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WALLS OF THE RULERS: THE DEVELOPMENT OF MONUMENTAL
ENCLOSURE WALLS IN ANCIENT EGYPT PRIOR TO THE NEW KINGDOM

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*For my parents, Darcy and Paul Siegel, to whom I owe everything,
and in loving memory of John O'Brien, Carol O'Brien, Abraham J. Siegel, and Liam O'Brien,
who are never far from my thoughts*

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CHAPTER 1: INTRODUCTION

Despite their size and prominence at numerous sites throughout the Nile Valley and Nile Delta, settlement, citadel, and temple enclosure walls remain one of the most understudied elements of Egyptian monumental architecture. Long neglected by archaeologists and Egyptologists searching for more spectacular finds, monumental enclosure walls played an important role in defining both the physical and symbolic landscape of ancient Egyptian settlements. Although Egyptian frontier fortresses in Nubia and along the state's northeastern and western frontiers have been discussed extensively,¹ comparably massive wall systems at less explicitly military sites have received little attention. Construction methods and techniques associated with the building of such walls have only been investigated in passing by Egyptian archaeologists thus far, and much of this work focuses entirely on stone rather than mudbrick architecture. Moreover, despite a wealth of archaeological and textual evidence, in many instances it remains unclear what served as the impetus for the construction of such walling projects.

This dissertation will investigate the relationship between monumental enclosure walls and the imposition of political authority on local and regional landscapes in ancient Egypt. More specifically, it aims to address how such walls were built, why they were built, and how their enduring presence affected activities at Egyptian settlements. The presence of massive mudbrick enclosure walls surrounding not only fortresses, but settlements, funerary monuments, temples, and administrative complexes attests to the pragmatic and symbolic versatility of the form—a versatility which demands that any systematic treatment of the topic interface with questions regarding urbanism, the social, political, and spatial dynamics of monumental architecture,

¹ Morris 2005; Monnier 2010; Vogel 2013.

notions of sacred and profane architecture, archaeologies of violence and warfare, and conceptions of borders and liminality that have deservedly received increased attention in recent years in both anthropological and Egyptological scholarly literature.

RESEARCH GOALS

The primary goal of this study is to investigate the relationship between political authority and monumental enclosure walls in ancient Egypt. However, given the relative dearth of published material that comprehensively treats the architectural features related to such enclosure walls, critical issues regarding their actual construction must first be addressed. Specifically, this portion of the dissertation will investigate how settlement enclosure walls, citadels, temple enclosures, or substantial urban wall systems were built, and if the general construction process changed or remained similar across the duration of the Early Dynastic, Old Kingdom, First Intermediate Period, Middle Kingdom, and Second Intermediate Period. Excavations of settlement enclosure walls at both Edfu and Dendara provide entirely new data about the construction of these monumental installations; together with the published archaeological data from sites like Elephantine,² Balat,³ Kom Ombo,⁴ El Kab,⁵ Tell es-Sakan,⁶ Hierakonpolis,⁷ Abydos,⁸ and Heit el-Gurob,⁹ there is a wealth of archaeological data pertinent to

² Ziermann 1993.

³ Soukiassian, Wuttman, Pantalacci, and Grimal 2002; Jeuthe 2012, 29,33; Soukiassian et al. 2005, 473-474; Soukiassian et al. 2006, 401-403; Schaad in Soukiassian et al. 2007, 310-311; Soukiassian et al. 2011, 24-48; Schaad (forthcoming).

⁴ Kemp 1985.

⁵ Hendrickx et al. 2010.

⁶ De Miroschedji and Sadek 2000; de Miroschedji and Sadek 2001; de Miroschedji et al. 2001.

⁷ For fences and walls in the elite cemetery of HK6, see Baba and Friedman 2016, 194-197; Friedman, Van Neer, and Linseele 2011; Friedman 2008, 1185-1188. For the fort at Hierakonpolis, see Friedman 2007, and Jaeschke and Friedman 2011.

⁸ Kemp 1977, 186-189; Adams 2005.

⁹ Tavares and Lehner 2010.

a discussion of the construction techniques and architectural features associated with settlement enclosure walls, wall systems, and monumental enclosures.

Following this more technical discussion of enclosure walls, the second series of questions that this dissertation explores will focus on the social and political implications of monumental walling in Egypt from the Early Dynastic through the Second Intermediate Period—as interpreted from the aforementioned abundance of archaeological and textual data. This section of the dissertation will investigate the factors that spurred the construction of enclosure walls in such a variety of settings, how these constructions shaped local and regional landscapes, and how the presence of enclosure walls affected their surrounding communities even after the walls themselves fell into disuse. Furthermore, although it is often difficult or even impossible to obtain precise answers to questions related to who commanded a monumental enclosure’s construction in the absence of royal decrees or other explicit epigraphic sources, such problems warrant more substantial and thorough inquiry than they have heretofore received. Were security and military defense always the primary motives for the creation of such monumental installations, or were there other social, cultural, and political factors that inspired their construction? Do the results from excavations of enclosure wall systems at Edfu, Dendara, and other sites throughout Egypt problematize or confirm narratives suggesting increasingly decentralized power during the Late Old Kingdom and First Intermediate Period? Or conversely, how do such results impact our understanding of the reach of the Middle Kingdom state during the height of planned settlement construction? In what ways did such massive architectural features influence the local urban environment, sometimes long after their original purpose had become obsolete? Finally and most broadly, this dissertation attempts to understand whether there were any general principles that can be used to discern when and why the Egyptians

deemed it necessary to invest resources to construct a monumental enclosure wall, and whether these principles remain relatively static over time.

The main argument of this dissertation is that ancient Egyptian monumental enclosure walls should be reconceptualized as an architectural tool through which Egyptian authorities attempted to exert control over surrounding geographic and symbolic landscapes. Massive walls surrounding temples, towns, administrative complexes, mortuary monuments, funneling traffic within settlements, and even regulating passage across broader geographic regions were defining features of ancient Egyptian communities. Their ubiquity, monumentality, and physicality readily facilitated their appropriation as a symbol of power, protection, and control by the Pharaonic state—walls figured prominently in metonyms for the traditional Egyptian capital at Memphis and even in the etymology of the word “Egypt”, to say nothing of their prominence in funerary spells and literary texts. The nature of the authorities demanding the construction of such walls might vary, whether embodied in the form of a royal decree from the Pharaoh himself, royal officials acting on behalf of the Pharaonic state, or more communal impulses towards defense in times of crisis and insecurity. Whatever defensive functions they might have, walls, inevitably, are political constructions: they divide the intramural from the extramural, reinforcing socially imposed or negotiated boundaries. Particularly in the case of mudbrick walls that require regular maintenance and refurbishing, such walls could only continue to function with the support of local authorities, or else they would inevitably be replaced, erode, and collapse into obsolescence. Yet even in these cases, the memory of massive walling projects at times impacted much later settlement planning projects.

DEFINING THE DATA SET: 1. WHAT CONSTITUTES A MONUMENTAL WALLING PROJECT?

One of the principal difficulties of this project is defining a data set that is neither too restrictive to confidently explain any uniquely Egyptian conceptions of enclosure walls nor so expansive that it must treat any wall ever constructed during these periods. First, this dissertation will focus specifically on enclosure walls: that is to say, those freestanding walls or systems of walls that were not necessary for the structural integrity of a building, but instead served to deliberately circumscribe access to a given area or guide traffic through specific channels. To further narrow the types of walls included in the study, I will focus on what I will term “monumental enclosure walling projects.” Establishing what constitutes “monumental” architecture is a challenging prospect and I do not have any illusions about proposing any sort of comprehensive or uniform definition. Generally, I follow the approach advocated by James Osborne, who advocates “that no definition of ‘monument’ can ever aspire to be absolute unless it locates a monument’s monumentality in the relationship that exists between it and the people experiencing it.”¹⁰ This kind of relational ontology dovetails nicely with the methodology espoused by Adam T. Smith in *The Political Landscape*, a work that figures in some of the theoretical underpinnings of this dissertation.¹¹

For the purposes of defining which walls will be included in my corpus, I will focus on two primary variables: scale and the freestanding nature of the walls themselves. I will be focusing on walls of a certain size (roughly speaking, those that are greater than at least one meter thick) and those walls that were first constructed as independent features to restrict access or guide traffic through a given space (rather than being built to directly support pre-existing

¹⁰ Osborne 2014, 13.

¹¹ See the “Theoretical Foundations” and “Methodology” sections below. Smith 2003, 77.

buildings, for example). Typically, these variables are easily apparent from even fairly outdated archaeological reports. In rare circumstances, the prominence of freestanding walls in the local landscape rather than their physical size will also be considered: for example, the earliest enclosures in Egypt were often less thick, and constructed using wooden posts or branches, and it seems crucial to include these early examples within this study as the antecedents of later monumental mudbrick constructions.

This somewhat loose definition also has the advantage of allowing for the analysis of enclosure walls at multiple scales while rendering all but the most imposing domestic architecture beyond the purview of this project. It allows for the consideration of enclosure wall systems at a regional scale, as in analyses of constellations of monumental enclosure walls at multiple settlements, frontier fortresses, and satellite outposts, while also permitting investigation at a more immediate or local level—as when considering systems of enclosure walls at a single site, or individual walls protecting a temple or palace complex. Moreover, it permits a focus on enclosure walls as an enduring feature in the landscape, and as such highlights the importance of maintenance and upkeep for such structures.

I hope that this dissertation may arrive at a more comprehensive, holistic understanding of Egyptian conceptions of enclosure walls through a study not only of town walls, but also other variants of monumental walling from these periods, including internal walling systems that helped to regulate traffic within settlements, citadel walls, and freestanding walls that circumscribed access to specific regions, locations, or buildings. Neglecting other monumental enclosures would narrow the corpus significantly, but would risk imputing a distinction that is not always pronounced in Egyptian textual sources, which prior to the New Kingdom referred to walls most often as *jnb*, or *s3t/snbt* in the case of certain large palace or temple walls, and in rare

instances from the Second Intermediate Period, *sbtj*. Further, it is not always clear whether temple or palace enclosure walls served similar purposes as town walls—and choosing not to include such walls in this study would needlessly compromise any conclusions regarding broader Egyptian conceptions of enclosures.

Because this project is concerned primarily with the demarcation of space and the relationship between political authority and this particular form of monumental architecture, I will not be comprehensively evaluating military fortifications or defense systems for their efficacy or viability.¹² As noted above, numerous studies have already attempted to answer such questions in great depth, but far fewer have addressed how such installations were constructed or articulated power across the local landscape. Instead, my discussions of Egyptian frontier fortresses (and indeed all enclosure walls treated within this dissertation) will generally be limited to architectural concerns and how their design, placement, and maintenance reflected the interests of Egyptian civil authorities and/or grassroots coalitions. Often, defense figured quite prominently in such concerns, but rarely was it the only factor in decisions to construct and maintain a monumental enclosure wall. This project's focus on the social and political motivations for walling allows for the use of the copious amount of information regarding architectural practices derived from excavations of Nubian fortresses without said data overwhelming the dissertation.

DEFINING THE DATA SET: 2. EPIGRAPHIC SOURCES

In addition to archaeological evidence mentioned above, epigraphic sources furnish crucial information regarding the political systems and agents responsible for the construction of

¹² Monnier 2010; Vogel 2010a; Vogel 2010b; Vogel 2013.

enclosure walls and the organization of labor.¹³ The Egyptians possessed over twenty different words that referred to walled compounds (see Chapter Two of this dissertation), and textual evidence supplies unique insights into the role of enclosure walls in the symbolic and intellectual landscape of Egyptian society. Walls are generally described as *jnb(w)*, but differences are often located in the various terms for walled temples, residences, fortresses, and administrative structures. Textual references thus help immensely to clarify the Egyptians' own terminology for enclosure walls and the various installations with which they were frequently associated. Such terminology must suffice as the closest modern scholarship can come to approaching Egyptian monumental enclosure walls from an emic perspective. Mentions of walls, gates, and doors in literary-historical and religious texts help to inform discussions of the symbolic power of enclosure walls—whether as material barriers to be navigated in the afterlife, physical manifestations of imagined or socially constructed boundaries, or bulwarks against external chaotic forces.

Texts in particular can help to illuminate how various institutions interacted with one another over the course of monumental construction projects—even if these sources often describe stone constructions instead of enclosure walls.¹⁴ Sources detailing the construction of other (usually stone) monuments also shed light upon some of the ways the labor involved with enclosure wall construction might have been organized.¹⁵ Such texts can allow for preliminary calculations regarding the socioeconomic cost of wall construction in terms of manpower and time, as demonstrated by Aaron Burke in his study of Levantine fortifications during the Middle

¹³ There is of course a wealth of secondary literature on this subject, including but not limited to Strudwick 1985; Martin-Pardey 1976; Eyre 1987; Grajetzki 2013; Vymazalová 2013.

¹⁴ Roth 1991 discusses the role of certain phyles associated with pyramid construction; the Coptos decrees in Hayes 1946 provide insight regarding the political authority of local governors.

¹⁵ For example, sections from Papyrus Reisner I-IV detail the construction of a temple in the 12th Dynasty; see Simpson 1963, Simpson 1965, Simpson 1969, and Simpson 1986.

Bronze Age.¹⁶ Moreover, textual sources used together with archaeological evidence can help to clarify what sorts of buildings the Egyptians felt needed to be protected by an enclosure wall, and what constructions could be founded in extramural space—and whether these norms changed over time.¹⁷

DEFINING THE DATA SET: 3. GEOGRAPHICAL AND CHRONOLOGICAL SCOPE OF THE DISSERTATION

Given the scope of this dissertation, firm temporal and geographic boundaries must be articulated from the outset. Geographically, the borders of the Pharaonic state during the time periods in question provide a logical limit to the study, given that this dissertation is investigating the relationship between monumental walling projects and ancient Egyptian political authority. During the Predynastic, Early Dynastic, and Old Kingdom, sites evincing a clearly Egyptian assemblage of artifacts were largely restricted to the traditional boundaries of the Egyptian state: the Nile Delta, the Nile Valley north of the First Cataract, the Western Desert Oases, and scattered mining or expeditionary sites in the Eastern Desert. However, although Egypt was not the imperial state that it would later become during the Middle and New Kingdoms, important Egyptian enclaves emerged and briefly flourished in southern Palestine during the Late Predynastic and 1st Dynasty. During the Old Kingdom, certain sites like Buhen, south of the First Cataract possessed an artifact assemblage among which were numerous objects of a distinctively Egyptian character. Mining activities in the southern Sinai were also expanded during the Old Kingdom, and a number of sites associated with expeditions to the region are relevant to this

¹⁶ Burke 2008, 141-158.

¹⁷ Specifically, texts naming specific buildings or institutions (like ka chapels, for example) should prove immensely helpful after being correlated with existing archaeological evidence. Such efforts should help to determine what sorts of constructions were consistently surrounded by an enclosure wall.

study. During periods of greater decentralization like the First and Second Intermediate Periods, this dissertation will focus exclusively upon monumental enclosure walls from within the traditional boundaries of Egypt described above.

Periods where Egypt exerted its control farther abroad present greater complications. During the Middle Kingdom, the pharaohs of the 12th Dynasty expanded Egyptian control as far as Semna, south of the Nile's Second Cataract. Given Egypt's direct political control of these settlements and the Egyptian cultural package attested through small finds recovered from these sites, the monumental walls constructed at such locations will all be included within this dissertation. Similarly, the wealth of archaeological data recovered from excavations at fortresses in Nubia means that these certainly warrant inclusion within the study—even if this work will focus primarily on their socio-political import rather than their military efficacy. Middle Kingdom pharaohs also launched substantial campaigns in the Levant, but because there is no evidence for a permanent Egyptian presence in these territories during the Middle Kingdom, contemporary enclosure walls from southern Palestine will not be included in my study corpus. In sum, this study will investigate monumental walling projects at all sites with significant Egyptian populations within the territory claimed and administered by the Egyptian state.

Defining the temporal limits of this study is a more challenging prospect. Because this study seeks to understand the connections between monumental enclosure walls and political authority, it is worthwhile to trace the earliest origins of such massive walling projects in ancient Egypt. Indeed, scholars have long equated enclosures with establishing and defining the sacred, a notion perhaps best exemplified by the Medievalist Jost Trier's statement that, "In the beginning there was the fence... the enclosure gave birth to the shrine by removing it from the ordinary,

placing it under its own laws, and entrusting it to the divine.”¹⁸ Ancient Egypt provides an intriguing test case for such a claim, particularly since enclosure walls frequently surrounded not only temples, but funerary monuments and entire settlements as early as the mid third millennium BCE. Additionally, the relatively small number of monumental, freestanding walls excavated from the Predynastic period make it relatively simple to include this period within this dissertation.

The Early Dynastic rulers, artisans, and architects of a unified Egypt produced numerous products, symbols, and motifs that endured throughout Pharaonic civilization.¹⁹ Enclosures figured prominently in both mortuary and urban landscapes. Royal iconography illustrated the breaking of walled enclosures.²⁰ Such uses broadly continued in the highly centralized Old Kingdom, though enclosure walls were simply an integral part of larger mortuary complexes rather than the focal element. Memphis was first identified by its “White Walls” epithet at least as early as the 2nd Dynasty.²¹ Walls were used in innovative new ways to channel and direct traffic at sites like Heit el-Gurob, and continued to be used to demarcate buildings of administrative or religious significance throughout the Old Kingdom.²² The emergence of numerous town walls during the 5th and 6th Dynasties warrant inclusion in any study that aims to trace the development of such monumental architecture from the beginnings of the Egyptian state. During the First Intermediate Period, when the central government collapsed and local magnates competed for power, monumental enclosure walls were deployed in similar contexts

¹⁸ Trier 1943, 232.

¹⁹ Kemp 2006, 73-110.

²⁰ For the royal funerary enclosures at Abydos, see Bestock 2008. For the niched palace façade at Hierakonpolis, see Hoffman 1971-72 and Weeks 1971-72. For Early Dynastic palettes showing enclosure walls, see the Narmer Palette in Petrie 1953, Plates J, K, and the Libyan Palette in Petrie 1953, Plate G 19, and the Bull Palette in Petrie 1953, Plate G 18.

²¹ Zibelius 1978, 39-42. Petrie 1901, pl. 23, (193) appears to show an early reference to “White Walls” from the reign of Khasekhemwy.

²² Lehner and Tavares 2010.

surrounding settlements and funerary monuments, providing an ample corpus with which to investigate changes in form and usage over time. Following the reunification of the country and the start of the Middle Kingdom, the emergence of what Barry Kemp has called the “bureaucratic mind” in ancient Egypt led to new ways of conceptualizing and organizing local landscapes—and thus the way that enclosure walls were employed.²³ Beyond changes in the way the Egyptians approached their urban environment, the wealth of evidence from Middle Kingdom contexts in Egypt and Nubia furnishes crucial information about the planning and execution of large enclosure walls.

²³ Kemp 2006, particularly 163.



Figure 1. 1: Predynastic and Early Dynastic sites with enclosure walls

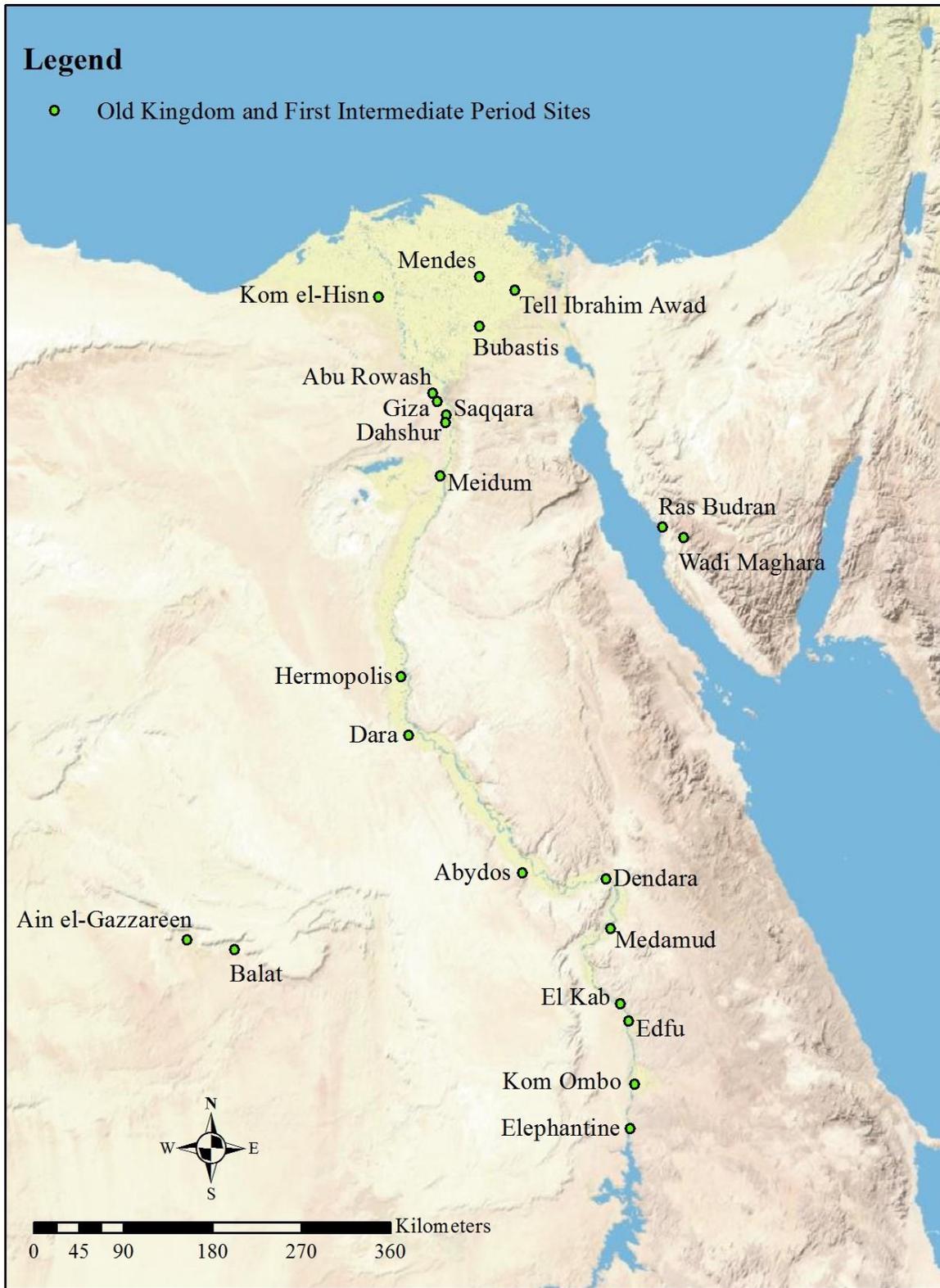


Figure 1. 2: Old Kingdom and First Intermediate Period sites with enclosure walls.



Figure 1. 3: Middle Kingdom and Second Intermediate Period sites with enclosure walls.

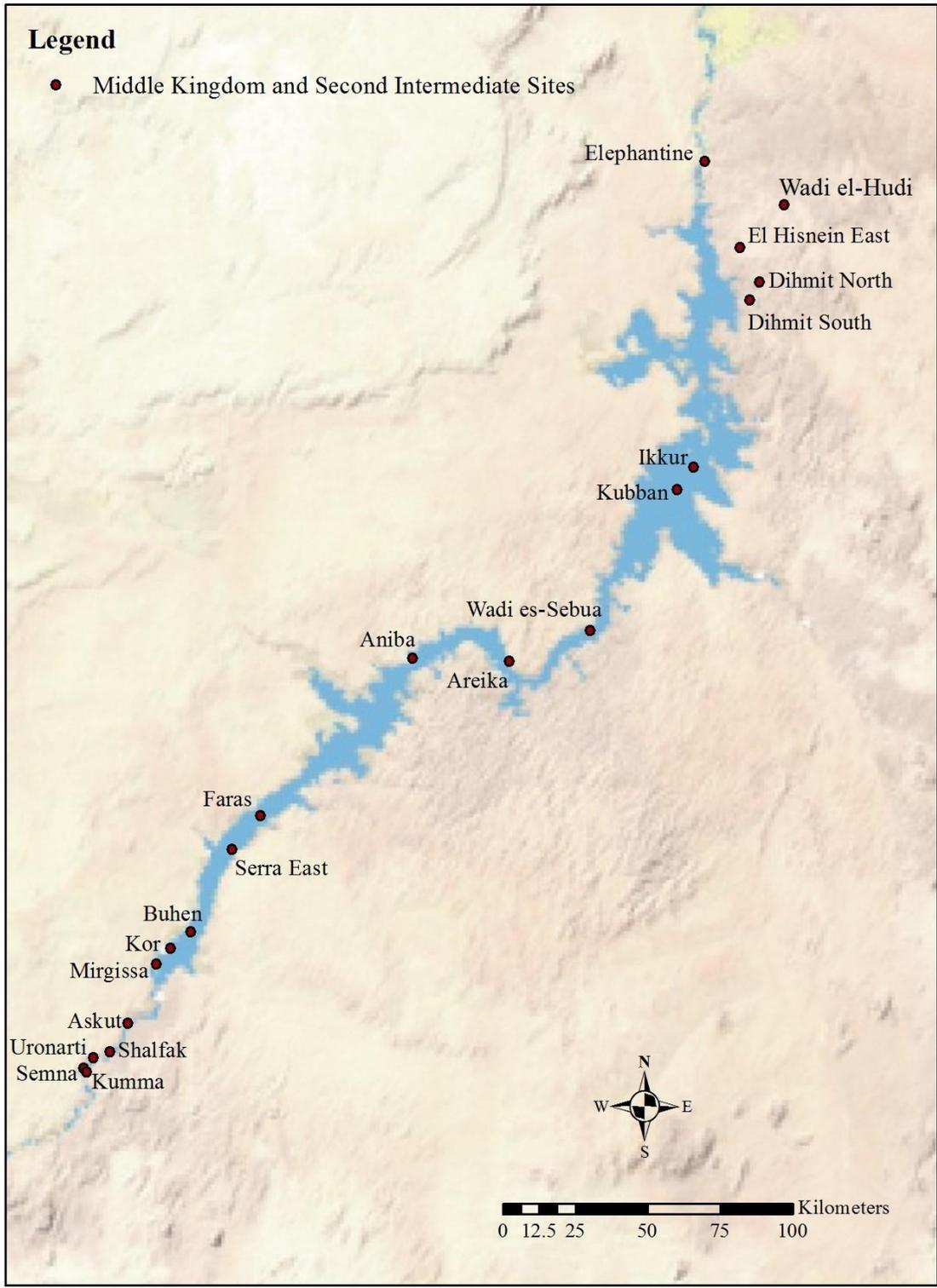


Figure 1. 4: Middle Kingdom and Second Intermediate Period sites with enclosure walls in Lower Nubia.

The changing character of urbanism in Egypt after the Second Intermediate Period provides a logical stopping point for this dissertation. First, the available evidence changes dramatically, as there are few large-scale exposures of urban settings from the New Kingdom outside of sites like Amarna, Pi-Ramesses, and frontier fortress-towns.²⁴ Urban development at sites like Amarna is radically different than the rigid orthogonality of town planning frequently attested at sites throughout Egypt during the Middle Kingdom. The profound cultural, political, and social differences of these later periods were accompanied by apparent shifts in how monumental enclosure walling projects were used. Hardly any town walls have been excavated from the New Kingdom, and certain aspects of the appearance and use of enclosure walls within settlements also seem to differ from earlier periods: to choose a single example, the temenos walls at temples and temple precincts become far more overtly militaristic in design than in previous periods.²⁵

DEFINING THE DATA SET 4: NEW INFORMATION FROM TELL EDFU

This dissertation will also endeavor to present entirely new information regarding enclosure walls on the basis of excavations from the site of Tell Edfu, a provincial capital in Upper Egypt. The site of Edfu was the capital of the second nome of upper Egypt, located some 100 km north of the traditional southern border at Elephantine. The settlement seems to have been extensively occupied at least as early as the 5th Dynasty, with continuous occupation thereafter until the 10th century CE leading to the creation of a large mound, or *tell*.²⁶ Though justly famed for the Ptolemaic temple at the site, the town walls and internal enclosure walls at

²⁴ See especially Kemp's comments in Kemp 1977, 195-196 where he notes that many towns seem to have been "re-sited" during the New Kingdom, implying at least a degree of change in the dynamics of urbanism during this period.

