Mental Foramen
        - L: 1
        - R: 1
    - Mandibular Torus: 0
    - Mylohyoid Bridge: 0

Associated Objects: Unknown

Location of Grave 746



Grave 756

Provenience Information

Burial Number: 22 756

Duckworth Accession Number: Af.11.4.45

Burial Location: West side, southwest corner

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Young adult (mean 32, range 19-48)

Pathology Summary:

- Bony growth on the left occipital posterior and slightly superior to the mastoid process

Dental Pathology Summary:

- LEH
- Caries

Trauma Summary: No visible trauma

Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A
        - L: 4 (2 notches, both less than ½ occluded)
        - R: 4 (2 notches, both less than ½ occluded)
    - B
        - L:1
        - R:2
- Infraorbital Suture
    - L: 2
    - R: 2
- Multiple Infraorbital foramina: 0
- Zygomatico-facial foramina
    - L: 9
    - R: 6 (2 small)
- Parietal foramen
    - L: 1
    - R: 1
- Sutural bones:
    - A: 0
    - B: 0
        - L:

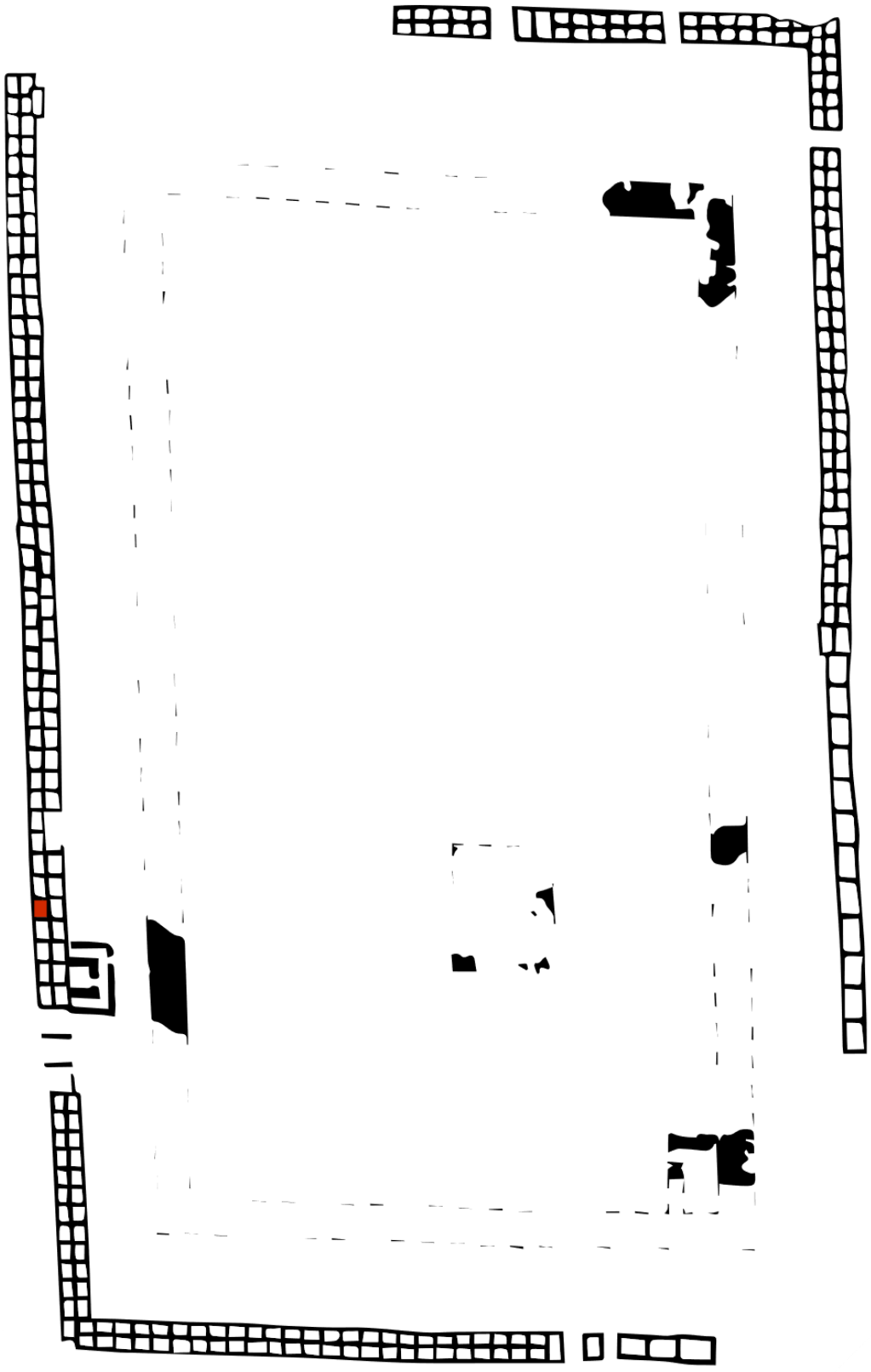
        - R:
    - C: 0
    - D: 0
    - E: 0
    - F:
        - L: 0
        - R: 1 (1 present)
    - G: 0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 9
    - R: 1
- Divided hypoglossal canal
    - L: 9
    - R: 9
- Flexure of superior sagittal sulcus: 3
- Foramen ovale incomplete
- Foramen spinosum incomplete
- Auditory extosis: 9
- Mastoid foramen
    - A
        - L: 4
        - R: 1
    - B
        - L: 2
        - R: 2
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus: 0
- Mylohyoid Bridge
    - Location
        - L:0
        - R:2
    - Degree
        - L: 0
        - R: 2

Additional Notes:

- Deep purple dentine in maxillary teeth

Associated Objects: Unknown

Location of Grave 756



Grave 760

Provenience Information

Burial Number: 22 760

Duckworth Accession Number: Af.11.4.46

Burial Location: West side, southwest corner

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Female

Age Estimation: Middle adult (mean 36.2, range 25-49)

Pathology Summary:

- Parietal thinning

Dental Pathology Summary:

- LEH on maxillary dentition
- Severe caries
- Dental abscess at root of left mandibular second premolar and first molar
- Alveolar retraction

Trauma Summary:

- Healed antemortem fracture of central mandibular body

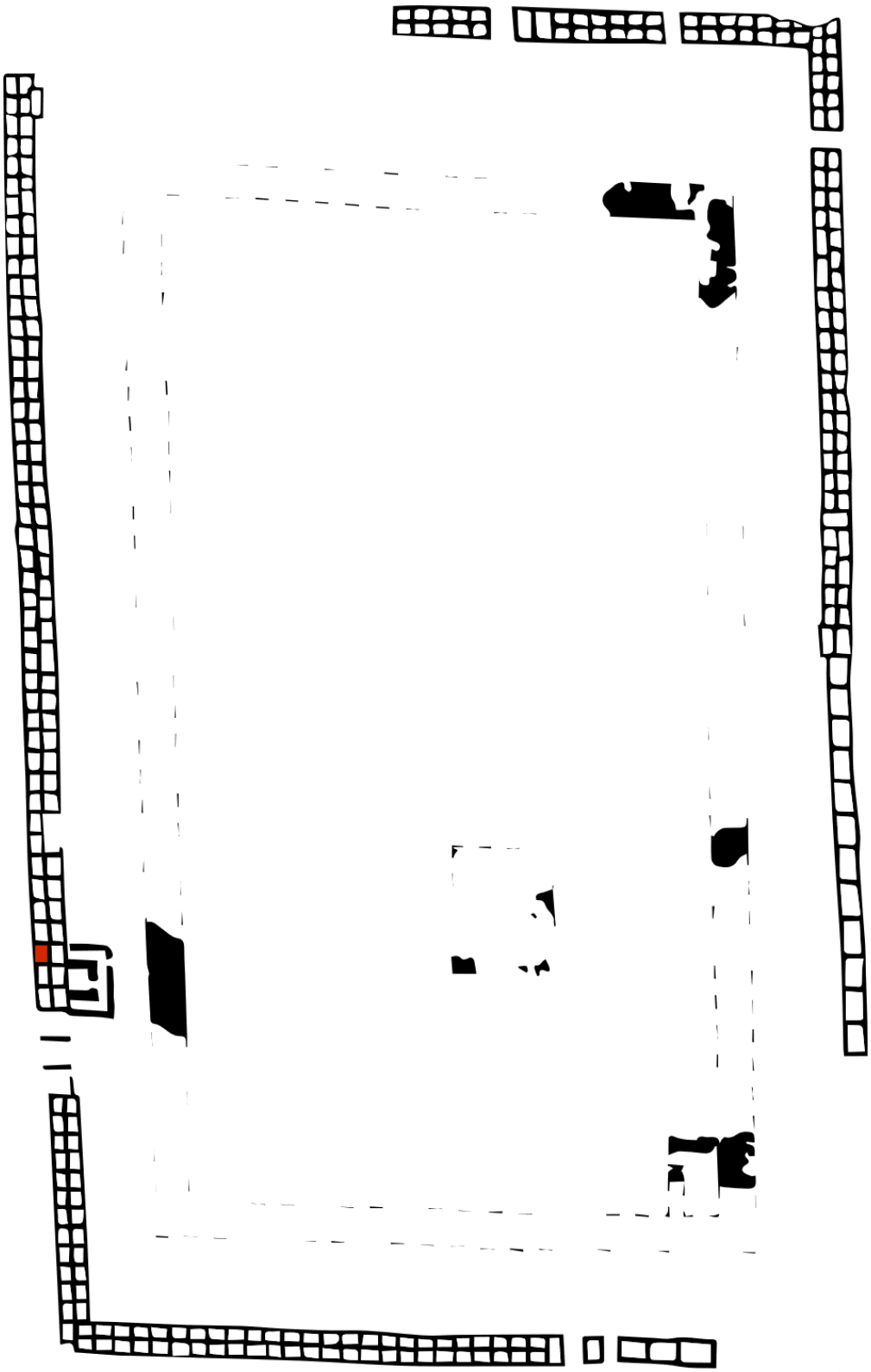
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A
        - L: 1
        - R: 1
    - B
        - L:1
        - R:1
- Infraorbital Suture
    - L: 1
    - R: 1
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 1
    - R: 1
- Parietal foramen: 0

- Sutural bones:
    - A: 0
    - B: 0
        - L:
        - R:
    - C: 0
    - D: 0
    - E: 0
    - F:
        - L: 1 (2 present)
        - R: 1 (1 present)
    - G: 0
    - H: 0
    - I:
        - L: 0
        - R: 1
- Inca bone: 0
- Condylar canal:
    - L: 0 (extra bone growth here)
    - R: 1
- Divided hypoglossal canal
    - L: 3
    - R: 1
- Flexure of superior sagittal sulcus: 3
- Foramen ovale incomplete
- Foramen spinosum incomplete
- Auditory extosis
    - L: 3
    - R: 3
- Mastoid foramen: 0
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus
    - L: 1
    - R: 1
- Mylohyoid Bridge
    - Location
        - L: 1
        - R: 1
    - Degree
        - L: 2
        - R: 0

Associated Objects: Unknown

Location of Grave 760



Grave 763

Provenience Information

Burial Number: 22 763

Duckworth Accession Number: Af.11.4.47

Burial Location: West side, southwest corner

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Young adult (mean 32, range 19-48)

Pathology Summary:

- Porotic hyperostosis

Dental Pathology Summary:

- LEH visible on maxillary dentition

Trauma Summary:

- Possible blunt force trauma to occipital near the foramen magnum

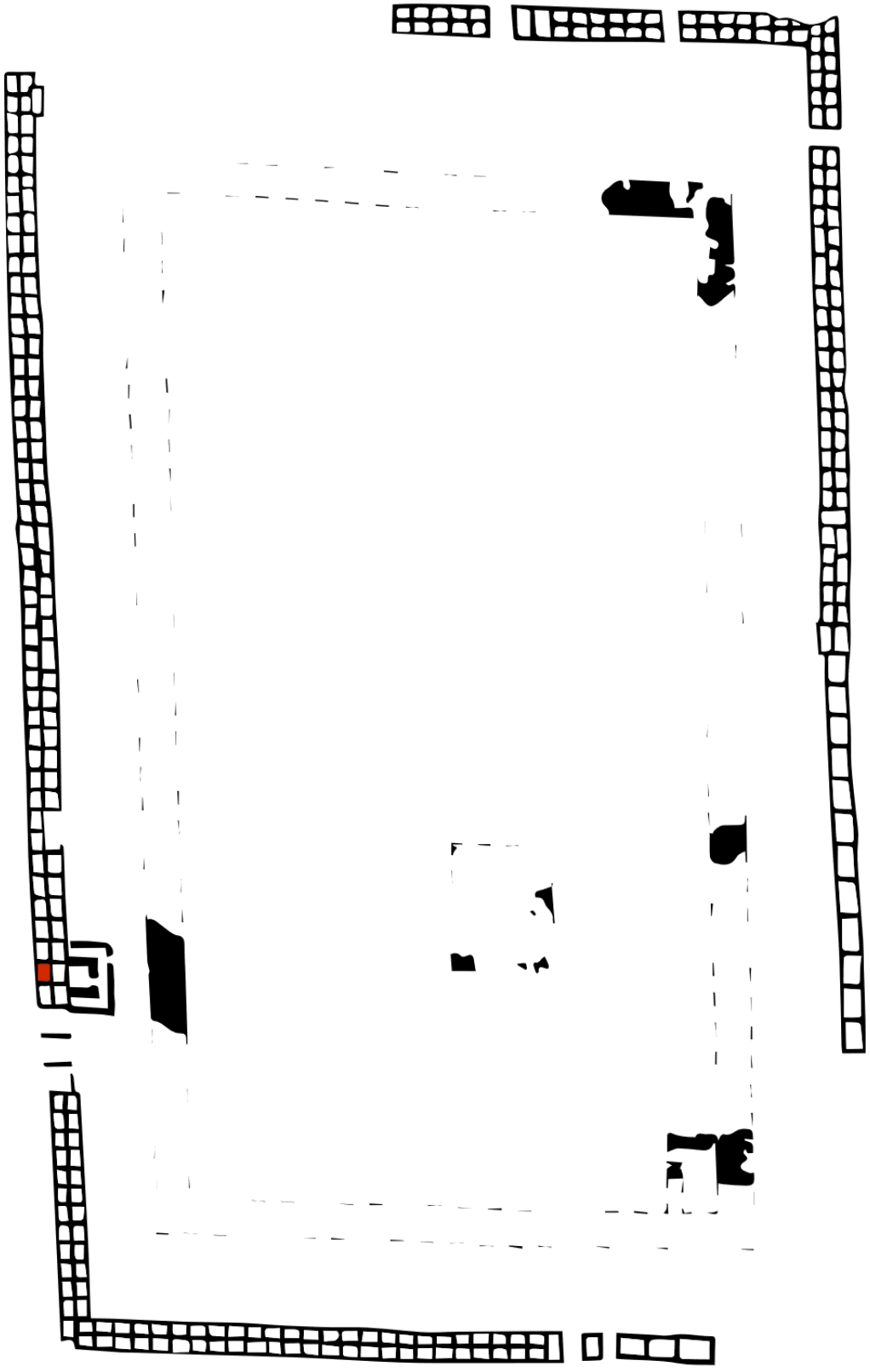
Nonmetric Traits:

- Metopic Suture: 1
- Supraorbital structures
    - A
        - L: 1
        - R: 1
    - B
        - L: 0
        - R: 1 (1 present)
- Infraorbital Suture
    - L: 0
    - R: 0
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 1
    - R: 0
- Parietal foramen
    - L: 1
    - R: 1
- Sutural bones: all 0

- Inca bone: 0
- Condylar canal:
    - L: 9
    - R: 9
- Divided hypoglossal canal
    - L: 1
    - R: 1
- Flexure of superior sagittal sulcus: 1
- Foramen ovale incomplete
- Foramen spinosum incomplete
    - L: 1
    - R: 2
- Auditory extosis
    - L: 9 due to wax and dirt
    - R: 9
- Mastoid foramen
    - A
        - L: 2
        - R: 0
    - B
        - L: 1
        - R: 0
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus
    - L: 0
    - R: 0
- Mylohyoid Bridge
    - Location
        - L: 1
        - R: 0
    - Degree
        - L: 2
        - R: 0

Associated Objects: Unknown

Location of Grave 763



Grave 776

Provenience Information

Burial Number: 22 776

Duckworth Accession Number: Af.11.4.48

Burial Location: West side, middle

Associated Monarch: Djer

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Middle adult (mean 34.7, range 22-48)

Pathology Summary:

- Destructive lesions on left parietal
- Cribra orbitalia on both posterior parietals and superior occipital
- Calculus accumulation

Dental Pathology Summary:

- LEH visible on anterior teeth

Trauma Summary:

- Antemortem fracture of central mandibular body, mostly healed but fracture line is still visible as well as a slight lip of bone

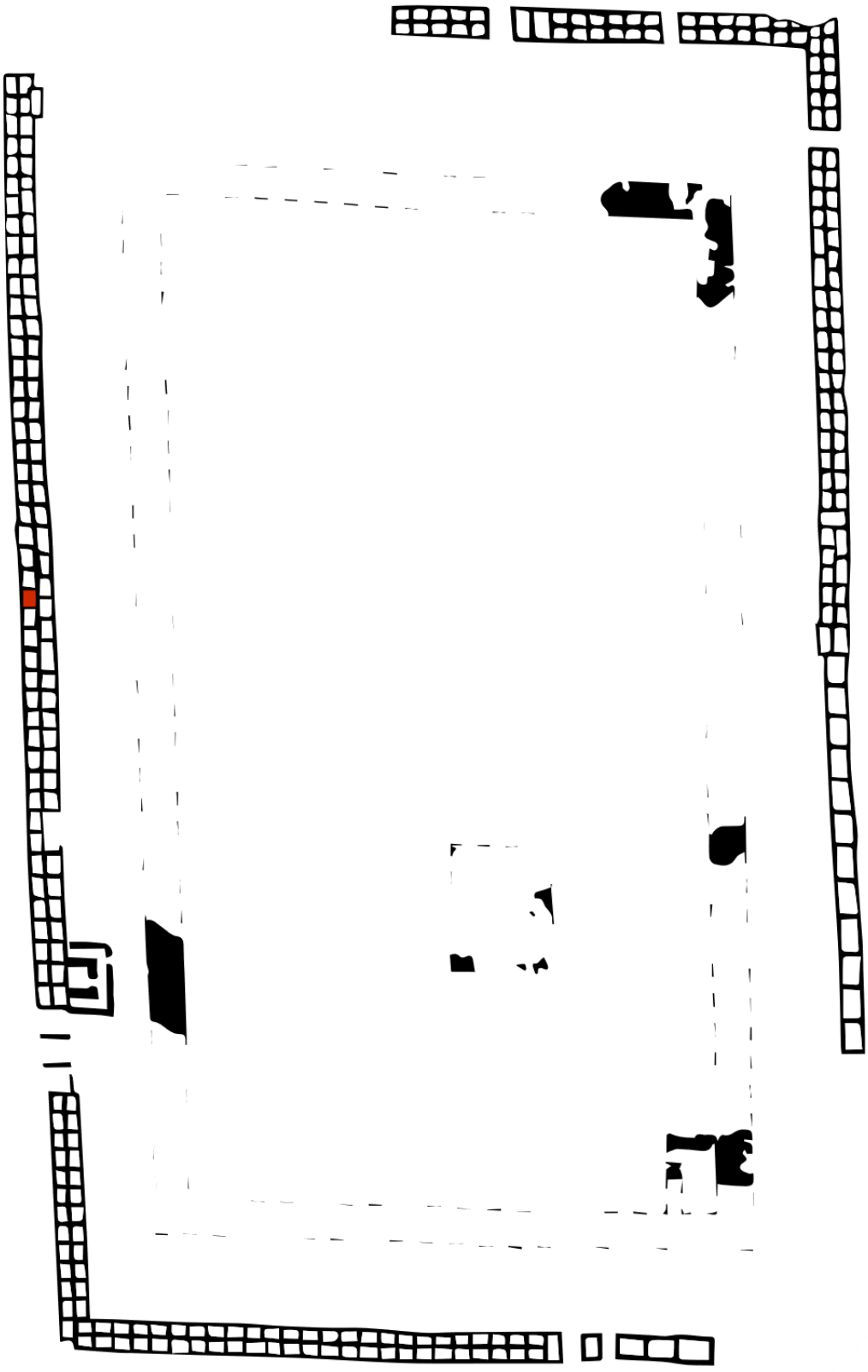
Nonmetric Traits:

- Metopic Suture: 1
- Supraorbital structures
    - A
        - L:1
        - R: 1
    - B
        - L: 1
        - R: 0
- Infraorbital Suture
    - L: 0
    - R: 0
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 4 (2 large, 2 small)
    - R: 3
- Parietal foramen: 0

- Sutural bones:
    - A: 0
    - B: 0
    - C: 0
    - D: 0
    - E: 0
    - F:
        - L: 1 (1 present)
        - R: 0
    - G:
        - L: 0
        - R: 1
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal: 0
- Divided hypoglossal canal
    - L: 3
    - R: 0
- Flexure of superior sagittal sulcus: unobservable due to wax and dirt
- Foramen ovale incomplete
- Foramen spinosum incomplete
- Tympanic Dihiscence: 0
- Auditory extosis
    - L: 3
    - R: 9 due to wax and dirt
- Mastoid foramen
    - A
        - L: 0
        - R: 2
    - B
        - L: 0
        - R: 1
- Mental Foramen
    - L: 2
    - R: 1
- Mandibular Torus: 0
- Mylohyoid Bridge
    - Location
        - L:1
        - R:1
    - Degree
        - L:1
        - R:1

Associated Objects: Unknown

Location of Grave 776



Appendix C: Subsidiary Burials of Djet

Summary of Individuals in This Study

Crania Burial Numbers (24): 131, 132, 135, 146, 396, 412, 413, 426, 428, 429, 433, 432, 436, 437, 442, 443, 445, 446, 447, 449, 452, 454

Mandibles only: 122, 417

Photos by Petrie (grave numbers): 329, 384, 387, 414, 425

Individuals Assessed in This Study:

Grave Num.	Location	Element	Sex	Age	Petrie Photograph Citation	Body Position	Associated Objects
122	East side	Mandible only	Possibly Female	Middle adult	N/A	Unknown	Unknown
132	East side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
135	East side	Cranium + mandible	Female	Middle adult	N/A	Unknown	Unknown
146	East side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
396	North side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
412	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
413	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
417	West side	Mandible only	Ambiguous	Middle adult	N/A	Unknown	Unknown
426	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
428	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
429	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
432	West side	Cranium + mandible	Male	Older adult	N/A	Unknown	Unknown
433	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
436	West side	Cranium + mandible	Male	Middle adult	Unpublished photograph	Semi-flexed, right side,	Vessels, coffin?