²⁵ Kemp et al. 2004, 275-76.

²⁶ Moeller 2010, 83.

Tell Edfu represent some of the most prominent monumental architecture discovered at the site from earlier periods. Clearing and mapping the walls together with the excavation of stratigraphy adjacent to the walls has furnished numerous details about their date, architectural phasing, construction techniques, and their role at the settlement over time. Beyond more technical information about their construction, a detailed examination of Edfu's enclosure walls readily demonstrates their importance in the local urban environment. Important parts of the tell were demarcated by walls with decorative buttressing, seemingly showcasing their potential as a visual spectacle and symbol. Walls defined large sectors of the city, even encompassing part of the necropolis during one particular phase of expansion in the late Old Kingdom and First Intermediate Period. It also provides a unique opportunity to investigate the legacy of particular walls in an urban environment, as some walls were maintained for centuries and then replaced with new walls almost directly overlying their predecessors, while others were demolished or overbuilt. Edfu thus provides an excellent case study to introduce and examine themes developed in subsequent chapters of the dissertation and reinforced by the already published data catalogued in the appendix.

HISTORY OF SCHOLARSHIP ON MONUMENTAL ENCLOSURE WALLS

Previous research on monumental enclosure walls broadly falls within two categories: those publications by Egyptologists and Egyptian archaeologists that have examined ancient Egyptian enclosure walls, and more general treatments on monumental walls published by researchers belonging to the wider anthropological and archaeological scholarly community. While many scholars within the fields of both Egyptology and archaeology/anthropology have investigated fortresses and fortifications, far fewer publications address the less overtly militaristic elements of monumental enclosure walls and wall systems. Within Egyptian

archaeology, the most substantial treatment of Egyptian settlement, citadel, and temple enclosure walls remains “Egypt’s Invisible Walls”, an article published in 2004 by Barry Kemp, Nadine Moeller, Kate Spence, and Alison Gascoigne.²⁷ Motivated in part as a response to James Tracy’s *City Walls: The Urban Enceinte in Global Perspective*, Kemp, Moeller, Spence, and Gascoigne’s work surveys the use and meaning of enclosure walls in Egypt across some 4,500 years.²⁸ While all of the authors note that insecurity and defense could and perhaps often did provide the impetus for the construction of enclosure walls, Kemp and his colleagues emphasize that “even the most overt military style of defensive walling of the Middle Kingdom forts in Nubia is still hedged around with ambiguities of motive and meaning.”²⁹ This article’s focus on the social, cultural, and historical specificities of Egyptian enclosure walling is a foundation upon which this dissertation hopes to build; however, this piece is not (and nor was it intended to be) comprehensive, and analyses of the technical dimensions of enclosure walls are beyond its scope.

Several general surveys are of particular relevance to this project, perhaps none more so than *The Power of Walls: Fortifications in Northeast Africa*, a recent publication of conference papers edited by Friederike Jesse and Carola Vogel.³⁰ Though this publication focuses primarily on fortification walls at military installations, the contributing authors discuss both systems of border protection, Egyptian conceptions of territories and borders, as well as fortification walls at numerous individual sites.³¹ Several other publications by Carola Vogel³² and Franck Monnier³³ treat architectural features of Egyptian fortresses in detail and are relevant to any analysis of the

²⁷ Kemp et al. 2004.

²⁸ Kemp et al. 2004; Tracy 2000.

²⁹ Kemp et al. 2004, 284.

³⁰ Jesse and Vogel 2013.

³¹ For example, Forstner-Müller 2013; Vogel 2013; Kootz 2013; Török 2013; Smith 2013; Hoffmeier 2013.

³² Vogel 2004; Vogel 2010a; Vogel 2010b; Vogel 2011.

³³ Monnier 2014; Monnier 2013a; Monnier 2013b; Monnier 2012; Monnier 2011; Monnier 2010.

less overtly militaristic enclosure walls encircling, towns, temples, or administrative centers.

Though they do not explicitly mention enclosure walls, numerous other publications within Egyptian archaeology and Egyptology address questions of how monumental architecture can be expressive of power relations between political groups,³⁴ reflective of underlying sociopolitical trends or tensions,³⁵ or used to articulate propagandistic, state-sponsored myths.³⁶

Aside from the article by Kemp, Moeller, Spence, and Gascoigne, however, there are no other publications devoted to a general analysis of monumental enclosure walls at non-military installations. Fortunately for the purposes of this dissertation, there are numerous works detailing aspects of enclosure walls at specific sites. Site reports and other publications related to the excavations of Elephantine,³⁷ Kom Ombo,³⁸ Edfu,³⁹ El Kab,⁴⁰ Hierakonpolis,⁴¹ Balat,⁴² Karnak,⁴³ Dendara,⁴⁴ Abydos,⁴⁵ Qasr el-Sagha,⁴⁶ Lahun,⁴⁷ Memphis,⁴⁸ Heit el-Gurob,⁴⁹ and Kom el-Hisn⁵⁰ (among others) all contain relevant information regarding monumental enclosure

³⁴ Moeller 2009c.

³⁵ Hoffman 1986 et al.

³⁶ Kemp 2006, especially 99-110.

³⁷ Ziermann 1993; Ziermann in Kaiser et al. 1993, 136-141, Lindeman in Kaiser et al. 1988, 141-144, Seidlmayer 1996.

³⁸ Kemp 1985.

³⁹ Moeller in Kemp et al. 2004, 261-265; Moeller 2006, 2; Moeller 2009a, 1-2; Moeller 2009b, 121-124, Moeller and Marouard 2012, 158-161; Moeller and Marouard 2015, Kemp 1977, 189-191.

⁴⁰ Clarke 1921; Hendrickx et al. 2010.

⁴¹ Adams 1995, Quibell and Green 1902, Kemp 1963, 24-28; Kemp 1966, 15-17.

⁴² Soukiassian, Wuttman, Pantalacci, and Grimal 2002; Jeuthe 2012, 29,33; Soukiassian et al. 2005, 473-474; Soukiassian et al. 2006, 401-403; Schaad in Soukiassian et al. 2007, 310-311; Soukiassian et al. 2011, 24-48; Laisney 2010, fig. 21, fig. 25-30, and fig. 40; Schaad (forthcoming). For a nearby satellite site with enclosure walls, see Mills 2007 and Kaper and Mills 2004 for 'Ain Gazzareen.

⁴³ Lauffray, Sa'ad, and Sauneron 1975, 26-30 and Fig. 13; Lauffray 1980, 44-52; Debono 1982, 377-383; Lauffray 1979, 197-209.

⁴⁴ Zignani 2001; Zignani, Marouard, and Tristant 2015.

⁴⁵ For the Early Dynastic Funerary Enclosures, see Bestock 2008, Bestock 2009, Bestock 2011; for the town walls at the site, see Kemp 1977, 186-189; M.D. Adams 1998, 19; Petrie 1902; Petrie 1903.

⁴⁶ Śliwa 1986.

⁴⁷ Petrie 1890; Petrie 1891; Petrie, Brunton, and Murray 1923; Horváth 2009.

⁴⁸ Monnier 2010, 178-179; see also the recent discoveries of fragments of monumental limestone walls at Kom Tuman as reported in the Cairo Post, April 20 2015, and a bulletin in the journal *Artifax* 30:3 (Summer 2015), 12.

⁴⁹ Tavares and Lehner 2010.

⁵⁰ Wenke et al. 1988; Kirby et al. 1998; Cagle 2001.

walling projects in these areas within the temporal range proposed for this dissertation. Some of these studies admirably venture beyond the presentation of raw data and make cogent arguments regarding the usage of monumental walling at the site, as in Ana Tavares' and Mark Lehner's analysis of the system of walls used at Heit el-Gurob to funnel traffic through certain areas or circumscribe access to particular administrative centers.⁵¹ The archaeological data presented in these reports highlights the wide variety of monumental walling projects the Egyptians created—ranging from enclosure walls surrounding temples, palaces or administrative centers,⁵² entire towns,⁵³ and funerary monuments to free-standing constructions that served to restrict and/or direct patterns of ingress and egress within a given landscape.⁵⁴

There are relatively few recent publications that have made a concerted effort to understand the building techniques associated with the construction of settlement enclosure walls. Alan Jeffrey Spencer's *Brick Architecture in Ancient Egypt* is a valuable contribution, though his focus is far broader than that of this dissertation, and thus his comments regarding monumental enclosure walls are limited by the scope of the project.⁵⁵ Discussions of construction techniques are also present in a number of different surveys of ancient Egyptian architecture, though the majority of these are somewhat dated.⁵⁶ Much of Dieter Arnold's architectural analyses are valuable but focus primarily upon stone rather than mudbrick construction—similar to Jean-Philippe Lauer's investigations of construction techniques

⁵¹ Tavares and Lehner 2010.

⁵² For example, Balat: Soukiassian, Wuttman, Pantalacci, and Grimal 2002; Jeuthe 2012, 29,33; Soukiassian et al. 2005, 473-474; Soukiassian et al. 2006, 401-403; Schaad in Soukiassian et al. 2007, 310-311; Soukiassian et al. 2011, 24-48.

⁵³ For example, Edfu and Elephantine. For Edfu, see Moeller in Kemp et al. 2004, 261-265; Moeller 2006, 2; Moeller 2009a, 1-2; Moeller 2009b, 121-124; Moeller and Marouard 2012, 158-161; for Elephantine, see Ziermann 1993.

⁵⁴ Tavares and Lehner 2010.

⁵⁵ Spencer 1979.

⁵⁶ Clarke and Engelbach 1930; Jéquier 1924; Badawy 1966; Badawy 1968; Badawy 1990; Arnold 1994.

employed at Saqqara.⁵⁷ More recently, George (G.R.H.) Wright's investigation of ancient building technology and techniques discusses mudbrick architecture in Pharaonic Egypt but is only a cursory treatment.⁵⁸ Comprehensive discussions of mudbrick buildings elsewhere in the ancient Near East are more frequent: Martin Sauvage's investigation of mudbrick construction in Mesopotamia from the Ubaid through the Persian periods is particularly instructive, as is much of Olivier Aurenche's research upon the applications of brick architecture.⁵⁹

While few texts prior to the New Kingdom or Third Intermediate Period discuss the actual construction of enclosure walls (a feature that is itself notable and worthy of comment), many literary and religious texts mention enclosure walls, doors, and gates both figuratively and literally.⁶⁰ The richness and variety of these metaphors illustrates the symbolic power and versatility of enclosure walls in the intellectual as well as the physical landscape: walls alternately appear as metonyms for an entire settlement,⁶¹ protective boundaries,⁶² or even in some instances as the locus of danger (as a hiding spot for a poisonous snake, for example).⁶³ Textual sources in particular are also indispensable to efforts to understand the symbolism of these architectural features and how intellectual reactions to such features might have developed and changed over time. Beyond these works, more abstract notions of "enclosure" and "containment" have been treated at length in discussions of Egyptian religious and magical

⁵⁷ Arnold 1991; Lauer 1948; Lauer 1974.

⁵⁸ Wright 2000; Wright 2005; Wright 2009.

⁵⁹ Aurenche 1977; Aurenche 1981; Sauvage 1998.

⁶⁰ Examples are far too numerous to mention in a comprehensive fashion at this juncture, but monumental walls or fortresses figure prominently in *The Tale of Sinuhe*, *the Kamose Stelae*, *the Teaching for Merikare*, *The Pyramid Texts*, among others.

⁶¹ "White Wall(s)" was a frequent epithet of Memphis, attested at least as early as the 3rd Dynasty: cf. Garstang 1903, 8-11, pl. 10 (11).

⁶² As attested by the descriptions of walls defending Avaris when Kamose campaigned in the region. Helck 1975, 92 (Line 9 of the original source); Smith and Smith 1976, 60, and corresponding notes to the text on 63-64.

⁶³ Using Allen's organizational system, see spells 16 and 186 from the *Pyramid Texts of Unas*, in Allen 2005, 18, 53.

practice.⁶⁴ Further studies have highlighted the boundaries and borders of the Egyptian state, both real and imagined,⁶⁵ while many scholars discussing religious architecture have emphasized the role of temples as bastions of order, protected from external chaos by substantial enclosure walls.⁶⁶ As the enclosure walls themselves are concrete embodiments of an initial impulse to circumscribe, protect, or surround a given space, any discussion of enclosure walls must also engage with Egyptian conceptions of boundaries and borders—both physical and metaphysical. Thus, it is crucial to investigate notions of borders and frontiers as found in obvious examples like the Semna boundary stelae as well as in various other texts.⁶⁷

Even within the wider fields of anthropology and archaeology, few studies have focused specifically upon settlement or city walls as opposed to military fortifications. A notable exception and the most relevant general work for the purposes of this dissertation is James Tracy's *City Walls: The Urban Enceinte in Global Perspective*, with contributions from scholars and an impressive geographic and temporal scope.⁶⁸ However, Tracy's own discussion of Pharaonic Egyptian examples of city walls is both superficial and misinformed, for he states categorically that "Ancient Egypt had no walled towns" and relied only upon regional networks of fortresses on its frontiers for defense.⁶⁹ This error aside, Tracy's volume is commendable for its inclusion of case studies from throughout the world—though European examples still predominate.⁷⁰ The various contributors also highlight important aspects of any monumental

⁶⁴ Ritner 1993, 57-67; Kemp 2006, 92-99; Shafer 1997, 1-9.

⁶⁵ Kootz 2013; Kootz 2006; Vogel 2011; Lupo 2007; Quirke 1989.

⁶⁶ Shafer 1997, 1-9.

⁶⁷ For the text of the stelae, see Sethe 1924, 83-88; for notions of borders more generally, see Kootz 2013; Kootz 2006. More recent treatments include Seidlmayer 2000 and Vogel 2011.

⁶⁸ Tracy 2000.

⁶⁹ Tracy 2000, 72-73. He quotes Keegan's assessments of Pharaonic Egypt's defensive grand strategy from Keegan 1993, 142, 145, 147.

⁷⁰ As noted in Tracy 2000, 2, the volume contains eleven chapters devoted to European settlements or colonies, two to China, one to sub-Saharan Africa, one to North America, and four to the Islamic world.

walling projects, from the motives underlying the decision to wall off a community to the symbolic aspects of such projects. Many papers are concerned with how studying such walls can illuminate our understanding of the character and intensity of warfare in a particular region, though several authors move beyond this to consider various political and symbolic ramifications of town walls. Two particularly successful examples relevant to the current study include Graham Connah's discussion of how perimeter walls used in certain tropical African settlements defined "contained communities",⁷¹ and Nancy Steinhardt's investigation of idealized representations of Chinese cities with an internal citadel and surrounded by perfectly rectilinear enclosure walls.⁷² Paul Wheatley only indirectly comments upon the political and symbolic importance of enclosure walls in his discussions of urbanism in East Asian and Islamic civilizations, but these works together with some of his work theorizing space in terms of pragmatic, perceptual, experiential, cognitive, and abstract dimensions are valuable when considering local landscapes both individually and collectively.⁷³ Studies on Syro-Anatolian, Mesopotamian, and Levantine cities have highlighted how political authorities used city walls (and especially highly trafficked gateways) to articulate their power through visual, epigraphic, and architectural means to the widest possible audience.⁷⁴ Walls and gates were frequently the focus of religious rituals and symbolism as well.⁷⁵

A number of additional works address city walls within a specific historical or cultural milieu, though the vast majority of these focus on European examples derived from a medieval or early modern context.⁷⁶ Though certain methodologies employed by these researchers to

⁷¹ Connah 2000, 19.

⁷² Steinhardt 2000.

⁷³ Wheatley 1971; Wheatley 1976.

⁷⁴ Osborne 2014c, 205. May 2014 also explores the importance of city and temple gates in Mesopotamia, Israel, and the Levant.

⁷⁵ May 2014, 80-86; Mazzoni 1997.

⁷⁶ For example, Eidgenössische Technische Hochschule Zürich. Institut für Denkmalpflege., et al. 1995.

catalogue and analyze trends amongst city walls may prove useful when applied to this dissertation, the temporal and geographic distance between Egypt in the third millennium BCE and these examples drastically reduce the utility of any sort of ethnographic analogy. Many publications stress the ingenuity of Roman engineers in designing military architecture, but only rarely discuss urban fortifications in anywhere near the same kind of detail as fortresses.⁷⁷ A number of publications examine the city walls of the Greek city states during the Archaic, Classical, and Hellenistic periods, but any substantial comparison with the Egyptian examples of the third and early second millennium BCE risks understating the differences between these cultures.⁷⁸

In terms of scope, Aaron Burke's updated and revised book based on his own dissertation, *"Walled Up to Heaven": The Evolution of Middle Bronze Age Fortification Strategies in the Levant*, is perhaps the closest analog to this dissertation project.⁷⁹ Burke is far more interested in the military dimensions of these fortifications than the sociopolitical power relations that this dissertation hopes to investigate; however, the thoroughness of Burke's work as evidenced by his catalogs of examples at sites throughout the Levant and his analysis of the socioeconomic impact of fortification construction are highly relevant to any discussion of monumental enclosure walls in Egypt. Furthermore, compared to the examples listed in the preceding paragraph, the Levant during the Early and Middle Bronze Age is far more temporally and geographically proximate to Old and Middle Kingdom Egypt: many of Burke's assumptions regarding the nature of society during the Middle Bronze Age are broadly comparable if not entirely valid for Pharaonic civilization over a similar timeframe. Indeed, the two regions

⁷⁷ Allison 2013; Dey 2011; Koci Montanari 2009.

⁷⁸ Frederiksen 2011; Coutsinas 2013.

⁷⁹ Burke 2008; Burke 2004.

interacted extensively (both violently and peaceably) during this interval. Other scholars have recently examined the sociopolitical implications of monumental walling projects in the Shephelah during the Middle Bronze Age, noting different approaches to fortification efforts in specific regions of the Levant.⁸⁰

Though typically much more research has focused on borders, boundaries, and indeed border walls in the modern world, the field of border theory contributes much to the underlying theoretical foundations of this dissertation.⁸¹ Wendy Brown's elegant treatise on the proliferation of modern, militarized border walls highlights the connection between such walls and the performative sovereignty of states in an increasingly globalized world, emphasizing the often paradoxical and futile aims underlying the rationale for such walls (as well as their unforeseen repercussions).⁸² Other scholars have highlighted the importance of viewing borders as institutions that are maintained and modified through a wide variety of practices frequently entwined with other ideologies ranging from nationalism to neoliberal capitalism.⁸³ Additional researchers have more explicitly noted the performative aspects of seemingly strict border controls, which in many cases function to legitimate the sovereignty of a governing power rather than effectively curtailing the illicit passage of goods and people.⁸⁴ Many other authors have made explicitly political studies of modern walling projects, frequently critiquing the divisions created by their construction.⁸⁵

⁸⁰ Bunimovitz and Lederman 2013, 22-23.

⁸¹ Johnson and Michaelsen 1997; Newman 2003; Johnson et al. 2011; Nail 2016.

⁸² Brown 2010. See also the recent edited volume Gasparini 2017 for a wide variety of papers discussing modern walling projects.

⁸³ Paasi 1996, Paasi 2013, 483-491.

⁸⁴ Andreas 2000.

⁸⁵ Brown 2010. While decidedly less scholarly in tone, Marcello di Cintio's 2013 book *Walls: Travels along the Barricades* eloquently discusses similar aspects of modern walling projects. Again, see also Gasparini 2017. For a far less successful example, see Frye 2019, which nonetheless casts walls as political constructions, albeit ones that serve as the dividing line between civilization within them and barbarism beyond.

Landscape archaeology and monumentality are burgeoning areas of study within anthropology and archaeology—here I will only address key publications and certain foundational works in landscape archaeology both in general and specific to the ancient Near East that influenced the methodology of this dissertation.⁸⁶ The work of Adam T. Smith will be revisited in greater detail below, but much of his scholarship engages with how archaeology can provide an insight into how early complex societies exercised political power with a particular focus on spatial contexts.⁸⁷ Susan Alcock’s work on the role of monuments and the archaeology of memory has proven extremely stimulating when considering the enduring presence of monumental enclosure walls at many sites in Egypt, and their continued importance marking informal borders even after their own obsolescence.⁸⁸ The limitations of more phenomenological approaches notwithstanding, Chris Tilley’s research valuably centers sensory and perceptual responses to experiencing architecture.⁸⁹ Tony Wilkinson’s foundational works on landscape archaeology in the ancient Near East influence conceptions of landscapes within this dissertation.⁹⁰ Recent scholarly work highlighting the importance of the “materiality” of artifacts and architecture, and specifically mudbrick, has influenced my thinking on the physical remains of mudbrick walls and their constituent parts.⁹¹ Finally, several recent and thought provoking edited volumes concerning monumentality and territoriality have informed this research, particularly regarding how to define conceptions of “monumental” enclosure walls and the role

⁸⁶ Wilkinson 2003; Tilley 1994.

⁸⁷ Smith 2003.

⁸⁸ Alcock 2002; Van Dyke and Alcock 2003.

⁸⁹ Tilley 1994.

⁹⁰ Wilkinson 2003.

⁹¹ Hodder 2016; Love 2013a; Love 2013b.

of said walls in defining and demarcating spatial boundaries (see the above discussion of a relational, socially contingent definition of monumentality advocated by Osborne).⁹²

METHODOLOGY

This dissertation will rely primarily upon the interpretation of relevant archaeological evidence and textual sources. As noted above, some of this archaeological data will be entirely new material, derived from excavations primarily conducted at Edfu but also including information from Dendara and Uronarti. This will be supplemented extensively through the study of site reports from other sites throughout Egypt. At all three sites, preserved enclosure walls (or in Uronarti's case, fortification walls) prove an invaluable source for investigating how such walls were constructed. Preserved stratigraphy has been revealed adjacent and below some of these walls, and the ceramic material within these layers allows for constructions and renovations to be dated chronologically. Small finds from these contexts provide important, albeit limited, insight into the intramural and extramural activities taking place in the immediate vicinity of the monumental enclosure walls at these sites. Moreover, Edfu and Dendara allow for the investigation of multiple sets of enclosure walls, and their continued impact on local communities long after the period of their initial construction. For example, within the period of study proposed above, Edfu possesses distinct monumental enclosure walls from at least the 5th, late 6th, and late 11th/early 12th Dynasties, while recent excavations at Dendara have revealed enclosure walls related to occupations in both the Old Kingdom and Middle Kingdom.

Beyond entirely new evidence from these sites, this dissertation will also make use of the abundant but in many cases somewhat unprocessed published reports describing monumental walling projects at numerous sites throughout Egypt. The wealth of published archaeological

⁹² Osborne 2014; Osborne and VanValkenburgh 2013.

data relevant to this dissertation has already been touched upon above but warrants further comment here.⁹³ The lengthy list of sites with examples of monumental enclosure walls illustrates one of the most intriguing aspects of monumental enclosure walling in Egypt—their presence at so many different kinds of sites throughout Egyptian territory. This ubiquity allows for research questions that investigate regional variations and similarities. The absence of previous syntheses of this archaeological information means that much of the data I will rely upon is contained in published reports or preliminary reports of various excavations.

Where possible, the appendix provides details about individual enclosure walls including their minimum/maximum/average height, width, brick patterns (i.e. alternating headers and stretchers, etc.), brick size(s), brick matrix, associated stratigraphic layers and relevant small finds therein, any adjacent/associated intramural and extramural buildings, the presence or absence of decorative niches or buttresses, the presence or absence of any hallmarks of Egyptian military architecture (i.e. loopholes, a glacis, crenellations, ditches or moats, etc.), and any anomalous construction features—a gap or doorway that was later filled in to allow for the ingress and egress of construction materials, for example. These variables are highlighted since they often have ramifications for any attempt to distinguish between different wall types. In some instances, certain constellations of variables may allow insight into the nature of the political authority that they exemplify—to choose several obvious examples, one might consider the niched-façade and decorative buttresses that are hallmarks of Early Dynastic royal architecture, the extremely sophisticated military architecture of the Nubian fortresses, or the sloping outer facades of Old Kingdom, First Intermediate, and Early Middle Kingdom town walls. For the material from Edfu, photogrammetric orthophotos have been generated to record

⁹³ See Appendix A; see also above in this chapter, footnotes 37-53 for specific publications from individual sites.

segments of certain walls at Edfu in far greater detail than would otherwise be feasible. Further information is also presented in a more narrative form in the appendix to this dissertation.

This archaeological evidence is complemented by the analysis of relevant textual sources—specifically literary-historical texts mentioning monumental enclosure walls, economic texts related to the organization of monumental construction projects and their associated labor, and religious or intellectual treatises discussing Egyptian attitudes towards boundaries, borders, and the concept of enclosure walls. Textual sources will be crucially important to any attempt to understand the motivations behind enclosure wall construction and are also imperative when considering the symbolic potency of such architectural features. Indeed, enclosure walls figured importantly in imagined as well as physical landscapes, and evaluating the roles of doors, gates, and walls in sources like the Pyramid Texts or Coffin Texts can help identify changes and continuities in the intellectual perception of these architectural features.⁹⁴

THEORETICAL FOUNDATIONS

This dissertation is part of a broader theoretical tradition investigating the effects of political authority in a dynamic, temporally and spatially contingent landscape. More precisely, it studies a specific architectural manifestation of artificial borders or boundaries imposed by the ancient Egyptians upon their surrounding landscape. The field of border theory, drawing on fields as disparate as geography, political science, international relations, and anthropology, investigates notions of boundaries, albeit almost always in a contemporary context.⁹⁵

Geographers and political theorists alike have linked border and boundary studies to the broader, “spatial turn” in the humanities and social sciences in the latter half of the 20th century, explicitly

⁹⁴ See the sources detailed above in footnotes 60-67 from this chapter. Such efforts can also complement more phenomenological approaches to changes in the physical landscape as demonstrated in Tilley 1994.

⁹⁵ Johnson and Michaelsen 1997; Newman 2003; Johnson et al. 2011; Paasi 2011; Paasi 2014.

theorizing the importance of place.⁹⁶ Much of this work builds on the insights of Henri Lefebvre, who emphasizes that all spaces are socially mediated, produced, and reproduced.⁹⁷ Furthermore, Lefebvre highlights that there should be no absolute distinction between physical, material space and the mental space as conceived by the individuals that in turn reproduce, shape, and alter their physical surroundings.⁹⁸ Edward Soja, whose work in many ways complements that of Lefebvre, agrees that space is not absolute, but rather can be manipulated and can be experienced in fundamentally different ways by individuals of different cultures or from different time periods.⁹⁹

Other geographers and political theorists have built on the insights of earlier theorists, though only a select few explicitly address the role of boundaries or borders—and then almost always in a contemporary context. Doreen Massey, while not focusing primarily on borders, has argued that all boundaries are socially constructed, inevitably cut across or transgress certain relations in social space, and are often critically important in structuring individual lives since they affect mobility and the construction of an individual's identity.¹⁰⁰ More fundamentally, Massey argues that the drawing of boundaries is an exercise of power.¹⁰¹ This kind of relational approach to boundaries and borders accords well with Lefebvre's thesis that material and mental space cannot be separated entirely from one another.