					in Petrie Museum	head slightly twisted and propped up	
437	West side	Cranium + mandible	Female	Middle adult	N/A	Unknown	Unknown
442	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
443	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
444	West side	Cranium + mandible	Female	Middle adult	N/A	Unknown	Unknown
445	West side	Cranium + mandible fragment	Female	Middle adult	N/A	Unknown	Unknown
446	West side	Cranium + mandible fragment	Possibly Male	Middle adult	N/A	Unknown	Unknown
447	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
449	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
452	West side	Cranium + mandible	Male	Middle adult	N/A	Unknown	Unknown
454	West side	Cranium + mandible	Female	Middle adult	N/A	Unknown	Unknown

Photographs of Individuals Not Assessed in This Study:

Grave Number	Location	Photograph Citation	Sex	Age	Body Position	Associated Objects
329	South side	Petrie 1925, Plate XIII	Unknown	Unknown (probably adult)	Semi-flexed, left side, facedown	Needles, stone flake, coffin, stone vessel
384	North side, northwestern corner	Petrie 1925, Plate XIII	Unknown	Unknown (probably adult)	Tightly flexed, left side, face slightly down	Ceramic vessels, model granary
387	North side, northwestern corner	Unpublished photograph in Petrie Museum	Unknown	Unknown (probably adult)	Tightly flexed, right side and partly prone	Vessels
414	Western side	Petrie 1925, Plate XIII	Unknown	Unknown (probably adult)	Semi-flexed, left side	Vessels
425	Western side	Unpublished photograph in Petrie Museum	Unknown	Unknown (probably adult)	Semi-flexed, right side, cranium absent in photo	Unknown

Grave 122

Provenience Information

Burial Number: 22 122

Duckworth Accession Number: Af.11.4.52

Burial Location: East side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown **Inventory:** Mandible only **Body Position:** Unknown

Sex Estimation: Possibly Female **Age Estimation:** Young adult (only mandible is present)

Pathology: No visible pathologies

Dental Pathology:

- Moderate calculus accumulation on molars
- Periodontal disease

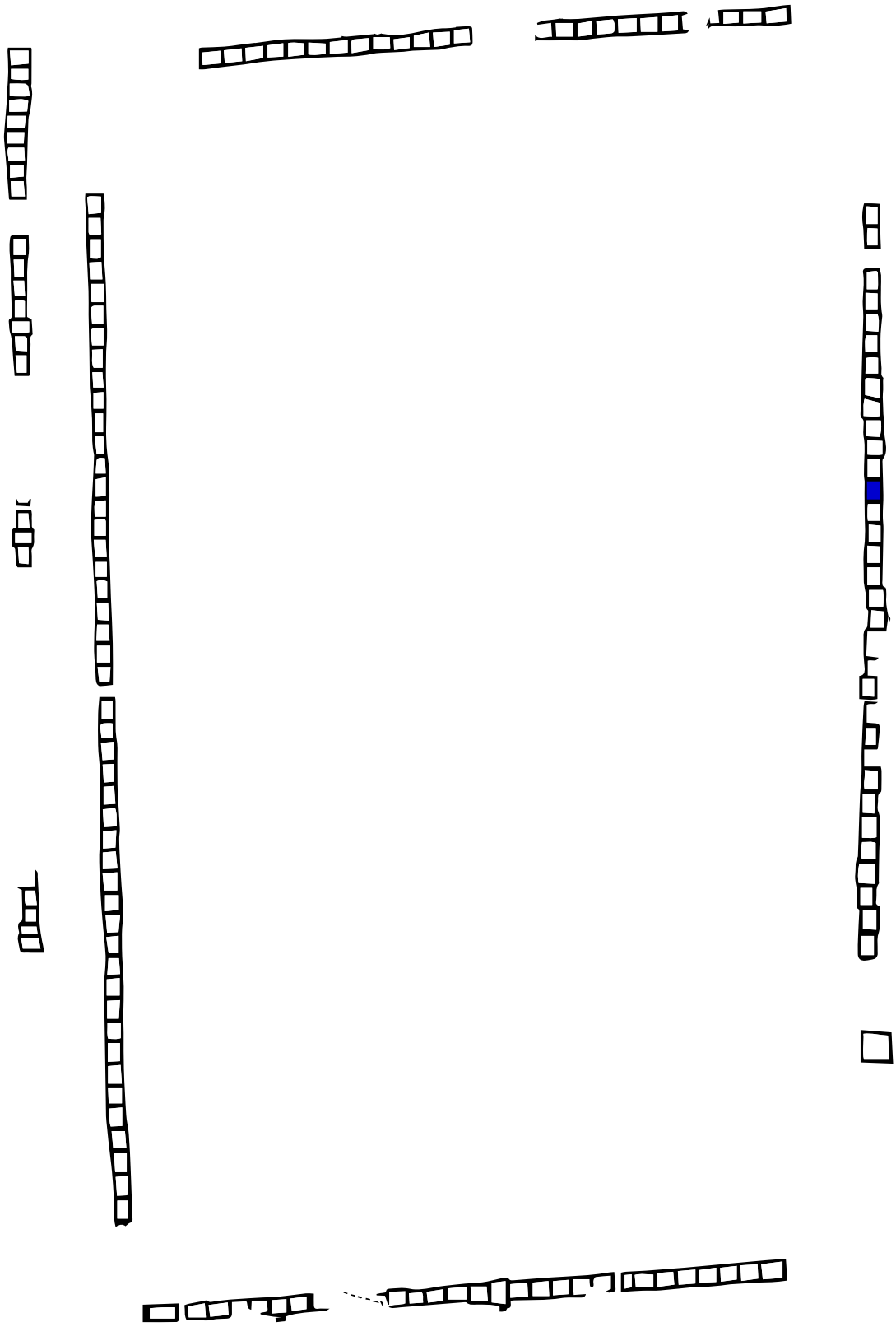
Trauma Summary: No visible trauma

Nonmetric Traits:

- Mental Foramen
  - L: 1
  - R: 1
- Mandibular Torus
  - L: 0
  - R: 0
- Mylohyoid Bridge
  - Location
    - L: 0
    - R: 0
  - Degree
    - L: 0
    - R: 0

Associated Objects: ivory game piece(s)

Location of Grave 122



Grave 131

Provenience Information

Burial Number: 22 131

Duckworth Accession Number: Af.11.4.1

Burial Location: East side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Mean 41, range 23-68

Pathology Summary:

- Destructive lytic lesions on the right parietal
- Porotic hyperostosis on occipital and on frontal

Dental Pathology Summary:

- No visible caries

Trauma Summary:

- Possibly perimortem BFT: radiating fractures on cranial base

Non-metric Traits:

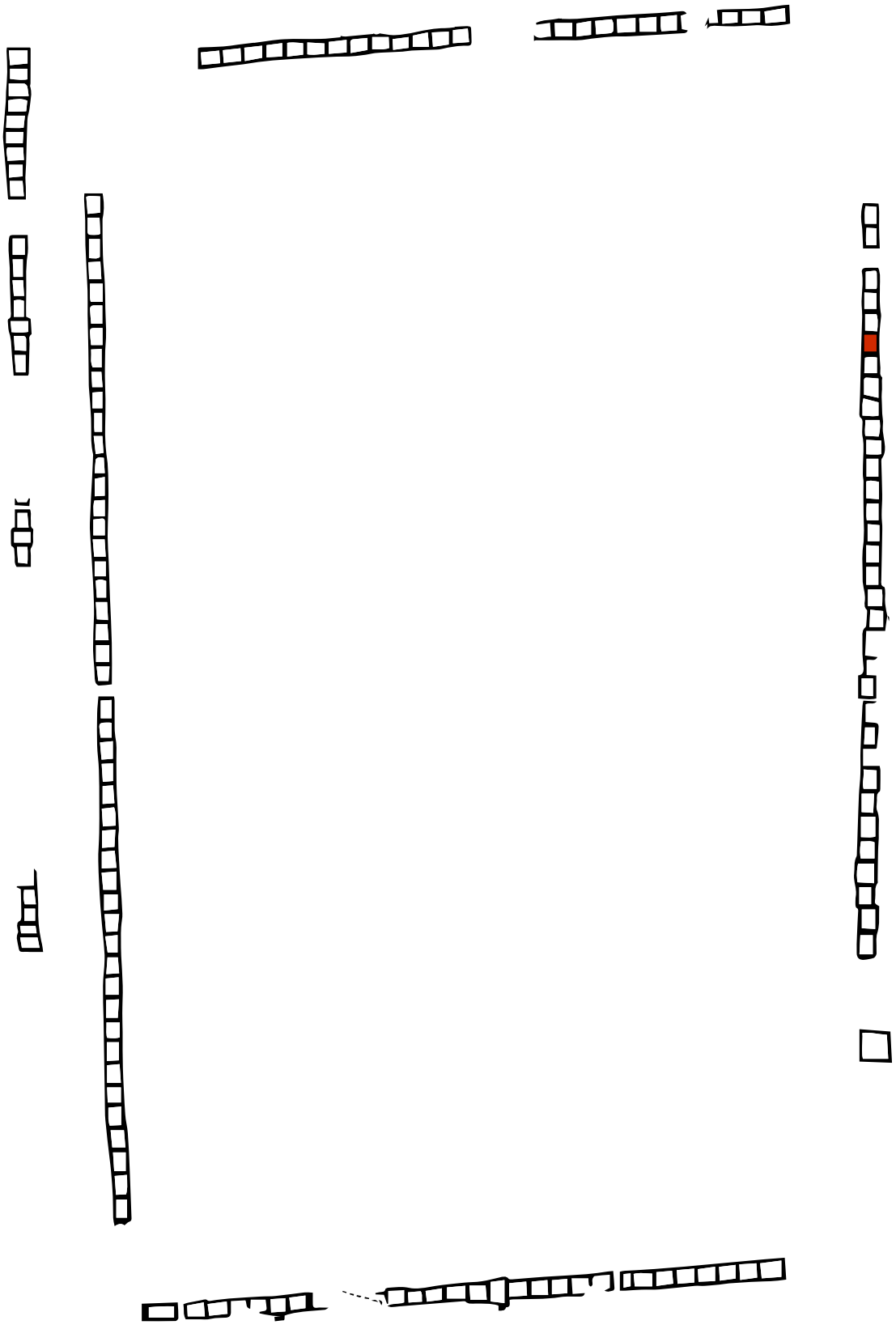
- Metopic Suture: 0
- Supraorbital structures
    - A:
        - L: 1
        - R:1
    - B:
        - L:1
        - R:1
- Infraorbital Suture
    - L:1
    - R: 1
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 1
    - R: 0
- Parietal foramen:
    - L:1
    - R:1 (2 present)

- Sutural bones:
    - A: 0
    - B: 0
    - C: 0
    - D: 0
    - E: 1
    - F:
        - L: 1 (3 present)
        - R: 0
    - G:
        - L: 0
        - R: 1
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 0
    - R: 1
- Divided hypoglossal canal:
    - L: 0
    - R: 0
- Flexure of superior sagittal sulcus: 2
- Foramen ovale incomplete:
    - L: 0
    - R: 0
- Foramen spinosum incomplete
    - L: 9 due to wax and dirt
    - R:9 due to wax and dirt
- Pterygo-spinous bridge
    - L:1??
    - R:1
- Pterygo-alar bridge
    - L: 1? Very tiny spur
    - R:0
- Tympanic Dihiscence: all 0
- Auditory extosis
    - L: 3
    - R: 9 due to wax and dirt
- Mastoid foramen
    - A:
        - L: 2
        - R: 1
    - B
        - L: 1
        - R: 1
- Mental Foramen
    - L: 9 due to absence

    - R: 9 due to breakage
- Mandibular Torus
    - L: 9
    - R: 9
- Mylohyoid Bridge
    - Location
        - L: 9
        - R: 0
    - Degree
        - L: 9
        - R: 0

Associated Objects: Unknown

Location of Grave 131



Grave 132

Provenience Information

Burial Number: 22 132

Duckworth Accession Number: Af.11.4.2

Burial Location: East side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Middle adult (sutures too open to estimate accurately)

Pathology Summary: No visible pathologies

Dental Pathology Summary:

- Significant AMTL

Trauma Summary:

- Possibly perimortem, probably blunt force trauma to right temporal causing a fragment to break away and the parietal to curl inward

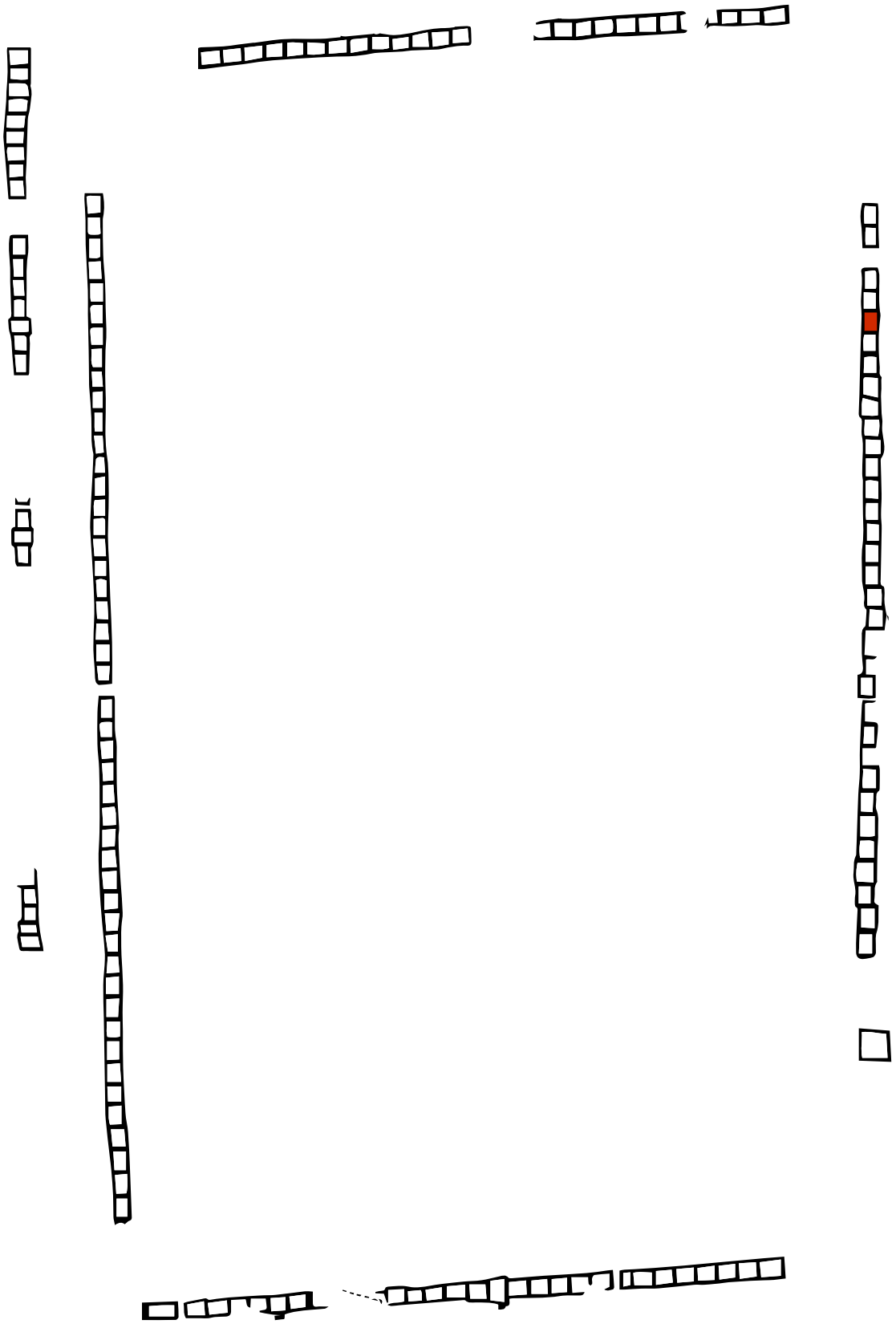
Non-metric Traits:

- Metopic Suture: 1
- Supraorbital structures
  - A:
    - L: 1
    - R: 1
  - B
    - L: 0
    - R: 1
- Infraorbital Suture
  - L: 2
  - R: 9
- Multiple Infraorbital foramina
  - L: 0
  - R: 9
- Zygomatico-facial foramina
  - L: 1
  - R: 1
- Parietal foramen
  - L: 0
  - R: 0
- Sutural bones:
  - A: 0

    - B: 0
    - C: 0
    - D: 0
    - E: 0
    - F
        - L: 0
        - R: 1
    - G:
        - L: 0
        - R: 0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 1
    - R: 9
- Divided hypoglossal canal
    - L: 0
    - R: 0
- Flexure of superior sagittal sulcus: 9
- Foramen ovale incomplete: 0
- Foramen spinosum incomplete
    - L: 1
    - R: 1
- Pterygo-spinous bridge: 0
- Pterygo-alar bridge: 0
- Auditory extosis
    - L: 9
    - R: 9
- Mastoid foramen: 0
- Mental Foramen: 0
- Mandibular Torus: 0
- Mylohyoid Bridge
    - Location
        - L: 1
        - R: 0
    - Degree
        - L: 1
        - R: 0

Associated Objects: Unknown

Location of Grave 132



Grave 135

Provenience Information

Burial Number: 22 135

Duckworth Accession Number: Af.11.4.3

Burial Location: East side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Female

Age Estimation: Middle adult (sutures too open to estimate accurately)

Pathology Summary:

- Porotic hyperostosis on both parietal vaults (fine porosity scattered around the posterior half of the parietals between sagittal and lambdoidal suture)

Dental Pathology Summary:

- AMTL
- Significant porosity and bone accretion posterior to and surround both mandibular third molars
- Some calculus accumulation on the CEJ lingual side of the mandibular third molars

Trauma Summary:

- Possible perimortem depression fracture of left zygomatic below the zygomaticofacial foramen
- Possible perimortem or antemortem depression fracture of right zygomatic in the same position

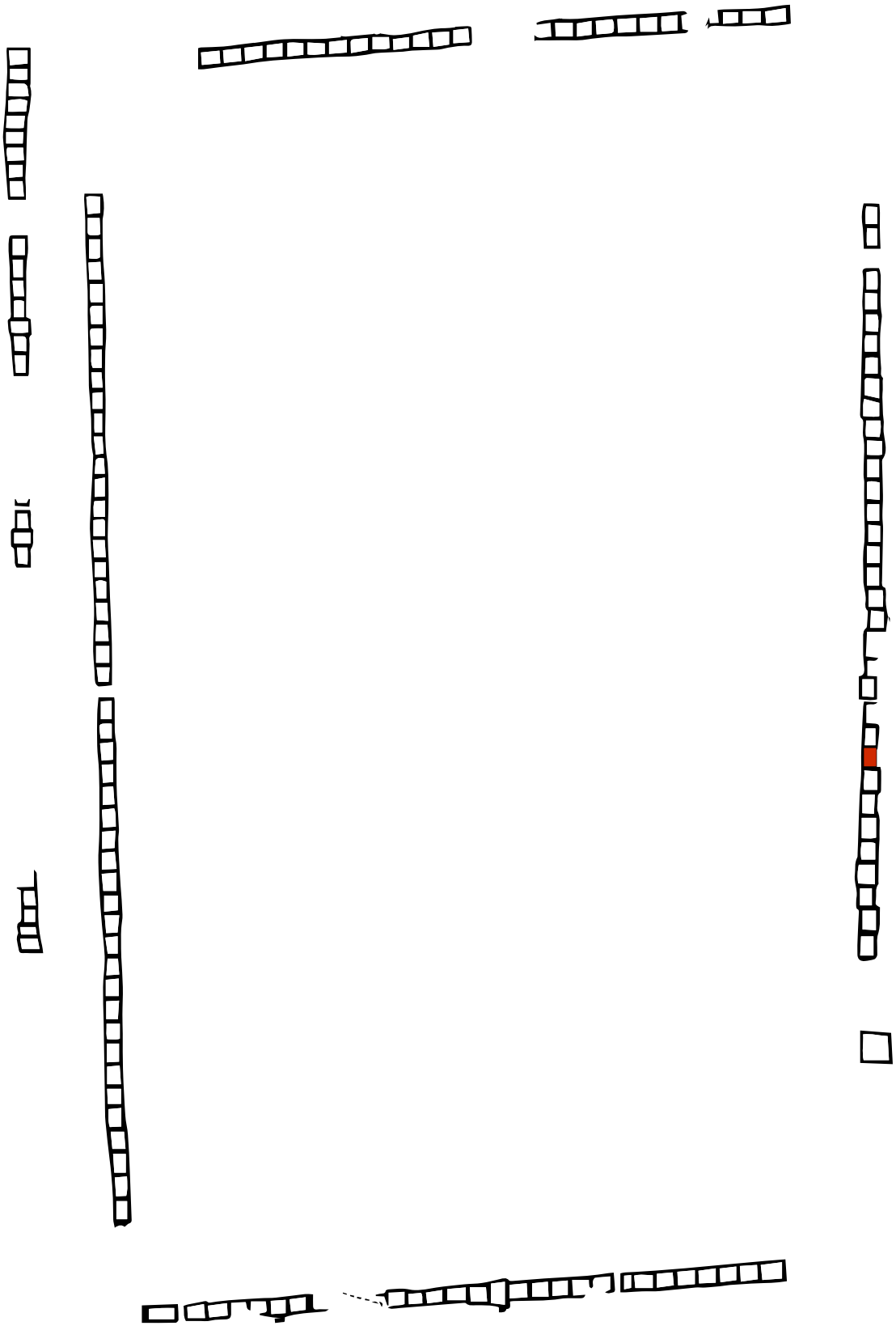
Nonmetric Traits:

- Metopic Suture: 1
- Supraorbital structures
    - A:
        - L: 1
        - R: 1
    - B
        - L: 0
        - R: 0
- Infraorbital Suture
    - L: 0
    - R: 0
- Multiple Infraorbital foramina
    - L: 3 (3 present)
    - R:3 (2 present)
- Zygomatico-facial foramina
    - L:1
    - R: 1