Border theory is a relatively new intellectual endeavor, having emerged as a focus of scholarship within the last thirty years. Much of this work focuses on contemporary border-making, and bridging the gap between the world inhabited by the ancient Egyptians and

⁹⁶ Warf and Arias 2009.

⁹⁷ Lefebvre 1991.

⁹⁸ Lefebvre 1991, 26-27.

⁹⁹ Soja 1989

¹⁰⁰ Massey 1995, 68.

¹⁰¹ Massey 1995, 69.

contemporary notions of sovereignty together with the modern security state is not always possible. Nevertheless, much of the research on modern borders discusses concepts that are readily recognizable even in ancient states. For example, biometric passports as enhanced security measures,¹⁰² ICE immigration raids,¹⁰³ or offshore detention facilities¹⁰⁴ are obviously irrelevant when considering the maintenance of borders in Egypt during the 4th and 3rd millennia BCE, but the notions of border enforcement/spatial reproduction occurring within the borders of the state are certainly applicable to an ancient Egyptian context.

Several such insights are worth treating in greater detail. First, monumental enclosure walls “spectacularize power” and by definition demarcate an inner, privileged area from external, unincorporated space.¹⁰⁵ This basic definition holds true whether one is discussing border walls between modern polities like the US-Mexico border or the Berlin wall, as well as ancient enclosure walls—like the 7.5 km long wall that defended the road from Syene to Konosso during the Middle Kingdom.¹⁰⁶ The mere act of drawing a border, either at the edges of a polity or in much smaller internal units, is inherently political.¹⁰⁷ The presence of a wall that circumscribes access to an internal space is a physical embodiment of power or authority being exerted—whether imposed from the top downwards, or as an expression of the will of broader, grassroots coalitions (or some combination of these two extremes).

Second, and following the first observation, the symbolic and psychological impact of monumental walling projects is not limited to the border that they physically delineate.¹⁰⁸

¹⁰² Amoire 2006.

¹⁰³ Coleman 2009.

¹⁰⁴ Mountz 2010.

¹⁰⁵ Brown 2010, 39.

¹⁰⁶ For the US-Mexico border wall, see Andreas 2000; for the Aswan-Syene wall, see Jaritz 1993 and von Pilgrim et al. 2011.

¹⁰⁷ Brown 2010, 39-42; Massey 1995 69, and Paasi 2014, 369,

¹⁰⁸ Brown 2010, 40-41.

Scholars within the broader field of border theory have emphasized that borders should not only be located at the physical boundaries which they delimit, but also in the host of social customs, nation building practices and processes that work to maintain them, oftentimes far away from the border itself. For example, nationalistic songs sung in schools or security recordings urging vigilance at airports all play a role in reinforcing various borders that are often physically present elsewhere.¹⁰⁹ While not always explicitly cited, such an approach essentially extends the notions of practice and *habitus* advocated by Pierre Bourdieu into discussions of border theory.¹¹⁰ The borders defined by enclosure walls are thus formed not only by their physical presence, but by the social practices and discourses that lend power and meaning to such a boundary.¹¹¹ Given the wealth of symbolic imagery, language, and architecture deployed by the ancient Egyptian state to further its aims, it is worth considering how some of these rich visual metaphors relate to or were used in conjunction with monumental enclosure walls.

Third, borders are dynamic, rather than static, and more akin to institutions that must be maintained rather than a permanent fixture in the landscape.¹¹² Borders are constantly changing, whether in a physical sense, or in their socially constructed meaning. They can become more or less permeable; they can be strengthened or diminish entirely. This ephemerality certainly applies to the mudbrick enclosure walls of ancient Egypt, where substantial mudbrick enclosure walls were frequently renovated, overbuilt, or replaced. Even in cases where walls were actively used and had not fallen into obsolescence, they still required significant maintenance to mitigate the effects of erosion and wear.¹¹³ It is also worth considering how borders were negotiated

¹⁰⁹ Paasi 1996; Paasi 2013, 485-486.

¹¹⁰ Bourdieu 1977.

¹¹¹ Paasi 2013, 490-491.

¹¹² Mountz in Johnson et al. 2011, 65.

¹¹³ Spencer 1979, 1; Kemp 2000, 92.

differently during different time periods: for example, the enclosure walls that defined the limits of the intramural settlement within Edfu during the First Intermediate Period remained largely unchanged for millennia after its construction, while other internal enclosures surrounding administrative areas from the Old Kingdom were rapidly eclipsed by later settlement of an entirely domestic character. Finally, a grand theory of borders is likely unattainable given the uniqueness of each boundary, since each is historically and spatially contingent;¹¹⁴ however, significant advances can be made when the context of a given border or boundary is considered.

Interpreting (or in some cases reinterpreting) the data set described in the previous section necessitates a theoretical framework that can accommodate not only archaeological evidence, but information derived from epigraphic sources as well as depictions of enclosure walls in reliefs. Adam Smith's *The Political Landscape: Constellations of Authority in Early Complex Polities* specifically reasserts the importance of the spatial together with the temporal—accomplishing for archaeology what Soja and later Massey did for geography. Yet Smith also goes further, drawing heavily on the work of Henri Lefebvre to highlight how landscapes are socially mediated, produced, and maintained; Smith argues for a relational approach to space, where the relationship between the people who conceive, experience, and perceive space and the physical surroundings they encounter is more important than the essential characteristics of material or mental landscapes. Moreover, his carefully chosen case studies demonstrate how archaeological studies have much to contribute to any studies of how political authority was operationalized in the ancient world, given the crucial spatial and temporal details excavations furnish about the material correlates left by inhabitants of ancient polities. Smith's work also successfully integrates textual, pictorial, and archaeological evidence in his investigation of the

¹¹⁴ Paasi 2011, 28.

creation and reproduction of political landscapes, providing a basic template for how more detailed studies might proceed in a similar fashion.¹¹⁵ His methodological framework is worth treating at length here, since it offers much to a study that focuses on the socio-political ramifications of monumental enclosure wall construction. Smith investigates the “spatiality of political authority” through a multi-scalar approach focused upon four different relationships rooted in political interactions with the landscape.¹¹⁶ These four relationships are defined as follows:

- 1) relationships between the different polities attempting to negotiate and define political landscapes and spheres of political influence in efforts to “shape the interpolity order.”¹¹⁷
- 2) The ties between subjects and political authorities that create political identities, define realms of sovereignty, and aid in the “spatial production of internal coherence vital to the formation and routinization of authority.”¹¹⁸
- 3) The links between authorities/ “power elites and grassroots organizations that produce regimes.”¹¹⁹ Regimes, as defined by Smith, stands in as a concept that encompasses “the host of implied structures and poorly articulated forms typically addressed under the rubric of urbanism.”¹²⁰
- 4) The links between “institutions within a governing apparatus.”¹²¹

Smith investigates these relationships via three concepts that he views as key to understanding “the spatial constitution of civil authority”: imagination, perception, and

¹¹⁵ Smith 2003.

¹¹⁶ Smith 2003, 26.

¹¹⁷ Smith 2003, 26.

¹¹⁸ Smith 2003, 26.

¹¹⁹ Smith 2003, 26.

¹²⁰ Smith 2003, 26.

¹²¹ Smith 2003, 26.

experience—categories derived from Lefebvre’s notions of representations of space, spatial practice, and representational space.¹²² For Smith, these notions can be further elaborated as “an imaginative aesthetic guiding representation of the world at hand; a sensibility evoking responses in subjects through perceptual dimensions of physical space; and an experience of form that shapes how we move through created environments.”¹²³ Smith’s point that any analysis of civil authority in early complex societies must account for high degrees of social complexity in both urban and non-urban societies is extremely well taken (thus his preference for the term “regime”), as is his argument that any coherent interpretation of how political power was enacted in these societies must be rooted in the spatial as well as the temporal; that is to say, it must take into account the historically contingent and dynamic landscape rather than simply relying upon atemporal heuristic devices like “the Ancient City” as a means of explanation.¹²⁴

The concept of the dynamic, temporally and spatially contingent landscape advocated by Smith offers a basic but fluid methodology for investigating political authority at multiple scales in many different kinds of complex societies. Several aspects are particularly applicable to this dissertation’s desire to better understand how monumental enclosure walls reproduced landscapes evocative of certain patterns of civil authority in Pharaonic Egypt. First, this framework allows for the integration of pictographic representations and epigraphic evidence of monument construction, urban planning, and enclosure walls themselves together with the archaeological data, since all of these elements impact how landscapes are perceived, imagined, and experienced. Second, Smith frequently cites the presence of monumental city walls and other methods of segmenting ancient cities into “discrete urban fragments” as modes through which

¹²² Smith borrows this framework from Henri Lefebvre’s *The Production of Space*. Lefebvre 1991.

¹²³ Smith 2003, 26-27.

¹²⁴ Smith 2003, 184-202.

political power was enacted in early complex societies—precisely what this dissertation aims to study more extensively in a specifically Egyptian context.¹²⁵ Finally, Smith’s work allows for the analysis of landscapes on a variety of scales, demonstrating how one might investigate the role of monumental enclosure walls as boundaries between polities, those protecting entire towns or settlements, or those circumscribing access to certain institutions within an urban environment.¹²⁶

However, there are certain aspects of *The Political Landscape* that are too vague or in need of refinement in order to be employed effectively. First, the concept of the “regime” as used by Smith is somewhat unwieldy and clearly defined examples of regimes are sometimes very difficult to identify precisely on the basis of architectural or archaeological data alone. It is somewhat hard to isolate analytically, as Smith defines it first as “the host of implied structures and poorly articulated forms typically addressed under the rubric of urbanism,” and later “the spaces defined by political and social elites with a direct interest in reproduction of structures of authority in concert with broader coalitions supporting authoritative rulers.”¹²⁷ Furthermore, in the case of Egypt from the Predynastic-Second Intermediate Period, I struggle to locate the precise differences between regimes and powerful institutions that would at times seem to both comprise as well as span multiple “regimes” of power or in some cases could serve as actors at multiple scales of analysis—for example, major temples with disparate land holdings, or in later periods, the Egyptian military and the host of institutions with which it interacted. In short, because I find the distinction between these two sets of relationships to be too amorphous, I will treat them under the same rubric in this dissertation. A further difficulty is that oftentimes, the

¹²⁵ Smith 2003, 219, and more generally, 215-225.

¹²⁶ Smith 2003, 26-27.

¹²⁷ Smith 2003, 27.

same enclosure wall might have meanings related to multiple sets of relationships identified by Smith. For example, the Middle Kingdom fortress at Uronarti not only helped to assert political authority on an international scale (between Egyptian administered colonies and the indigenous Nubian populations), but also helped delineate the local boundaries of the fort relative to other nearby Egyptian foundations, while also demarcating a single administrative unit within a broader system of fortifications. This dissertation seeks to identify and understand the (often multiple) relationships of political authority embodied by ancient Egyptian enclosure walls rather than reifying the relationship categories identified by Smith.

Similarly, my discussions of how Egyptian monumental enclosure walls both reflected, expressed, and reproduced political authority in the landscapes where they were conceived will not be neatly divided into sections detailing imagination, perception, and experience. Whereas Smith eloquently articulates his arguments using a series of carefully selected and extremely well researched case studies which demonstrate the enormous potential for such an analysis, this project aims instead to apply his methodology to gain a more holistic understanding of how civil authority was embodied, reflected, and enacted through the use of a specific architectural element over a restricted time frame. Frequently, it is difficult to identify exactly what distinguishes the initial “perception” from the beginning of “experience”. As such, identifying the relations between political power and enclosure walls in as much detail as possible will be prioritized instead of neatly slotting these patterns into conceptual definitions of imagination, perception, and experience. Moreover, in the absence of explicit textual evidence (which unfortunately is often the case with the corpus I have selected), it is often difficult to arrive with any precision at a conclusion of what it was like to “experience” life in a settlement filled with enclosure walls limning the town and numerous buildings within it—the insights of Shanks and

Tilley notwithstanding.¹²⁸ Such inferences will inevitably be colored by the assumptions and biases of the investigator, a deficiency to which critics of the phenomenological method have rightly drawn attention.¹²⁹ Nonetheless, these aspects of monumental walling have often been left entirely unconsidered and warrant at least a cursory treatment.¹³⁰

This broader methodological framework will be applied to the archaeological, iconographic, and textual data described above. Much of this will be interpretive, working to identify and understand patterns within the various data sets. However, certain questions allow for more rigorous empirical enquiry—for example, rough estimates of the person hours required to build certain walls (or at least segments of certain walls) can serve as a rather coarse proxy for the intensity of the political authority being imposed on the denizens of a given area.

Calculations of work rates and/or person-hours necessary to construct monumental mudbrick buildings have been conducted elsewhere in the ancient Near East and ethnographic studies might also aid in answering this question.¹³¹ Even if it is not always possible to clearly identify who was responsible for ordering the construction of an enclosure wall, these estimates might still prove quite valuable—for instance, if the work expenditure on walls constructed during periods of relative decentralization like the late Old Kingdom or First Intermediate Period is markedly greater or lesser than during periods of greater centralization (like the 4th or 12th Dynasty), this would still constitute a significant result.

¹²⁸ Shanks and Tilley 1987a, Shanks and Tilley 1987b, Shanks 1992, Tilley 1994.

¹²⁹ Brück 2005 provides a measured critique of phenomenology's applications in archaeology.

¹³⁰ Smith 2003, 215-216 is one rare example where considerations of how city walls are "experienced" are considered.

¹³¹ Burke 2008, 143-155.

ORGANIZATION OF THE DISSERTATION

Chapter Two begins by describing the seven different functional categories of enclosure walls I have identified through my own investigation of archaeologically preserved enclosure walls: fortification walls, town/settlement enclosure walls, temple walls, administrative center enclosure walls, funerary monument enclosure walls, freestanding walls restricting access within a settlement, and freestanding walls restricting passage across a broader region. Following this, I will examine the lexicon of Egyptian words used to describe walls and various walled compounds, residences, temples, fortresses, and administrative buildings, as well as several verbs related to the act of enclosure. This chapter argues that the prominence of words denoting enclosed structures in the Egyptian vocabulary illustrates the nuance and care with which the Egyptians approached monumental enclosure walls. While freestanding enclosure walls were not always strictly necessary at many of the structures identified by their functions, they seem to have been a highly desirable feature that critically informed how the ancient Egyptians conceived of structures embodying civic, military, or spiritual authority.

Chapter Three will focus on the materiality of walls, and specifically the use of mudbrick in ancient Egyptian architecture. In addition to describing the technical properties of the material that constitutes the vast majority of Egyptian enclosure walls, this section will highlight mudbrick's advantages and disadvantages as a construction material, and describe the basic process through which bricks were fabricated. This chapter will introduce a number of the more technical features of Egyptian enclosure walls that will be investigated in subsequent chapters and the appendices of the dissertation. The remainder of the chapter will describe construction features or elements of walls that will be mentioned in the following sections: a kind of

architectural glossary for the reader. These will include specific technical features like buttresses or transverse walls, as well as noting elements like bonding patterns or reed matting.

Chapter Four will detail and analyze the enclosure walls excavated at Tell Edfu. The bulk of the original archaeological fieldwork conducted for the purposes of this dissertation will be published in this chapter. It will describe in detail the technical features of each enclosure wall identified at Edfu, ranging from foundation techniques and brick size to brick texture, color, and size. The second part of the chapter will then summarize how these numerous phases of enclosure walls at Edfu can be linked together on the basis of architectural similarities and material culture revealed through excavations of stratigraphy leaning against these enclosure walls. Specifically, it will describe how large town walls were constructed during the late Old Kingdom/First Intermediate Period, subsequently renovated during the 12th Dynasty, and finally a massive new enclosure wall was completed later in the 12th Dynasty. Additionally, it will note how internal enclosure wall systems surrounded buildings or precincts during the Late Old Kingdom, suggesting there was a kind of inner ring or citadel within the town walls.

Though it is located at the end of the dissertation, the data in the appendix to this dissertation is in many respects analogous to the Edfu material, though the walls it describes are treated in far less detail since it relies entirely on existing publications, with the exception of the entries for Dendara and Uronarti. The appendix will detail the remainder of sites and enclosure walls included within the corpus of study of this dissertation. This lengthy section will discuss the relevant enclosure walls from numerous archaeological sites throughout Egypt, Nubia, and in the case of Tell es-Sakan, the southern Levant. Together with the findings from Tell Edfu, the excavation reports detailing these enclosure walls form the core data that this work attempts to address and synthesize. While any appraisal of archaeological evidence requires some subjective

interpretation, the goal of this chapter is to summarize and convey the information presented more disjointedly in published reports—further interpretations will be presented in the following chapters of the dissertation. Because many of these sites were occupied throughout the periods of study treated by this dissertation, this section will be organized alphabetically rather than chronologically.

The remainder of the dissertation will analyze the data introduced in the preceding chapters, together with the host of enclosure walls detailed in the appendix. Chapter Five will summarize the techniques used to build monumental walls and the economic implications of their construction. In this chapter, I will draw on the evidence presented in Chapter Three in order to present in as much detail as possible how these walls seem to have been constructed, noting commonalities between enclosure wall construction throughout Egypt. This chapter will rely heavily upon textual evidence when making an effort to understand how labor was organized for such projects. Though these texts often relate to stone construction projects or marshalling labor for expeditions, some of this information seems applicable to monumental wall construction. This section will close with an evaluation of the rough number of person-hours required to construct the town enclosure walls at Edfu and the second phase of fortifications at 12th Dynasty Buhen—an exercise that can serve as an extremely coarse proxy for the imposition of political authority. Evidence from comparable studies from elsewhere in the ancient Near East is also highly relevant to these calculations.¹³²

Chapter Six examines the symbolic power of enclosure walls through an examination of their presence in artistic media and in textual sources. This chapter highlights the role of walls in Early Dynastic palettes, funerary reliefs or paintings, and even as core components of individual

¹³² For example, Burke 2004; Burke 2008.

hieroglyphs determining (or sometimes simply representing) various architectural features. This chapter also highlights the metaphors employed in conjunction with walls noted in religious spells, literary tales, royal inscriptions, and biographical stelae. Walls at times lent their name to various toponyms and epithets, as well, and in this section I hope to touch upon the importance of monumental enclosure walls in metaphors related to the exercise of political or religious authority (for example, the term “White Wall(s)” could refer to the site of Memphis, while the god Ptah of Memphis was often referred to as “Ptah, South of his Wall”). The chapter closes by discussing the tight links between enclosure walls and the expression of political power in the ancient Egyptian landscape, as well as the close connection between Egyptian enclosures and notions of sovereignty.

Chapter Seven will be the concluding chapter of this dissertation. It begins by evaluating broader trends and patterns in the use of enclosure walls in Egyptian society throughout the periods covered by this dissertation. The section will then focus upon the enduring importance of enclosure walls in an urban landscape, sometimes long after the wall itself has collapsed or been overbuilt. This chapter will address what happens to enclosure walls at the end of their usage cycle and what accounted for their importance in some local landscapes long after they decayed—for example, in some instances they served as important boundary markers for later major buildings.¹³³ In others, they served as backing walls for later buildings. This chapter will then revisit some of the fundamental questions posed in the introduction and attempt to examine what features within ancient Egyptian society perhaps encouraged the pervasive adoption of enclosure walls in such a multitude of settings for a wide variety of purposes. The dissertation

¹³³ See Chapter Four of this dissertation for Edfu’s town walls, which defined the tell’s western and northern limits for the better part of two millennia, and note also how the line of an earlier enclosure wall when the Middle Kingdom columned hall was constructed.

will conclude by discussing whether the usage of enclosure walls in ancient Egypt is truly unique, or rather a single set of examples indicative of a broader phenomenon.

CHAPTER 2: CATEGORIZING MONUMENTAL ENCLOSURE

WALLS

Before addressing the materiality of enclosure walls, the cost and consequences of enclosure wall construction, and their symbolic role in Egyptian society, it is necessary to develop a framework for describing such walls. The Egyptians themselves undertook this task with considerable ardor: reminiscent of the host of words that denote types or aspects of snow in Inuit, the Egyptian language during the timeframe covered by this dissertation possessed at minimum four words that refer to walls or enclosure walls specifically, together with at least six different words that seem to describe walled compounds or enclosures, along with a host of other verbiage related to the physical acts of enclosing or encircling as well as terms for buildings that were often though perhaps not always encompassed by enclosure walls. I will begin by describing my own functional typology of the enclosure walls discussed in this dissertation and its appendix. Seven different types of walls will be identified: fortification walls, settlement/town enclosure walls, temple enclosure walls, administrative center enclosure walls, funerary monument enclosure walls, freestanding walls restricting access within a settlement, and freestanding walls restricting access across a broader region. Following this, I will examine the Egyptian lexicon for enclosures, walls, fortresses, and walled compounds. The aim with this section is not to be comprehensive, but rather to identify broader themes and patterns in how the Egyptians described monumental enclosure walls in their own written sources. This chapter proposes that the native Egyptian terminology only maps imperfectly onto modern functional designations, but does highlight the nuance with which the Egyptians approached their walling

projects. More significantly, this vocabulary illustrates that while enclosure walls often formed an important part of numerous different types of complexes, they were rarely obligatory or strictly implied.

FUNCTIONAL CATEGORIES OF ENCLOSURE WALLS

From an entirely etic perspective, at least seven different functional categories of enclosure walls can be identified on the basis of the data catalogued in this dissertation's appendix:

- Fortification Walls
- Settlement/Town Walls
- Temple Enclosure Walls
- Administrative Complex Enclosure Walls
- Funerary Monument Enclosure Walls
- Freestanding Walls Restricting Access or Guiding Traffic Within a Settlement
- Freestanding Walls Restricting Access or Guiding Traffic Throughout a Larger Region

The distinctions between each of these categories of walling is sometimes ambiguous: for example, parts of the early town walls of Elephantine were clearly fortified with towers and buttresses for the purposes of defense. One could argue that the frontier position of Elephantine and indeed its frequent later categorization as a *mnnw*-fortress should perhaps lead to these walls being categorized as fortification walls, yet they surrounded a settlement far larger and more diverse than typical Egyptian forts known from the Old Kingdom or Middle Kingdom.¹ Indeed,

¹For Elephantine generally, see Seidlmayer 1996 and for the development of the Old Kingdom city, see Ziermann 2003. For the Early Dynastic fortress and subsequent town walls, see Ziermann 1993.

the town evolved “organically”, expanding into new areas and negotiating its internal layout in ways that differed significantly from highly planned fortress compounds.² The few archaeologically known walls surrounding chapels dedicated to the cult of the pharaoh’s ka present further complications: should these be considered temple enclosure walls, or should they be viewed as surrounding a kind of mortuary monument? Even if slotting a given wall into a single specific category is not always possible or desirable, the vast majority of walls investigated in the dissertation’s appendix can be easily described by one of these subheadings. More to the point, these categories provide an adequate overview of the functional purposes of enclosure walls built by the Egyptians from the Predynastic through the Second Intermediate Period. Each of these seven categories will now be described individually.

FORTIFICATION WALLS

Fortification Walls were built for defensive purposes, and were usually equipped with towers, buttresses, and in some cases even a glacis. Middle Kingdom fortresses in Nubia like Buhen, Askut, Aniba, and Mirgissa (among many others) were often protected by a gatehouse or barbican with multiple chambers.³ Loopholes, ditches or moats, and curtain walls contributed to some of the most sophisticated defensive architecture known from the 2nd millennium BCE. Generally speaking, fortification walls surrounded fortresses, citadels within a larger settlement or fortress, or military installations. Occasionally, the dry-stone walls surrounding mining settlements possessed defensive buttresses or towers, albeit on a far smaller scale than the known mudbrick fortification walls. Occupations at sites like Dihmit North and Dihmit South, Wadi el-

² Ziermann 2003; von Pilgrim 1996; von Pilgrim 2010. More generally, see the differences between planned and organic settlements elucidated in Moeller 2016, 378-380.

³ For Buhen, see Emery et al. 1979. For Aniba, see Steindorff 1935-37. For Askut, see Smith 1995. For Mirgissa, see Vercoutter 1970. For the importance of gateways in Egyptian defensive planning, see Vogel 2010.

Hudi, El Hisnein East, or El Hisnein West may well have been seasonal, intended only to house an expedition in potentially hostile territory while it procured raw materials, but nonetheless mimicked the defensive architecture of mudbrick fortresses.⁴ While the number of attested fortification walls prior to the Middle Kingdom is relatively limited, shared traits from the earliest known fortification walls and more sophisticated later examples from the 12th Dynasty point to a fairly coherent aesthetic. Consistent representations of citadels with buttresses or towers on objects like the Libyan Palette (**Figure 3.8**), the tomb of Inti at Deshasheh, the tomb of Kaemhesy at Saqqara, and tombs 2, 14, 15, and 17 from Beni Hasan help contribute to the notion that fortification walls could be distinguished from other kinds of walls by their physical features.⁵ In practice, these distinctions are not always quite so obvious (and indeed, one might argue that the citadel walls represented on the Libyan Palette should actually be viewed as settlement walls), but by virtue of certain architectural features like robust buttresses or towers and outer defensive works, the character of fortification walls is generally recognizably distinct from the other wall types noted below—at least prior to the New Kingdom.

Most of the fortification walls known from the Predynastic through the Second Intermediate Period are attested at sites located at the margins of Egyptian political control (for example, the frontier fortresses in Lower Nubia, Elephantine, Ayn Asil/Balat, or Tell es Sakan) or under direct threat of military invasion (the fortification/town walls at Tell el Dab'a during the Second Intermediate Period).⁶ Indeed, it is surprising how few examples are known from

⁴ Harrell 2015.

⁵ For the Libyan Palette, Cairo CG 14238, see images in Petrie 1953, Pl. G 17-18. For interpretations of the Libyan Palette, see Bestock 2018, 47-49 and Etienne 1999. For Inti's siege scene, see Kanawati and McFarlane 1993, pl. 27. For Kaemheset's siege scene, see McFarlane 2003, pl. 48. For the Beni Hasan scenes, see Newberry 1893, Pl. XIV, Newberry 1894 Pl. V, XV.

⁶ For the fortress at Balat, see also Soukiassian et al. 2005, 473-474; Soukiassian et al. 2006, 401-403; Schaad in Soukiassian et al. 2007, 310-311; Soukiassian et al. 2011, 24-28. Laisney 2010, fig. 21, fig. 25-30, and fig. 40 provides photos of the complex. For Elephantine, see Ziermann 1993. For Tell es-Sakan, see de Miroschedji and

Egyptian settlements, both organically developed or state-planned. With the exception of the thinner, less robust dry-stone fortifications attested near Lower Nubian mining sites, fortification walls were typically quite substantial. They were nearly always wider than 2 m thick, often approaching 5-6 m in the case of the Nubian fortresses. These walls required careful maintenance in order to sustain their requisite military efficacy: they were nearly always plastered, built with an internal timber framework together with layers of reeds, and careful efforts to level the foundations for the walls were necessary to prevent cracking or collapse.⁷ In some cases, dry ditches, moats, or a glacis were built to protect the base of such walls.⁸

One of the earliest representations of large walls in the Egyptian artistic corpus date to the Early Dynastic with the Narmer Palette. The verso of this slate object depicts a rampaging bull (likely an anthropomorphized version of the king) breaking through schematic walls with niches and buttresses.⁹ On the Libyan Palette, animals bearing hoes surmount niched and buttressed enclosures, either to attack them (as seems likely given the presence of fallen bricks inside some enclosures), as standards, or perhaps to found them (analogous to King Scorpion on his eponymous macehead).¹⁰ Whether these walls encircle fortified citadels or an entire town is debatable, though the former seems more likely given the absence of any archaeologically attested town walls from the Early Dynastic period and the prevalence of enclosure walls surrounding citadels or administrative buildings within settlements even at this early date.¹¹

Sadek 2000, de Miroschedji and Sadek 2001, and de Miroschedji et al. 2001. For the walls at Avaris, see Forstner-Müller 2013.