- Parietal foramen
    - L: 1
    - R: 0
- Sutural bones: all 0
- Inca bone: 0
- Condylar canal:
    - L:0
    - R: 0
- Divided hypoglossal canal
    - L: 0
    - R: 0
- Flexure of superior sagittal sulcus: 9
- Foramen ovale incomplete
    - L:0
    - R: 9
- Foramen spinosum incomplete
    - L: 9
    - R: 9
- Pterygo-spinous bridge
    - L: 0
    - R: 1
- Pterygo-alar bridge
    - L: 1
    - R: 1
- Tympanic Dihiscence
    - L: 0
    - R: 0
- Auditory extosis
    - L: 0
    - R: 9
- Mastoid foramen
    - A
        - L: 0
        - R: 2
    - B
        - L: 0
        - R: 1
- Mental Foramen:
    - L: 1
    - R: 1
- Mandibular Torus: 0
- Mylohyoid Bridge: 0

Associated Objects: alabasters, large flint flake

Location of Grave 135



Grave 146

Provenience Information

Burial Number: 22 146

Duckworth Accession Number: Af.11.4.4

Burial Location: East side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Young adult (mean 32, range 19-48)

Pathology Summary:

- Bone growth at the anterior end of the superior temporal line on the frontal

Dental Pathology Summary:

- AMTL
- Caries
- Dental abscess

Trauma Summary:

- Depressed fracture of the left zygomatic just inferior to the zygomaticofacial foramen
    - At least a few pieces of the depressed area have broken off postmortem

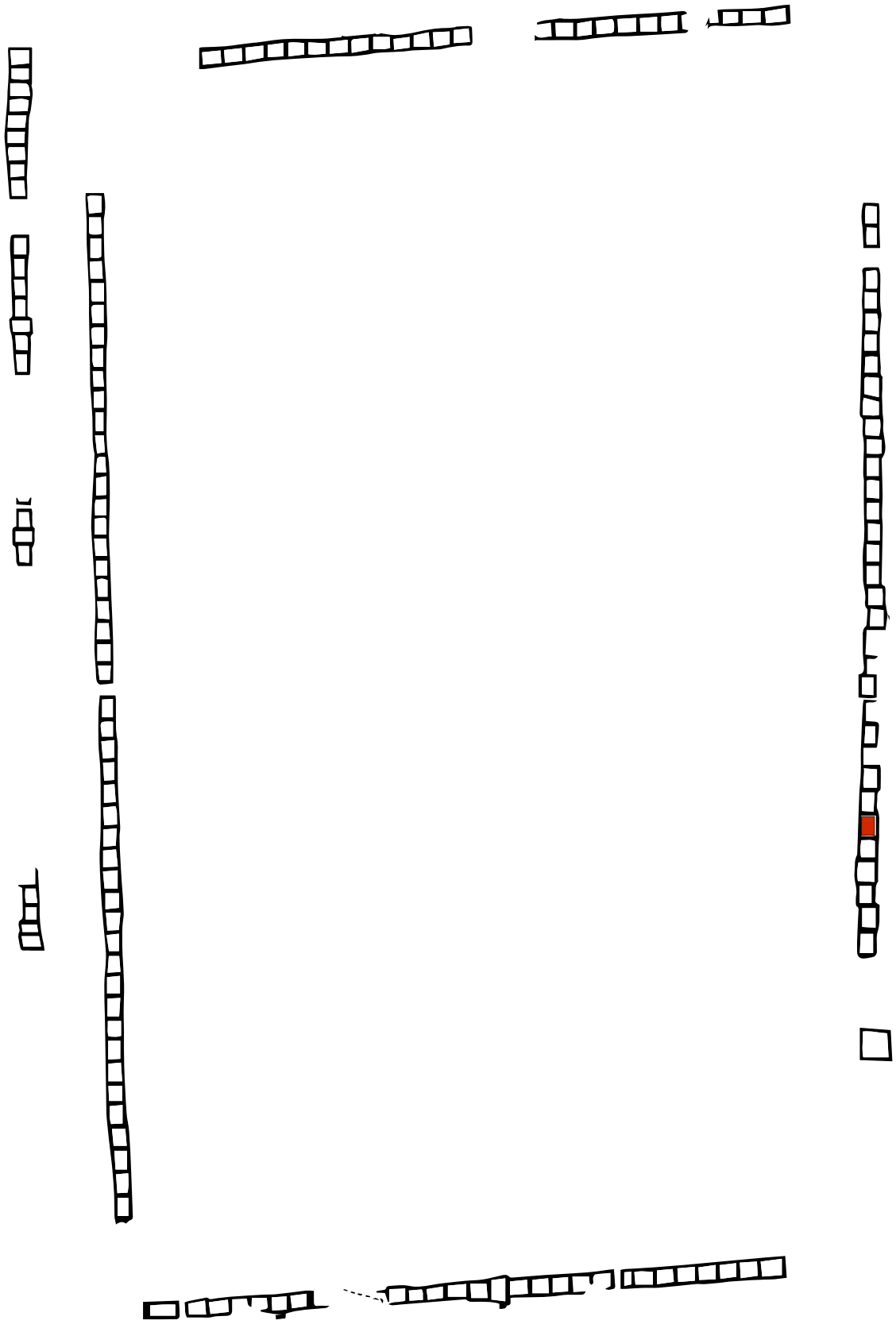
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures: 0
- Infraorbital Suture
    - L: 0
    - R: 0
- Multiple Infraorbital foramina: 0
- Zygomatico-facial foramina
    - L: 1
    - R: 3
- Parietal foramen
    - L: 0
    - R: 1
- Sutural bones:
    - A: 0
    - B: 0
    - C: 0
    - D: 0
    - E: 0

    - F:
        - L: 1 (2 present)
        - R: 1 (2 present)
    - G:
        - L: 0
        - R: 0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal: 0
- Divided hypoglossal canal
    - L: 1
    - R: 3
- Flexure of superior sagittal sulcus: 3
- Foramen ovale incomplete: 0
- Foramen spinosum incomplete
    - L: 0
    - R: 9 broken
- Pterygo-spinous bridge
    - L: 2
    - R: 2
- Pterygo-alar bridge: 0
- Tympanic Dihiscence: 0
- Auditory extosis
    - L: 9 due to wax and dirt
    - R: 2
- Mastoid foramen
    - A
        - L: 2
        - R: 2
    - B
        - L: 1
        - R: 1
- Mental Foramen:
    - L: 1
    - R: 1
- Mandibular Torus: 0
- Mylohyoid Bridge: 0

Associated Objects: Unknown

Location of Grave 146



Grave 396

Provenience Information

Burial Number: 22 396

Duckworth Accession Number: Af.11.4.11

Burial Location: North side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Middle adult (mean 36.2, range 25-49)

Pathology Summary:

- Porotic hyperostosis on parietals and occipital

Dental Pathology Summary:

- LEH
- Alveolar retraction
- Calculus accumulation

Trauma Summary: No visible trauma

Nonmetric Traits:

- Metopic Suture: 1
- Supraorbital structures
    - A:
        - L:1
        - R: 2
    - B
        - L: 1
        - R: 1
- Infraorbital Suture: 0
- Multiple Infraorbital foramina
    - L: 2
    - R: 2
- Zygomatico-facial foramina
    - L: 5
    - R: 1
- Parietal foramen
    - L: 1 (1 regular and 1 above lambdoid suture)
    - R: 1
    - Sutural bones: all 0
- Inca bone: 0

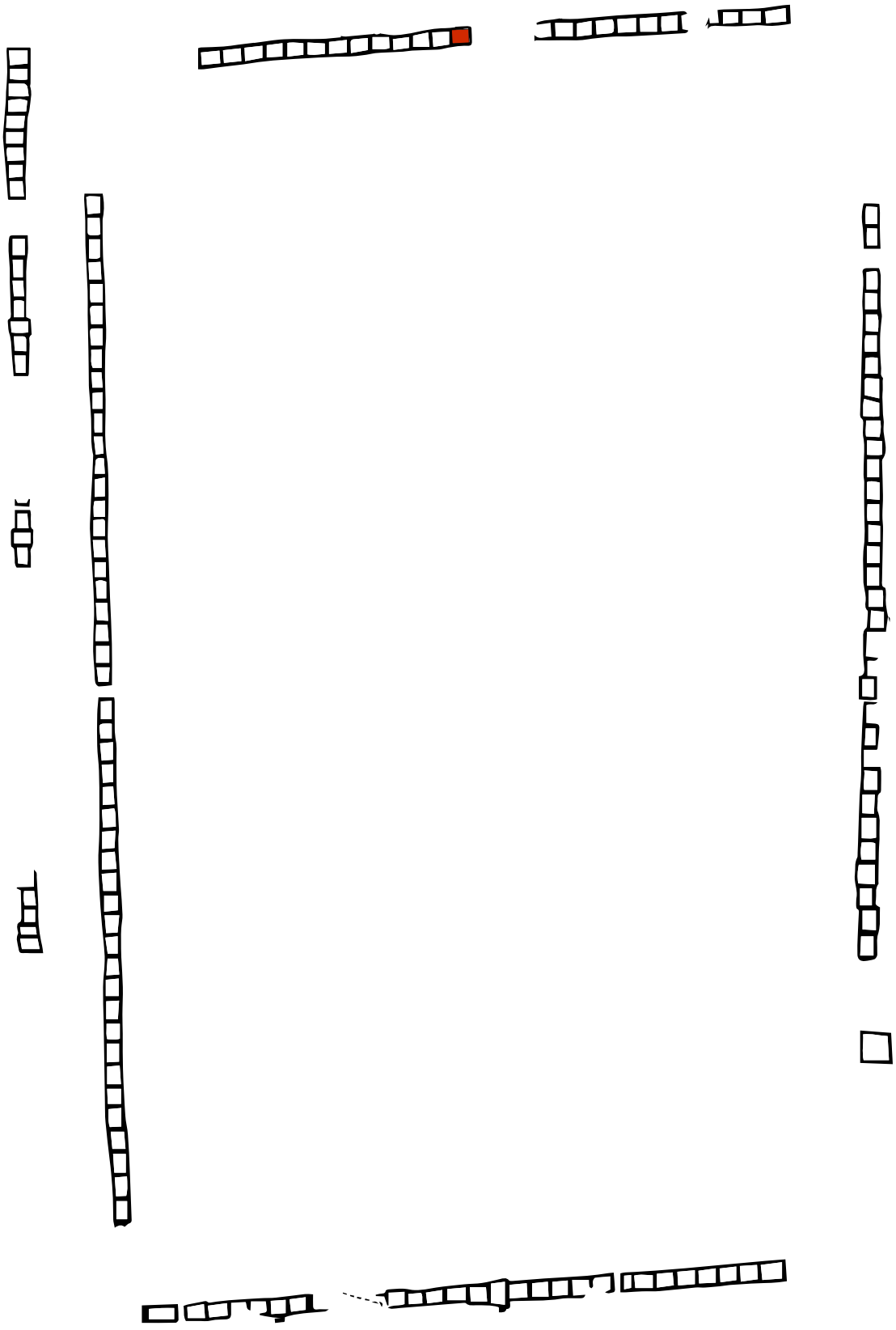
- Condylar canal: 9
- Divided hypoglossal canal: 0
- Flexure of superior sagittal sulcus: 1
- Foramen ovale incomplete: 0
- Foramen spinosum incomplete
    - L: 0
    - R: 1
- Pterygo-spinous bridge
    - L: 1
    - R: 2
- Pterygo-alar bridge
    - L: 1
    - R: 1
- Tympanic Dihiscence
    - L: 9
    - R: 9
- Auditory extosis
    - L: 3
    - R: 3
- Mastoid foramen
    - A
        - L: 4
        - R: 1
    - B
        - L: 2
        - R: 2
- Mental Foramen:
    - L: 1
    - R: 1
- Mandibular Torus: 0
- Mylohyoid Bridge
    - Location
        - L: 2
        - R: 2
    - Degree
        - L:2
        - R: 2

Additional Notes:

- Purple dentine

Associated Objects: Unknown

Location of Grave 396



Grave 412

Provenience Information

Burial Number: 22 412

Duckworth Accession Number: Af.11.4.12

Burial Location: West side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Young adult (mean 34.7, range 22-48)

Pathology Summary:

- Numerous destructive lesions of the cranial vault

Dental Pathology Summary:

- LEH visible on maxillary dentition
- Caries in the right maxillary second molar
- AMTL

Trauma Summary: No visible trauma

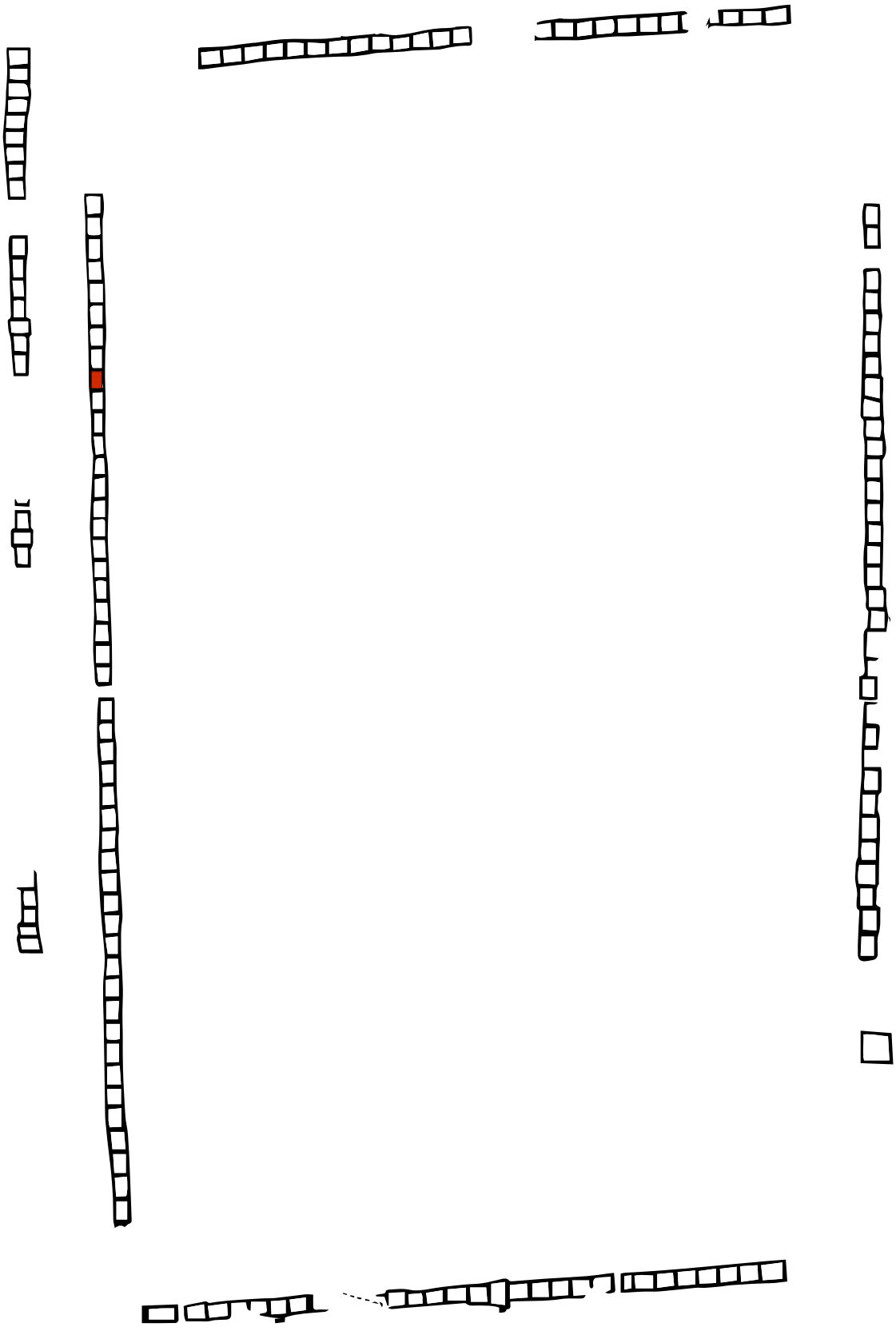
Nonmetric Traits:

- Metopic Suture: 1
- Supraorbital structures
    - A:
        - L: 1
        - R: 1
    - B
        - L: 0
        - R: 1
- Infraorbital Suture: 9
- Multiple Infraorbital foramina: 0
- Zygomatico-facial foramina
    - L:3
    - R:1
- Parietal foramen
    - L: 2
    - R: 1
- Sutural bones:
    - A: 0
    - B: 0
    - C: 0
    - D: 0

    - E: 1
    - F
        - L: 1
        - R: 1
    - G:0
        - L:
        - R:
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal: 9
- Divided hypoglossal canal
    - L: 1
    - R: 0
- Flexure of superior sagittal sulcus: 1
- Foramen ovale incomplete
    - L: 1
    - R: 1
- Foramen spinosum incomplete
    - L: 1
    - R: 1
- Pterygo-spinous bridge
    - L: 1
    - R: 2
- Pterygo-alar bridge
    - L: 1
    - R: 0
- Tympanic Dihiscence: 0
- Auditory extosis
    - L: 9
    - R: 9
- Mastoid foramen
    - A
        - L: 2
        - R: 2
    - B
        - L: 1
        - R: 1
- Mental Foramen:
    - L: 1
    - R: 1
- Mandibular Torus: 0
- Mylohyoid Bridge: 0

Associated Objects: Unknown

Location of Grave 412



Grave 413

Provenience Information

Burial Number: 22 413

Duckworth Accession Number: Af.11.4.13

Burial Location: West side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Head south

Sex Estimation: Male

Age Estimation: Middle adult (mean 36.2, range 25-49)

Pathology Summary:

- Porotic hyperostosis along the nuchal line

Dental Pathology Summary:

- LEH
- Caries in the left mandibular second molar
- Minor calculus accumulation on maxillary and mandibular dentition

Trauma Summary: No visible trauma

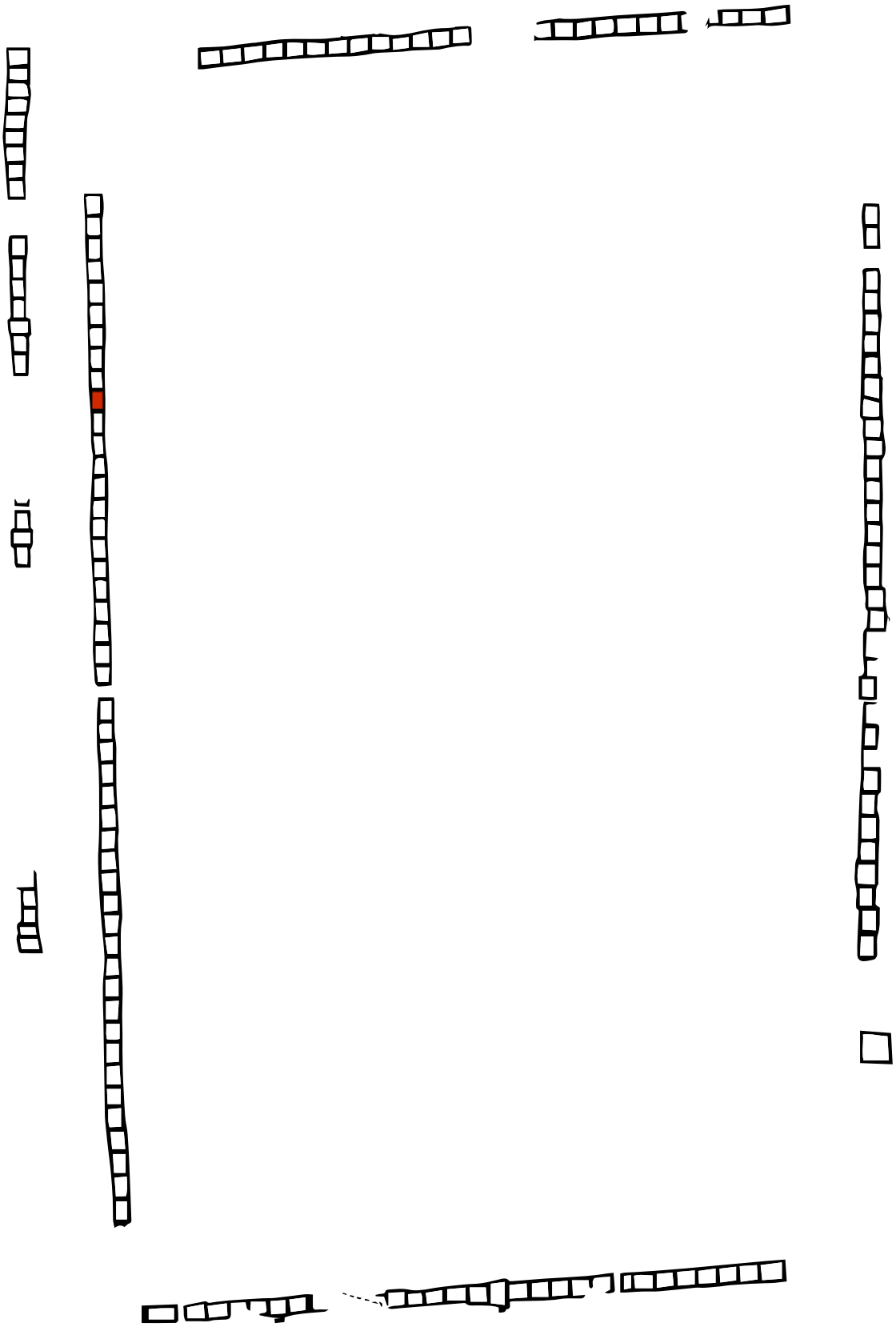
Nonmetric Traits:

- Metopic Suture: 1
- Supraorbital structures
  - A: 1
  - B: 2
- Infraorbital Suture
  - L: 1
  - R: 2
- Multiple Infraorbital foramina
  - L: 9
  - R: 9
- Zygomatico-facial foramina
  - L: 0
  - R: 1
- Parietal foramen: 0
- Sutural bones: 1
  - A: 0
  - B: 0
  - C: 0
  - D: 0
  - E: 0
  - F: 0

    - G: R present, L absent
    - H:0
    - I: 0
- Inca bone: 0
- Condylar canal: both 9 due to wax and dirt
- Divided hypoglossal canal: both 9 due to wax and dirt
- Flexure of superior sagittal sulcus: 1
- Tympanic Dihiscence
    - L:9
    - R:2?
- Auditory extosis
    - L: 3
    - R: 9 due to wax and dirt
- Mastoid foramen
    - A:
        - L: 1
        - R: 9
    - B
        - L: 1
        - R: 9
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus
    - L: 0
    - R: 0
- Mylohyoid Bridge
    - Location
        - L: 0
        - R: 1
    - Degree
        - R: 1

Associated Objects: Flint object(s), coffin

Location of Grave 413



Grave 417

Provenience Information

Burial Number: 22 417

Duckworth Accession Number: Af.11.4.50

Burial Location: West side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Mandible only

Body Position: Unknown

Sex Estimation: Ambiguous

Age Estimation: Young adult

Pathology: No visible pathologies

Dental Pathology:

- Moderate calculus accumulation

Trauma: No visible perimortem trauma

Nonmetric Traits:

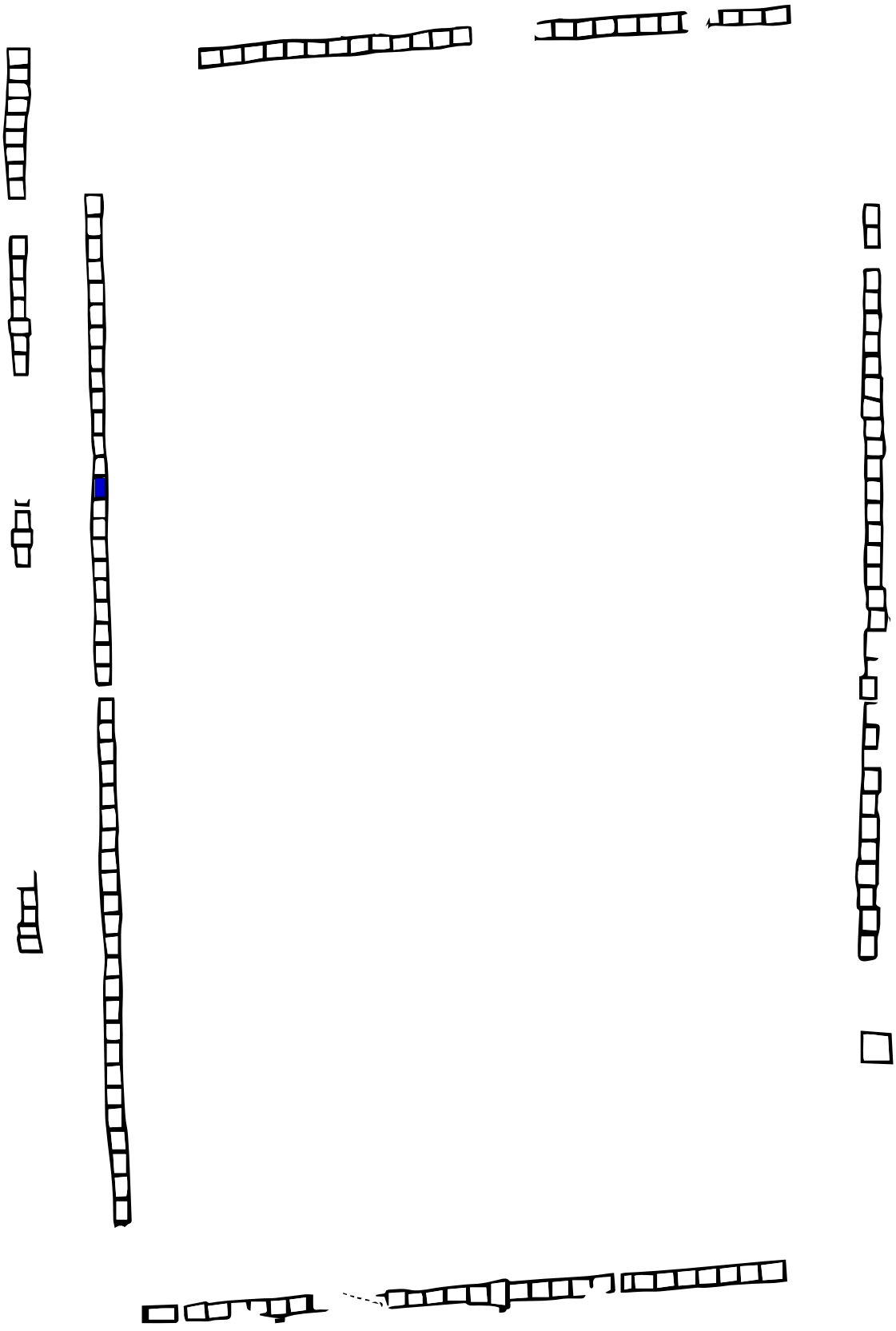
- Mental Foramen
  - L: 1
  - R: 1
- Mandibular Torus
  - L: 0
  - R: 0
- Mylohyoid Bridge
  - Location
    - L: 0
    - R: 0
  - Degree
    - L: 0
    - R: 0

Additional Notes:

- Section of mandibular body removed by unknown previous scholar (likely for destructive sampling)

Associated Objects: Unknown

Location of Grave 417



Grave 426

Provenience Information

Burial Number: 22 426

Duckworth Accession Number: Af.11.4.14

Burial Location: West side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Young adult (mean 32, range 19-48)

Pathology Summary:

- Bony nodule behind right occipital condyle
- Infectious response evidence posterior to right occipital condyle

Dental Pathology Summary:

- LEH
- Dental abscesses
- Slight calculus accumulation
- Heavy attrition
- Alveolar retraction

Trauma Summary: No visible trauma

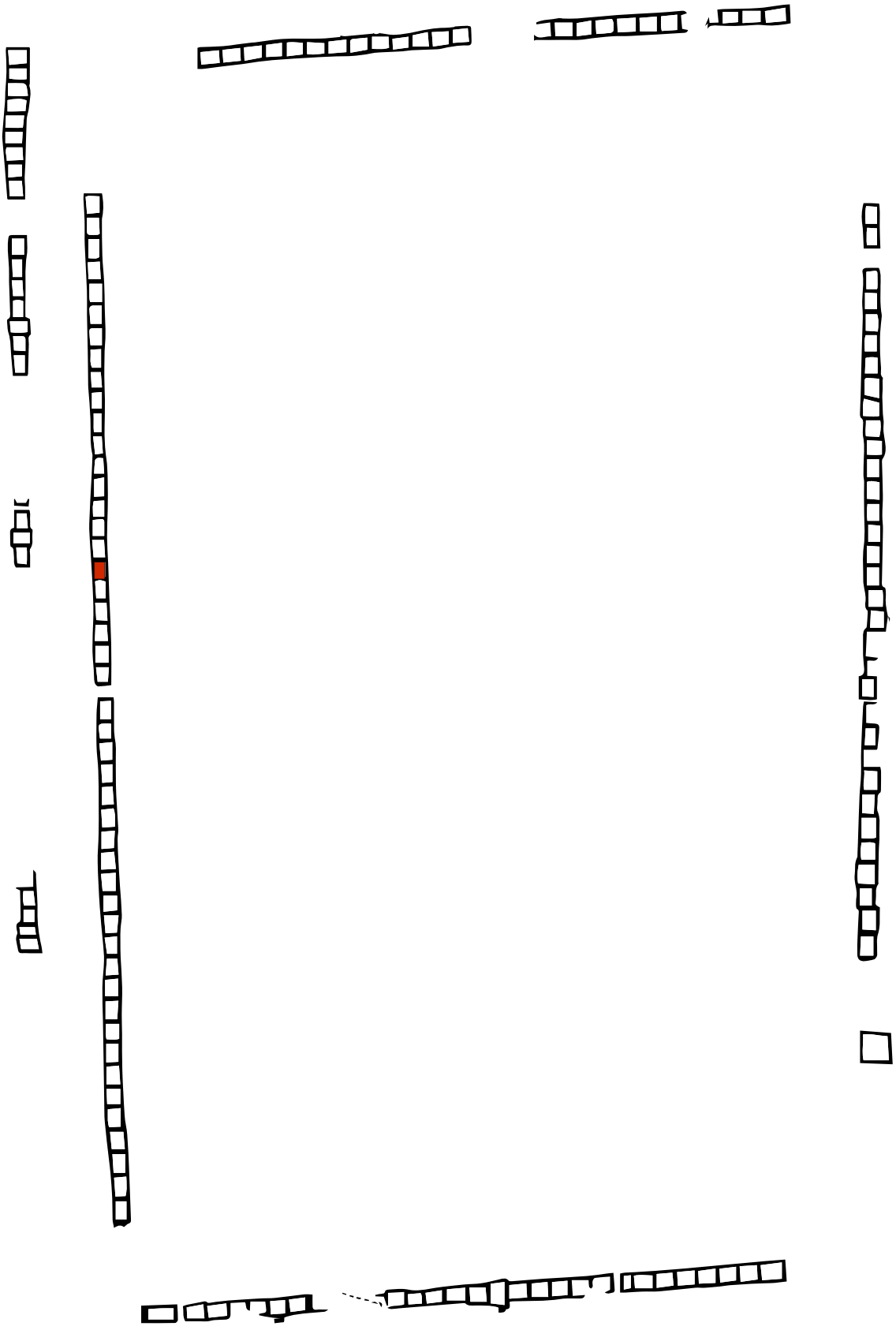
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A:
        - L: 1
        - R: 1
    - B
        - L: 0
        - R: 1
- Infraorbital Suture
    - L: 1
    - R: 2
- Multiple Infraorbital foramina
    - L: 1
    - R: 1
- Zygomatico-facial foramina
    - L: 1
    - R: 1

- Parietal foramen
  - L: 1
  - R: 0
- Sutural bones:
  - A
  - B
  - C
  - D
  - E
  - F
  - G:
    - L: 1
    - R: 1
  - H
  - I
- Inca bone: 0
- Condylar canal: both 9
- Divided hypoglossal canal
  - L: 9
  - R: 9
- Flexure of superior sagittal sulcus: unobservable
- Auditory extosis
  - L: 9
  - R: 2
- Mastoid foramen
  - A
    - L: 2 (on parietal)
    - R: 2 (both in temporal)
  - B
    - L: 2
    - R: 2
- Mental Foramen:
  - L: 1
  - R: 1
- Mandibular Torus
  - L: 2
  - R: 2
- Mylohyoid Bridge
  - Location
    - L: 3
    - R: 1
  - Degree
    - L: 2
    - R: 2

Associated Objects: ivory label and lions, copper needle

Location of Grave 426



Grave 428

Provenience Information

Burial Number: 22 428

Duckworth Accession Number: Af.11.4.16

Burial Location: West side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown **Inventory:** Cranium + mandible **Body Position:** Unknown

Sex Estimation: Possbily female **Age Estimation:** Young adult (mean 30.5, range 18-45)

Pathology:

- Porotic hyperostosis

Dental Pathology:

- Alveolar retraction
- Calculus accumulation

Trauma: No visible trauma

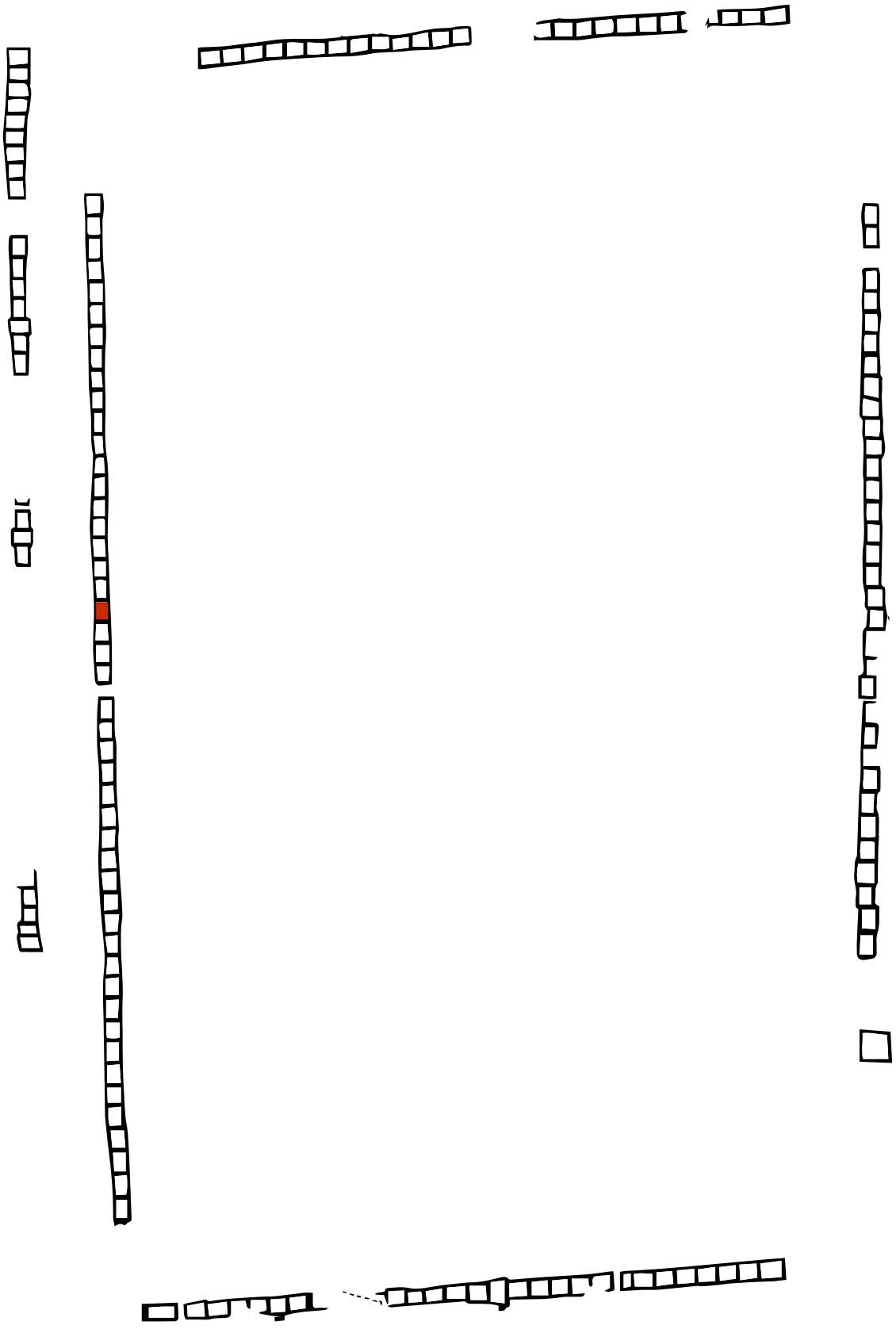
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A
        - L: 1
        - R: 1
    - B
        - L: 9
        - R: 1
- Infraorbital Suture
    - L: 9
    - R: 9
- Multiple Infraorbital foramina
    - L: 9
    - R: 9
- Zygomatico-facial foramina
    - L: 9
    - R: 9
- Parietal foramen: one pair, then one additional one on each side (not paired)
    - L: 1
    - R: 1
- Sutural bones:
    - A: unobservable on L, 0 on R

    - B
        - L: 1
        - R: 0
    - C: 0
    - D: 0
    - E: 0
    - F:
        - L: 1
        - R: 1
    - G
        - L: 1
        - R: 1
    - H: unobservable for both
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 0
    - R: 9
- Divided hypoglossal canal
    - L: 0
    - R: 9
- Flexure of superior sagittal sulcus: 9
- Auditory extosis
    - L: 9
    - R: 3
- Mastoid foramen
    - A
        - L: 2
        - R: 2
    - B
        - L: 1
        - R: 2
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus: 0
- Mylohyoid Bridge: 0

Associated Objects: Unknown

Location of Grave 428



Grave 429

Provenience Information

Burial Number: 22 429

Duckworth Accession Number: Af.11.4.15

Burial Location: West side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Young adult (mean 32, range 19-48)

Pathology:

- Parietal thinning
- Infectious bony response posterior to left occipital condyle
- Porotic hyperostosis on the cpital and both parietals
- Button osteoma on the right parietal posterior to the right temporal

Dental Pathology:

- LEH visible on mandibular dentition
- AMTL
- Alveolar retraction

Trauma:

- Antemortem depressed fracture of left zygomatic that was still in the process of healing at the time of death

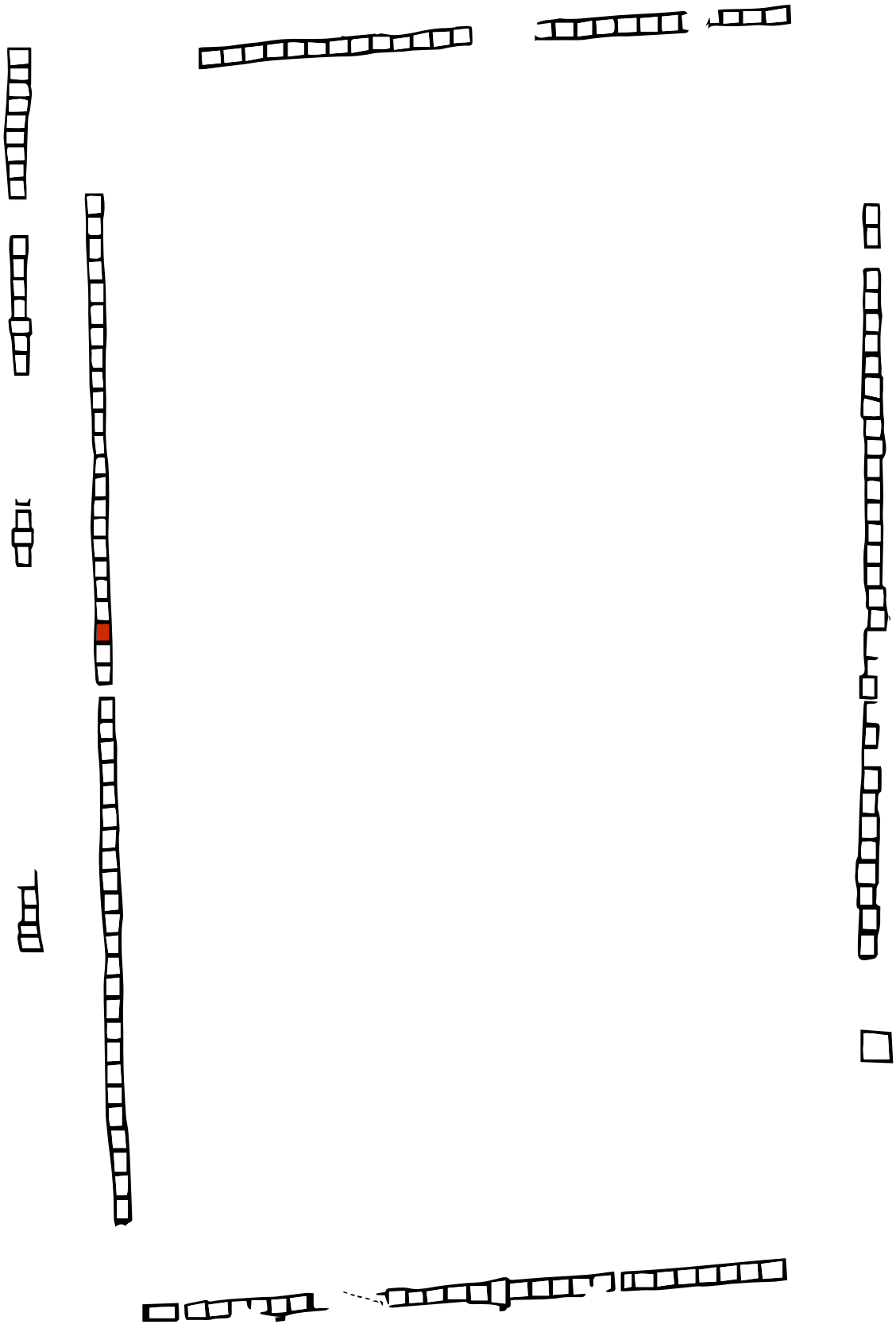
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A
        - L: 1
        - R: 2
    - B
        - L: 2
        - R: 2
- Infraorbital Suture
    - L: 2
    - R: 2
- Multiple Infraorbital foramina
    - L: 2
    - R: 1

- Zygomatico-facial foramina
    - L: 3
    - R: 3
- Parietal foramen
    - L: 1
    - R: 1
- Sutural bones: 1
    - A: 0
    - B: 0
        - L: 1 (2 of them)
        - R: 1 (just one)
    - C: 0
    - D: 0
    - E: 0
    - F:
        - L: 1 (2 of them)
        - R: 0
    - G: 0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 1
    - R: 0
- Divided hypoglossal canal: 9
- Flexure of superior sagittal sulcus: unobservable due to wax and dirt
    - Auditory extosis
        - L: 9
        - R: 9
    - Mastoid foramen
        - A
            - L: 2
            - R: 2
        - B
            - L: 2
            - R: 2
    - Mental Foramen
        - L: 1
        - R: 1
    - Mandibular Torus
        - L: 3
        - R: 3
    - Mylohyoid Bridge: 9

Associated Objects: magic wand, rod, copper “girdle knife,” coffin

Location of Grave 429



Grave 432

Provenience Information

Burial Number: 22 432

Duckworth Accession Number: Af.11.4.17

Burial Location: West side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Older adult (mean 51.9, range 33-76)

Pathology:

- Porotic hyperostosis evident on the occipital

Dental Pathology:

- AMTL
- Severe attrition
- Infectious response at the CEJ of right first mandibular molar