⁷ Kemp 2000, 90-91.

⁸ Such features are present at many of the Egyptian fortresses in Nubia, but for a particularly well documented example, see the inner and outer ditches ringing the respective fortification walls at Buhen: Emery et al. 1979, 4-7, 21-32, fig. 2, 3, 13, 15, 16, 21, 22, pl. 79a-d, f, 80a-d, 81e-f, 82b-d, f, 83c-f.

⁹ See O'Connor 2011 on the Narmer Palette.

¹⁰ For images of the Libyan Palette, see Cairo CG 14238. Petrie 1953, Pl. G 17-18. See also Quibell 1900, Plate XXVIC for the king as canal builder depicted on the Scorpion Macehead. See also Etienne 1999.

¹¹ The exact meaning of this palette remains unclear: Bestock 2018, 47-49. Nonetheless, I would argue that the enclosures are standing in for either specific compounds, buildings, or settlements.

Moreover, the citadels in the palette possess buttresses that are not present at later Old Kingdom settlement enclosure walls, though they are certainly attested surrounding smaller installations within a settlement.¹² Scenes of sieges are rare during the Old Kingdom, and depict Egyptian armies besieging Asiatic cities.¹³ In contrast, some of the early Middle Kingdom elite tombs at Beni Hasan may depict seminal moments during the civil wars to reunite Egypt, including perhaps the siege of Herakleopolis,¹⁴ but more plausibly may simply be “scenes of daily life”, depicting the regularity of warfare during a turbulent period.¹⁵ In any case, these siege scenes depict crenellated ramparts, heavily fortified gateways, and large towers and buttresses reminiscent of archaeological remains of Egyptian fortification walls.¹⁶

The earliest examples of Egyptian fortifications show that pragmatic concerns helped dictate the decisions of Egyptian architects. Access to water, control of high ground, and state-of-the-art defensive works are hallmarks of the earliest efforts at the citadel at Elephantine Island, Tell es-Sakan, and the fortified northern complex at Balat (the so-called North Palace that predates the later governor’s complex).¹⁷ Earlier curvilinear towers were replaced by rectangular or square bastions or towers. Simple gateways eventually gave way to multichambered gatehouses, sometimes protected by curtain walls, ditches, or moats.¹⁸ Drainage systems were integrated at some sites like Buhen, likely helping to reduce water damage and the cost of

¹² Compare, for example, the enclosure walls known from El-Kab or Edfu.

¹³ Mourad 2011, 142.

¹⁴ Schulman 1982, 182-183.

¹⁵ Bestock 2018, 256-259.

¹⁶ For the Beni Hasan scenes, see Newberry 1893, Pl. XIV, Newberry 1894 Pl. V, XV. See also Monnier 2014 on representations of Egyptian defensive architecture.

¹⁷ For the fortress at Balat, see Soukiassian et al. 2005, 473-474; Soukiassian et al. 2006, 401-403; Schaad in Soukiassian et al. 2007, 310-311; Soukiassian et al. 2011, 24-28. Laisney 2010, fig. 21, fig. 25-30, and fig. 40 provides photos of the complex. For Elephantine, see Ziermann 1993. For Tell es-Sakan, see de Miroschedji and Sadek 2000, de Miroschedji and Sadek 2001, and de Miroschedji et al. 2001. For the walls at Avaris, see Forstner-Müller 2013.

¹⁸ For the defensive architecture of gatehouses, see Vogel 2010a.

reparations or maintenance.¹⁹ In addition, such walls were meant to overawe potential enemies with their massive size and aesthetic grandeur. The plastered walls, buttressed façades, and sheer enormity of the surviving Middle Kingdom fortresses in Nubia remain impressive to modern viewers even in their dilapidated state!

SETTLEMENT/TOWN WALLS

Settlement/Town walls formed the perimeter wall that defined the limits of a settlement. Most of these walls were large in size and width, accounting for some of the thickest walls known from all of Pharaonic history as accretion layers were added to the original construction. At Elephantine, parts of these walls reached a breadth of some 8 m after successive renovations.²⁰ Prior to the Middle Kingdom, these walls were typically constructed with a sloped exterior façade, and additional walls were banked against the exterior as necessary. These walls were frequently massive, and tended to enclose a larger area than all but the largest of fortress walls. Town walls completed in the late Old Kingdom and early First Intermediate Period enclosed huge portions of the urban area at El Kab, Edfu, Abydos, and Elephantine.²¹ Fragments of walls from Kom Ombo were identified on a visit by Barry Kemp, but too little was preserved to conclusively determine the path of these walls around the site.²² Small outposts like Ain el-Gazzareen were frequently encompassed by settlement enclosure walls, even as nearby larger sites like Balat were not.²³ During the Middle Kingdom, portions of a large town, temple, or citadel wall were identified near Karnak.²⁴ Certain Middle Kingdom planned settlements

¹⁹ For one example, see Emery et al. 1979, 35.

²⁰ Ziermann 1993, 77-79, 83-85, 127-128.

²¹ Moeller in Kemp et al. 2004, 261-265; for El Kab, see Hendrickx et al. 2010; for Edfu, see Chapter Four of this dissertation, for Abydos, see Kemp 1977, 186-189, Adams 2005, 71, 101-102, 278, 459-460, 581-582, 585-586, fig. 4.1, 5.1.

²² Kemp 1985, 40-50.

²³ For Ain el-Gazzareen, see Mills 2012; Mills 2007; Mills and Kaper 2004.

²⁴ Lauffray 1980, 44-52, fig. 16.

strenuously maintained their settlement walls, as was the case at Lahun or certain planned settlements at Tell el Dab'a, while others like Wah-sut were left conspicuously unwalled.²⁵ During the Second Intermediate Period, large defensive walls were implemented around portions of Tell el Dab'a, but they did not entirely encircle the city and seem to have been built only in areas deemed particularly at risk.²⁶ Few examples have been identified in the Nile Delta, though this may be the result of the dearth of large exposures of Old Kingdom settlement strata: no town wall has conclusively been identified from such levels at Mendes, and only small fragments of a large wall were noted at Kom el-Hisn.²⁷ It is also plausible that walls were deemed unnecessary for certain island settlements or villages located in more marshy areas.

Town walls present something of a paradox: they seem to have been frequently constructed during times of insecurity, instability, and conflict, but typically lack the overt defensive architecture known from fortification walls. One possible exception to this rule may be late Old Kingdom and First Intermediate Period Elephantine, though this settlement was anomalous by virtue of its position guarding Egypt's southern frontier.²⁸ Nevertheless, it is striking that despite the robustness and well-built nature of the late Old Kingdom walls at El Kab and Edfu, there is no evidence for towers, a glacis, or even buttresses along the outer face of the wall. Furthermore, at Edfu and Elephantine, there is evidence for a new settlement wall construction campaign during the mid to late 12th Dynasty, typically considered one of the more

²⁵ For the enclosure wall at Lahun, see Frey and Knudstad 2008, 32-35, 42-48, 52, 63-70, and Moeller 2017, 192-197; for the enclosure walls at the planned settlement of Tell el Dab'a area R/I, see Czerny 2010; for the enclosure walls surrounding the settlement at Tell el Dab'a area F/I planned settlement and its enclosure wall, see Czerny 1999, 19-20. For Wah-sut, see Wegner 1998 and Wegner 2001.

²⁶ Forstner-Müller 2013.

²⁷ Cagle in Wenke et al. 2016, 87-88.

²⁸ For the early Old Kingdom walls at Elephantine, see Ziermann 1993; for the later Old Kingdom walls and the development of the settlement, see Ziermann 2003. During a visit to the site by the author, Cornelius von Pilgrim suggested that the reinforcements and towers by the gateway detailed by Dreyer in Kaiser et al. 1980, 264-268, likely should be dated to the First Intermediate Period.

stable points in the Middle Kingdom, and an era where Egypt's ostensible control over Nubia extended beyond the Nile's Second Cataract.²⁹ It is significant that thus far there is no evidence that the town walls at any Upper Egyptian site were renovated significantly during the Second Intermediate Period, when contemporary textual sources like the tomb of Sobeknakht note that settlements at least as far north of El Kab were the targets of razzias led by Kushite raiders from the south.³⁰

As much as any defensive purpose, town walls defined the urban area of a town or settlement. In the case of Edfu and Elephantine, boundaries first established in the First Intermediate Period or Middle Kingdom remained largely unchanged for thousands of years.³¹ While there certainly seems to have been a defensive aspect to town walls (or at least a notional climate of insecurity and instability that helped to spur their construction), settlement enclosure walls also marked the informal boundaries of a settlement—even as many of their inhabitants would have carried out much of their daily activities (farming, fishing, and herding) beyond the confines of the enclosure. At Lahun, staircases against the external side of the northern town wall suggest that they might have allowed access to silos and grain storage within villas from the exterior of the settlement.³² Visual representations of town walls are exceedingly rare. One unusual early tomb model from Abadiyeh shows an individual peering over a wall, but this could easily be a palace or citadel wall.³³ The hieroglyphic ideogram for towns (*njw*t) seems to show a

²⁹ Obviously, an extensive bibliography for the Middle Kingdom is beyond the scope of this work, but see Grajetzki 2006 for a broader work that situates the period historically.

³⁰ Davies 2003.

³¹ For Edfu's walls, see Chapter Four of this volume. The development of the settlement at Elephantine was understandably constrained by the contours of the island on which it was founded. See von Pilgrim 2010 for an overview of the settlement during the Middle Kingdom and beyond.

³² Frey and Knudstad, 42-45.

³³ Petrie 1901, 32, pl. 7.

settlement bisected by two perpendicular roads and surrounded by a wall, but this reading is uncertain and will be discussed in greater detail in Chapter Six.³⁴

TEMPLE ENCLOSURE WALLS

Temple enclosure walls surrounded temple complexes or shrines, and stood distinct from the outer walls of the main temple building. There are relatively few temples known from these periods, and some, like Qasr el-Sagha, do not seem to have possessed independent enclosure walls.³⁵ Nonetheless, there are scattered examples of enclosure walls that surrounded temples at Elephantine, Medamud, Tell Ibrahim Awad, Dendara, and Tell el Dab'a.³⁶ As noted above, ka chapels like that of Pepi I at Bubastis present further complications.³⁷ For the purposes of this dissertation, all temple enclosure walls save those surrounding valley or pyramid temples or sun temples have been included under this subheading (as these are included under the enclosure walls related to funerary monuments section), but real distinctions existed between those temples dedicated to the king's ka and those that housed the cult statues of national, provincial, or local deities.³⁸ Enclosure walls help to highlight the diversity of architectural forms these religious installations took during the period of this dissertation. Significantly, enclosure walls surrounding sacred buildings, shrines, or temples nearly always stood independently, without any smaller installations using them as backing walls.

³⁴ Badawy 1948, 57-59. Most scholars (Murray 1905, 6; Moret 1926; Griffith 1898, 76) agree that it represents some kind of enclosed space.

³⁵ Qasr el-Sagha, was unfinished, however. For Qasr el-Sagha, see Arnold and Arnold 1979.

³⁶ For Elephantine, see Kaiser in Kaiser et al. 1993, 145-152, Kaiser in Kaiser et al. 1987, 84-88 ; Kaiser in Kaiser et al. 1988, 152-157, Dreyer in Kaiser et al. 1987, 78-84, Bommas in Kaiser et al. 1997, 138-144, Abb. 13; for Medamud, see Robichon and Varille 1940, 1-2 and color plan for the temple prior to the Middle Kingdom, together with Nivet-Sambin 2008, 317 for the Middle Kingdom installation. For Tell Ibrahim Awad, see Eigner 2000; for Tell el Dab'a, see Bietak et al. 1998, 20-22.

³⁷ Tietze 2008; Habachi 1957.

³⁸ Numerous articles and works treat ancient Egyptian temples, but for several relatively recent examples, see Quirke 1997 generally, Baines 1997, Shafer 1997, and Wilkinson 2000.

Early provincial temples dedicated to local or even national deities often possessed less rectangular, more unorthodox layouts than other examples.³⁹ The Elephantine sanctuary dedicated to Satet was located in a niche between two boulders and surrounded by mudbrick walls, while an irregular polygonal enclosure seems to have surrounded the temple at Medamud.⁴⁰ At Tell Ibrahim Awad, one of the rare examples of an Old Kingdom temple excavated in the Delta, the enclosure vaguely resembles the O4/“h” hieroglyphic sign, a spiraling enclosure reminiscent of a snail shell pattern.⁴¹ Pepi I’s ka chapel at Bubastis was rectilinear in form, however.⁴² Middle Kingdom temple enclosure walls seem to have typically possessed more rectangular layouts. Certainly, this seems likely to have been the case at Dendara, and plans of the Middle Kingdom temple at Medamud depict thick walls forming a rectangle around the temple sanctuary, measuring up to 5.5 m thick in some places.⁴³ At area R/I at Tell el Dab’a, a rectilinear enclosure surrounds the tripartite sanctuary located in this area of the site.⁴⁴

While later temple enclosures were sometimes completed in stone or used vertically undulating, “wavy” walls, temple enclosures prior to the New Kingdom were nearly always completed using mudbrick.⁴⁵ The only exceptions to this rule were small shrines or temples constructed in remote areas where alluvial soil and clay were not available to make bricks, and walls were completed using fieldstones.⁴⁶ Even in these cases, it is questionable whether these outer walls should be considered enclosures, per se. Little in their physical appearance, the size

³⁹ Kemp 2006, 111-158 discusses the development of temples over time into the more formalized and rectilinear examples from later Egyptian history.

⁴⁰ Robichon and Varille 1940, 1-2, color plan.

⁴¹ Eigner 2000, 168-169.

⁴² Habachi 1957; Tietze 2008.

⁴³ For Medamud, see Nivet-Sambin 2008, 317. For Dendara, see Marouard 2016, 12-14 and Zignani 2001, 429-431, fig. 26-28.

⁴⁴ Bietak et al. 1998.

⁴⁵ For such vertically undulating walls, see Golvin et al. 1990 and Pirelli 1999.

⁴⁶ See for example, the shrines at Wadi Gawasis (Bard and Fattovich 2007, 41) and Thoth Hill (Vörös 1998a, Vörös and Pudleiner 1998, and Vörös and Pudleiner 1997).

of the bricks or bricklaying patterns employed, or the breadth of the walls distinguished temple enclosure walls from their counterparts surrounding other administrative buildings or towns.⁴⁷ To my knowledge, no temple enclosures possessed a niched façade and rarely employed the kinds of decorative pilasters or buttresses known from enclosures surrounding palaces or other administrative buildings.⁴⁸ Most temple walls were between 1-3 m thick, though as noted above at Medamud's Middle Kingdom temple, there were certainly exceptions that were wider than many fortification walls.⁴⁹ However, thick gatehouses, one might even term them proto-pylons and later simply pylons, often distinguish temple walls from those constructions surrounding citadels or administrative buildings.⁵⁰

ADMINISTRATIVE COMPLEX/PALACE ENCLOSURE WALLS

This category of monumental enclosure walls surrounded palaces or administrative buildings within a settlement. During the New Kingdom, these walls might often be fortified or equipped with features of defensive architecture, as at the North Riverside Palace at Amarna, but the surviving examples from the Predynastic through the Second Intermediate Period show little evidence of sophisticated defensive features.⁵¹ Rather, decorative buttresses or even niching are sometimes present in the few known examples of enclosure walls surrounding administrative centers or palaces.⁵² A wide variety of buildings could be enclosed by such walls, ranging from

⁴⁷ For comparison, see the table at the end of the appendix of this dissertation.

⁴⁸ Compare, for example, the niched façade of the palace at Hierakonpolis (Hoffmann 1971-72, Weeks 1971-1972) and the buttresses surrounding the remnants of the late Old Kingdom administrative area at Edfu, and the community of a profoundly different character that emerged in this space afterwards (Chapter Four of this dissertation).

⁴⁹ For Medamud, see Nivet-Sambin 2008, 317.

⁵⁰ See for example the temple at Medamud: Robichon and Varille 1940, 1-2 and color plan.

⁵¹ For the north riverside palace at Amarna, see Kemp 2012, 151-153.

⁵² For the Early Dynastic palace at Hierakonpolis, see Weeks 1971-72, Hoffmann 1971-72. Even after its obsolescence and the transformation of this space to a more domestic character, the remnants of the late Old Kingdom administrative complex at Edfu were surrounded by enclosure walls with decorative buttresses: see Chapter Four of this dissertation.

royal palaces, barracks or workmen's galleries, to buildings whose exact function remains unknown but likely served some kind of administrative capacity.⁵³ These walls were uniformly constructed using mudbricks, were typically regularly maintained, plastered and re-plastered, and helped to limit access and heighten the sense of monumentality with regard to the buildings they enclosed. Broadly speaking, there are minimal physical differences between these walls and those surrounding temples during the time periods considered by this dissertation, though as noted above there is no evidence for temple enclosures ever possessing a niched façade.

The earliest possible examples of administrative enclosures date to the Predynastic Period, when fences built using wooden beams and woven through with reeds surrounded important administrative (or possibly cultic) structures at Hierakonpolis locality 29A and Tell el-Farkha.⁵⁴ These wooden fences were robust structures in their own right, and not simply ephemeral features in the local landscape.⁵⁵ Nonetheless, at Tell el-Farkha, there is evidence for these walls being replaced with mudbrick examples, suggesting that the earlier fences served much the same purpose as an enclosure wall.⁵⁶ The earliest known example of a palace, from Early Dynastic Hierakonpolis, possessed an elaborate niched façade—the only definitive instance where this palace façade style has been identified in a non-mortuary context.⁵⁷ Large

⁵³ For palaces, consider the Early Dynastic Palace at Hierakonpolis (Friedman and Bussman 2017; Weeks 1971-72; Hoffmann 1971-72) or the “campaign palace” at Deir el-Ballas (Lacovara 1990, Lacovara 1993). The 5th Dynasty administrative complex at Edfu might be related to expeditions given the presence of sealings related to the *smntjw* (see Chapter Four). For one example of a workman's gallery, see the galleries associated with production at Khafre's pyramid complex (Conard and Lehner 2001) as well as Lehner and Tavares 2010 for the Heit el-Gurob complex. Examples of buildings with enclosure walls and an unknown, perhaps administrative function can be found at Karnak, where excavations revealed a building with 1.5 m thick enclosure walls beneath the 18th Dynasty “Treasury”: Jacquet Gordon 2007, 321-322, Jacquet 2001, 21-28.

⁵⁴ For Hierakonpolis Locality 29A and Locality 29B, see Friedman 2009 generally and especially pp. 79-80, 101-103. Hikade 2011 describes excavations at Locality 29b. For Tell el-Farkha, see Chlodnicki et al. 2012 generally for overviews of the settlement architecture, and especially Geming and Chlodnicki 2012, 92, 97 for a discussion of the use of reed and wood fencing at the Central Kom.

⁵⁵ The postholes at HK29B were up to 1.10 m in diameter and dug to a depth of 1.30-1.40 m (Hikade 2011, 85-93). It is highly unlikely that this structure was not built with the intention that it endure.

⁵⁶ Chlodnicki and Geming 2012, 92.

⁵⁷ Weeks 1971-72; Hoffmann 1971-72.

enclosure walls surrounded a similar Early Dynastic administrative complex at Buto.⁵⁸ Even at less enduring work sites like Heit el-Gurob, large enclosure walls were used to define the barracks and royal administrative building.⁵⁹ At Edfu, the boundaries of the recently discovered Old Kingdom complex perhaps related to the *smtjw* was surrounded by a 1 m thick enclosure wall.⁶⁰ Three phases of later walls respected the limits of the earlier building even as the intramural area possessed a more domestic character; the final phase of these new walls clearly was plastered and possessed decorative buttresses. South of the fortified northern “palace” at Balat, enclosure walls helped enclose a large residence with administrative areas and ka chapels dedicated to the governors of the site.⁶¹ During the First Intermediate Period and Middle Kingdom, enclosure walls continued to be used to define large administrative buildings at Edfu, and the governor’s mansion (H2) at Elephantine was ringed by a thick outer wall, if not necessarily a freestanding enclosure.⁶² Further examples of individual buildings surrounded by an enclosure were identified in smaller exposures found at Thebes, where later administrative buildings built by late 13th Dynasty kings were also protected by robust, albeit unfortified enclosures.⁶³ Later walls from the Middle Kingdom and Second Intermediate Period tend to have fewer buttresses or pilasters, seemingly lacking the embellishments known from the niched façade palace at Hierakonpolis. However, this may simply be an accident of preservation; few palaces are known from any period of Egyptian history, and it seems plausible that any 12th, 13th, or 17th Dynasty would also have been ornately decorated, if perhaps in a different manner. While

⁵⁸ For this complex, see Hartung 2008, Hartung 2010, Hartung et al. 2012, Hartung et al. 2016, and Hartung 2018.

⁵⁹ Lehner and Tavares 2010.

⁶⁰ Moeller and Marouard 2018, 37.

⁶¹ For this complex, see Soukiassian et al. 2002.

⁶² For the Elephantine governor’s mansion, see von Pilgrim 2006, 403-411.

⁶³ Jacquet Gordon 2007, 321-323; Jacquet 2001, 21-28.

still massive in size, these walls were typically enclosing smaller areas than fortification walls or town walls, and could perhaps be more easily decorated.

FUNERARY/MORTUARY MONUMENT ENCLOSURE WALLS

Enclosure walls surrounding tombs, mastabas, and pyramids, or in some cases constituting nearly the entirety of certain funerary monuments from the Early Dynastic and Predynastic Period, are among the most extensively preserved and frequently attested monumental enclosure walls from ancient Egypt. Together with fortification walls, funerary enclosures are perhaps the most commonly depicted walls in Egyptian imagery. Indeed, one can argue that an enclosure wall (or at least a socle) is present at the base of the hieroglyphic ideogram (*mr*) for pyramids as well as mastabas.⁶⁴ In the case of enclosure walls surrounding pyramids, royal mortuary temples, causeways, and elite tombs, these were some of the only enclosure walls that were regularly finished in stone. It would make sense if enclosure walls were among the last features completed at a funerary monument, since their presence would restrict access and could in some cases create problems during ongoing construction.⁶⁵ Nonetheless, rudimentary or thinner enclosures were often built in mudbrick to delimit the construction area and prevent windblown sand, construction debris, and other detritus from overwhelming the site. From the Middle Kingdom onwards, many of these walls took the form of a serpentine or sinusoidal wall.⁶⁶ In rare instances, these serpentine enclosures were built somewhat thicker, though such examples are primarily known from unfinished or incomplete

⁶⁴ Gilbert 1935, contra Jéquier 1928, 12, n. 2.

⁶⁵ The openings and entrances in the wavy wall described by Mackay in Petrie et al. 1912, 47-48, pl. XXXIX, may relate to openings through which building materials were brought.

⁶⁶ Siegel 2016.

monuments, and rectilinear stone walls were in one case built directly above them.⁶⁷ Frequently, the outer enclosures of a pyramid complex were finished in mudbrick.⁶⁸ Few technical differences distinguish these large mudbrick walls from the other large enclosures noted in other categories—as noted above, the differences between the walls in these categories is in many cases purely one of function. These mudbrick enclosures often do not preserve especially well, but it is possible by analogy with their stone counterparts at funerary monuments that they were sloped on both their interior and exterior sides, with a saddle-backed crest at the top.⁶⁹

Prior to the New Kingdom, stone enclosure walls are essentially only ever found in a mortuary context, with a few rare exceptions at particularly remote sites where mudbricks typically were not readily available in the absence of alluvial clay and silt.⁷⁰ Stone enclosure walls are most frequently attested at the inner enclosure walls of Old Kingdom and Middle Kingdom pyramid complexes.⁷¹ These walls varied dramatically in size and quality, with some

⁶⁷ Thicker serpentine walls were completed at Mazghuna (Mackay in Petrie et al. 1912, 47, pl. 39), at Khendjer's pyramid (Jéquier 1933, 7, pl. 1, 2, 4a, 9b), and at a pyramid for an unknown king at South Saqqara (Jéquier 1933, 54-58, pl. 13, 15). For rectilinear walls directly above a serpentine wall, see Jéquier 1933, pl. 2 and 4a.

⁶⁸ During the fourth Dynasty, rubble and stone chips formed the core of outer walls that were finished with mud plaster. For Khufu's outer enclosure wall, see Maragioglio and Rinaldi 1965, 66-67. For Menkaure, see Maragioglio and Rinaldi 1966, 78-79.

⁶⁹ For examples of stone inner enclosure walls, see Arnold 2002, 23-25 for the stone enclosure wall of Senwosret III at Dahshur and references to paneling at other Middle Kingdom enclosure walls. Arnold 2015, 21, details the stone inner enclosure wall of Amenemhat I's pyramid at Lisht. The stone enclosure walls of earlier 4th Dynasty pyramids also had sloped coping stones: cf. Lehner and Hawass 2017, fig. 8.26.

⁷⁰ Consider, for example, the wall constructions at the frontier fortresses noted by Harell in Lower Nubia (Harrell 2015), the terrace surrounding the temple at Thoth Hill in western Thebes (though the temple and its proper enclosure wall were built using mudbrick: Vörös 1998a, Vörös 1998b, Vörös 1997), or near shrines by the Red Sea coast as at Mersa Gawasis (Bard and Fattovich 2007, 41) or Gebel Zeit (Castel et al. 1984-1985).

⁷¹ Maragioglio and Rinaldi detail numerous examples from Old Kingdom pyramid complexes. For Khufu's stone inner enclosure, see Maragioglio and Rinaldi 1965, 64-67, 170-171. For Khafre's enclosure, see Maragioglio and Rinaldi 1966, 72-75. For the enclosure surrounding the pyramid at Zawiyet el-Aryan, see Maragioglio and Rinaldi 1966, 16-19. Menkaure's enclosure was finished in brick, possibly by his successor, Shepseskaf, see Maragioglio and Rinaldi 1966, 62-65. For his outer enclosure wall, see Maragioglio and Rinaldi 1966, 78-79. For the Matabat al-Faraon, see Maragioglio and Rinaldi 1966, 148-149. For the enclosure wall surrounding Khentkawes's tomb, see Maragioglio and Rinaldi 176-179. For the stone enclosure surrounding the tomb of Userkaf, see Maragioglio and Rinaldi 1970, 20-23. For stone enclosures encompassing the pyramid and satellite pyramids of Sahure, see Maragioglio and Rinaldi 1970, 74-77. For the enclosure surrounding Neferirkare Kakai's pyramid, see Maragioglio and Rinaldi 1970, 140-141. For Niusserre, see Maragioglio and Rinaldi 1975, 30-33. For Djedkare Isesi's stone enclosure, see Maragioglio and Rinaldi 1975, 82-85. For Middle Kingdom examples, see Arnold 1988, 58-63 detailing Senwosret I's stone enclosure wall at Lisht. See also Arnold 2002, 23-25 for the stone enclosure wall of

simple and unadorned, while others were elaborately decorated, like Senwosret I's inner stone enclosure wall at his pyramid complex at Lisht.⁷² The vast majority of these stone enclosure walls were inclined on both their inner and outer faces, topped with rounded, saddle-backed coping stones.⁷³ Most of these stone walls consisted of a rubble or fieldstone core at their base, bounded on either side by carefully cut and dressed fine limestone blocks. The middle and top of such walls were comprised of solid limestone blocks. In the case of those walls with decorated panels upon their interior or exterior façades, this relief work was carved directly upon the limestone blocks.⁷⁴ Particularly in the case of stone walls built upon or at the outer margins of a pyramid platform, a careful levelling process must have preceded their construction. When not built upon a stone platform, it seems many of these walls were built upon carefully excavated stone foundations.⁷⁵

Wooden and reed fences surrounded numerous tombs in the elite cemetery at Hierakonpolis locality 6, dating primarily to the Naqada II-III periods.⁷⁶ These are some of the earliest known enclosures produced by Egyptian civilization, and perhaps forerunners of the Early Dynastic funerary enclosures constructed by First Dynasty rulers and the Second Dynasty kings Peribsen and Khasekhemwy.⁷⁷ Unlike the examples from HK6, these monumental

Senwosret III at Dahshur. Arnold 2015, 21, discusses the stone inner enclosure wall of Amenemhat I's pyramid at Lisht.