Trauma: No visible perimortem trauma

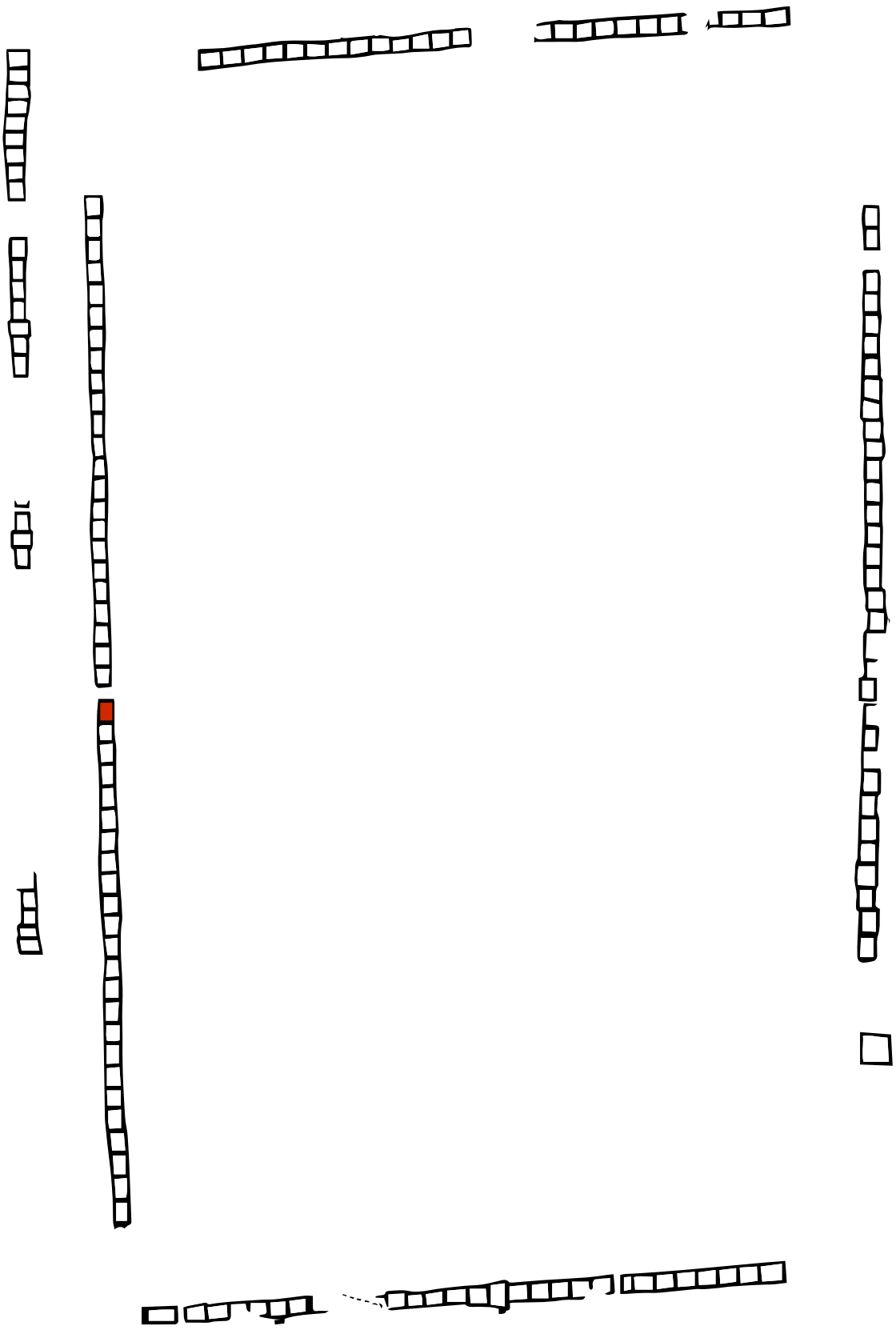
Nonmetric Traits:

- Metopic Suture: 1
- Supraorbital structures
    - A
        - L: 0
        - R: 0
    - B
        - L: 1
        - R: 2 (2 present)
- Infraorbital Suture
    - L: 9
    - R: 1
- Multiple Infraorbital foramina
    - L: 2
    - R:0
- Zygomatico-facial foramina
    - L: 9
    - R: 6 (two small)
- Parietal foramen
    - L: 0
    - R: 2 sutural, one slightly further out on parietal
- Sutural bones:

    - A: 0
    - B: 0
    - C: 0
    - D: 0
    - E: 1
    - F: 0
    - G: 0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal: 0
- Divided hypoglossal canal
    - L: 0
    - R: 3?
- Flexure of superior sagittal sulcus: 1
- Auditory extosis
    - L: 2
    - R: 9
- Mastoid foramen
    - A
        - L: 2
        - R: 4
    - B
        - L: 1
        - R: 3 (3 present)
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus
    - L: 1?
    - R: 1?
- Mylohyoid Bridge
    - Location
        - L: 1
        - R: 0
    - Degree
        - L: 1
        - R: 0

Associated Objects: Unknown

Location of Grave 432



Grave 433

Provenience Information

Burial Number: 22 433

Duckworth Accession Number: Af.11.4.18

Burial Location: West side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Young adult (mean 30.5, range 18-45)

Pathology:

- Slight porotic hyperostosis on occipital
- Possible early stages of button osteoma on the right parietal near the coronal suture

Dental Pathology:

- Severe attrition
- Some calculus accumulation at the CEJs of maxillary dentition and the mandibular right first and second molars

Trauma: No visible perimortem trauma

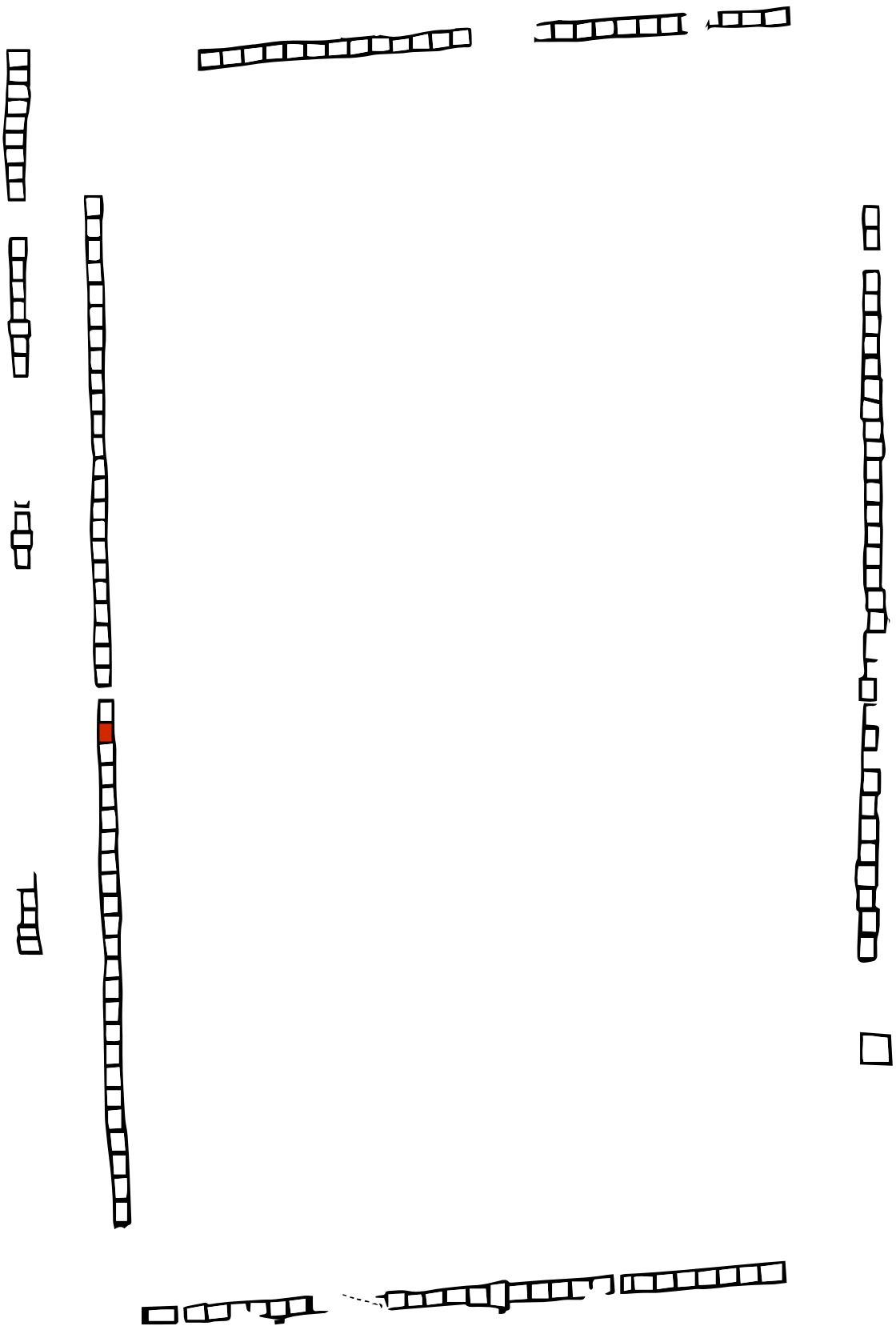
Nonmetric Traits:

- Metopic Suture: 1
- Supraorbital structures
    - A
        - L: 1
        - R: 1
    - B
        - L: 1
        - R: 0
- Infraorbital Suture
    - L: 9
    - R: 2
- Multiple Infraorbital foramina: 0
- Zygomatico-facial foramina
    - L: 0
    - R: 5
- Parietal foramen
    - L: 0
    - R: 2
- Sutural bones: 0
- Inca bone: 0

- Condylar canal:
  - L: 1
  - R: 1
- Divided hypoglossal canal
  - L: 0
  - R: 9
- Flexure of superior sagittal sulcus: 1
- Auditory extosis
  - L: 0
  - R: 0
- Mastoid foramen
  - A
    - L: 0
    - R: 0
  - B
    - L: 0
    - R: 0
- Mental Foramen
  - L: 1
  - R: 1
- Mandibular Torus
  - L: 0
  - R: 0
- Mylohyoid Bridge
  - Location
    - L:9
    - R:0
  - Degree
    - L:9
    - R:0

Associated Objects: ceramic vessels, dog in grave

Location in Grave 433



Grave 436

Provenience Information

Burial Number: 22 436

Duckworth Accession Number: Af.11.4.19

Burial Location: West side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown **Inventory:** Fragmented cranium + mandible **Body Position:** Semi-flexed, right side

Sex Estimation: Male **Age Estimation:** Young adult (sutures too open to estimate accurately)

Pathology:

- Porotic hyperostosis

Dental Pathology:

- LEH visible on right mandibular canin and on maxillary premolars
- Some calculus accumulation at CEJ of both mandibular second molars and on the buccal surfaces of the maxillary molars

Trauma: No visible perimortem trauma

Nonmetric Traits:

- Metopic Suture: 1
- Supraorbital structures
    - A
        - L: 4 (2 notches, less than ½ occluded)
        - R: 0
    - B
        - L: 0
        - R: 1
- Infraorbital Suture
    - L: 1
    - R: 1
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 1
    - R: 6
- Parietal foramen
    - L: 9
    - R: 9
- Sutural bones: 0

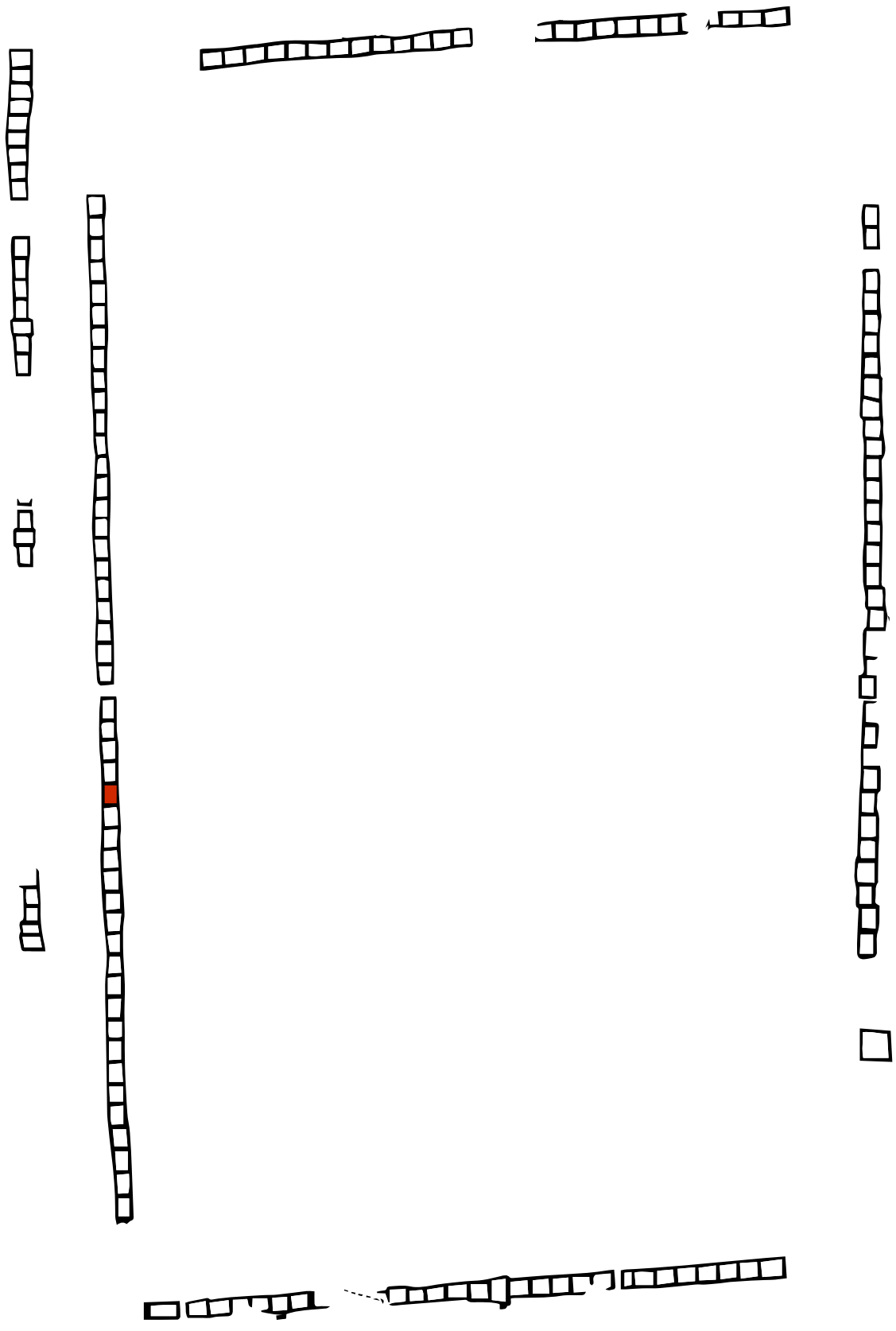
- Inca bone: 0
- Condylar canal:
    - L: 9
    - R: 9
- Divided hypoglossal canal
    - L: 9
    - R: 0
- Flexure of superior sagittal sulcus: 1
- Auditory extosis
    - L: 9
    - R: 0
- Mastoid foramen
    - A
        - L: 4
        - R: 9
    - B
        - L: 1
        - R: 9
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus
    - L: 2
    - R: 2
- Mylohyoid Bridge
    - Location
        - L: 2
        - R: 2
    - Degree
        - L: 2
        - R: 2

Additional Notes:

- Very fragmented

Associated Objects: Vessels, coffin?

Location of Grave 436



Grave 437

Provenience Information

Burial Number: 22 437

Duckworth Accession Number: Af.11.4.20

Burial Location: West side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Female

Age Estimation: Young adult (mean 32, range 19-48)

Pathology:

- No visible pathologies

Dental Pathology:

- LEH visible on some anterior maxillary dentition
- Caries

Trauma: No visible trauma

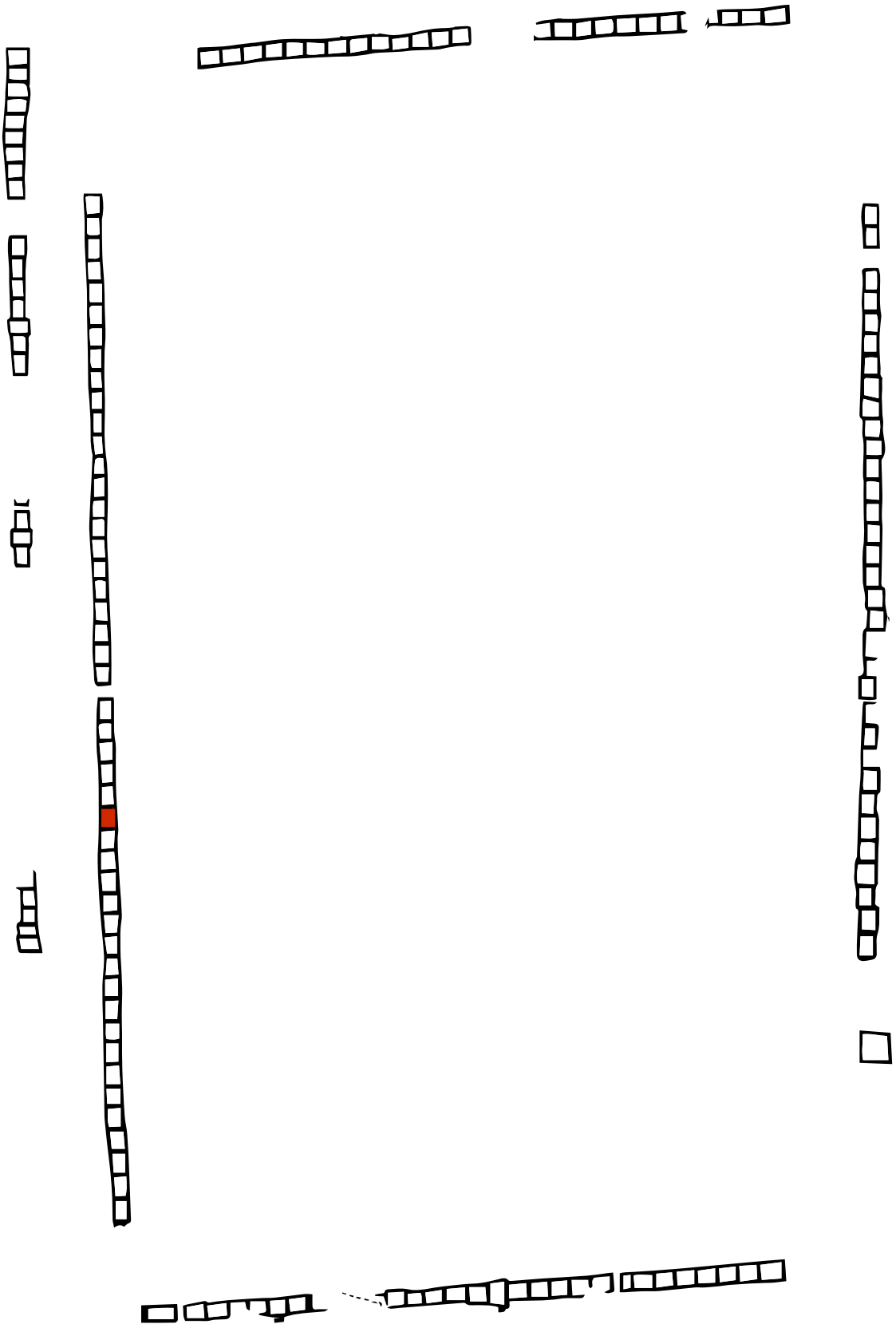
Nonmetric Traits:

- Metopic Suture: 1
- Supraorbital structures
    - A
        - L: 1
        - R: 1
    - B
        - L: 0
        - R: 0
- Infraorbital Suture
    - L: 1
    - R: 1
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 3
    - R: 1
- Parietal foramen
    - L: 0
    - R: 0
- Sutural bones:
    - A:

        - L: 1
        - R: 0
    - B:
        - L: 0
        - R: 0
    - C: 0
    - D: 0
    - E: 1
    - F:
        - L: 1 (3 present)
        - R: 1 (3 present)
    - G: 0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 0
    - R: 9
- Divided hypoglossal canal
    - L: 0
    - R: 9
- Flexure of superior sagittal sulcus: 1
- Auditory extosis
    - L: 9 (blocked by dirt)
    - R: 0
- Mastoid foramen: 0
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus
    - L: 2
    - R: 2
- Mylohyoid Bridge
    - Location
        - L: 0
        - R: 0
    - Degree
        - L: 0
        - R: 1

Associated Objects: sealing

Location of Grave 437



Grave 442

Provenience Information

Burial Number: 22 442

Duckworth Accession Number: Af.11.4.21

Burial Location: West side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Ankh-ef-sen

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Young adult (mean 30.5, range 18-48)

Pathology:

- Slight porotic hyperostosis on both parietals

Dental Pathology:

- LEH visible on the maxillary canines
- Caculus accumulation on bucal surface of mandibular dentition and at the CEJs of the maxillary dentition

Trauma:

- Possible perimortem BFT on posterior cranial vault

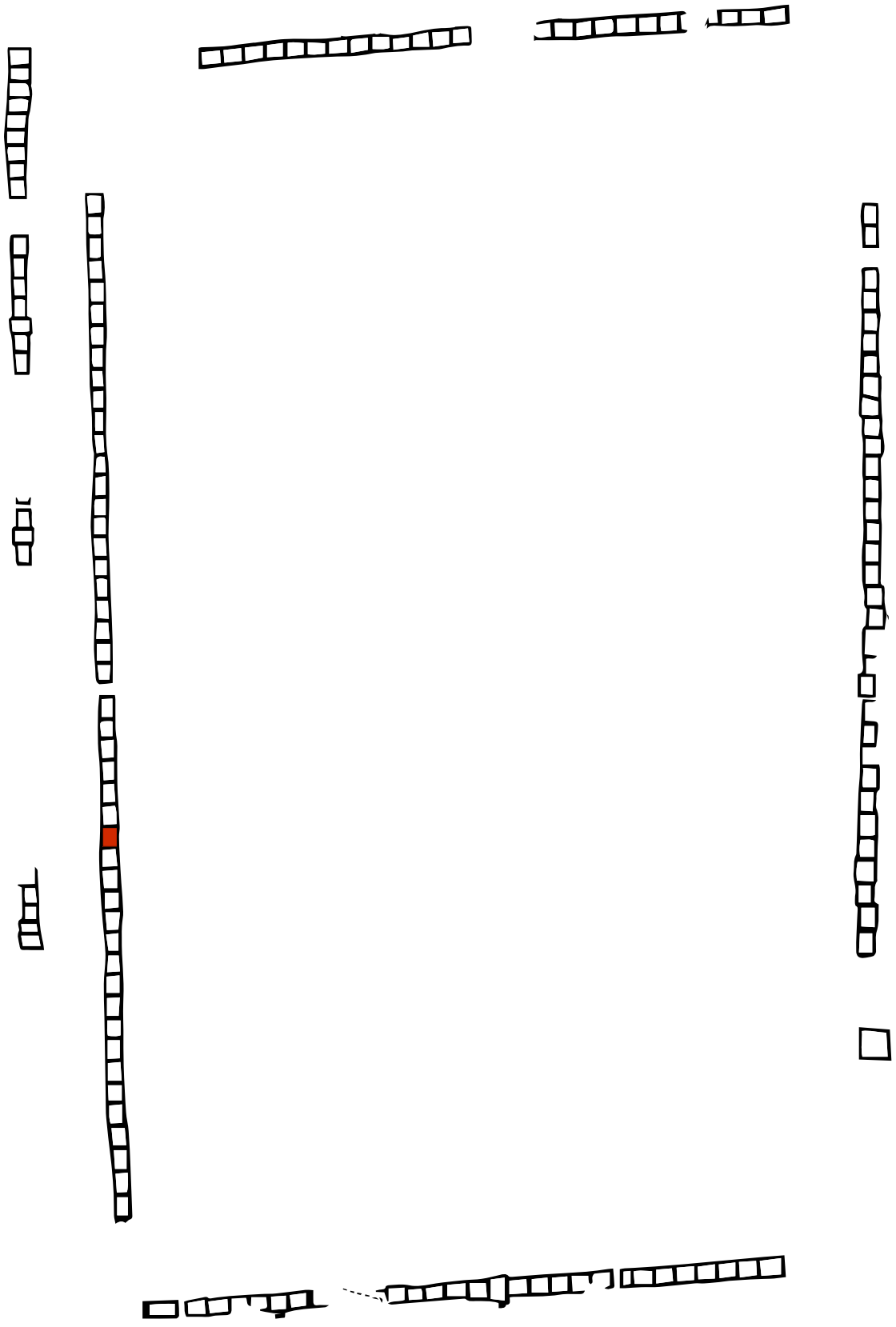
Nonmetric Traits:

- Metopic Suture: 1
- Supraorbital structures
    - A
        - L: 2
        - R: 2
    - B
        - L: 0
        - R: 0
- Infraorbital Suture
    - L: 0
    - R: 0
- Multiple Infraorbital foramina
    - L: 0
    - R: 2
- Zygomatico-facial foramina
    - L: 1
    - R: 1
- Parietal foramen
    - L: 0

    - R: 2 (1 present)
- Sutural bones:
    - A: 0
    - B: 0
    - C: 0
    - D: 0
    - E: 0
    - F:
        - L: 1
        - R: 0
    - G: 0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal: 0
- Divided hypoglossal canal: 9
- Flexure of superior sagittal sulcus: 2
- Auditory extosis: 9
- Mastoid foramen
    - A
        - L: 9 due to wax
        - R: 2
    - B
        - L: 9 due to wax
        - R: 1
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus
    - L: 1
    - R:
- Mylohyoid Bridge: 0

Associated Objects: stele, ceramic vessels

Location of Grave 442



Grave 443

Provenience Information

Burial Number: 22 443

Duckworth Accession Number: Af.11.4.22

Burial Location: West side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Middle adult (mean 36.2, range 25-49)

Pathology:

- Healing cribra orbitalia in right orbit

Dental Pathology:

- Caries
- AMTL
- Dental abscess
- Alveolar retraction

Trauma: No visible perimortem trauma

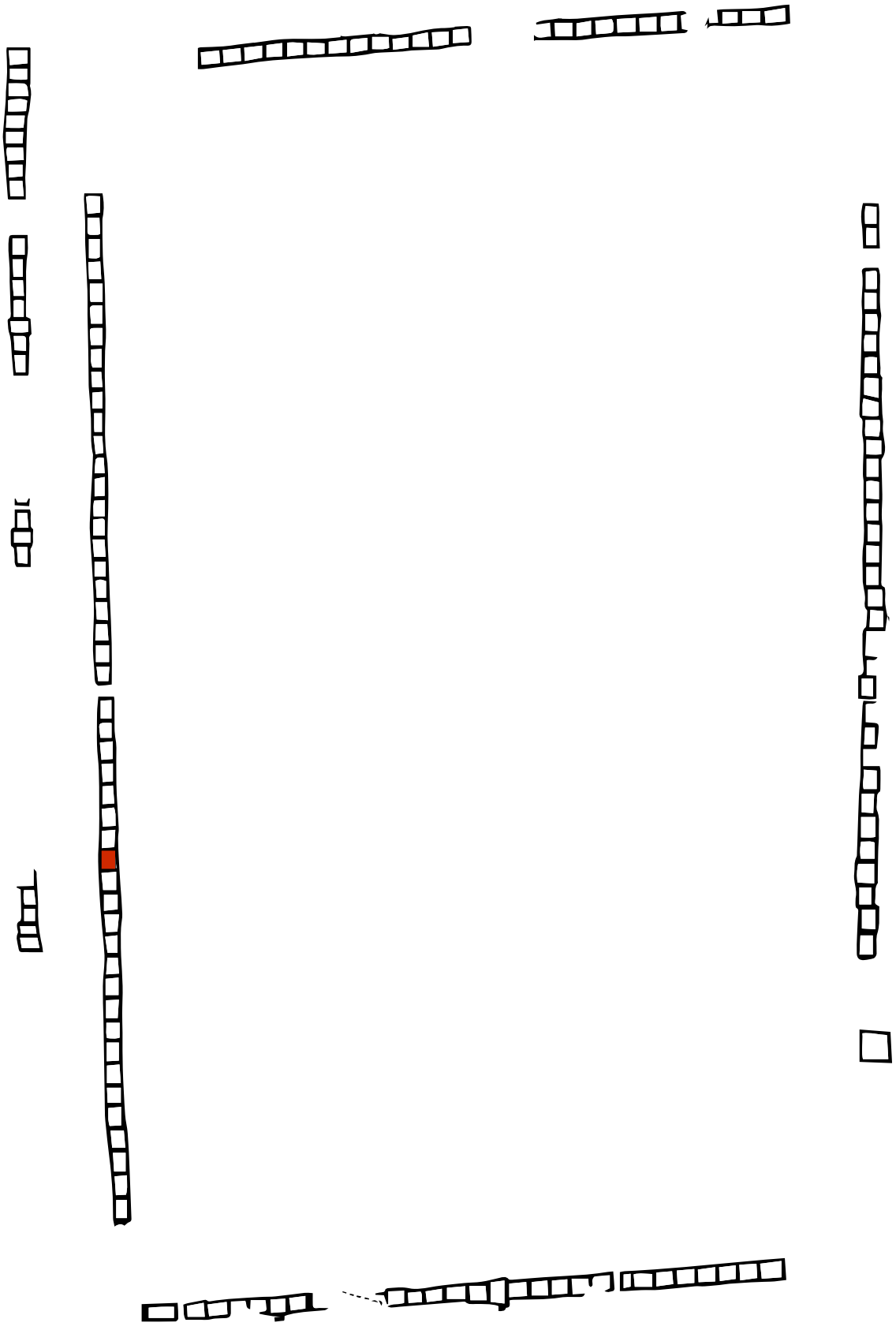
Nonmetric Traits:

- Metopic Suture: 2
- Supraorbital structures
    - A
        - L: 1
        - R: 1
    - B
        - L: 0
        - R: 0
- Infraorbital Suture
    - L: at least 1
    - R: 1
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 0
    - R: 0
- Parietal foramen: 1 midline
    - L: 0
    - R: 0

- Sutural bones:
    - A: 0
    - B: 0
        - L:0
        - R: 0
    - C: 0
    - D: 0
    - E: 0
    - F:
        - L: 1
        - R: 1
    - G: 0
    - H: 0
        - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 1
    - R: covered by wax
- Divided hypoglossal canal
    - L: 0
    - R: 0
- Flexure of superior sagittal sulcus: 9
- Auditory extosis
    - L: 0
    - R: 0
- Mastoid foramen
    - A
        - L: 1
        - R:0
    - B
        - L: 1
        - R: 0
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus: 0 on both sides
- Mylohyoid Bridge: 0 on both sides

Associated Objects: Unknown

Location of Grave 443



Grave 444

Provenience Information

Burial Number: 22 444

Duckworth Accession Number: Af.11.4.23

Burial Location:

Associated Monarch: Merneith

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Merefeka

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Female

Age Estimation: Young adult (mean 30.5, range 18-45)

Pathology:

- Destructive lesions

Dental Pathology:

- LEH
- Some calculus accumulation

Trauma: No visible trauma

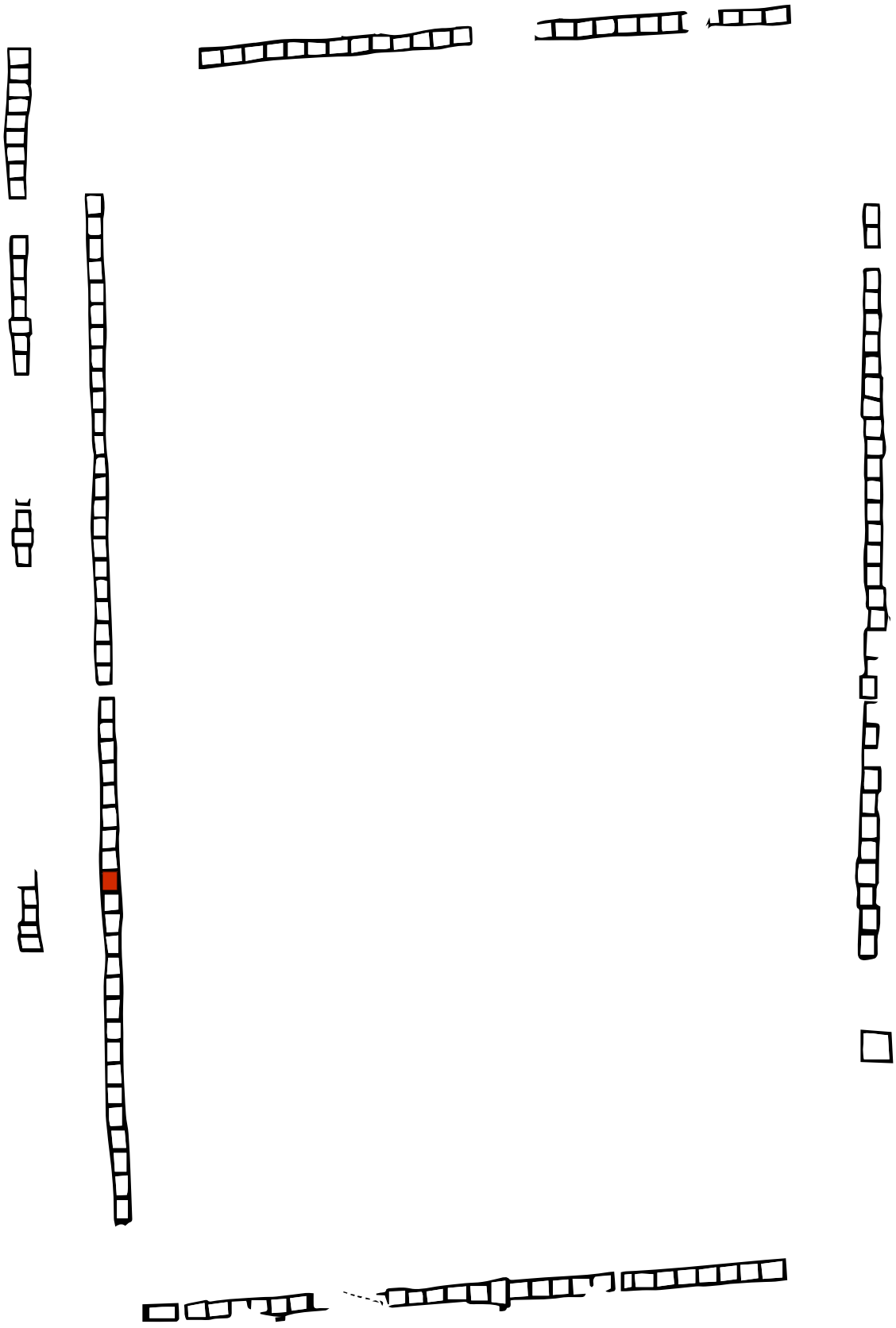
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A
        - L: 1
        - R: 0
    - B
        - L: 1
        - R: 1
- Infraorbital Suture
    - L: 2
    - R: 2
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 0
    - R: 0
- Parietal foramen
    - L: 1
    - R: 1
- Sutural bones:

    - A: 0
    - B: 0
        - L: 0
        - R: 0
    - C: 0
    - D: 0
    - E: 0
    - F:
        - L:1
        - R: 0
    - G: 0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 1
    - R: 1
- Divided hypoglossal canal
    - L: 0
    - R: 1
- Flexure of superior sagittal sulcus: 1
- Auditory extosis
    - L: 9 due to wax and dirt
    - R: 3
- Mastoid foramen
    - A
        - L: 4
        - R: 4
    - B
        - L: 3 (3 present)
        - R: 2
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus
    - L: 0
    - R: 0
- Mylohyoid Bridge
    - Location
        - L: 1
        - R:0
    - Degree
        - L: 1
        - R:0

Associated Objects: Ceramic vessel(s)

Location of Grave 444



Grave 445

Provenience Information

Burial Number: 22 445

Duckworth Accession Number: Af.11.4.24

Burial Location: West side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Female

Age Estimation: Young adult (mean 30.5, range 18-45)

Pathology:

- Lytic lesion on the left parietal
- Two small lytic lesions at the right parietal boss

Dental Pathology:

- LEH
- Calculus accumulation

Trauma:

- Perimortem BFT: fractures radiating from the lytic lesion on the left parietal boss

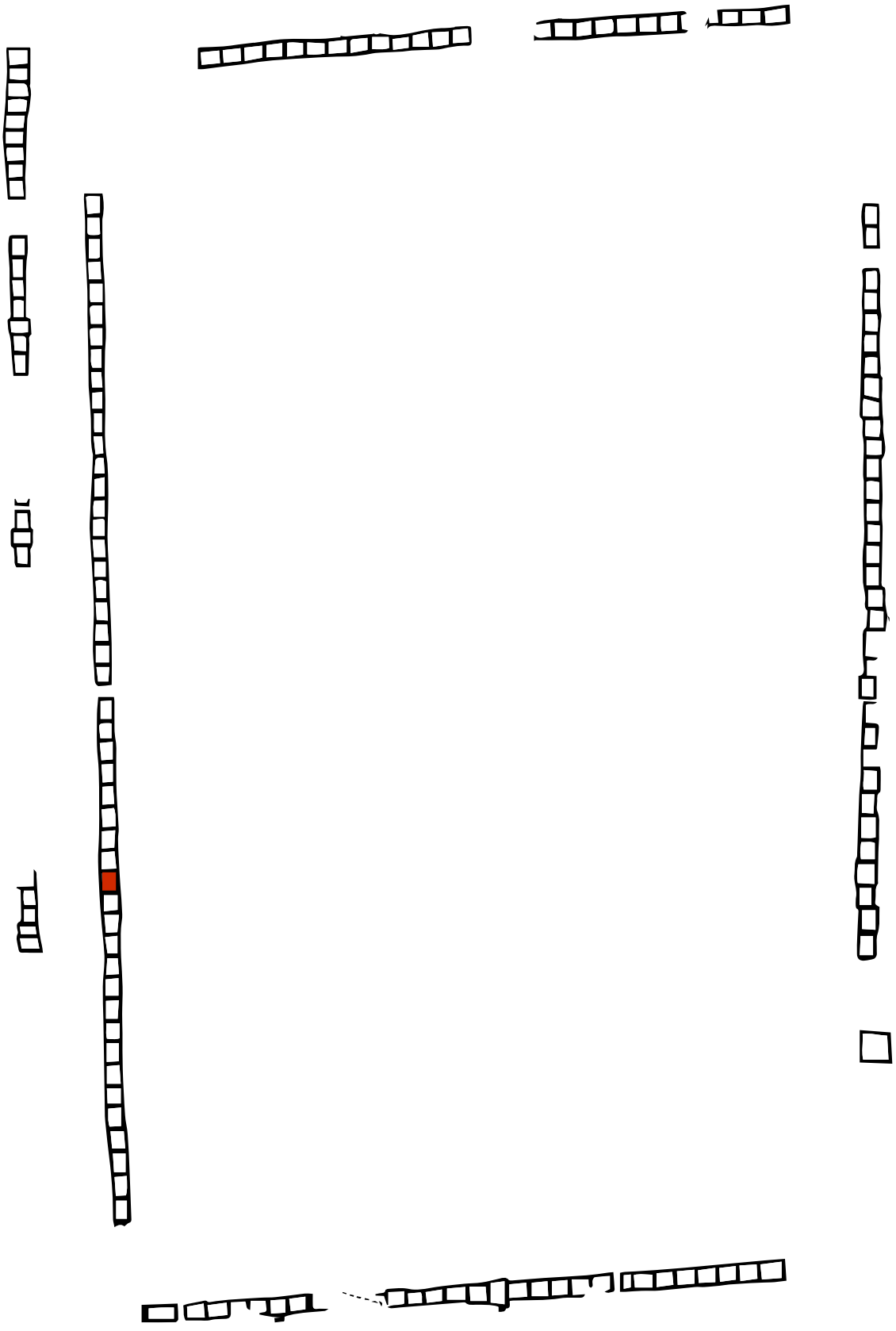
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A
        - L: 1
        - R: 1
    - B
        - L:0
        - R:0
- Infraorbital Suture
    - L: 9
    - R: 2
- Multiple Infraorbital foramina
    - L: 9
    - R: 0
- Zygomatico-facial foramina
    - L: 9
    - R: 9
- Parietal foramen: 0

- Sutural bones:
    - A: 9
    - B: 9
    - C: 9
    - D: 0
    - E: 0
    - F:
        - L: 1 (2 present)
        - R: 1 (2 present)
    - G:
        - L: 1
        - R: 9
    - H: 0
    - I:
        - L: 0
        - R: 9
- Inca bone: 0
- Condylar canal:
    - L: 9
    - R: 1
- Divided hypoglossal canal
    - L: 9
    - R: 3
- Flexure of superior sagittal sulcus: 1
- Auditory extosis
    - L: 3
    - R: 0
- Mastoid foramen: 9
- Mental Foramen
    - L: 1
    - R: 9
- Mandibular Torus
    - L: 2
    - R: 9
- Mylohyoid Bridge
    - Location
        - L: 0
        - R: 9
    - Degree
        - L:0
        - R:9

Associated Objects: Ceramic vessel(s)

Location of Grave 445



Grave 446

Provenience Information

Burial Number: 22 446

Duckworth Accession Number: Af.11.4.25

Burial Location: West side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown **Inventory:** Cranium + mandible fragment **Body Position:** Unknown

Sex Estimation: Possibly male **Age Estimation:** Middle adult (mean 36.2, range 25-49)

Pathology:

- Slight porotic hyperostosis on occipital

Dental Pathology:

- Moderate attrition
- Moderate calculus accumulation

Trauma Summary: No visible perimortem trauma

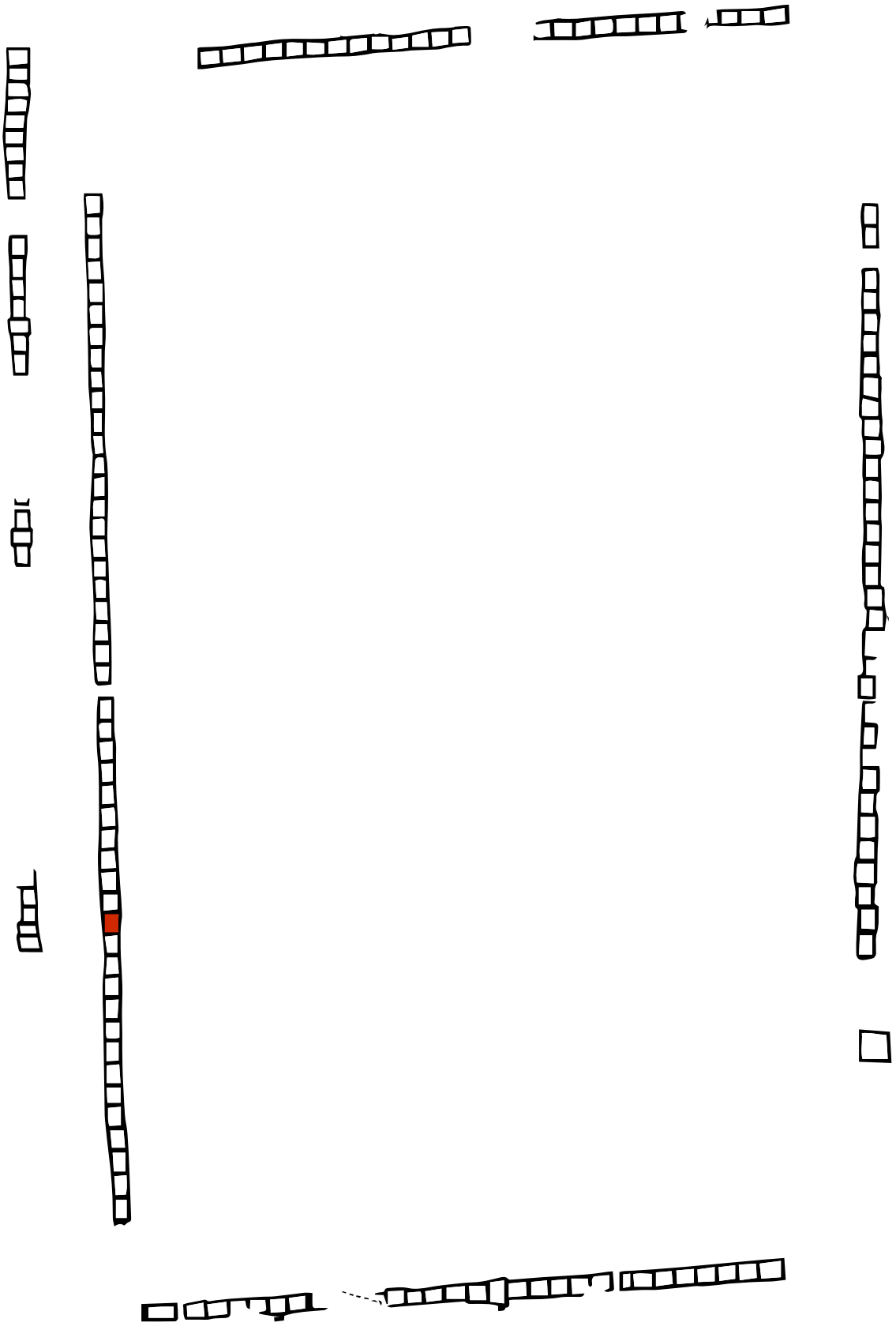
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A
        - L: 1
        - R: 0
    - B
        - L: 0
        - R: 1
- Infraorbital Suture
    - L: 0
    - R: 0
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 4
    - R: 1
- Parietal foramen: 1 midline
    - L: 0
    - R: 0
- Sutural bones:
    - A: 0