⁷² Arnold 1988, 58-63. Arnold highlights paneling and recessing in stone enclosure walls at the pyramids of other Middle Kingdom pharaohs like Amenemhat II, Senwosret II, Amenemhat III at Dahshur, and possibly Khendjer. See Arnold 2015, 24 and notes 40-43.

⁷³ For the consistency of this saddle-backed design, compare the enclosure wall of Senwosret I's pyramid at Lisht (Arnold 1988, 59) with that of the remains found at Khufu's pyramid complex (Lehner and Hawass 2017, 165-166, fig. 8.26). Arnold notes that unlike the Middle Kingdom examples which have a sharp bend, the Old Kingdom examples possessed a "rounded, asymmetrical profile." (Arnold 2015, 21).

⁷⁴ Arnold 1988, 58-61.

⁷⁵ Arnold 1991, 109-115.

⁷⁶ For more detailed reports on this cemetery, see Friedman 2017; Friedman 2014; Friedman et al. 2011; Friedman 2011.

⁷⁷ Reed and timber enclosures have been noted related to the tombs of many of the graves in HK6. See Friedman 2009, 7 for a checklist noting many of the graves possessing such fences. For the Early Dynastic enclosures at Abydos, see Bestock 2009, Bestock 2008, and O'Connor 1989.

mudbrick enclosures were seemingly ritually destroyed, and while foundations and lower courses of brickwork have been identified for most of these rulers, only the massive enclosure of Khasekhemwy, the so-called Shunet el-Zebib, still stands anywhere close to its original height.⁷⁸ Enclosures like the Gisir el-Mudir likely represent some of the earliest experimentations with monumental architecture using a stone medium.⁷⁹ The precise mortuary function of these enclosures remains somewhat nebulous. Stone enclosure walls were prominent elements of the pyramid complexes of Djoser Netjerikhet and Sekhemkhet.⁸⁰ Fine white limestone was used to build these enclosures, which were decorated with niches and buttresses reminiscent of Khasekhemwy's mudbrick enclosure. Djoser's completed complex in particular must have been a visually stunning monument.⁸¹ Levelling lines and quarry marks preserved on Sekhemkhet's unfinished complex help provide a limited understanding of how such walls might have been built.⁸² The form of these walls was rectilinear, without a pronounced external slope.

The monumental pyramids completed during the 4th Dynasty were typically surrounded by enclosure walls, though scant remains have been identified related to those encompassing Snefru's pyramids.⁸³ His successors, however, built large stone walls near the bases of their monuments.⁸⁴ These walls were completed with a fairly pronounced slope on both the internal and external faces, culminating in a rounded top.⁸⁵ This form was also employed at the walls

⁷⁸ For these enclosures generally, see Bestock 2009, Bestock 2008, and O'Connor 1989. For their function and possible ritual destruction, see Bestock 2009, 60; Bestock 2008, 46-47; O'Connor 1989. Wegner 2007, 378-381 details the removal of much of the funerary enclosure of Senwosret III in a similar manner—possibly indicating some kind of continuity between the 12th Dynasty and these Early Dynastic rituals.

⁷⁹ Matthiesen et al. 1997.

⁸⁰ For Sekhemkhet's pyramid complex, see Goneim 1956, 39-48 and Goneim 1957, 1-6. For the Step Pyramid's enclosure wall, see Lauer 1936, 82-94.

⁸¹ Lauer 2015, 124-127, pl. 3-6.

⁸² Goneim 1957, 2-4.

⁸³ Maragioglio and Rinaldi 1964, 26-27, 74-75, 132-133.

⁸⁴ See footnote 69 from this chapter, above. The inner and outer walls at Djedefre's pyramid at Abu Rowash were also completed in limestone: Valloggia 2011, 25-29, 33-38.

⁸⁵ Lehner and Hawass 2017, 165-166, fig. 8.26.

defining open causeways throughout the Old Kingdom and Middle Kingdom.⁸⁶ The earliest causeway was identified at Snefru's Pyramid at Meidum, though the form would be considerably refined over the course of the Old Kingdom and Middle Kingdom.⁸⁷ Whether causeways should be termed enclosure walls is highly debatable—they effectively linked Pyramid and Valley temples, and thus should probably be seen as part of these sacred buildings—but their basic form is quite similar to enclosure walls.⁸⁸ Later, covered examples of causeways employed vaulted ceilings.⁸⁹ In rare instances where preservation has allowed for more detailed investigation, it is clear that many 5th and 6th Dynasty causeways were decorated with detailed relief work.⁹⁰ The outer enclosure walls at pyramid complexes from the Old Kingdom were often completed in stone, and further walls in some cases helped to delimit the boundaries of pyramid and valley temples. During the later Old Kingdom, the various components of pyramid complexes seem to have become slightly more standardized, with most of their innermost enclosure walls measuring between 5-8 cubits (2.625-4.2 m) at their base and likely attaining a height of 7-10 m.⁹¹

Brick walls occasionally delimited elite mastabas during the Old Kingdom, particularly during the Early Dynastic period, but this was not an especially frequent occurrence later in the Old Kingdom.⁹² Virtually none of the superstructures from the mastaba fields associated with the

⁸⁶ Tarek el-Awady provides an excellent summary of the causeways of various royal mortuary complexes from the Old Kingdom. Awady 2009, 86-134.

⁸⁷ Maragioglio and Rinaldi 1964, 28. See also Awady 2009, 91-93.

⁸⁸ Awady 2009, 258-259.

⁸⁹ The vaulted ceiling of part of Menkaure's causeway is discussed in Maragioglio and Rinaldi 1966, 64-67, 120-121.

⁹⁰ Khufu's causeway may have also possessed reliefs, as well, and several possible fragments have been published by Selim Hassan: Hassan 1960, figs. 2-4. Awady 2009, 115-120 discusses the themes used in the decorative programs of these monuments.

⁹¹ Lehner 1997, 140-163. For two examples, see Maragioglio and Rinaldi 1977, 30-31 for Niuserre's five cubit wide enclosure. See Maragioglio and Rinaldi 1975, 22-23 for Userkaf's eight cubit thick enclosure.

⁹² Numerous examples are detailed by Emery in his publications of the elite mastabas at Saqqara, including but not limited to tombs S3357, S3036, S3500, S3503, S3504, S3505, S3506, and S3507: Emery 1938, Emery 1939, Emery 1949.

Giza necropolis possessed freestanding enclosure walls.⁹³ It remains undiscovered and perhaps never was a part of the mortuary landscape, but there is a possibility that a larger wall encompassed much of the cemetery itself, perhaps obviating the need for such smaller enclosures; alternatively the peribolos walls of Khufu, Khafre, and Menkaure's complexes may have formed a sort of barrier to much of the Giza necropolis.⁹⁴ In cases where they were identified by excavators, these enclosure walls were frequently far less thick than those surrounding royal monuments. Indeed, in private tombs from the Old Kingdom, enclosure walls were apparently a less integral part of the tomb complex than for royal burials.⁹⁵ Fewer monumental tomb superstructures are known from the First Intermediate Period, and many of these were rock-cut *saff* tombs where enclosure walls were largely absent.⁹⁶

Like their Old Kingdom counterparts, Middle Kingdom pyramids, particularly those from the 12th and early 13th Dynasties, were frequently surrounded by an inner stone enclosure wall and an outer mudbrick one.⁹⁷ Senwosret I's limestone enclosure wall at Lisht was elaborately decorated with the king's cartouche and a Horus falcon perched above a pattern of geometric motifs likely replicating a palace façade.⁹⁸ The entire pyramid complex was surrounded by an

⁹³ Junker 1929-1953 and Reisner 1942.

⁹⁴ For Khufu's outer enclosure wall, see Maragioglio and Rinaldi 1965, 66-67. For the stone outer walls of Khafre's pyramid complex, see Maragioglio and Rinaldi 1966, 94-97, 132-133. For Menkaure's brick enclosure walls, in all probability erected by Shepseskaf, see Maragioglio and Rinaldi, 62-65 for the inner enclosure and 78-79 for the rubble outer enclosure wall. See also Petrie 1883 and the updated version with Hawass's updates (Hawass in Petrie 1990) for additional details on these walls: Petrie 1990, 33-34, 38, 64 and 119-120.

⁹⁵ This observation is derived from the fact that nearly every royal mortuary monument possessed an enclosure wall, while numerous private mastabas seem to lack them.

⁹⁶ Some of these were fronted by external courtyards that, while not enclosure walls per se, may have performed some of the same functions. For examples, see Arnold 1976, Blatt 1 and 2. See specifically his reconstructions of the forecourts at the Saff el-Dawaba (19-22) and the Saff el-Kisasija (25-31).

⁹⁷ For several examples, see the inner stone wall of the pyramid of Senwosret I, see Arnold 1988, 58-63 and for the outer mudbrick wall, see Arnold 1992, 15-18. For Amenemhat I, see Arnold 2015, 21-23 for the inner stone enclosure wall and Arnold 2015, 32-33 for the brick outer enclosure wall. For Senwosret III's pyramid at Dahshur, see Arnold 2002, 19-24 for the inner stone enclosure wall, and Arnold 2002, 89-92 for the outer enclosure wall. For Middle Kingdom pyramids more generally, see Lehner 1997, 168-187 and relevant sources.

⁹⁸ Arnold 1988, 58-63.

outer brick enclosure wall, as well, while causeways continued to link the mortuary and valley temple installations.⁹⁹ It is notable that even as the materiality of pyramids themselves shifted somewhat, with large portions of the pyramid being built using mudbrick and only cased in limestone, the composition of their enclosure walls did not change dramatically.¹⁰⁰ The broader form of these walls tended to be comparable to early pyramid enclosure walls, though individual cases varied.¹⁰¹ In one case, at Mazghuna, a serpentine enclosure wall was built surrounding a pyramid of an unknown king at the southern part of the site.¹⁰² Even during the Second Intermediate Period, when resources were perhaps scarcer and labor was often diverted to other ends besides tomb construction, the pyramid of Nubkheperre Intef was surrounded by a small enclosure.¹⁰³ Even as enclosure walls remained an integral part of royal burials, their usage surrounding private tombs seems to have been renewed as well: numerous mastabas from the elite cemeteries at Lisht possessed a brick enclosure wall, and a select few were even rendered in stone.¹⁰⁴

⁹⁹ For an overview of Middle Kingdom pyramids, see Lehner 1997, 168-187.

¹⁰⁰ Dieter Arnold's work on various Middle Kingdom pyramid complexes helps to demonstrate this principle. For example, see Arnold 1988, 58-63 for the inner stone wall and Arnold 1992, 15-18 for the outer enclosure wall at Senwosret I's complex. For Amenemhat I, see Arnold 2015, 21-23 for the inner stone enclosure wall and Arnold 2015, 32-33 for the brick outer enclosure wall. For Senwosret III's pyramid at Dahshur, see Arnold 2002, 19-24 for the inner stone enclosure wall, and Arnold 2002, 89-92 for the outer enclosure wall.

¹⁰¹ Compare the dimensions of the enclosure walls described by Lehner and Hawass 2017, 165-166, fig. 8.26, and by Maragioglio and Rinaldi (see footnote 69 above in this chapter for a more comprehensive list) with the figures described by Arnold (see footnote 98 directly above).

¹⁰² Mackay in Petrie et al. 1912, 47-48.

¹⁰³ Polz and Seiler 2003, 16-17.

¹⁰⁴ Arnold 2008. Arnold details enclosure walls surrounding the mastabas of Senwosret (?), the Grand North Mastaba of Intef (?), two distinct tombs of Imhotep, the tomb of Mentuhotep, the South Khor Tomb A, tombs A, B, C, D, and F in the South Area, the tomb of Sehetepibreankh, the brick buildings north of the mastaba of Mentuhotep, the east tomb enclosure, Tomb 384 (Rehuedjersen?), Tomb 400 (Intefiker), Tomb 470 (Senimeru), Tomb 493 (Nakht), Tomb 758 (Senwosret), Tomb 954, and Tomb 956.

MONUMENTAL WALLS RESTRICTING ACCESS WITHIN A SETTLEMENT

While not enclosing a specific building, large walls were occasionally used to channel foot traffic or block off portions of a settlement. At Tell el-Farkha's Central Kom, wooden and reed fences, later replaced by mudbrick walls, helped to separate various sectors of the settlement during the Predynastic Period.¹⁰⁵ At Heit el-Gurob, channels effectively funneled individuals along certain routes while restricting access to the most important administrative buildings.¹⁰⁶ The western wall of the original enclosure defining the limits of Hotep-Senwosret was maintained even after the construction of the additional settlement of Sekhem-Senwosret just to the west, effectively separating the two communities at Lahun from one another.¹⁰⁷ That this wall continued to be maintained reflects a desire to physically demarcate the boundary between the two settlements, mirroring the administrative distinction between them found in hieratic documents recovered at the site.¹⁰⁸ Nevertheless, it must be emphasized that the settlement was originally not conceived as so starkly divided, with Sekhem-Senwosret clearly being completed after the erection of the original enclosure wall.¹⁰⁹ There is some evidence for the expansion of even organically developing towns like Elephantine occurring in the form of different types of neighborhoods or precincts, but it was rarely desirable to physically separate these areas from the rest of the settlement.¹¹⁰

From a more phenomenological perspective, it is worth noting that the patterns of agglutinated housing within many ancient Egyptian settlements also must have done much to define routes for foot traffic. Indeed, a mass of closely clustered houses in tandem with narrow

¹⁰⁵ Chlodnicki and Gering 2012, 92.

¹⁰⁶ Lehner and Tavares 2010, especially p. 213-214.

¹⁰⁷ Moeller 2017, 192-194, 203-205.

¹⁰⁸ Quirke 2005; Horváth 2009.

¹⁰⁹ Moeller 2017, 192-194; Arnold 2005, 82, fig. 84a-d.

¹¹⁰ For the expansion and development of Elephantine during the Old Kingdom, see Ziermann 2003. For further developments during the Middle Kingdom, see von Pilgrim 1996 and von Pilgrim 2010.

streets and limited areas of “public” space likely would have had at least as much if not more of a visual and mental impact on Egyptians walking through an urban area as the relatively rare instances where freestanding walls were used to divide space within a settlement. Monumental walls were certainly one tool for the state or local leaders to exert control over the physical landscape of a settlement, but they were hardly the only such tool available. Managing the development of neighborhoods and maintaining or modifying road networks within a town could often accomplish this just as effectively. Furthermore, large walls could often hamper access and movement across a settlement in ways that were undesirable for any of the actors involved, making communication or commerce between neighborhoods unnecessarily difficult. As much as anything else, this may account for some of the apparent reticence of the Egyptians to employ massive freestanding walls within settlements independent of situations where they enclosed specific buildings.

MONUMENTAL WALLS RESTRICTING ACCESS ACROSS A BROADER REGION

Walls restricting access across a larger, more undefined area are surprisingly rarely attested, given the prevalence of other large enclosure walls throughout Egyptian urban landscapes. However, a few large walls defined large areas across regional landscapes. The most massive examples were noted near the Nubian frontier—a 7.5 km long wall stretched from Aswan to Konosso, effectively protecting and restricting passage along the land route past the First Cataract.¹¹¹ Other large walls seem to have linked the fortress complexes at Semna, traveling north to Uronarti.¹¹² The Aswan-Konosso wall was massive, some 5 m thick, and constructed using casemates filled with rubble and supported by brick.¹¹³ Evidence from

¹¹¹ von Pilgrim in von Pilgrim et al. 2011, 135-137; Jaritz 1993; Jaritz 1987.

¹¹² Mills 1967-68, 206.

¹¹³ Jaritz 1987, 69, fig. 3.

Uronarti suggests that the form of these walls may have varied, with some parts built with casemates and clad with mudbrick, and others built using ashlar masonry.¹¹⁴ These walls radically altered the local geography, standing as physical embodiments of Egyptian hegemony over the local landscape. These walls served as defensive architectural features, certainly, but their primary purpose may well have been to funnel traffic and trade through defined channels that the Egyptian state could both monitor and tax at chokepoints near Egypt's southern frontier. Both Semna and Aswan are located near cataracts where boat travel could be treacherous, particularly when the water level was low, so maintaining defended pathways that navigated such obstacles was imperative.¹¹⁵ It surely seems significant that these walls are located next to Semna gorge, the narrowest part of the Nile's course and the location of Senwosret III's border stele, and Elephantine—the traditional boundary of Egypt proper.

A select few walls seem to have separated a necropolis from the rest of an Egyptian settlement. At Giza, the Wall of the Crow in part restricted access to the plateau upon which the royal pyramids were constructed, even if it is possible that its primary purpose was to protect the nearby workers settlement from flash flooding.¹¹⁶ The Predynastic cemeteries at Hierakonpolis may have been defined by walls at least in certain locations, but these excavations are ongoing and only parts of these walls have been excavated.¹¹⁷ Fragments of enclosure walls discovered near Kom es-Sultan at Abydos might reflect walls encompassing Old Kingdom and First Intermediate Period domestic and temple precincts more generally, but so little of these walls have been excavated that it is difficult to say this with certainty.¹¹⁸ Rather, it appears far more

¹¹⁴ Levine et al. 2019.

¹¹⁵ Vercoutter notes how a particularly low Nile posed extensive problems for Senwosret III in his year 19 campaign. Vercoutter 1966, 155.

¹¹⁶ Lehner and Tavares 2010, 175-177, 213-214.

¹¹⁷ Friedman 2017, 264; Friedman 2008, 1185.

¹¹⁸ Adams 2005, 71, 101-102, 278, 290, 459, 581-582, 588, fig. 4.1, 5.1 See also Kemp 1977, 186-189 for Kom es-Sultan.

common for enclosure walls to surround and protect individual monuments rather than an entire cemetery complex. Indeed, this largely parallels how walls within settlements only rarely served to separate neighborhoods or entire precincts from one another, but rather were employed to surround individual administrative or sacred buildings.

WORDS FOR MONUMENTAL WALLS AND ENCLOSURES WITHIN THE EGYPTIAN LEXICON

The Egyptian language possesses numerous words that refer to walls and enclosures, some quite literally denoting walls, while others refer to military or administrative complexes that frequently possessed an enclosure wall. Beyond these terms, a series of verbs relate to the act of surrounding, protecting, or encompassing, and while not necessarily related to monumental enclosure walls, they nonetheless provide a window into how the concepts of enclosure might be perceived in Egyptian society. To understand the following discussion, it is necessary to first describe several basic features of the Egyptian writing system. The full writing of most Egyptian words consists of a series of hieroglyphic symbols denoting individual or multiple consonants, followed by an unspoken determinative. Determinatives act as a kind of classifier appended to the consonantal skeleton of a lexeme, and can help to clarify how the Egyptians categorized various terms. However, Egyptian orthography was not standardized, so there are occasionally variations in both the consonantal spelling of a word, and determinatives were frequently omitted or changed according to the whims of the scribe. Words related to walls can be determined by various signs interpreted as ideograms for physical walls, the plan of an enclosure, a house or dwelling, an enclosure or wall with battlements, a palace façade, a pyramid (or other funerary monument), a settlement, a mound, a tract of land, or even the symbol for wood.

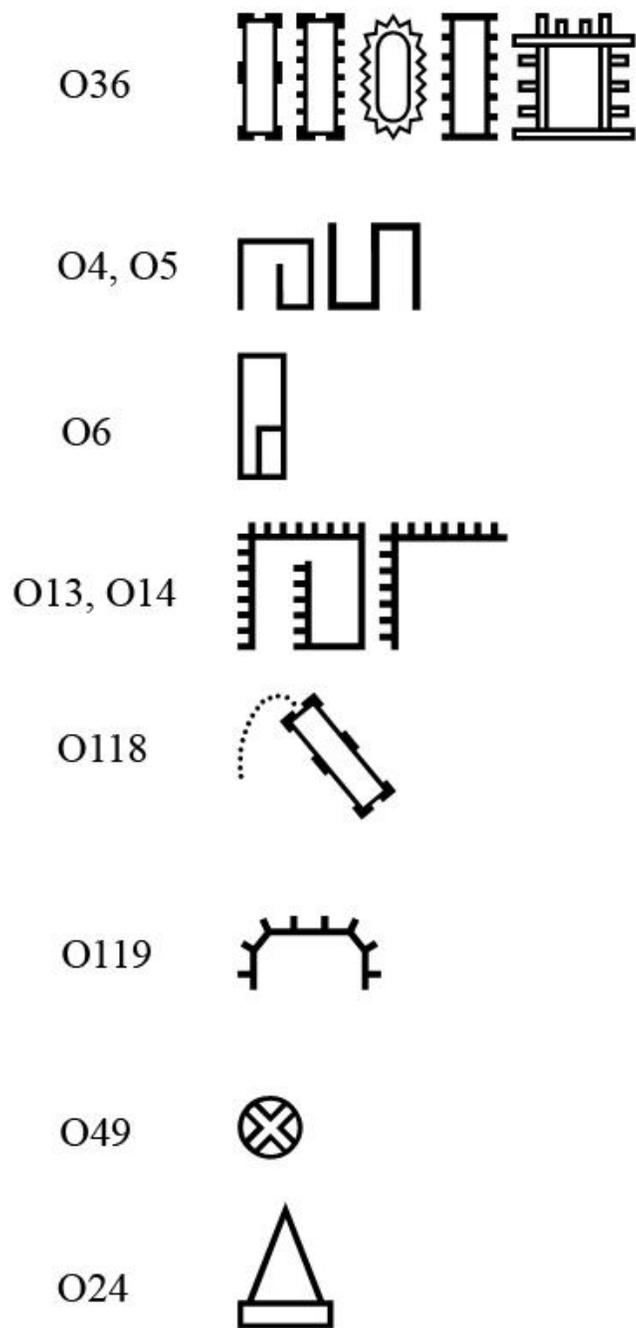


Figure 2. 1: List of some Egyptian hieroglyphs that possibly depict enclosure walls

D32	
D40	
M3	
O1	
O36	
O49	
O24	
V7	
V9	
V33	

Figure 2. 2: Common determinatives for words describing enclosure walls, walled buildings, or verbs relating to enclosure.

The intent of this lexical discussion is not to provide a comprehensive etymological history of each word or even an exhaustive list of their uses so much as it is to provide a holistic description of how such words contributed to the place of enclosure walls in Egyptian society. I have broadly tried to limit the words discussed to those in use during the timeframe of this

dissertation: that is to say, up to and including the Second Intermediate Period. This vocabulary begins by discussing words that describe walls or enclosures more generally, followed by verbs relating to the acts of enclosing and encircling. The subsequent lexemes are broadly organized under a functional rubric, from those words related to military installations that by definition had enclosure walls followed by those words used to describe civic, religious, or palatial constructions that in some instances were surrounded by enclosure walls. It is quickly apparent that the Egyptian terminology for walling projects does not neatly correspond to my own functional designations from the previous section. This is expected: as noted above, the archaeological evidence detailed in the appendix demonstrates that there is much ambiguity and overlap between these categories.

GENERAL WORDS FOR WALLS OR ENCLOSURES

a. *jnb* 

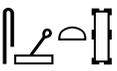
Among the most literal descriptors of enclosures in the Egyptian vocabulary, the word *jnb* is almost uniformly translated as “wall” and generally determined by a physical representation of a wall or enclosure, sign O36.¹¹⁹ It is used to describe all varieties of walling, from domestic house walls to the massive fortifications of the “Walls of the Ruler.”¹²⁰ In rare instances, it appears to have been used as a verb during later periods, in one case describing the walling or fencing of a vegetable garden at Deir el-Medina.¹²¹ As one might expect with a word denoting simply “wall”, *jnb* appears in virtually every imaginable context: personal letters, religious spells in corpora like the Pyramid Texts or Coffin Texts, funerary or commemorative stelae, and literary tales. It forms

¹¹⁹ Hannig 2003, 153; Hannig 2006a, 305-306. Monnier 2012 provides an extensive discussion of *jnb*, *sbty*, and *sAt*. See also Traunecker 1975 and Spencer 1984, 260-292 for more extensive discussions on the usage of the term *jnb*.

¹²⁰ For the Walls of the Ruler and other toponyms incorporating the word *jnb*, see Hannig 2006b, 2936

¹²¹ Lesko 2002, 33; Wentz 1990, 202.

an integral part of toponyms for Memphis like *jnbw ḥd*, “White Wall”,¹²² or the “Walls of the Ruler”, *jnbw ḥkz*,¹²³ or alternatively “Walls of the Sovereign”, *jnbw jty*.¹²⁴ Monnier suggests that *jnb* could be better translated as “edifice”, referring to a larger series of constructions than just a simple “wall”. This point is well taken, though the term “edifice” lacks the kinds of protective connotations that seem important many instances where the word is used figuratively or metaphorically, as in a hymn to Senwosret III.¹²⁵ To my knowledge, all *jnbw* appear to refer to mudbrick or stone walls, rather than wattle and daub or palisade constructions.

b. *szt* 

This term, usually just translated as “wall”, seems to only describes those walls surrounding important temples, mortuary monuments, or royal palaces. It is perhaps the closest term in Egyptian to “enclosure wall”, though it seems to be restricted to the most prestigious of constructions.¹²⁶ The word is typically determined by the wall hieroglyph (O36), though in some instances the land sign is also added.¹²⁷ Religious connections are seemingly emphasized, as many attestations for this word appear in the Pyramid Texts and the Coffin Texts.¹²⁸ In CT 379, the phrase “Lord of the Wall, seek out the mistress of Buto!” occurs, while the word *sztw* appears in PT 553, and perhaps is agentive, referring to “those of the enclosure wall” bending before the pharaoh.¹²⁹ Even in texts that are not explicitly religious in nature, the *szt* mentioned in the Abusir papyri would seem to correspond to the walls of a royal palace in one instance, while in

¹²² Zibelius 1978, 39-42; Hannig 2003, 1547-48.

¹²³ Hannig 2006b, 2936.

¹²⁴ Hannig 2003, 1547.

¹²⁵ Monnier 2012, 273-278; Monnier lists this as document 9; see also Simpson 2003, 303, translated as “ramparts.”

¹²⁶ Hannig 2003, 1055; Hannig 2006a, 2080-2081.

¹²⁷ Hannig 2003, 1055; Hannig 2006a, 2080-2081.

¹²⁸ For an extensive list of references, see Hannig 2003, 1055; Hannig 2006a, 2080-2081.

¹²⁹ For CT 379, see De Buck 1954, 42g-43-g. For PT 553, see Sethe 1910, 1369a, and Allen 2005, 187.

another they might correspond to the walls of a mortuary temple.¹³⁰ The term also appears in a rock inscription at Hatnub, where it is mentioned that a *hwsu*, an otherwise unattested structure, was built upon, or more likely, with a *szt* wall.¹³¹ The 40 cubit width of this structure would seem to indicate it was large in size and of some importance, though this may be a rare instance of *szt* wall in a setting distinct from a temple or palace.¹³²

c. *snb/snbt* 

The term *snbt* (meaning “battlements, wall, enclosure wall”) occurs throughout the Pyramid Texts and Coffin Texts.¹³³ This was one of the more common words for “wall” apart from *jnb*, and might perhaps be the word from which *sbtj* is derived. Walls described as *snb/t* seem to be large, often with sizable ramparts. At times in the Pyramid Texts, it seems to refer to the top of a wall, hence my preferred translation, “battlement.”¹³⁴ Fakhry suggests that it might have a wider meaning, relating to the mantle-work of the mastaba of Khenetikauepi.¹³⁵ The precise distinctions between a *snbt* and a *jnb* or *jnbt* remain difficult to parse, though *jnb* clearly had a wider range of meanings. The usage of *snbt* was seemingly restricted to larger or monumental constructions, and as noted above, at times refers to what seems to be the top of a wall or rampart.

d. *sbtj* 

¹³⁰Posener-Krieger and de Cenival 1968, Plate 19, Plate 58, Plate 76.