    - B:
        - L:0
        - R: 0
    - C: 0
    - D: 0
    - E: 0
    - F: 0
    - G:
        - L: 1 (2 present)
        - R: 1 (1 present)
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 0
    - R: 9 due to wax and dirt
- Divided hypoglossal canal
    - L: 0
    - R: 2
- Flexure of superior sagittal: 9
- Auditory extosis
    - L: 0
    - R: 0
- Mastoid foramen
    - A
        - L: 4
        - R: 1
    - B
        - L: 2
        - R: 3 (3 present)
- Mental Foramen
    - L: 9
    - R: 9
- Mandibular Torus
    - L: 9
    - R: 9
- Mylohyoid Bridge: 0
    - Location
    - Degree

Associated Objects: stele, fragment of a coffin

Location of Grave 446



Grave 447

Provenience Information

Burial Number: 22 447

Duckworth Accession Number: Af.11.4.26

Burial Location: West side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Middle adult (mean 41.1, range 23-68)

Pathology:

- Porotic hyperostosis
- Lytic lesion has destroyed much of the right zygomatic
- Lytic lesion on the left parietal and left zygomatic

Dental Pathology:

- LEH visible on left maxillarly molars
- AMTL

Trauma: No visible perimortem trauma

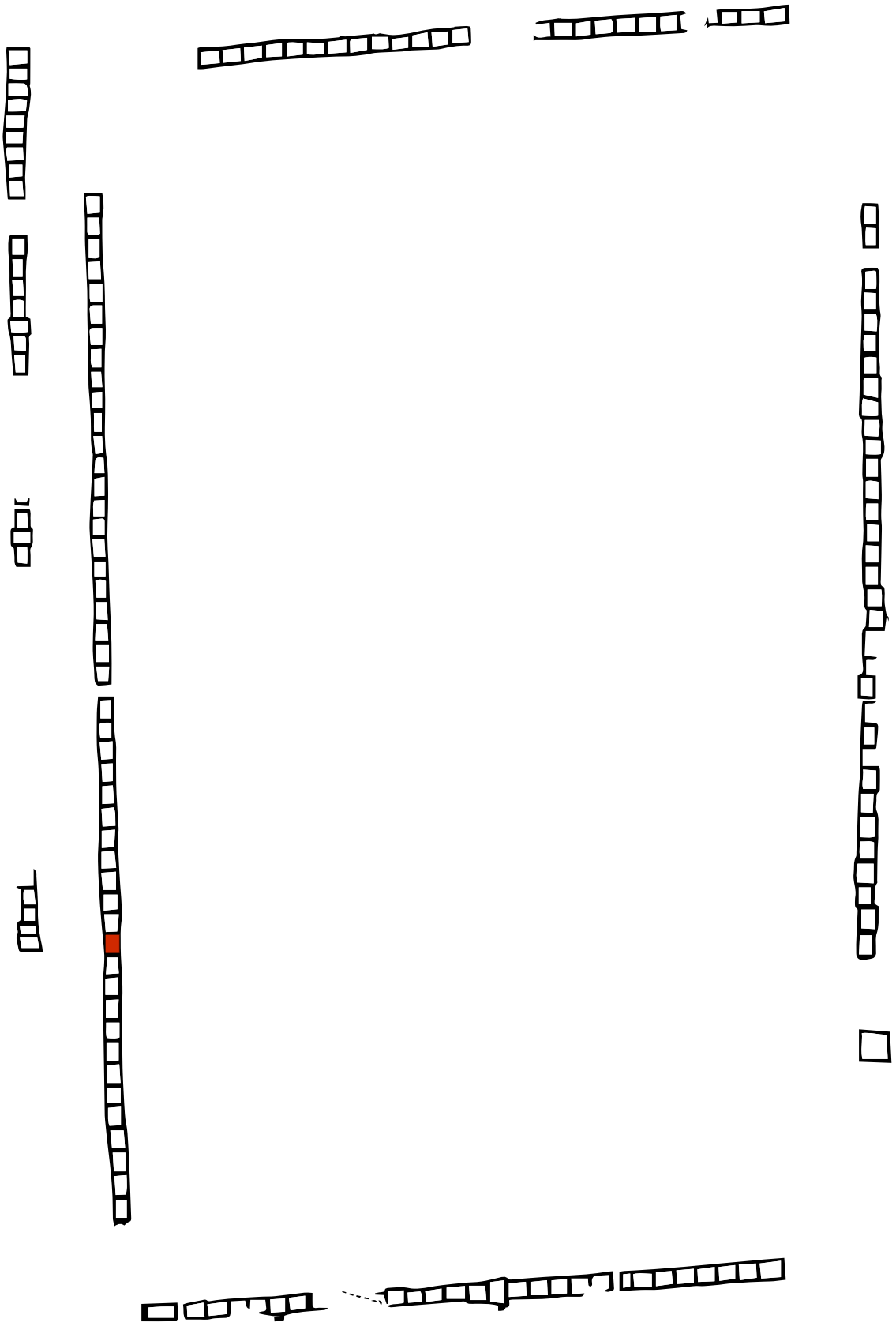
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A
        - L: 1
        - R: 1
    - B
        - L: 1
        - R: 1
- Infraorbital Suture
    - L: 1
    - R: 1
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 0
    - R: 9 due to damage
- Parietal foramen
    - L: 0
    - R: 2

- Sutural bones: 0
- Inca bone: 0
- Condylar canal:
    - L: 0
    - R: 0
- Divided hypoglossal canal
    - L: 1
    - R: 0
- Flexure of superior sagittal sulcus: 1
- Auditory extosis
    - L: 3
    - R: 3
- Mastoid foramen
    - A
        - L: 0
        - R: 2
    - B
        - L: 1
        - R: 0
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus
    - L: 0
    - R: 0
- Mylohyoid Bridge
    - Location
        - L: 9
        - R: 0
    - Degree
        - L: 9
        - R: 0

Associated Objects: Unknown

Location of Grave 447



Grave 449

Provenience Information

Burial Number: 22 449

Duckworth Accession Number: Af.11.4.27

Burial Location: West side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Young adult (mean 32, range 19-48)

Pathology:

- No visible pathologies

Dental Pathology:

- AMTL

Trauma: No visible perimortem trauma

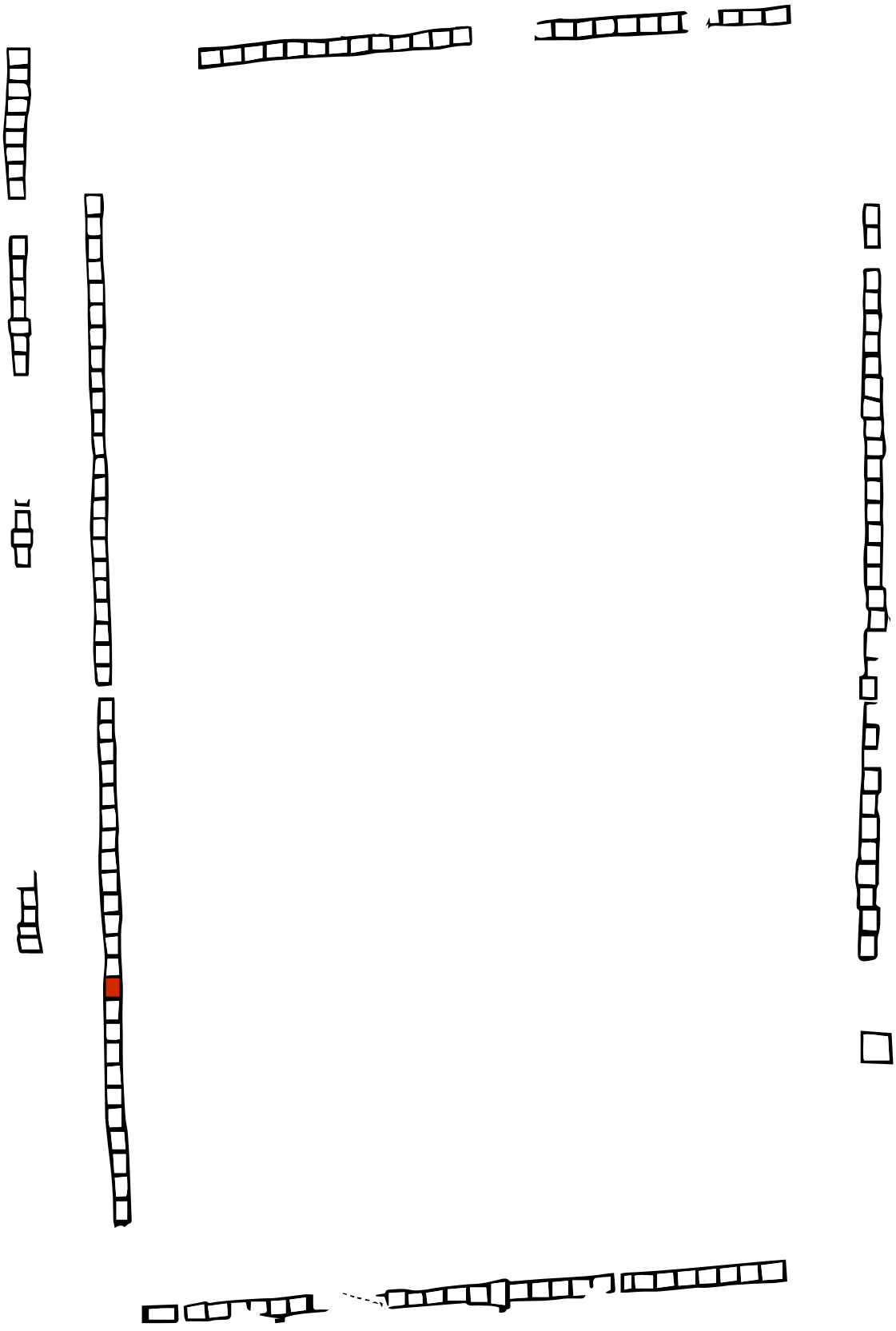
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A
        - L: 1
        - R: 1
    - B
        - L: 0
        - R: 0
- Infraorbital Suture
    - L: 0
    - R: 1
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 1
    - R: 1
- Parietal foramen
    - L: 1
    - R: 1
- Sutural bones:
    - A: 0
    - B: 0

    - C: 0
    - D: 0
    - E: 0
    - F: 0
    - G: 0
    - L: 1
    - R: 0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 0
    - R: 9 due to wax and dirt
- Divided hypoglossal canal
    - L: 0
    - R: 0
- Flexure of superior sagittal sulcus: 9
- Auditory extosis
    - L: 3
    - R: 3
- Mastoid foramen
    - A
        - L: 0
        - R: 0
    - B
        - L: 0
        - R: 0
- Mental Foramen
    - L: 2
    - R: 2
- Mandibular Torus
    - L: 0
    - R: 0
- Mylohyoid Bridge
    - Location
        - L: 1
        - R: 1
    - Degree
        - L: 2
        - R: 2

Associated Objects: Unknown

Location of Grave 449



Grave 452

Provenience Information

Burial Number: 22 452

Duckworth Accession Number: Af.11.4.28

Burial Location: West side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Middle adult (mean 34.7, range 22-48)

Pathology:

- Lytic lesions on the right parietal and temporal

Dental Pathology:

- Abscess inferior to the right mandibular first incisor
- Slight to moderate calculus accumulation
- Early stage caries in the right maxillary first molar
- Alveolar retraction

Trauma: No visible perimortem trauma

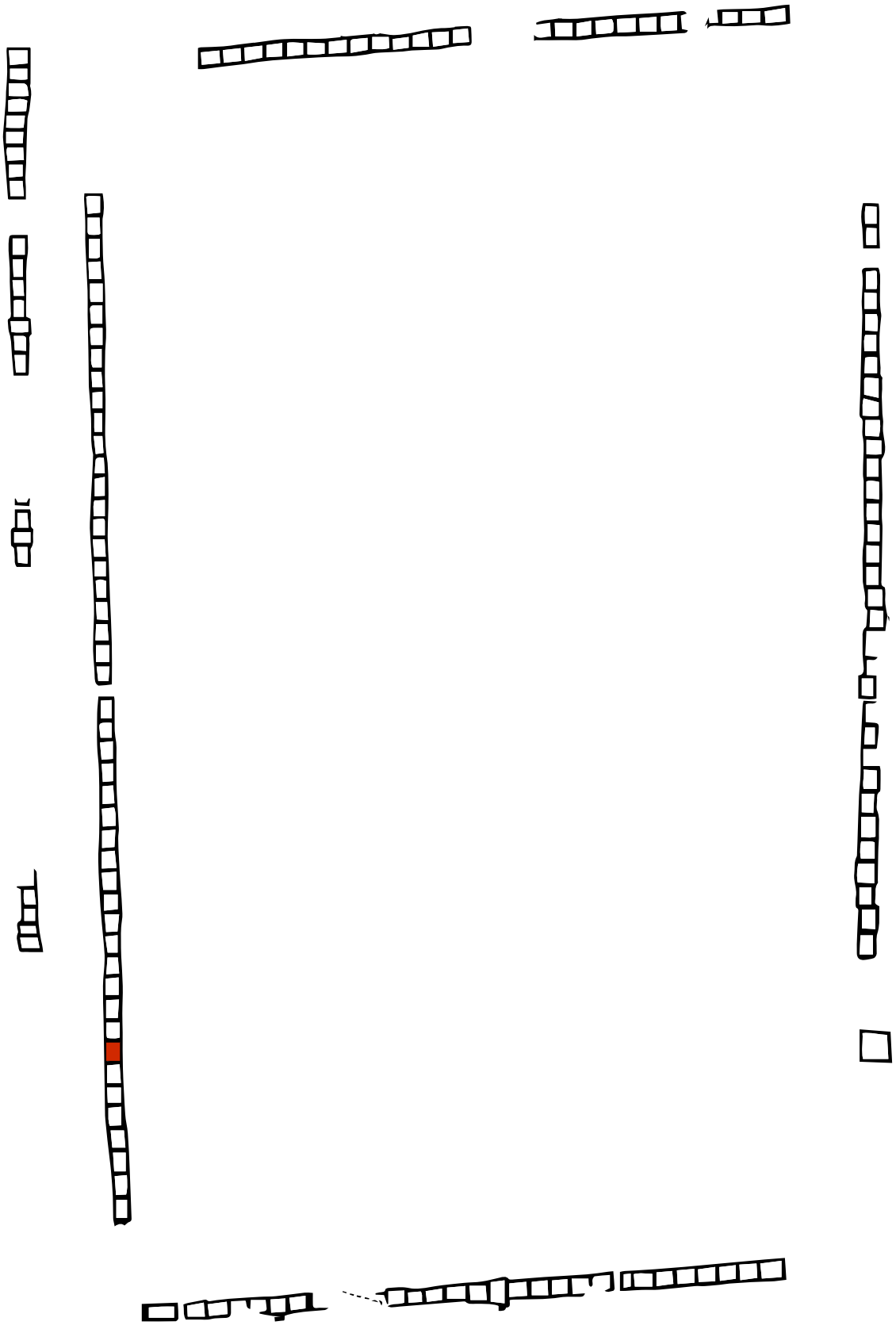
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A
        - L: 1
        - R: 1
    - B
        - L: 0
        - R: 0
- Infraorbital Suture
    - L: 1
    - R: 1
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 0
    - R: 0
- Parietal foramen
    - L: 1
    - R: 1

- Sutural bones:
    - A: 0
    - B: 0
        - L:
        - R:
    - C: 0
    - D: 0
    - E: 0
    - F:
        - L: 0
        - R: 1 (2 present)
    - G:
        - L: 1
        - R: 0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 9 due to breakage
    - R: 9 due to breakage
- Divided hypoglossal canal
    - L: 0
    - R: 9 due to breakage
- Flexure of superior sagittal sulcus: 1
- Auditory extosis
    - L: 3
    - R: 9 due to dirt and wax
- Mastoid foramen
    - A
        - L: 0
        - R: 0
    - B
        - L: 0
        - R: 0
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus: 0
- Mylohyoid Bridge: 0

Associated Objects: Unknown

Location of Grave 449



Grave 454

Provenience Information

Burial Number: 22 454

Duckworth Accession Number: Af.11.4.29

Burial Location: West side

Associated Monarch: Djet

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Female

Age Estimation: Young adult (sutures too open to estimate accurately)

Pathology:

- Lytic lesions on the right parietal
- Numerous other lytic lesions scattered across the cranial vault and facial bones

Dental Pathology:

- Severe LEH on the right mandibular premolars and canine
- Severe attrition on all first molars
- Calculus accumulation at the buccal CEJ of all mandibular teeth

Trauma:

- Perimortem BFT: fracture of posterior cranial vault

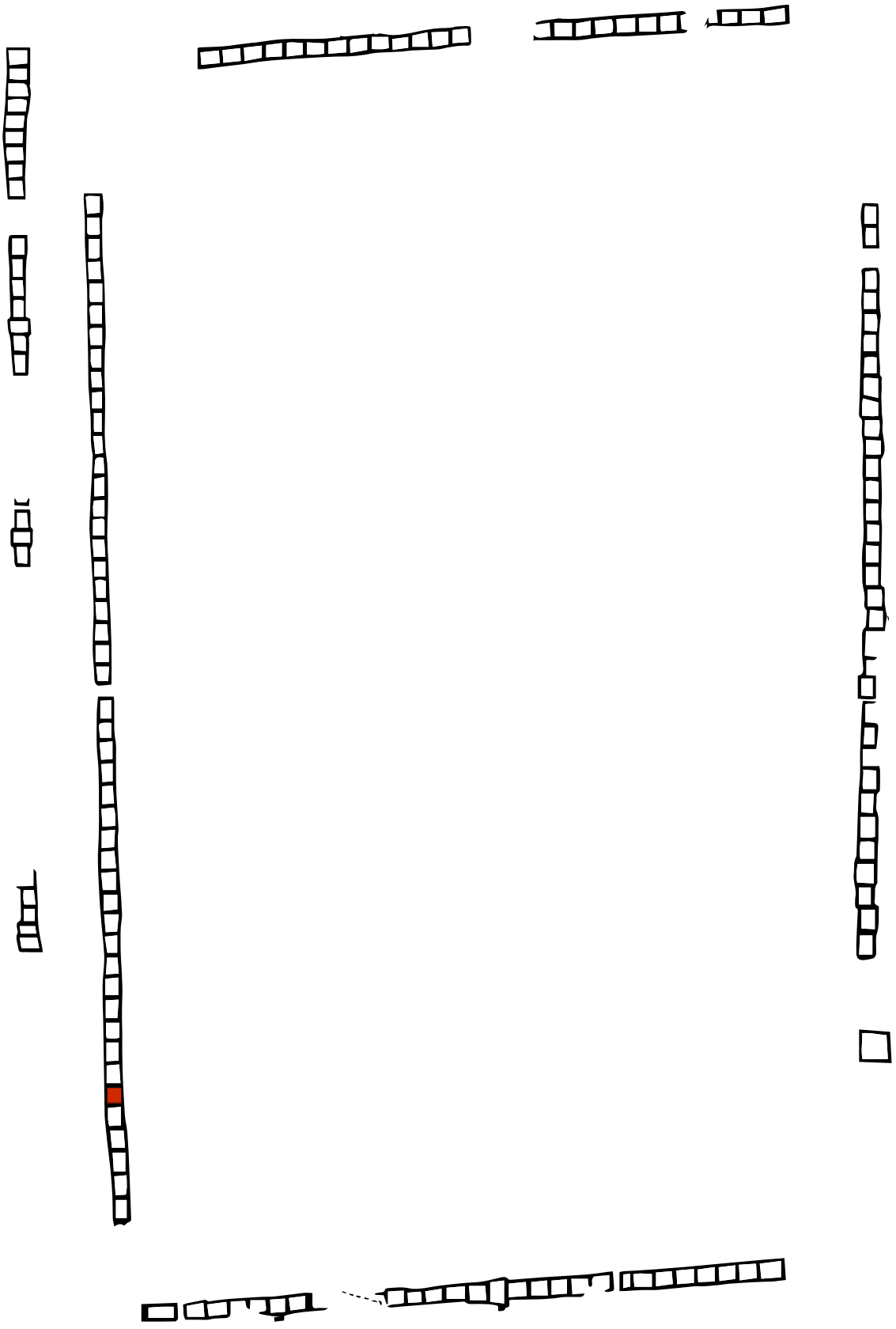
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A
        - L: 9 due to lesion
        - R: 1
    - B
        - L: 9 due to lesion
        - R: 0
- Infraorbital Suture
    - L: 2
    - R: 2
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 0
    - R: 0

- Parietal foramen
    - L: 0
    - R: 0
- Sutural bones: 0
- Inca bone: 0
- Condylar canal:
    - L: 9 due to dirt and wax
    - R: 0
- Divided hypoglossal canal
    - L: 9 due to dirt and wax
    - R: 9 due to dirt and wax
- Flexure of superior sagittal sulcus: 9
- Auditory extosis
    - L: 9 due to dirt and wax
    - R: 0
- Mastoid foramen
    - A
        - L: 0
        - R: 0
    - B
        - L: 0
        - R: 0
- Mental Foramen
    - L: 1
    - R: 1
- Mandibular Torus
    - L: 0
    - R: 0
- Mylohyoid Bridge
    - Location
        - L: 0
        - R: 1
    - Degree
        - L: 0
        - R: 2

Associated Objects: ceramic vessels, model granaries

Location of Grave 454



Appendix C: Subsidiary Burials of Merneith

Summary of Individuals in This Study

Crania (4): 205, 229, 254, 302

Photos by Petrie (grave numbers): 163, 224

Individuals Analyzed in This Study:

Grave Num.	Location	Element	Sex	Age	Petrie Photograph Citation	Body Position	Associated Objects
205	North side	Cranium + mandible	Male	Older adult	N/A	Unknown	Unknown
302	North side	Cranium + mandible	Female	Middle adult	N/A	Unknown	Unknown
229	East side	Cranium + mandible	Female	Middle adult	N/A	Unknown	Unknown
254	South side	Cranium + mandible	Female	Middle adult	N/A	Unknown	Unknown

Photographs of Individuals Not Analyzed in This Study:

Grave Number	Location (side)	Photograph Citation	Sex	Age	Body Position	Associated Objects
163	North side	Unpublished photograph in Petrie Museum	Unknown	Unknown (probably adult)	Tightly flexed, right side	Unknown
224	East side	Petrie 1925, Plate XIII	Unknown	Unknown (probably adult)	Tightly flexed on his/her back, head and legs turned to the left	Coffin, stele or seal,

Grave 205

Provenience Information

Burial Number: 22 205

Duckworth Accession Number: Af.11.4.7

Burial Location: North side

Associated Monarch: Merneith

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Male

Age Estimation: Middle adult (mean 43.4, range 23-63)

Pathology:

- One very small round depression on right parietal consistent with persistent infection

Dental Pathology:

- Calculus accumulation on lingual CEJs of all molars

Trauma:

- Possible BFT: left parietal radiating fractures

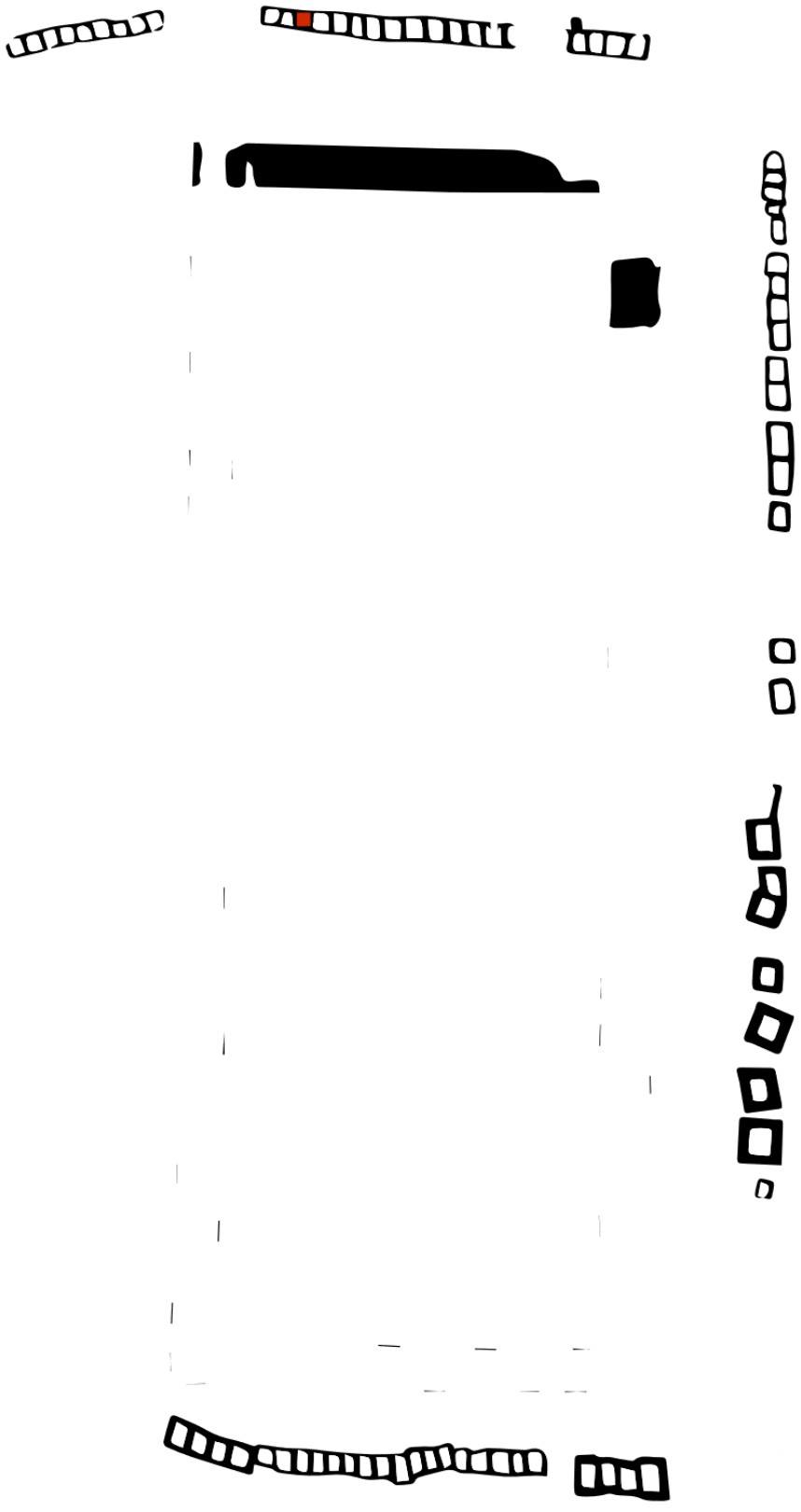
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A: 0
        - L: 0
        - R: 0
    - B
        - L: 1
        - R: 0
- Infraorbital Suture
    - L: 2
    - R: 0
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 1
    - R: 1
- Parietal foramen: 0
- Sutural bones: 0
- Inca bone: 0
- Condylar canal:

    - L: 1
    - R: 9
- Divided hypoglossal canal
    - L: 0
    - R: 3
- Flexure of superior sagittal sulcus: 2
- Foramen ovale incomplete
    - L: 0
    - R: 0
- Foramen spinosum incomplete
    - L: 0
    - R: 0
- Pterygo-spinous bridge
    - L: 3
    - R: 2
- Pterygo-alar bridge
    - L: 1
    - R: 1
- Tympanic Dihiscence
    - L: 0
    - R: 0
- Auditory extosis
    - L: 1
    - R: 9 due to wax and dirt
- Mastoid foramen
    - A
        - L: 0
        - R: 2
    - B
        - L: 0
        - R: 3 (3 present)
- Mental Foramen:
    - L: 1
    - R: 1
- Mandibular Torus
    - L: 0
    - R: 0
- Mylohyoid Bridge
    - Location
        - L: 1
        - R: 4
    - Degree
        - L:2
        - R: 2

Associated Objects: Unknown

Location of Grave 205



Grave 229

Provenience Information

Burial Number: 22 229

Duckworth Accession Number: Af.11.4.8

Burial Location: North side

Associated Monarch: Merneith

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Female

Age Estimation: Middle adult (mean 43.4, range 23-63)

Pathology:

- Porotic hyperostosis

Dental Pathology:

- LEH on the front maxillary incisors as well as the front mandibular incisors
- Large abscess has fully exposed the roots of right mandibular first molar
- AMTL
- Mild to severe calculus accumulation

Trauma:

- Possible perimortem BFT: concentric fractures on occipital

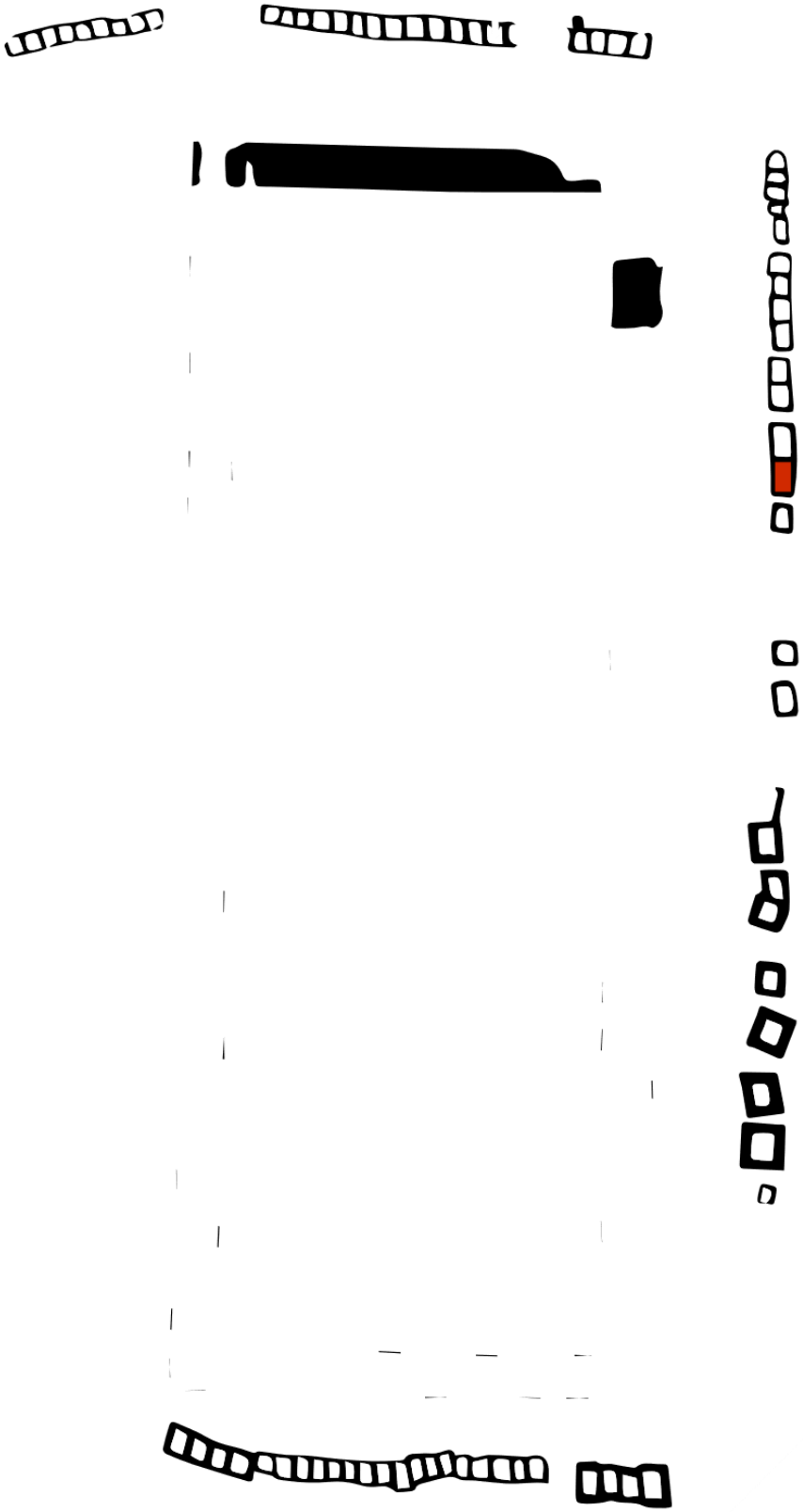
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A: 0
        - L: 0
        - R: 0
    - B
        - L: 1
        - R: 0
- Infraorbital Suture
    - L: 2
    - R: 0
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 1
    - R: 1
- Parietal foramen

    - L: 0
    - R: 0
- Sutural bones: all 0
- Inca bone: 0
- Condylar canal:
    - L: 1
    - R: 9
- Divided hypoglossal canal
    - L: 0
    - R: 3
- Flexure of superior sagittal sulcus: 2
- Foramen ovale incomplete: 0
- Foramen spinosum incomplete: 0
- Pterygo-spinous bridge
    - L: 3
    - R: 2
- Pterygo-alar bridge
    - L: 1
    - R: 1
- Tympanic Dihiscence
    - L: 0
    - R: 0
- Auditory extosis
    - L: 1
    - R: 9 due to wax and dirt
- Mastoid foramen
    - A
        - L: 0
        - R: 2
    - B
        - L: 0
        - R: 3 (3 present)
- Mental Foramen:
    - L: 1
    - R: 1
- Mandibular Torus: 0
- Mylohyoid Bridge
    - Location
        - L: 1
        - R: 4
    - Degree
        - L: 2
        - R: 2

Associated Objects: Unknown

Location of Grave 229



Grave 254

Provenience Information

Burial Number: 22 254

Duckworth Accession Number: Af.11.4.9

Burial Location: South side

Associated Monarch: Merneith

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Female

Age Estimation: Middle adult (mean 43.4, range 23-63)

Pathology:

- Porotic hyperostosis

Dental Pathology:

- AMTL
- Bony growth on the mandibular body inferior to the right first molar

Trauma:

- No visible perimortem trauma

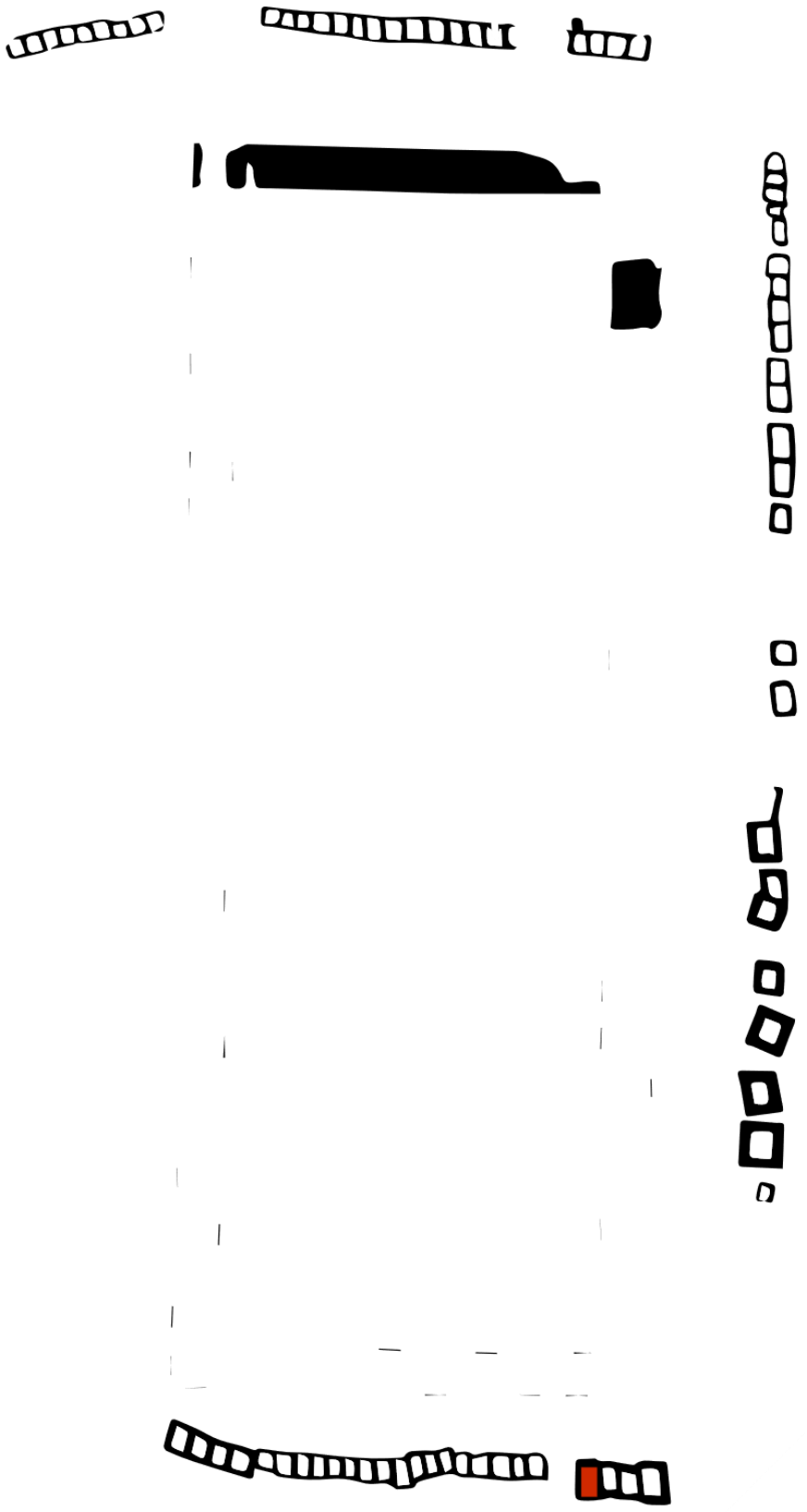
Nonmetric Traits:

- Metopic Suture: 1
- Supraorbital structures
    - A:
        - L: 0
        - R: 3
    - B
        - L: 1
        - R: 1
- Infraorbital Suture
    - L: 2
    - R: 2
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 2
    - R: 0
- Parietal foramen
    - L: 1
    - R: 0

- Sutural bones:
    - A: 0
    - B
        - L: 1
        - R: 9
    - C: 0
    - D: 0
    - E: 0
    - F:
        - L: 1 (1 present)
        - R: 2 present
    - G: 0
    - H: 0
    - I: 0
- Inca bone: 0
- Condylar canal:
    - L: 0
    - R: 9 due to dirt and wax
- Divided hypoglossal canal
    - L: 0
    - R: 0
- Flexure of superior sagittal sulcus: 2
- Foramen ovale incomplete: 0
- Foramen spinosum incomplete: 0
- Pterygo-spinous bridge
    - L: 1
    - R: 1
- Pterygo-alar bridge
    - L: 1
    - R: 1
- Tympanic Dihiscence
    - L: 9
    - R: 0
- Auditory extosis
    - L: 3
    - R: 9
- Mastoid foramen: 0
    - Mental Foramen:
        - L:1
        - R: 1
    - Mandibular Torus: 0
    - Mylohyoid Bridge: 0

Associated Objects: Ceramic vessel(s), coffin

Location of Grave 254



Grave 302

Provenience Information

Burial Number: 22 302

Duckworth Accession Number: Af.11.4.10

Burial Location: North side

Associated Monarch: Merneith

Excavator: W.M.F. Petrie

Excavation Date: Dec. 1921 - February 1922

Individual Assessment

Name: Unknown

Inventory: Cranium + mandible

Body Position: Unknown

Sex Estimation: Female

Age Estimation: Young adult (mean 30.2, range 18-45)

Pathology:

- Porotic hyperostosis on parietals and extending onto the frontal

Dental Pathology:

- LEH
- Caries at CEJ on front/proximal side of right mandibular first molar (code 5) as well as on the adjacent surface of PM2 (code 1)
- Alveolar retraction

Trauma: No visible trauma

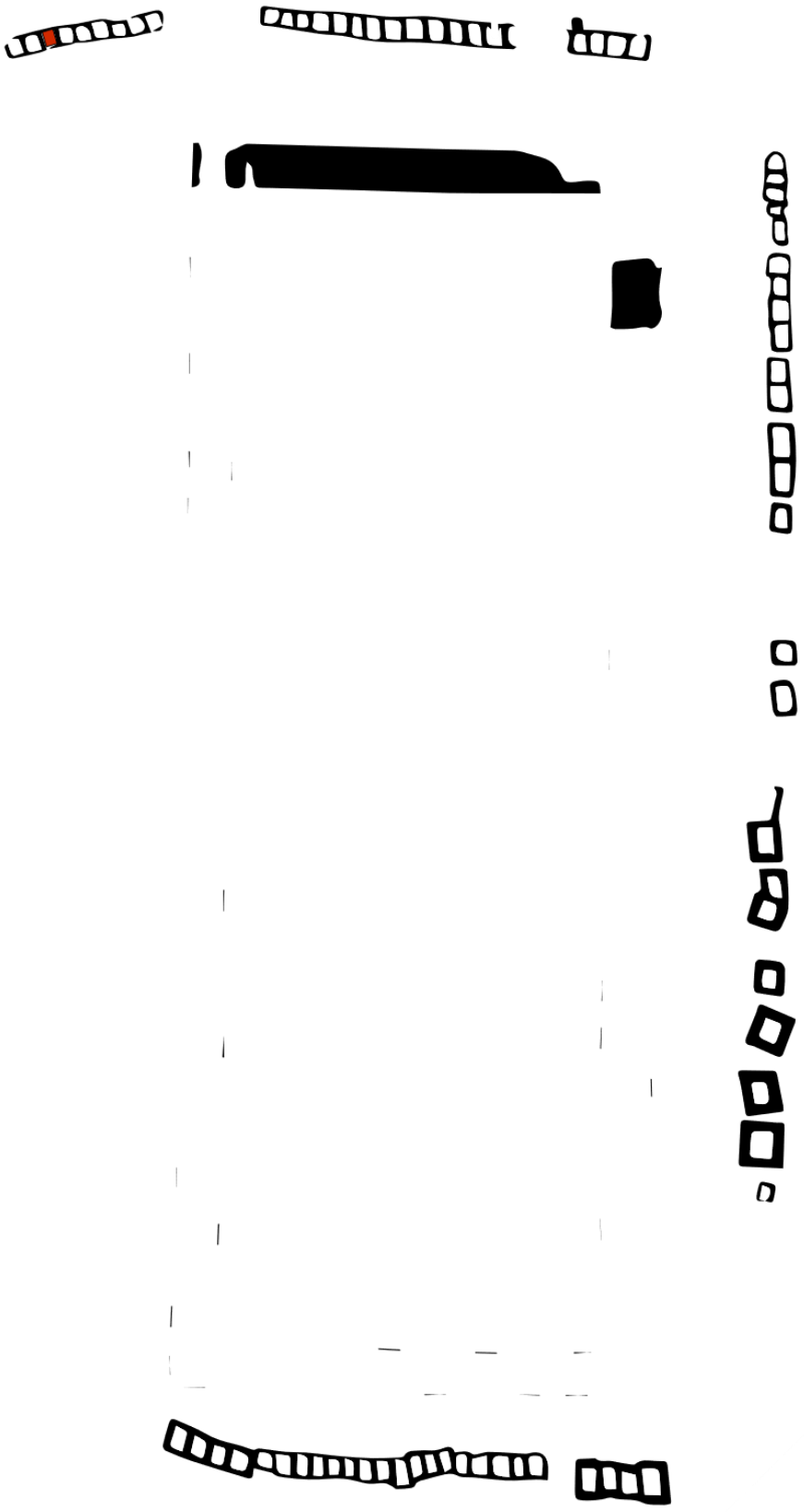
Nonmetric Traits:

- Metopic Suture: 0
- Supraorbital structures
    - A:
        - L: 1
        - R: 1
    - B
        - L: 1
        - R: 0
- Infraorbital Suture
    - L: 0
    - R: 0
- Multiple Infraorbital foramina
    - L: 0
    - R: 0
- Zygomatico-facial foramina
    - L: 0
    - R: 1
- Parietal foramen
    - L: 1

    - R: 1
- Sutural bones: all 0
- Inca bone: 0
- Condylar canal:
    - L: 9
    - R: 9
- Divided hypoglossal canal
    - L: 3
    - R: 1
- Flexure of superior sagittal sulcus: 9 due to wax and dirt
- Foramen ovale incomplete
    - L: 1
    - R: 1
- Foramen spinosum incomplete
    - L: 9
    - R: 9
- Pterygo-spinous bridge
    - L: 0
    - R: 0
- Pterygo-alar bridge
    - L: 1
    - R: 1
- Tympanic Dihiscence
    - L: 0
    - R: 0
- Auditory extosis
    - L: 3
    - R: 9 due to wax and dirt
- Mastoid foramen: 0
- Mental Foramen:
    - L: 1
    - R: 1
- Mandibular Torus: 0
- Mylohyoid Bridge: 0

Associated Objects: Unknown

Location of Grave 302



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