¹³¹ Anthes 1928, 23f, Tafel 13.

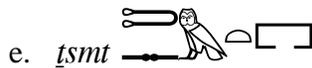
¹³² Anthes 1928, 23f, Tafel 13.

¹³³ Hannig 2003, 1157; Hannig 2006b, 2258.

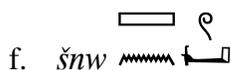
¹³⁴ PT 627b, line 1778a.

¹³⁵ Fakhry 1982, 29-31.

The term *sbtj* is typically translated as “rampart”, “fortification”, or “parapet.”¹³⁶ It is not attested prior to the Second Intermediate Period, but its usage in the Kamose stela suggests that it would have applied to particularly robust town walls, and indeed describes the fortified town walls of Avaris that have since been identified archaeologically.¹³⁷ In many respects a synonym for *jnb*, one might sum up the distinction by saying that all *sbtj* are a specialized subset of *jnb*, but not every *jnb* is a *sbtj*. In later periods following the New Kingdom, *sbtj* acquired a more general sense and became a common term for enclosure walls.¹³⁸



Unattested prior to the late Second Intermediate Period, this term is usually translated as “battlements, parapet, pinnacle, or bastion.”¹³⁹ The one Middle Kingdom attestation noted by Hannig seemingly possesses the animal skin determinative and might simply be related to hounds, while the term for “enclosures (?)” is in the line below; to my knowledge the earliest unambiguous attestation is in the Second Intermediate Period from a stela of Seankhenre Mentuhotepi.¹⁴⁰ In this example, it seems to refer to battlements or a rampart of a *htm* border fortress—one of the earlier attestations of this term, as well.¹⁴¹ It would thus seem to represent a smaller subsection of a larger enclosure wall.¹⁴²



¹³⁶ Hannig 2006b, 2164.

¹³⁷ For the Kamose Stela, see Habachi 1972, 34-35, while for the town walls of Avaris, see Forstner-Müller 2013.

¹³⁸ Traunecker 1975, 148.

¹³⁹ Hannig 2006b, 2761.

¹⁴⁰ Griffith 1898, 48, pl. XVIII.

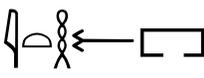
¹⁴¹ Vernus 1989, 147-148, 151.

¹⁴² Monnier 2012, 274; Traunecker 1975, 151-153

This term is one of several including *šnt* and *šnw* that can refer to enclosures or palisades, all seemingly related to the verb *šnj*, “to protect” and “to encircle”.¹⁴³ *šnw* and *šnt* are rarely attested prior to the New Kingdom, but there are instances at least as early as the Pyramid Texts of Pepi I, where the term *šnwt* appears in the sense of either the act of encircling or encirclement.¹⁴⁴ The use of human rather than architectural determinatives suggests that these terms emphasized the metaphorical encompassing and encircling aspects of the enclosures they described rather than their material composition.

g. *wnt* 

Only a few attestations occur for this term in the Old Kingdom.¹⁴⁵ In Weni’s autobiography, it is written out and determined by three oval shaped, bastioned fortresses/walls. In the Pyramid Texts, it appears ideographically, also with three consecutive oval-shaped enclosures. During the Middle Kingdom, there is at least one attestation in Papyrus Berlin 10021, where it is determined with the “house” sign.¹⁴⁶ The precise meaning of this term is unclear from context, and is based on the previous Old Kingdom readings as “fortress.”¹⁴⁷ In the absence of larger numbers of attestations, it is hard to determine what distinguishes it from other walled structures.

h. *jth(w)* 

¹⁴³ Hannig 2003, 1308-1309; Hannig 2006b, 2467-2468, 2470-2471.

¹⁴⁴ PT 698A/P549: Allen 2005, 192.

¹⁴⁵ Hannig 2003, 346.

¹⁴⁶ Scharff 1924, 45-46, T.9. See also Hannig 2006a, 678.

¹⁴⁷ Scharff 1924, 45-46, T.9.

This term seems to first appear in the First Intermediate Period, and is also attested at the quarries of Hatnub from an expedition lead by Nehri.¹⁴⁸ Anthes takes the term as meaning some kind of barricade or defensive feature since it occurs in a litany of activities that Nehri performed for his nome.¹⁴⁹ Ankhtifi also uses the term to describe the defensive works he destroys in his attack on Ermant.¹⁵⁰ The word is determined with the house determinative, and it is unclear if these were palisades, walls, or a fortified outpost of some sort based on context.

i. *wmtt* 

This extremely rare attestation is found on an inscription from the shrine of the deified Heqaib, where it is written simply as *mtt*. Habachi interprets it as a variation for *wmtt*, which the Wörterbuch notes is attested in Dynasty 18.¹⁵¹ Presumably the phrase *wmtt* is related to the word *wmt* for thickness. Alternatively, it may be some permutation of the phrase *wnt*: “fortification, fortress, enclosure.” It is determined by the wall hieroglyph but it remains unclear whether this should be described as a separate enclosure wall or the outer wall of the temple, given the architecture of the Heqaib sanctuary.¹⁵² I was unable to find any references to this term prior to the Middle Kingdom.

j. *drw* 

A series of nouns seemingly derived from the term *dr*, used to describe the ends or limits of a feature, appear to describe terms for enclosure walls: *drw*, *drj*, and *drjt*.¹⁵³ Given the

¹⁴⁸ Hannig 2003, 237; Hannig 2006a 445. See also Anthes 1928, 42-45.

¹⁴⁹ Anthes 1928, 43-44.

¹⁵⁰ Vandier 1950, 198-199.

¹⁵¹ Habachi 1985, 28-29, fig 3a. Hannig 2006a, 660. See also Erman and Grapow 1926, 307.

¹⁵² For the sanctuary, see Habachi 1985 and von Pilgrim 2006.

¹⁵³ Hannig 2003, 1509; Hannig 2006b 2846-2847, 2852.

definition of the root word *dr* and comparable words like *drw*, it seems reasonable to conclude that the boundary making and delineating aspects of these walls might be emphasized.

Interestingly, *drjt* and *drw* are determined by the branch determinative, while the determinative in *drj* is instead the wall sign.¹⁵⁴ It seems plausible that in some instances, this might indicate a difference between palisade and mudbrick walls, though the rarity of these terms and the absence of archaeologically identified correlates makes it impossible to be sure.

k. *ssw* 

This relatively uncommon word possesses a somewhat uncertain meaning that seems to describe enclosures nominatively during the New Kingdom in several instances at Medinet Habu, but in earlier periods the existing attestations seem to refer to a verb meaning roughly “to enclose.”¹⁵⁵

VERBS RELATED TO THE ACT OF ENCLOSING

l. *phr* 

This verb figures prominently in a number of Egyptian religious rituals, with a multitude of meanings contingent upon context.¹⁵⁶ Most are related to “to go around or encircle”, including but not limited to “turn about”, “to circulate”, “to surround or enclose”, “circumambulate”, or “perambulate.”¹⁵⁷ The word has been etymologically linked to the word *phrt*, which describes recipes, prescriptions, and magic potions, through its association with ideas of containing and

¹⁵⁴ They are also attested later, so this might account for the difference. Hannig 2003, 1509; Hannig 2006b, 2852.

¹⁵⁵ Lesko 2002b, 76; for the Middle Kingdom references, see CT 586: de Buck 1956, 205h-208e.

¹⁵⁶ Ritner 1987, 66-82; Hannig 2003, 472-475, Hannig 2006a, 935-940.

¹⁵⁷ Hannig 2003, 472-475, Hannig 2006a, 935-940.

control.¹⁵⁸ Rather than referring to any kind of physical enclosure, the verb *phr* relates to the often ritualized action of circling or traveling around an object or building. As Ritner has detailed, this term highlights the connection between actions of encompassing or encircling and magical spells, even though it does not refer directly to walls specifically save in ritual contexts like the “circumambulation of the walls.”¹⁵⁹

m. *mdr* 

This term is typically translated “to turn, to protect, or to wall up,” and appears in both the Old Kingdom and Middle Kingdom, though examples in the Old Kingdom are primarily from the Pyramid Texts and seem to be related to physically turning.¹⁶⁰ One instance from the Pyramid Texts seems to relate to protection, but it is enigmatic and often left untranslated.¹⁶¹ In the Middle Kingdom Coffin Texts, there are unambiguous examples where it means to “to protect, to fortify, or wall out”, usually in a metaphorical or symbolic sense.¹⁶² In the Middle Kingdom, it is determined with the wall sign.¹⁶³ While often not related to physical walling, it effectively demonstrates the protective symbolism of walling.

n. *jnh* 

¹⁵⁸ Ritner 1987, 70-77.

¹⁵⁹ Ritner 1987, 66-82. For the circumambulation of the walls, see Ritner 1987, 72, note 261. See Erman and Grapow 1926, 546/1. See also Lauer 1931, 354-355, and Gardiner 1903, 334-336.

¹⁶⁰ Hannig 2003, 580; Hannig 2006a, 1172.

¹⁶¹ PT 230, line 233b.

¹⁶² Barns 1956, pl. 3, line B2, 18 talks about walling out or fortifying against turmoil, while a hymn to Senwosret III describes the king as a mountain that shelters against the storm (Griffith 1898, pl. 2, line 19).

¹⁶³ Hannig 2006a, 1172.

This verb is alternately translated as “to surround” and “to enclose”, and was also used in less literal examples describing a ceramic vessel lipped or rimmed with gold.¹⁶⁴ It often seems to be used to refer to metaphorical acts of surrounding, like “evil encompassing the condition of the heart.”¹⁶⁵ It is determined by a hand with a stick or a pair of embracing arms, and in this sense might be seen as a kind of complement to the more positive *jnḳ*, detailed in the subsequent entry. Nonetheless, later sources demonstrate that this term could also refer to physical enclosure efforts, as it is the verb used to describe the circumvallation efforts of the Egyptian army at Megiddo.¹⁶⁶

o. *jnḳ* 

Typically translated as “to gather together”, “to assemble”, or “to unite”, this verb can also mean “to include” or “to embrace.”¹⁶⁷ Determined by a pair of arms embracing or an arm holding a stick, I have been unable to find any instances where this word describes architecture rather than people, and the human determinatives lend further credence to the notion that that this term applied to people rather than the natural or built environment.¹⁶⁸ I include the word here both for the sake of comprehensiveness and to note an admittedly tangential but often overlooked connotation of enclosure—that of assembling or bringing together people in a given space.

p. *ʿrf* 

¹⁶⁴ Hannig 2006, 308. For the specific attestation cited regarding the lip of a vessel, see Faulkner 1964, 24, citing Sethe 1907 (Urk. IV, 22,16).

¹⁶⁵ Barns 1956, pl. 3, fragment B3, line 11.

¹⁶⁶ Sethe 1907 (Urk. IV, 660, 16).

¹⁶⁷ Hannig 2003, 156; Hannig 2006a, 309.

¹⁶⁸ Hannig 2003, 156; Hannig 2006a, 309.

This word is usually translated as “to surround”, “to pack up”, or “to wrap.”¹⁶⁹ It is an earlier example of a term that describes royal action in surrounding, pinioning, or enclosing enemies, as it seems to indicate in a description where Senwosret I “surrounds” islanders and “brings the limits” of the rebellious Nubians.¹⁷⁰

WORDS DENOTING MILITARY INSTALLATIONS THAT POSSESSED ENCLOSURE WALLS

q. *mnnw* 

The term *mnnw* is usually translated simply as “fortress” and is used to describe fortresses during both the Old and Middle Kingdom.¹⁷¹ It appears in a wide variety of texts, describing fortresses in their capacity as administrative units and an entity defended by robust fortified walls.¹⁷² *mnnw* persists as a generic word for “fortress” well beyond the Second Intermediate Period, but additional words allowed for greater specificity during the New Kingdom. During this time, the introduction of semitic loan words like *mktr* “migdol”, the emergence of new lexemes like *bhn* “castle, villa”, or the appropriation of existing vocabulary like *nht* “stronghold” or *htm* “seal” allow for greater precision.¹⁷³ In the case of *htm*, Morris cogently argues that this noun is derived from the homophone denoting activities related to sealing, and describes those fortresses that sealed off Egypt proper, preventing the unlawful ingress and egress of subjects and invaders alike.¹⁷⁴ Apart from *htm*, such words are not attested

¹⁶⁹ Hannig 2003, 282; Hannig 2006a, 546.

¹⁷⁰ See the Stela of Hor from Wadi el-Hudi, translated in Landgráfová and Navrátilová 2011, 256-258.

¹⁷¹ Hannig 2003, 535; Hannig 2006a, 1076-1077.

¹⁷² Hannig 2003, 535; Hannig 2006a, 1076-1077

¹⁷³ Morris 2005, 804-823.

¹⁷⁴ Morris 2005, 804-809. At least one example from the Second Intermediate Period appears in the stela of Seankhenre Mentuhotepi: Vernus 1989, 147-148.

prior to the New Kingdom, however.¹⁷⁵ During the periods covered by this dissertation, however, *mnnw* was a versatile word describing a fortified compound that could perform varied administrative functions, but typically was concerned with defense. The *mnnw*-fortresses guarding Egypt's southern frontier appear in numerous administrative texts and apparently were frequently assigned rather bellicose names: particularly those founded by Senwosret III in the vicinity of the Nile's Second Cataract.¹⁷⁶ While they might have diverse and extensive administrative functions, there appears to have been an understanding that defensive or military purposes were key parts of their mandate.

r. *swnw* 

The term *swnw* is usually translated as “tower.”¹⁷⁷ It appears as the name of funerary domains, in titles of provincial officials, and in ritualized formulas in religious texts like the Pyramid or Coffin Texts. Recent scholarship suggests that it likely served as a kind of royal outpost in the provinces, eventually replaced by *hwwt*.¹⁷⁸ The tower determinative of the word clearly suggests one of its functions might have been defense.¹⁷⁹ There is no mention of enclosure walls surrounding a *swnw*, and no examples have been conclusively identified archaeologically. In form, the outpost and landmark at Ras Budran perhaps conforms most closely to what one would expect on the basis of the hieroglyph, though there is no textual evidence suggesting this structure was a *swnw*, nor was it a tower so much as a circular walled structure that could serve as a supply depot for expeditions and a landmark for ships traveling

¹⁷⁵ Vernus 1989, 147-148.

¹⁷⁶ Monnier 2010, 191-192.

¹⁷⁷ Hannig 2003, 1089; Hannig 2006b, 2140; Moreno Garcia 1997.

¹⁷⁸ Moreno Garcia 1999, 269.

¹⁷⁹ Moreno Garcia 1997, 118-119.

across the Red Sea.¹⁸⁰ Moreno Garcia suggests that such *swnw* were flexible in character, alternately serving as defensive refuges, watch posts, magazines, work centers, and administrative complexes.¹⁸¹ Most scholars have highlighted the defensive aspects of such constructions, and walls presumably could figure in augmenting the existing military capacity of a tower. The prevalence of the term together with other edifices like *ḥwwt* or *ḥnrwt* suggest a vast web of royal compounds tasked with effecting royal policy in the Egyptian provinces.¹⁸² Given the role of walls at sites like Heit el-Gurob in monitoring and channeling the movement of a settlement’s inhabitants, it would not be entirely unsurprising to see similar if smaller features at other provincial centers in the rural milieu of Egyptian society.

s. *nht* 

In Old Kingdom examples, this word is usually left undetermined and simply means “protection or bulwark.” It may be related to the word *nhw*, or “protection.”¹⁸³ In PT 260, this phrase means simply protection and is left undetermined.¹⁸⁴ Ankhtifi describes himself as one who “protects the one who is afraid of the fortress of the one who fled far away.”¹⁸⁵ In the Middle Kingdom, it appears in an inscription of Djehutynakht at Hatnub when he describes himself as a “bulwark on the day of fighting.” Here, it possesses the house determinative.¹⁸⁶ Its meaning seems to be associative, related more to protection or shielding than a specific type of walling.

¹⁸⁰ For the latest interpretation of the Ras Budran/Wadi el-Jarf system, see Tallet and Marouard 2016. For Ras Budran itself, see Mumford 2006 and Mumford 2012.

¹⁸¹ Moreno Garcia 1997, 129.

¹⁸² Moreno Garcia 1997, 129-130.

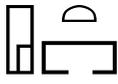
¹⁸³ Hannig 2006a, 1306-1307.

¹⁸⁴ PT 260, line 320a.

¹⁸⁵ Vandier 1950, 243.

¹⁸⁶ Anthes 1928, 52-53.

WORDS RELATED TO ADMINISTRATIVE, RELIGIOUS, MORTUARY OR PALATIAL
COMPOUNDS THAT MAY HAVE POSSESSED ENCLOSURE WALLS

t. *ḥwt* 

The term *ḥwt* carries considerable nuance, though it is most often translated as “enclosure”, even as Moreno Garcia’s in-depth analysis of the *ḥwwt* during the third millennium BCE argues for a much more complex definition.¹⁸⁷ Jacquet-Gordon emphasizes that *ḥwwt* were often funerary domains endowed for the cult of the deceased, though Moreno Garcia believes that this is a much too literal interpretation of mortuary texts that exist in a specific ritual context, and therefore views a *ḥwt* as a kind of building/settlement through which the Pharaonic state attempted to manage activities in the countryside. In any case, *ḥwt* remained a prominent and commonly used noun when describing estates, domains, or large installations in Pharaonic society far beyond the timespan when the *ḥwt* institution actually existed, throughout the periods studied by this dissertation. The word regularly appears in the names of funerary domains, in religious spells and formulas describing both mythic and physical entities, and in the titularies of numerous officials from the later Old Kingdom.¹⁸⁸ It is beyond a doubt that during the Old Kingdom, the term *ḥwt* was applied to a wide variety of structures, many of which played a crucial role in provincial administration.¹⁸⁹ The *ḥwwt* served to manage royal resources in the provinces, replacing earlier institutions like the *ḥwt ʿꜣt* or *swnw*.¹⁹⁰ Their proliferation during the late Old Kingdom suggests that the state was searching for ways to increase control over and

¹⁸⁷ Moreno Garcia 1999.

¹⁸⁸ Moreno Garcia 1999, 149-152.

¹⁸⁹ For assorted textual attestations, see Hannig 2003, 781-788. Moreno Garcia 1999 remains the definitive source on this institution and its development.

¹⁹⁰ Moreno Garcia 1999, 266.

augment revenues gained from the provinces beyond the reach of direct governance from Memphis. As Moreno Garcia notes, they functioned in tandem with temples to form a network of installations furthering royal power in the provinces.¹⁹¹ One possible example attested archaeologically may have been excavated at Edfu (see Chapter Four).¹⁹² The dissolution of the Old Kingdom state carried with it the demise of the provincial *ḥwwt* as new administrative systems were designed in subsequent periods, though the legacy of the institution was perpetuated by their continued presence in certain archaizing literary genres or religious texts.¹⁹³

Beyond the term itself, a host of other compounds are described by combining *ḥwt* with a variety of other words. Among the most common is *ḥwt-ntr*, typically translated as a “temple.”¹⁹⁴ Similarly, the phrase *ḥwt-k3*, or “ka chapel,” dealt with a religious structure dedicated towards perpetuating the offering cult for the ka of a royal or elite individual.¹⁹⁵ *ḥwt-ꜥ3t* is a more nebulous term referring to provincial palaces or administrative centers in charge of agricultural management or later, a sector of the palace tasked with educating the youths of the nobility.¹⁹⁶ *ḥwt-nbw* at times can refer to quarries, but also appears to denote an installation attached to a temple or palace tasked with manufacturing precious, ritually or ideologically significant objects.¹⁹⁷ The term *ḥwt-nmt*, “slaughterhouse,” also refers to an activity that was at times attached to a palatial or temple complex.¹⁹⁸ Another institution attached to the palace was the

¹⁹¹ Moreno Garcia 1999, 265-266.

¹⁹² Moeller, forthcoming.

¹⁹³ Moreno Garcia 1999, 269.

¹⁹⁴ References to this term are of course enormous. Hannig 2003, 784-785 and Hannig 2006a, 1632-1634 provide a host of references. For temples more generally, see Quirke 1997, Shafer 1997.

¹⁹⁵ Archaeological examples of private ka-chapels exist at Balat (Soukiassian, Wuttmann, and Pantalacci 2002) and a royal example was excavated at Tell Basta (Habachi 1957, especially p. 18-33). David O’Connor suggests the presence of several others at Upper Egyptian sites (O’Connor 1992). See also Moreno Garcia 1999, 33-36. For a longer list of references, see Hannig 2003, 787 and Hannig 2006a, 1636-1637.

¹⁹⁶ Moreno Garcia 1998, 45-55. Hannig 2003, 783, Hannig 2006a, 1630-1631 provide a large number of sources where this term appears.

¹⁹⁷ Moreno Garcia 1999, 40-43.

¹⁹⁸ Fischer 1960; Moreno Garcia 1999, 43.

ḥwt-ꜥnh, which according to Moreno Garcia helped to manage crop yields, the recruitment of laborers, and the enforcement of the *corvée* during the Old Kingdom.¹⁹⁹ The *ḥwt-wrt* was the central bureau for the vizier that managed administrative functions and personnel, including the *corvée*.²⁰⁰ *ḥwt-srw* describes what Moreno Garcia sees as the transposition of an existing institution (*zḥ srw*) to the divine realm, where a counsel of courtiers and gods would assemble together with the king in the afterlife.²⁰¹ *ḥwt-nt/mw* seem to designate a cult or the temple of a divinity.²⁰² Innumerable toponyms combine *ḥwt* with another word, usually translated as the “House/Enclosure of X.”²⁰³

Moreno Garcia’s interpretation of the *ḥwt* as a physical edifice rather than a more abstract institution in part rests on his analysis of the phrase *tp-ḥwt*, referring to a platform or terrace near its apex. He interprets this feature as the horizontal plane at the top of some determinatives of *ḥwt*, and concludes that these glyphs must represent a kind of tower in profile rather than an enclosure in plan.²⁰⁴ Moreno Garcia’s comprehensive catalogue of the various determinatives and ideograms for *ḥwt* reinforce his argument that such features were not simply an enclosure wall, but rather a façade of these important administrative buildings.²⁰⁵ This seems likely but is more debatable than Moreno Garcia allows: numerous hieroglyphic representations of architecture do seem to portray a building in plan, most notably sign O1, the ideogram for house, sign O4, often described as a reed shelter or courtyard, sign O5, a winding wall, signs O13-15, depicting enclosures with and without stylized battlements, and sign O49, the ideogram for

¹⁹⁹ Moreno Garcia 1997, 140-151; cf. Gardiner 1938, 88.

²⁰⁰ Moreno Garcia 1999, 52. See also Martin-Pardey 1989, 540-544 and Quirke 1986, p. 128.

²⁰¹ Moreno Garcia 1999, 55-58.

²⁰² Moreno Garcia 1999, 58-60.

²⁰³ Hannig 2003, 1564-1566; Hannig 2006b, 2963-2966.

²⁰⁴ Moreno Garcia 1999, 53-54.

²⁰⁵ Moreno Garcia 1999, 20-22, fig. 1-4.

“town” depicting two intersecting paths dividing a circular settlement divided into four quadrants.²⁰⁶ In contrast, signs O36 and O37 depict a brick or stone wall and a falling or oblique wall, likely shown in profile, though even this is not entirely certain.²⁰⁷ The prevalence of multivalent logic in ancient Egypt argues for a certain reticence about declaratively stating monolithic meanings for such symbols and how they might have been viewed. Yet this of course cuts both ways, and Moreno Garcia is certainly correct in determining that a *ḥwt* need not always be surrounded by an enclosure wall.²⁰⁸

This has rather large implications: if *ḥwt* should not always simply be translated as “enclosure”, what then does it mean? There appear to be no easy answers. Broadly speaking, however, *ḥwwt* are physical, built structures, almost invariably tied to royal authority. It seems likely that the Egyptians often made a point to wall off and enclose such features, as they so often did with other buildings connected to spiritual or state authority, but it was not a necessary prerequisite for all *ḥwwt*. Thus, a *ḥwt* could be a royal center or palace, a base for agricultural management, a provincial domain, an administrative office, a temple, or some combination of these entities. The underlying link between all of these features was that they were power centers of the crown or temples (that were themselves often tied to royal interests)—two of the most salient and widespread organizing elements of Egyptian society.²⁰⁹ Even if the term should not always simply be translated as “enclosure”, it is nonetheless a reasonable conclusion given that

²⁰⁶ For Gardiner’s sign list, see Gardiner 1994. Badawy 1948, 41-65 provides a more detailed analysis of the various architectural elements in hieroglyphs. For O1, see p. 41; for O4, see p.42; for signs O13-15, see p. 42-43, and for sign O49, see p. 57.

²⁰⁷ Badawy 1948, 54. Badawy suggests that this might potentially be a plan view, and in some instances where entire city names are encircled by a similar enclosure, this may well be the case. For one example, see Allen 2013, PT 665A. Early Dynastic and early Middle Kingdom rulers also record the names of certain toponyms inside enclosure hieroglyphs: Monnier 2010, 180-186.

²⁰⁸ Moreno Garcia 1999, 22.

²⁰⁹ Moreno Garcia 1999, 281-284.

these buildings were frequently if not always encompassed by walls that served to both separate them from the surrounding landscape and announce their administrative importance.

The term also figures in the name of the major goddesses with national cults like Hathor and Nephthys. Hathor, or *hwt-hr* is often translated “Domain/House/Enclosure of Horus.”²¹⁰ Hathor possessed diverse roles and functions, and the etymological meaning of the *hwt* in her name is uncertain.²¹¹ It could refer to her role as a sky-goddess who meets Horus when he ascends, or on the other hand, might emphasize her connection with fertility, love, and motherhood—as when she was sculpted as a nourishing, renewing presence besides Menkaure in the famous triads found at his valley temple at Giza.²¹² Pushing this slightly further, in her role as the Mother of Horus, it is plausible that *hwt-hr* could at least metaphorically be referencing her womb as a kind of protected space for Horus (and thus the king), a reading that suggests enclosure might be more directly tied to the meaning of the word than Moreno Garcia’s interpretation of the institution.²¹³ The term appears in the names of other female deities, most notably Nephthys, or *nbt-hwt*, “Lady of the Enclosure.”²¹⁴ *hwwt* also appear throughout religious texts like the Pyramid Texts or the Coffin Texts.²¹⁵ Acts of enclosing are performed by the king, who also escapes the enclosure efforts of his enemies (though the word *sꜣt* or *jnb* is often used instead of *hwt*).²¹⁶ They figure prominently in numerous sacred enclosures, including but not

²¹⁰ Daumas in Helck, Otto, and Westendorf 1977, (LÄ II) 1032.

²¹¹ On Hathor more generally, see Allam 1963 and Bleeker 1973. For a discussion of Hathor’s name, see Bleeker 1973, 24-27.

²¹² For Hathor as a sky goddess, see Bleeker 1973, 46-48. On the Menkaure statuary, see Friedman 2008, Friedman 2011a, and Friedman 2011b.

²¹³ Bleeker 1973, 25.

²¹⁴ For Nephthys, see Graefe in Helck, Otto, and Westendorf 1982, 458-459.

²¹⁵ Allen notes no less than fourteen different types of enclosures within the Pyramid Texts in his glossary: Allen 2005, 425-444. For the Pyramid Texts more generally, see Sethe 1908 and Sethe 1910, Allen 2005, and Allen 2013. The term appears frequently in the Coffin Texts, as well, but for one example, see CT 885. For the Coffin Texts more generally, see De Buck and Gardiner 1935-1961 (9 volumes), Faulkner 1973, Faulkner 1977, and Faulkner 1978.

²¹⁶ For several examples, see Allen 2005, 79 (PT 259); Allen 2005, 195 (PT 612).

limited to *ḥwt-srkt*, *ḥwt-bnbn*, *ḥwt-ꜥꜣt*, *ḥwt-srj*, *ḥwt-bdt*, *ḥwt-šnjt*, and *ḥwt km-wr*.²¹⁷ It also occurs in reference to numerous parts of the royal palace and locations where funerary rites like the Opening of the Mouth are performed.

u. *nḥn* 

This word is usually translated as “enclosure” and is nearly always associated with enclosures or temples related to divinities in the Pyramid Texts and Coffin Texts.²¹⁸ It is determined by the house sign. If this translation is correct, rather than simply “sanctuary”, which remains a distinct possibility, this term more than any of the others described here would highlight the links between enclosing and controlling access to the sacred or divine, given the restricted scope of its usage.

v. *njwt* 

The term *njwt* refers to settlements, and has often been understood in opposition to the term *ḥwt* in specific iconographic contexts within tomb formulas.²¹⁹ There would appear to be some semantic overlap between the two terms, and I follow Moreno Garcia and other scholars who have highlighted that the duality embodied by these opposing but complementary terms serves as a stand-in for the greater totality of Egyptian settlements.²²⁰ The ideogram for town also serves as a determinative for settlements of all kinds, from smaller villages or hamlets to massive towns like Memphis or Thebes, as well as human interventions in the natural landscape

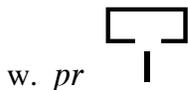
²¹⁷ Hannig 2003, 783-787. See also the glossary of terms in Allen 2005, 425-444.

²¹⁸ For a list of attestations, see Hannig 2003, 648, and Hannig 2006a, 1322.

²¹⁹ Atzler 1972, especially 42-44.

²²⁰ Moreno Garcia 1999, 131-135.

or specific buildings.²²¹ The pictographic evidence will be discussed in further detail in Chapter Six, but it is worth noting that most scholars interpret the sign as an intersection dividing a circular settlement into four quadrants, bounded by an enclosure wall.²²² The determinative follows both state founded as well as naturally developing settlements, as evidenced by its use to describe state founded pyramid towns as well as provincial capitals.²²³ While many *njwwt* were surrounded by enclosure walls, corresponding to the category of “settlement/town enclosure walls” identified in my own typology above, nothing about the word itself demands that they be present (despite their presence in the ideogram for *njw*). Just as in English, the Egyptian word for “town, settlement” does not necessitate an enclosure wall, and numerous urban enclaves in Egypt of course lacked a perimeter wall.²²⁴



This extremely common term, typically translated as house or residence, is often represented ideographically by the determinative depicting a house.²²⁵ It is one of the most common signs in Egyptian, often used to represent buildings or edifices, and the word itself is frequently combined to denote a host of different buildings, from palatial structures to temples.²²⁶ A full description of these is beyond the scope of this project, but it may suffice to say that many of the religious, administrative, or royal centers discussed in this dissertation might have been described as a *pr* type construction.

²²¹ Moreno Garcia 1999, 131-143.

²²² Badawy 1948, 57-58.

²²³ For a discussion of pyramid towns, see Lehner 2016 and Bussmann 2004.

²²⁴ Dendara’s settlement areas apparently were not encompassed by enclosure walls during the First Intermediate Period and Middle Kingdom, for example.

²²⁵ Sign O1. See Badawy 1948, 41, who describes it as a rectangular enclosure. See Hannig 2003, 448-457, and Hannig 2006a, 891-904.

²²⁶ Hannig 2003, 448-457, and Hannig 2006a, 891-904.

Obviously, such structures did not necessitate enclosure walls, particularly in the case of private dwellings, but it is nonetheless worth noting that when the sign was applied to larger administrative, palatial, or temple buildings, these buildings could potentially be surrounded by a perimeter wall. It is also worth highlighting the versatility of this term: in compound forms it could describe any kind of structure, from military buildings to mortuary temples. Indeed, *pr-dt*, or “House of Eternity”, describes many of the mortuary monuments that were surrounded by enclosure walls.²²⁷ Even beyond the variety of installations described by compounds involving the term *pr*, the ideogram for “house” served as a determinative for an even wider variety of different kinds of constructions.²²⁸ Some of these, like *mnw*, always possessed enclosure walls; many others did not.²²⁹ Rather, the word *pr* seems to have been restricted to those structures which were physically occupied by people, spirits or deities. Enclosure walls were at times part of these buildings, but were certainly not a requirement.

x. *hnw* 

Nothing about the term *hnw* necessarily describes a structure with an enclosure wall. It is used to describe an interior area, from private dwellings to royal palaces.²³⁰ The term was also frequently used to describe the royal residence. In the case of larger, more palatial structures, enclosure walls certainly were frequently present. A full accounting of the uses of this term and its many nuances is beyond the scope of this dissertation, but it is worth noting that many of the administrative centers encompassed by enclosure walls could potentially have been termed *hnw*,

²²⁷ Moreno Garcia 1999, 210-229.

²²⁸ Hannig 2003, 448-457, and Hannig 2006a, 891-904.

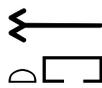
²²⁹ On *mnw* more generally, see Morris 2005, 809-814.

²³⁰ Hannig 2003, 998-1000 provides a more comprehensive accounting of the uses of this term in the Old Kingdom. Hannig 2006b, 1978-1983.

and in nearly all of its uses it connotes a kind of protected inner sanctum. In cases where a physical space is described, it is usually determined by the ideogram for house, sign O1.²³¹

y. *mr* 

The word *mr* is typically translated as “pyramid.”²³² The usage of this word is much more restricted than that of *hwt* or *pr*, referring very specifically to pyramids themselves. Royal pyramids typically possessed enclosure walls, and are detailed at length in the appendix to this dissertation. An enclosure wall seems to have generally been preferred but was not always constructed, particularly in the case of monuments that were left unfinished. Nonetheless, the ideogram for pyramid possesses a band at the bottom of the sign that some scholars have interpreted as an enclosure wall, while others believe it represents a socle or pedestal at the base of the monument.²³³ The bases of the determinatives for sun temples and mastabas also at times have a comparable band at the bottom of the sign that can be interpreted in a similar fashion—and it is worth reiterating that enclosure walls were not strictly necessary at these monuments, either.²³⁴

z. *hnrt* 

This term, very likely derived from the verb *hnr*, meaning “to lock up”, is usually translated in a variety of different ways, including “work camp, prison, bulwark, secure area, and harem.”²³⁵ The key similarity amongst all these locations is that they are all monitored, locked,

²³¹ Hannig 2003, 998-1000, Hannig 2006b, 1978-1983.

²³² Hannig 2003, 538, Hannig 2006a, 1083-1084.

²³³ Badawy 1948, 56.

²³⁴ Badawy 1948, 56-57.

²³⁵ Hannig 2003,953; Hannig 2006b, 1899.

and defended places. In many instances, such locations would likely have been walled or enclosed within curtain walls. Several inscriptions from Hatnub mention a *hnrt* in this context, where it might serve as something akin to a bulwark.²³⁶ Much scholarly debate surrounds this word and whether it should be viewed as a physical space or institution. My own view, following Di Teodoro, is that it should likely be seen as both, given the house determinative that often follows the word suggests a physical space, and the ample amount of textual evidence highlighting the role of the *hnrt wr* in organizing and monitoring corvée labor later in the Middle Kingdom.²³⁷ Given the wide range of locations that can be described under the rubric of *hnrt* and the absence of definitive archaeological evidence of such a place, it is difficult to speculate what these installations might have looked like, or of the qualities of their enclosure walls.

SUMMARY

Walls are described or implied by a wide variety of terms, but these frequently do not fit into the functional categories discussed earlier in the chapter. To my knowledge, no texts discuss freestanding walls restricting traffic within a settlement, nor do any refer to the massive, multiple kilometer long walls erected on the western side of the Semna gorge or between Aswan and Konosso. Various terms for military fortifications like *mnnw*, *swnw*, or *nhw* do not by definition demand the presence of enclosure walls, though all archaeologically attested *mnnw* possess them. When examined in their particular contexts, many words translated as “enclosure”, like *šnt*, *wnt*, *wmtt*, *drjt*, *drw*, *jthw*, or *ssw* may simply refer to a protective military installation, rather than enclosure walls specifically. In later periods, robust enclosure walls surrounding military installations might be termed *sbtj* or *jnbw*, though these terms refer only to the walls themselves

²³⁶ Anthes 1928, 52-53, line 8; 54-55, line 4; 57-58, line 7.

²³⁷ Di Teodoro 2018, 70-82.

more generally and are distinct from the rest of the complex. Town walls are rarely described in textual sources. The Kamose stela describes the walls of Avaris as *sbtj*, though archaeological evidence demonstrates that these walls were particularly well fortified. It is worth noting that the *njw* sign itself, the ideogram for “settlement” and the determinative for words meaning “town” or other urban agglomerations, is encompassed by an enclosure wall. In such cases where walls physically demarcated a *njw*, there is a fairly neat correspondence with my category of “settlement/town enclosure walls.”

Temple enclosure walls present further complications. Obviously, shrines like a *ḥwt-nṯr* or even less explicitly enclosed structures simply described using compounds with the word *pr* (*pr-nṯr*, *pr-Wsjr*, *pr-Jmn*, etc.) often had enclosure walls, though this was not a strict requirement. In these cases, we very likely expect that such walls would themselves specifically be described as *jnb*, *sbtj*, or *szt*. Still more nebulous are administrative structures, palaces, or citadels. The number of compounds formed using the base terms *ḥwt*, *pr*, *ḥnw*, and of course numerous other words is too large to be enumerated here. Importantly, however, many of these structures were frequently surrounded by perimeter walls, though this was not a requirement and is not signified simply by the title of these constructions alone. In the rare instances when such walls are mentioned in texts, nothing seems to distinguish them from how temple enclosure walls are described. Similarly, while the Egyptian language has a robust vocabulary of terms that denote funerary monuments or mortuary monuments, from *pr-dt* (mortuary temple) to *mr* (pyramid), none of these terms inherently demands the presence of an enclosure wall. It is worth noting, however, that some scholars have interpreted the base of the *mr* hieroglyph and pyramid determinative (sign O24) as depicting an enclosure wall at the base of the monument, though

others simply view this as a socle. A comparable feature is often represented at the bottom of determinatives for sun temples and mastabas, respectively.²³⁸

Only four words refer specifically to walls or fortifications and not a more general military, religious, administrative, or funerary complex. These are *jnb*, a general term for walls, *szt*, which seems to refer to the walls (and likely the enclosure walls) of prestigious palace or temple constructions, and *snbt/sbty*, which refer to monumental battlements, ramparts, or fortified walls. A host of other terms (*šnt*, *drjt*, *drw*, *wnt*, *wmtt*, *jthw*) appear to refer to military outposts or installations that all but certainly possessed defensive walls, and are conventionally translated as “enclosure” or “palisade.” The term *tsmt* seems to refer to battlements or buttresses along an enclosure wall in certain textual references. All of the other words highlighted in this section refer to administrative, religious, palatial, or mortuary compounds that were frequently but not uniformly surrounded by an enclosure wall, even though some terms like *hwt* are often simply translated as “enclosure.”

Certain architectural signatures might be associated with some of the other lexical units described above: *swnw* are nearly always determined by the tower hieroglyph, and seem to have served as citadels or watch towers in the provinces, and *hwt* is frequently determined by glyphs depicting elaborate façades or gateways (or perhaps enclosures, in some cases). Notably, these centers are nearly always associated with architectural expressions of state power, whether in the form of fortresses like *mnnw* or *swnw*, temples, or in the case of the *hwwt* of the late Old Kingdom, royally connected centers for resource management in the provinces. The subtleties of these terms describing royal administrative buildings, their distinctions, and the temporal range (and overlap) of such terms remain understudied, but the overwhelming picture is one of

²³⁸ Badawy 1948, 56-57.

functional versatility, where the same center might at different times serve as a refuge during a raid, manage vast tracts of agricultural land, house artisans responsible for the production of various precious or quotidian objects, or operate as a storage depot.

It has rarely been possible to correlate archaeological remains with these structures, particularly in the case of a *ḥwt* or *swnw*, but enclosure walls frequently seem to have surrounded administrative centers in larger urban expanses and certainly were an integral part of all of the Middle Kingdom *mnnw* excavated thus far.²³⁹ The absence of any archaeologically attested *šnt* or *ḏrw* make it difficult to articulate the precise nuances between these terms beyond making tentative suggestions based on their verbal roots, with one assuming a kind of protective function for a *šnwt*, while *ḏrw* would seem to emphasize the boundary-defining or limiting qualities of such walls. Certainly, most religious installations possessed at least rudimentary walls delineating sacred from profane space.²⁴⁰ Even if enclosure walls were not always necessary, there is ample reason to hypothesize that they were often present in more provincial or rural administrative buildings since they were so often employed at urban administrative centers where space was arguably at a higher premium. Enclosure walls were thus a signature of power, certainly in urban centers and likely in more rural or provincial settings as well. The wealth of terms referring to royal strongholds suggest that the horizons of Egyptian society, often both literally and metaphorically, rural and urban, were walled.

Terms like *ḥwt* and *pr* are quite obviously general terms with considerable semantic overlap, and are applied to a host of different installations that can and often were walled. They are regularly applied to residences of the living, the dead, and the gods. Although many of these

²³⁹ Compare all the known examples cited in Monnier 2010 or Vogel 2004.

²⁴⁰ Eliade 1959, 20-65.

dwelling possessed larger open courtyards or other features evocative of a more rustic, natural landscape, all were encompassed by walls—if not necessarily freestanding enclosures. In the case of larger palaces, administrative citadels, and temples, they were frequently bounded by perimeter walls. At the latter, the holiest shrine in the temple was typically located in the darkest, most confined space, at the center of what often amounted to a maze of walls. One wonders if walls formed an essential element of how the Egyptians conceived of residences? If so, they were hardly alone in such an appraisal, given the importance of walls in providing shelter, demarcating boundaries, and offering protection.

The specific nuances of how walls are portrayed in textual sources or appropriated as symbols are dealt with in the Chapter Six, but the above examples generally highlight their protective qualities. Verbs relating to walls or enclosures also tend to highlight their defensive and protective properties. The association of verbs like *šn* and particularly *phr* with aspects of Egyptian magic help to emphasize the metaphysical protective qualities of enclosure walls.²⁴¹ Indeed, the protective aspects of encircling, encompassing, surrounding, or circulating are attested in a wide variety of rituals associated with both royal, divine, funerary, and private ceremonies, some of which are first attested during the nascent stages of Egyptian statehood.²⁴² In many cases, enclosure walls either formally or informally provide such protection in conjunction with said foundation rites or religious rituals.²⁴³ This protective aspect could be somewhat inversed in religious spells as well as later texts recording the military exploits of New Kingdom pharaohs. In one of the spells from the corpus of Pyramid Texts inscribed upon the walls of the burial of Pepi II Neferkare, the pharaoh seems to be breaking free of a hostile

²⁴¹ Ritner 1987, 66-82.

²⁴² Ritner 1987, 70-75.

²⁴³ Weinstein 1973, 6-16. See especially the steps related to “stretching the cord” and digging a foundation trench, which of course symbolically limn the temple.

enclosure.²⁴⁴ In an entirely different context, various royal inscriptions of the 19th and 20th Dynasty, the pharaoh is described as pinioning, enclosing, or cutting off his enemies.²⁴⁵ Here, enclosure takes on a more ominous connotations, but is still to be linked with power, and specifically royal power—albeit in a case where the enemy is contained and neutralized rather than an internal order protected.

At the level of individual signs, there is a relatively restricted repertoire of hieroglyphs used to determine nouns that define various types of enclosures or walls and verbs related to the act of enclosing or surrounding. Gardiner’s sign O36 (a wall) and more rarely O37 (a toppling wall) are used to determine words like *jnb*, *szt*, *snbt* or *sbtj*.²⁴⁶ Moreno Garcia details a wide variety of signs that seem to depict the façade of a *hwt*, but the most common ones are signs O6, O7, O8, O9, O10, O11, O13, O14, and O15 together with their variants.²⁴⁷ *mnnw* fortresses are typically denoted by the O36 wall determinative or the O1 house determinative, though it appears as a series of towers in the Old Kingdom title “overseer of fortresses.”²⁴⁸ A physical tower determines the *swnw* constructions, seemingly highlighting their capacity as watchtowers and defensive edifices.²⁴⁹ *drw* are often represented with the M3 stick, but in other instances the O36 wall or N31 path with shrubs sign is preferred. *šnj* and the associated nouns linked to this form have additional determinatives like a protective ring of rope. The turning aspect of *phr* seems to be emphasized through the use of the F46 intestine sign, and motion can be further highlighted via the use of the D54 walking legs sign. Embracing arms (D32) and the forearm

²⁴⁴ The spell is first attested in the Pyramid Texts of Pepi I, but it is damaged: Allen 2005, 295; the full version of this line appears in the reign of Pepi II Neferkare. Allen 2013, PT 612.

²⁴⁵ Ramesses III pinions his enemies in both the First and Second Libyan War accounts: Peden 1994, 14-17, 58-59. Enemies are also trapped or hemmed in (Peden 1994, 16-17, 28-29, 46-47) in these same accounts as well as the inscription recording the battle with the Sea Peoples.

²⁴⁶ For the individual words, see the references above, earlier in this chapter. For the signs, see Badawy 1948, 54.

²⁴⁷ Moreno Garcia 1999, 18-26.

²⁴⁸ For an examples of the latter, see Jones 2000, 137 together with the collected attestations.

²⁴⁹ Moreno Garcia 1997, 117-120.

with a stick (D40) typically determine *jnh* and *jnk*.²⁵⁰ Certain toponyms like Elephantine are sometimes determined by a walled enclosure or fortification with small semi-circular buttresses or towers lining its exterior.²⁵¹ The diverse repertoire of signs used to symbolize physical enclosures and the acts of surrounding, encompassing, and enclosing illustrate how the Egyptians unsurprisingly considered these terms both literally and abstractly. Untangling the specific nuances of many of these terms, particularly during the earlier periods of Egyptian history, is not entirely possible at this juncture given the at times limited numbers of textual attestations and the inability to correlate these features with specific, physical archaeological evidence. Nonetheless, a more exhaustive and comprehensive attempt to collate the various instantiations of these terms would doubtlessly yield greater precision than this survey.

²⁵⁰ For collected attestations of these words, see the notes for each respective word earlier in this section.

²⁵¹ Sethe 1910, PT 665, 1908c.

CHAPTER 3: THE MATERIALITY OF ENCLOSURE WALLS—

MUDBRICK ARCHITECTURE IN ANCIENT EGYPT

Having addressed prior scholarship discussing ancient Egyptian enclosure walls, defined the study corpus for this project, discussed functional categories of enclosure walls and the words the ancient Egyptians used to describe such features, this section will focus upon the primary construction material used to build monumental walls in ancient Egypt: mudbrick. For features like monumental enclosure walls, understanding the basic properties of their primary building material (and how mudbrick was utilized more broadly during the timeframe of this dissertation) helps to better understand the process of how such constructions were completed, the concerns and problems for which their builders had to design contingencies, and the ways in which mudbrick influenced the relationships individuals had with enclosure walls. One could tersely sum up the purpose of this dissertation by asking “How and why did Egyptians build monumental enclosure walls prior to the New Kingdom?” Comprehending the technical and symbolic properties of the most important building material related to their constructions helps to answer both facets of that question. This chapter will argue that mudbrick’s availability, the relative ease of its fabrication, and its somewhat surprising strength encouraged its widespread adoption for the construction of enclosure walls in Egypt prior to the New Kingdom. The familiarity of Egyptian architects and builders with this building material often influenced their subsequent technical and aesthetic design choices, leading to the development of thick sections of accretion walls as new walls were frequently constructed leaning upon or reinforcing their predecessors.

Egyptian builders often built large enclosure walls in stone, as well, but these were exclusively used in landscapes with a significant religious context. Outside of enclosures surrounding funerary (and typically royal funerary) monuments, mudbrick was the preferred building material, and indeed was often used in mortuary contexts when time or labor made stone enclosures too costly. Mudbrick construction was so ubiquitous in ancient Egypt that the modern word “Adobe” is likely etymologically linked to the Egyptian word for mudbrick, *dbt*.¹ Though large walls were constructed using wooden branches and reeds prior to the invention of mudbrick, and certain enclosure walls were constructed using rough fieldstones or quarried and worked limestone, the vast majority of walling projects in ancient Egypt were completed using mudbrick. For this reason, it is crucial to review some of the technical properties of this building material, evaluate how mudbricks were made, and trace the emergence and widespread adoption of mudbrick in Egyptian architectural projects. Following this summary, the remainder of the chapter will investigate some of the mudbrick elements that are features of Egyptian enclosure wall constructions discussed in Chapter Four and Appendix A of this dissertation.

Despite its ubiquity in Pharaonic Egypt, mudbrick architecture has received only a moderate amount of attention from scholars studying ancient Egyptian architectural practices. The most comprehensive treatment remains A.J. Spencer’s *Brick Architecture in Ancient Egypt*.² More recent reevaluations by Barry Kemp and Virginia Emery have highlighted the processes by which mudbricks are created and their use as artifacts as well as their role as a construction material.³ Early excavators like George Reisner, Somers Clarke, and Reginald Engelbach noted parallels between ancient and modern brick fabrication methods, and Reisner even endeavored to

¹ Described as “*at-ṭūb*” in Arabic, the word was introduced to Spain following the Arab conquests and subsequently passed from the Spanish *adobe* into the English language.

² Spencer 1979.

³ Kemp 2000; Emery 2009.

calculate rates of brick production.⁴ More recent ethnographic surveys of Upper Egyptian villages offer plausible analogies to what private, small scale brick production might have looked like.⁵ Additionally, studies of brick composition through the analysis of component parts or even less invasive techniques like X-Ray Fluorescence are already beginning to yield interesting results, though such investigations have not been widely applied.⁶ Other studies of urbanism have investigated the emergence of mudbrick architecture, but few have traced how its uses developed more broadly over a wider timeframe.

Understanding how mudbrick was used in monumental enclosure walls is critical since it informs the materiality of these monuments. Certainly, ancient Egyptian walls were built using a variety of materials, including not only mudbricks, but timber, mud mortar, plaster, and reeds. Nevertheless, the development of mudbricks radically altered the capacity of ancient Egyptian builders to complete solid and durable foundations, and with the exception of mortuary enclosure walls that relied on stone blocks, fieldstone walls completed in desert environments or early timber and reed fencing, mudbrick accounted for the vast majority of the volume of every enclosure wall considered in this study. Mudbrick has also figured prominently in discussions of monumentality, generally in discussions of energy investiture: that is to say, the larger the wall and the greater the effort expended in creating it, the more power is being exerted by the authority ordering its construction.⁷ This has been the subject of discussions throughout the ancient Near East, including in a few select examples from Egypt.⁸ However, most recent analyses of wall construction and the labor required to do so have focused upon Mesopotamian

⁴ Reisner 1931, 72-73, Clarke and Engelbach 1930, 208-209.

⁵ Henein 1988, 38-40, is one such example, and brick production is also treated in Fathy 1989, 198-200.

⁶ Emery 2007 applies this XRF testing to the study of later enclosure walls at Tell el-Hibeh but somewhat overstates its efficacy as the results show there were multiple sources of clay being used, not necessarily multiple work groups. See also the recent technical studies of mudbrick at Tell Timai: Lorenzon and Nitschke 2020.

⁷ Osborne 2014, 5; Rosenswig and Burger 2012, 4-5.

⁸ La Loggia 2015, Ormeling 2016, Ormeling 2017.

sources, simultaneously highlighting how difficult and challenging such constructions were, as Ristvet details when discussing the walls of Tell Leilan, while also noting that wall construction might be a prudent, even cost-effective ideological investment for the ruler of a South Mesopotamian city state, as Richardson notes with regard to the city wall at Larsa.⁹ This instrumentalist understanding of power has been problematized, particularly with regard to discussions of monumentality, but the absence of textual evidence relating to the impetuses for wall construction in ancient Egypt makes it a useful proxy for authority when other sources for data are minimal or nonexistent.¹⁰ Mudbrick, and its attendant properties, therefore become a crucial part of understanding the imposition of political authority in Egyptian landscapes. Recent investigations have also drawn attention to its symbolic elements, as well, highlighting its association with the fertile alluvium, relationship to archaic building materials, and how its need for maintenance relates mudbrick constructions to cyclical, eternally repeating *nḥḥ* time.¹¹

The use of this material likely had significant social effects as well: Hodder discusses the use of mudbrick (and the solutions necessary to compensate for its deficiencies) extensively in recent works on “human-thing entanglement” based on excavations at Çatalhöyük.¹² While the concepts of entanglement and “thing-centered” analysis remain a focus of intense debate among archaeologists, it is less controversial that the material properties of building materials or technology constrain the actions of the humans employing them.¹³ Serena Love argues that through their technical choices when building constructions at Çatalhöyük, individuals expressed

⁹ Ristvet 2007; Richardson 2015.

¹⁰ For one scholar who problematizes this notion, see Marcus 2003. See also the relational ontology espoused by Osborne in Osborne 2014, 3-4, 13-14.

¹¹ These subjects are addressed at length in Luiza da Silva’s unpublished bachelor’s thesis, and she discussed these aspects of mudbrick construction in abbreviated form at the ARCE annual meeting in 2019 in Alexandria, Virginia. See also Roth and Roehrig 2002.

¹² Hodder 2016, 26-43.

¹³ Hodder 2016, 129-141 relates a series of thought-provoking critiques levied against Hodder’s arguments.

their identity.¹⁴ The range of options was no less robust in ancient Egyptian society than in early Neolithic Anatolia, and one could also argue that community identity was likely expressed through the technical choices made while building an enclosure wall, both in terms of figurative artistic choices like the color of the plaster or in terms of more pragmatic choices, like whether to build a fortified gateway.

THE COMPONENTS OF MUDBRICK

Mudbricks are comprised of a combination of Nile silt or alluvium, clay, and sand, with straw or dung frequently used to help bind or temper the resulting admixture. The use of chaff is not absolutely necessary, but appears to have been preferred when possible.¹⁵ The percentages of each ingredient can vary dramatically as a result of local availability and resources as well as the preferences of the foreman in charge of brick fabrication. Generally speaking, greater amounts of silt and sand were used compared with clay, which only rarely accounted for more than 20% of a brick matrix.¹⁶ Bricks using large amounts of clay are harder and heavier, and potentially risk cracking during the drying process. On the other hand, bricks with excessive amounts of sand may fall apart in the absence of adequate temper or binding agents. Other small inclusions like river pebbles, pottery fragments, ash, charcoals, and rarely even small artifacts like beads can be found within the brick matrix of mudbricks from Pharaonic Egypt. In most cases, it seems most likely that these were inadvertently added during the brickmaking process, when available material was added to the mud matrix.

¹⁴ Love 2013a; Love 2013b.

¹⁵ Kemp 2000, 82. McHenry 1976, 51 and Clarke and Engelbach 1930, 208-209, make clear that it is not absolutely necessary for mudbrick or adobe construction when sufficient clay is available, though Nims 1950, 21-28 highlights its usefulness in the brickmaking process. On the other hand, ancient sources typically lament its absence: see Caminos 1954, 188, Simpson 1963, 75. In the myth of the Exodus narrative, this ancient prejudice is reflected in the concern over the pharaoh's decision to halt straw shipments to the Israelite brickmakers: Kitchen 1966, 156.

¹⁶ Indeed, the proportions of clay noted in Kemp 2000, 810-81 never surpass this total.

THE BRICK MAKING PROCESS

Brick production is not depicted extensively in Egyptian tomb reliefs. The most well-known example is from the eastern wall of the tomb of Rekhmire (TT100) (**Figures 3.1-3.3**).¹⁷



Figure 3. 1: Color image of Egyptians and foreign captives making bricks from the tomb of Rekhmire, after Davies and Davies 1935, Plate XVII.

¹⁷ Davies 1935, Pls. XVI, XVII, XXIII; Davies 1943, Pls. LVIII, LIX, LX.

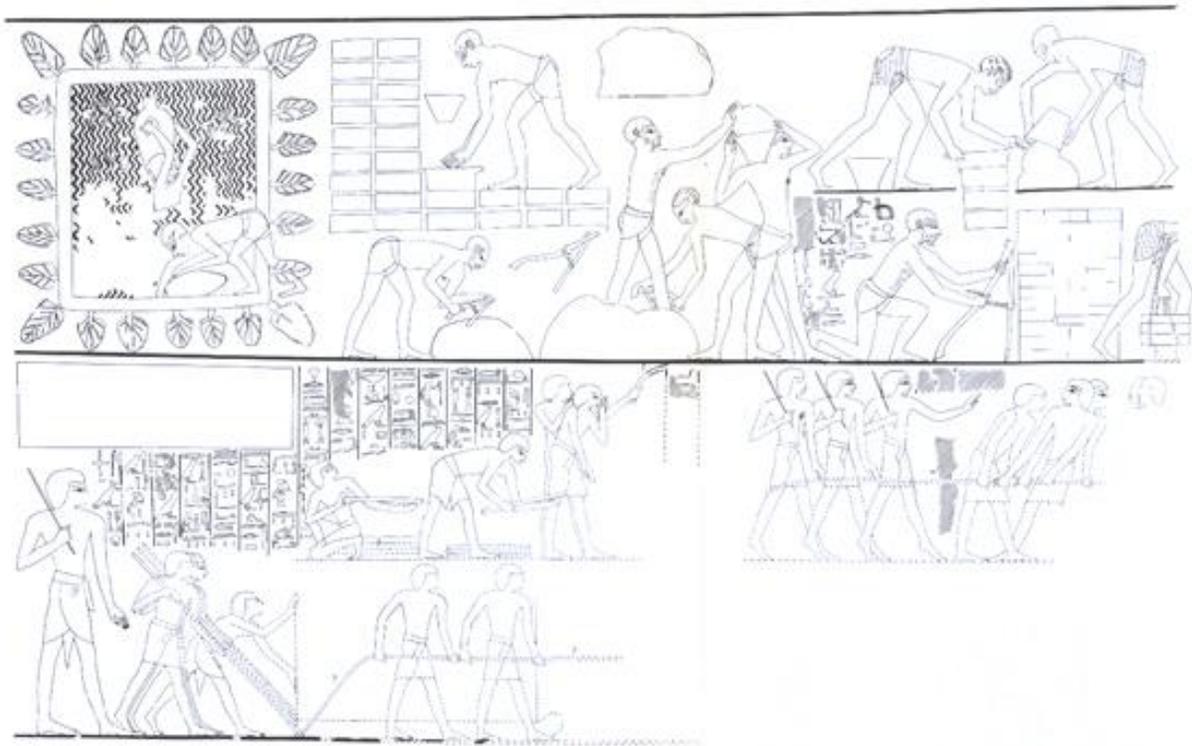


Figure 3. 2: Scenes of brickmaking from the tomb of Rekmire, after Davies 1943, Pl. LVIII.



Figure 3. 3: Laborers carrying bricks. From Davies 1943, Pl. LIX.

The fourth register from the bottom of the wall depicts laborers retrieving water in large *zir* jars from a square shaped garden or well, workers hacking at a mud mixture using an adze, a man striking bricks using a wooden mold, a series of laborers moving the mud mixture in baskets, striking bricks, and stacking bricks for drying, and a number of workers carrying these bricks to the construction project nearby. Further to the south along the same wall, laborers work

at building a large structure out of mudbrick (the accompanying captions suggest that this is part of the construction of workshops completed at Karnak's temple complex). To my knowledge, the only other possible depiction of brick production is at Tomb 2 at Deir el-Bersha.¹⁸ This scene is more ambiguous: the accompanying caption suggests that the activities carried out by the men and women in the accompanying register involve making and fashioning commodities. Pottery is clearly being fabricated, and a woman is sieving next to a seated man. On the man's other side is an individual bending over in the same pose as the individual striking a brick using a wooden mold in the Rekhmire reliefs.¹⁹

There are scattered examples of early Middle Kingdom wooden models that represent laborers producing bricks, originally deposited in tombs at sites like Beni Hasan or Deir el-Bersha.²⁰ One of the most intriguing examples is MFA 21.411, which possesses five workers performing a variety of activities related to brick production (**Figure 3.4**).²¹ One man hacks at the earth with a hoe, a second is in the process of kneading the mud matrix with his hands using a nearby bucket. Two porters carry the prepared soil over to a brickmaker, who sits molding bricks using a miniature brick mold. The tools themselves are all broadly comparable to examples known archaeologically and in the Rekhmire reliefs, albeit slightly simplified and less detailed. Other examples show a similar process, though at times there are greater or fewer numbers of workers. Physical wooden molds have also been excavated, most frequently from Middle Kingdom or New Kingdom contexts. Examples from domestic contexts have been found at Lahun,²² but a greater number of molds have been discovered at Thebes.²³ Many of the

¹⁸ Newberry 1895, Pl. XXV.

¹⁹ Compare with Davies 1943, Plate LVIII; see also Klebs 1922, 118.

²⁰ Breasted 1948, 52, Pl. 46c. Breasted cites examples from Beni Hasan tomb 275 and MFA 21.411. See also the model depicted in Nims 1950, fig. 2.

²¹ Freed and Doxey in Freed et al. 2009, 165, fig. 125.

²² Petrie 1890, 26, Pl. IX.23.

²³ Clarke and Engelbach 1930, fig. 263e.

Theban examples were originally interred in 18th Dynasty foundation deposits.²⁴ All of these examples are extremely similar to the molds represented in the Rekhmire reliefs, and there is little indication that this technology changed substantially over the duration of Pharaonic civilization.²⁵



Figure 3. 4: Image of MFA 21.411, after Freed et al. 2009, Figure 125.

²⁴ Weinstein 1973, 419. The corpus entries within Weinstein's dissertation provide an exhaustive list of when and where brick molds were identified in contexts related to foundation deposits.

²⁵ Davies 1943, Plate LVIII.

At least one archaeological context associated with brick production has been excavated, near the Lower Nubian fortress at Mirgissa (**Figure 3.5**).²⁶ This simple, rather rudimentary workshop was located just 6 m north of the slipway near the fortress at locality MXVIII A. Remarkably, a number of bricks remain in place, and generally measure 34 x 17 x 10 cm or 30 x 15 x 7-8 cm. The entire workshop is only 16 x 11 m, and Vercoutter suggests that there were likely several such installations that were created on an *ad hoc* basis to supply bricks for building projects in the vicinity of the slipway. The brick production facilities are most likely contemporaneous with the slipway since a large deposit of the silty mortar used to cover the track was found associated with the floor level of the workshop. Few sherds were found associated with this context, but they suggest a Middle Kingdom date based on parallels from elsewhere at Mirgissa.²⁷

²⁶ Vercoutter 1970, 214-216. In personal communication, Laurel Bestock noted that a brick production facility was discovered at Abydos but remains unpublished.

²⁷ Vercoutter 1970, 216.

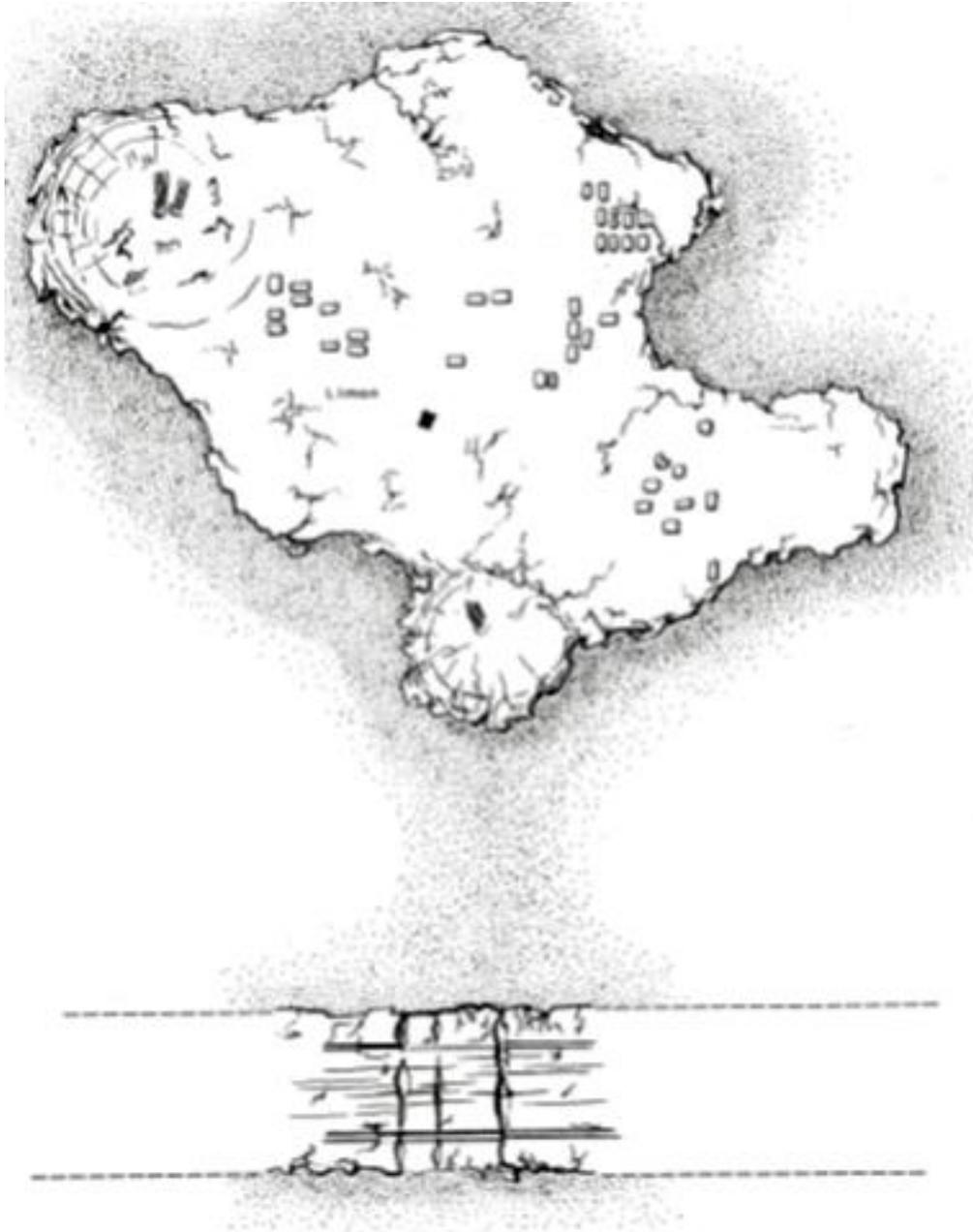


Figure 3. 5: Brick production area at Mirgissa, after Vercoutter 1970, Figure 22.

The process by which mudbricks are created in contemporary rural Egypt remains essentially unchanged from the basic process depicted in tomb reliefs and models from Pharaonic Egypt, though it is plausible that modern tools have perhaps increased daily rates of production slightly. The first step of the brick making process is the retrieval of alluvial

sediments. Emery highlights the utility of using soil dredged from canals or sediments deposited across agricultural fields as a result of the Nile flood, noting that the soil matrix of such alluvial sediments is already well mixed with particles of a variety of sizes, therefore limiting the need for any additional processing save for the addition of sand and straw.²⁸ The alluvial sediments and clay are first dumped in an area prepared for brickmaking. The brickmakers subsequently break and knead the soil with the use of treading, hoes, or simple agricultural tools like adzes. Following this, water is added. Sand is introduced as necessary in order to create a relatively stiff mixture. Straw is then added to the concoction, usually at a ratio of roughly one part straw to five parts earthen matrix. The straw is then kneaded into the mixture through a process of treading. The mixture is left to dry overnight, then is kneaded once again the following day and additional water is added. The resulting blend is ready to be molded.²⁹

The mud admixture is transported from the preparation area (usually in baskets) to a surface strewn with straw or other plant detritus. Here, the bricks can be molded and left out to dry without clinging to the ground.³⁰ The ancient Egyptians used single wooden molds to strike their bricks, and several examples have been recovered archaeologically in addition to being represented in tomb reliefs. Modern brick production uses similar wooden molds, though these are often slightly smaller in size.³¹ Between each use, the wooden mold is quickly dipped in water in order to prevent any newly struck bricks from adhering to the mold itself. As mudbrick architecture was first being developed in the Naqada IIb period and prior to the invention of brick molds, handmade bricks were created and shaped by artisans.³² After fabrication, the bricks

²⁸ Emery 2009, 2.

²⁹ Henein 1988 38-39; Emery 2009, 2-3

³⁰ Henein 1988, 39.

³¹ Ancient examples are almost always larger in size than modern bricks with the dimensions listed in Henein 1988, 39, and Fathy 1989, 198.

³² Baba 2011, 23.

were then left to dry, ideally for as long as possible. Initially, it is likely the bricks were periodically turned to allow each side to dry in the sun, before being stacked to finish the drying process. While creating the mud and straw matrix and striking the bricks lasted only two or three days, the drying process could take weeks or even months.³³

Determining how many bricks could be produced in a single day is a challenge that numerous Egyptologists have investigated. Spencer suggests that in modern Egypt, a team of four brick makers can strike 3000 bricks per day, and this estimate seems comparable to what might have been produced during the Early Dynastic, Old Kingdom, and Middle Kingdom.³⁴ Reisner suggests that a mud mixer and two brick makers are capable of fashioning some 4-6000 bricks in a single day, while Nims suggests that a modern team of four (two laborers who mix and transport the mud and two brickmakers) are capable of a similar output.³⁵ Kemp notes that, these figures are likely a considerable overestimate given that modern bricks are generally smaller than their ancient counterparts.³⁶ Hassan Fathy also suggests that a team of four laborers was capable of producing 3000 bricks per day, though the bricks he references are of a smaller size: the modern day molds Fathy describes are 24 x 12 x 8 cm and 23 x 11 x 7 cm.³⁷ Averaging Fathy's brick dimensions yields a rough estimate of brick production of 1.520 cubic meters per day per laborer.³⁸ Aaron Burke collected information on rates of brick production from throughout the Near East, and dismisses Reisner's calculations as entirely outside the realm of possibility, noting that all other examples fall within a range of 1.28-2.67 cubic meters per day per laborer.³⁹

³³ Emery 2009, 3.

³⁴ Spencer 1979, 4.

³⁵ Reisner 1931, 73; Nims 1950, 27.

³⁶ Kemp 2000, 83.

³⁷ Fathy 1989, 197-198.

³⁸ Fathy 1989, 197-198.

³⁹ Burke 2004, 302.

Few Egyptian texts treat brickmaking, and our limited understanding of the technical vocabulary related to ancient Egyptian brickmaking further hinders understanding.⁴⁰ In the few texts that reference brick production, it is often difficult to understand whether associated figures relate to the amount of bricks produced, the cubic volume of bricks produced, or the amount of bricks laid. In his analysis of Papyrus Reisner I, Simpson arrives at a total of 65 cubic cubits per day for a construction project related to a temple in the Middle Kingdom, or 9.405703 cubic meters per day if we are to assume a cubit measured roughly 52.5 cm.⁴¹ It seems likely that this relates to brick production and not the amount of new brick work added per day by a single individual since this figure would be enormous, and the context of these figures within the papyrus suggests that this column referenced units of volume rather than numbers of bricks.⁴²

Using larger sized bricks typical of “public” constructions of the Middle Kingdom, or roughly 35 x 18 x 10 cm, this yields an estimate of roughly 1493 bricks per day. Using smaller, 28 x 14 x 7 cm bricks yields an estimate of 3428 bricks per day. It is not clear if this amount was the quota demanded per individual, or the total required from a team of two to five laborers divided between mud mixing, transport, and actually striking bricks. Judging solely from the large quantity of cubic meters per day, it seems likely to me that this figure relates to a team of at least four to five workers, presumably organized in a manner comparable to modern times with two brickmakers and two laborers who prepared and transported the mud admixture. Assuming a four person team, this rate of brick production (2.351 cubic meters per day per laborer) is comfortably within the range of other examples throughout the Near East cited by Burke, if on

⁴⁰ For an overview, see Spencer 1979, 4. The most important text relating to aspects of brick production is Papyrus Reisner I, which will be discussed in greater detail in Chapter Five, which details socioeconomic concerns related to mudbrick wall construction. For translation and commentary of this document, see Simpson 1963.

⁴¹ Simpson 1963, 62.

⁴² Simpson 1963, 62.

the higher end.⁴³ Indeed, this total slightly exceeds the modern rate Fathy suggests, which is roughly 1.5 cubic meters per day per laborer.⁴⁴ More recent modern estimates based on conservation work at archaeological sites have suggested that a 4-5 person team can finish between 750 and 1000 bricks per day, but in the absence of additional confirmation, there is little reason to disregard Fathy's figures.⁴⁵ How labor was organized in wall construction projects will be investigated in greater detail in Chapter Five, but in sum, the data from Papyrus Reisner I suggests that ancient Egyptian brick production was roughly comparable in speed and scale to modern figures referenced by A.J. Spencer and Hassan Fathy—an important but not altogether surprising conclusion given the apparent similarity of methods used in both the Middle Kingdom and contemporary rural Egypt.

BRICK SIZES

Brick sizes in ancient Egypt varied dramatically, both synchronously and diachronically. Unlike pottery or many other artifact typologies, brick size and composition are extremely unreliable chronological indicators. In some circumstances, brick size and composition at a single site can offer tentative indications about relative dates, but these should be corroborated with ceramic analyses or broader architectural parallels whenever possible and generally are only relevant to the chronology at an individual site.⁴⁶ While the earliest molded mudbricks tended to be smaller in size than later examples, small bricks continued to be fabricated during later periods as well. Moreover, older mudbricks were frequently dismantled and reused when creating new bricks or new architectural installations.⁴⁷ Thus, older bricks are occasionally

⁴³ Burke 2004, 302.

⁴⁴ Fathy 1989, 198-201.

⁴⁵ Ormeling 2016, 359 cites Abd-el Aziz's unpublished conservation reports and restoration work conducted by Renee Friedman's team at Hierakonpolis to arrive at these figures.

⁴⁶ Kemp 2000, 85-86 details some of the difficulties in using bricks as a method of archaeological dating.

⁴⁷ Kemp 2000, 85.

found in later walls, and even attempts to date installations based on brick matrix are hardly foolproof since re-used brick material was sometimes recycled during the fabrication process of new bricks.

Brick size also varied between public and private constructions, though such distinctions were not absolute. Even among bricks within the same wall, there is often an absence of standardization in size—though some of this may be attributed to differential weathering or shrinkage during the drying process. This suggests that at times multiple teams using their own individual but similarly sized brick molds were active within the same construction project. Given the massive numbers of bricks required for larger construction projects and the relative simplicity of the instruments used to fabricate them, it is unsurprising that there was often little standardization of brick size even within the same building project. Spencer notes that larger bricks were commonly used in monumental architecture, while smaller private tombs and domestic installations used slightly smaller bricks.⁴⁸ There was a wide range of sizes included within each category, however, and brick sizes certainly varied according to the individual brick mold used to fabricate them. Indeed, the enclosure walls at Edfu illustrate how these categories occasionally overlapped, as the late Old Kingdom and First Intermediate Period enclosure walls used bricks comparable in size to those found in contemporary domestic installations, while the Middle Kingdom settlement enclosure wall uses much larger bricks with greater amounts of straw temper. It is worth noting that these larger bricks were not necessarily sturdier or of inherently better quality, though it is possible that as with modern bricklaying, larger bricks could prove cost-effective and slightly reduce the amount of labor necessary to complete a project.

⁴⁸ Spencer 1979, 147-148.

ADVANTAGES OF MUDBRICK AS A CONSTRUCTION MATERIAL

Mudbrick architecture has numerous positive aspects and several important drawbacks as a construction material when considered in an ancient Egyptian context. First, mudbricks were easily fabricated, requiring only minimal specialized knowledge.⁴⁹ Moreover, the clay, silt, and sand necessary to create mudbricks were always readily available for any community living in proximity to the Nile. Excess straw for temper was frequently available to communities following the harvest, and could easily be stored until the annual inundation when more laborers were available for public building projects. As detailed above, the process of creating mudbricks was not overly complicated, and while no doubt some individuals distinguished themselves from the norm, simply creating mudbrick did not require extensive training or expensive materials—the most important and costly being a wooden mold to shape the bricks. Bricklaying requires slightly more skill, but was far less challenging than working with massive stone blocks. In any case, given the prevalence of mudbrick architecture in ancient Egypt, it seems likely that most communities would have had access to numerous individuals with the requisite knowledge.

Mudbrick is also a highly versatile construction material. It could be used to shore up existing installations, to construct modest features of domestic architecture like silos or storage basins, or could be used to construct massive temples, places, tombs, and of course, enclosure walls. In the form of decorative niches and buttresses, the Egyptian elite capitalized on the aesthetic potential of mudbrick architecture to create imposing, awe-inspiring edifices that impressed with both their scale and ornate decoration. As a unit of construction, bricks were smaller and far more easily portable than stone blocks or beams of wood, but sturdier than reeds or wattle and daub walls. Given its modular nature, adding or subtracting parts of a mudbrick

⁴⁹ Both Fathy 1989, 4-8 and Henein 1988, 38-40 highlight how most villagers are fully capable of fabricating and building with mudbrick. Presumably, things were not so different in antiquity.

construction was significantly easier and/or swifter to accomplish relative to other construction materials like stone. In domestic contexts, where the changing size of an extended family unit might necessitate such changes, it is unsurprising that mudbrick was preferred.

In arid environments like Egypt, the thermal retention properties of mudbrick also help to regulate the internal temperature of a building or dwelling.⁵⁰ During the day, mudbrick absorbs heat, allowing houses to remain warmer during cooler winter nights. In the heat of the summer, mudbrick's capacity to retain the coolness of lower nighttime temperatures helps to create more comfortable internal environments. This is a stark contrast with modern cement constructions, which can prove blisteringly hot when exposed to direct sun for lengthy periods of time, or approach near freezing temperatures during the winter in the absence of any insulation. In many respects, mudbrick remains an ideal building material for harsher, arid climates.⁵¹

Mudbrick is also relatively easy to transport, and the availability of sand, clay, and silt often meant that bricks could be fabricated close to where they were to be deployed in a construction project. Certainly, the comparatively small size of mudbricks relative to the massive granite or limestone slabs used in monumental funerary constructions meant that transporting these construction materials was less technically and logistically challenging than many other readily available building materials. Moreover, as noted above, the availability of the necessary ingredients meant that mudbrick could frequently be fabricated quite close to construction sites in the Nile Valley or Delta.

A final, often overlooked property of mudbrick is its surprising compressive strength.⁵² Carefully laid mudbrick is an unexpectedly sturdy building material. Force applied directly

⁵⁰ Van Beek 2008, 25-28

⁵¹ Van Beek 2008, 26-27.

⁵² Van Beek 2008, 36-39. As a counterpoint, however, Borkowski and Majcherek 1991, 29, note that mudbricks from the 4th Dynasty possessed extremely weak compressive strength, though this is in part likely due to the age of

against a mudbrick wall, rather than pulling at or attempting to dislodge the bricks is rather ineffective: Van Beek highlights the strength of earthen walls by noting that a bullet fired at close range penetrates only 4-5 cm!⁵³ Mudbrick also hardens as it dries, and while the resulting bricks can be more brittle, they also are more challenging to destroy through the application of force. While there remained real disadvantages to using such a medium for defensive architecture (see the following section), mudbrick architecture could form an effective barrier that deterred wild animals, protected a town or institution from windblown sand, and serve as an adequate defense against smaller scale or disorganized attacks.

DISADVANTAGES OF MUDBRICK CONSTRUCTION

Despite these numerous advantages, mudbrick architecture also has several important flaws. It is vulnerable to wind and especially water damage, necessitating regular maintenance and refurbishment.⁵⁴ Heavy winds scatter and carry away loose particles and smaller pieces of decaying brick matter at the top of walls, and can contribute to damage at the base of walls that eventually causes them to topple.⁵⁵ The near complete loss of the Lower Nubian fortresses following the construction of the Aswan High Dam is perhaps the most obvious example of the dangers water presents for mudbrick architecture. Indeed, the changing of the Nile's course over time and the rising water table have destroyed numerous sites throughout the Nile Valley and Delta. While measures can be taken to mitigate the effects of rain or flooding, there is no denying that mudbrick architecture, more so than many other construction materials, requires

the remains. Concerns regarding the compressive strength of some walls may have served as an impetus for Egyptian artisans to widen or thicken such features.

⁵³ Van Beek 2008, 37.

⁵⁴ Van Beek 2008, 464-482. Williams 1999, 448, note 46 highlights the importance of regular maintenance and replastering in military contexts. Kemp 1995, 150-151 discusses patterns of wind erosion and in particular highlights the forces that act upon both the base and upper portions of mudbrick walls in Egypt.

⁵⁵ Kemp 1995, 150-151.

more regular repair and maintenance to protect against water damage. Large buildings often employed a mud or gypsum plaster coating to help reduce the effects of weathering.

Though it has surprisingly strong compressive strength, the tensile strength of mudbrick is quite weak. This may partially be the result of various binding agents like straw eroding over time or being eaten by insects in antiquity.⁵⁶ Nevertheless, it is not uncommon for bricks to crumble in one's hands once they have been dislodged from their original position in an installation. Pulling or twisting bricks frequently causes them to fall apart, and poorly made mudbricks must be handled with greater care than stone or wooden beams. Indeed, as a tool for fortifications, it is indisputable that stone constructions were both stronger and more durable, though these materials were costlier to acquire and more difficult to transport. Determined sappers could disassemble or poke apart holes in mudbrick constructions far more rapidly than stone.⁵⁷ Because the internal brickwork of thick walls was not always solid, attackers could create large holes within a wall. Alternatively, sappers could pick away at a wall to create a series of handholds and footholds to more easily allow attackers to scale the fortification. Mudbrick is also vulnerable to fire damage. In conditions where bricks were not being deliberately baked, exposure to extreme, uncontrolled heat could cause bricks and mortar with large amounts of organic matter as temper to deteriorate somewhat, though mudbrick is typically quite resistant to heat.⁵⁸ Fire damage also destroyed any wooden supports in a wall and could potentially render bricks more brittle and friable.

⁵⁶ Kemp 2000, 82.

⁵⁷ Williams 1999, 440-442 specifically highlights the use of fosses or ditches as protective measures at certain Nubian fortresses.

⁵⁸ Some deterioration was evident in burnt brick walls at Edfu, but the structural integrity of many of these walls remained intact.

Finally, the nature of mudbrick constructions meant that significant structural damage could result if walls settled unevenly—a not altogether unusual occurrence given how soil could soften as a result of the annual flooding of the Nile. From the early 3rd Millennium BCE, the Egyptians employed various techniques to prevent or mitigate the damage from such uneven settling, including reed matting, building walls in discrete segments, excavating foundation trenches, and constructing walls with an inward batter.⁵⁹ Courses of bricks were bonded to avoid vertical joints, and new phases of enclosure walls were often added directly to the interior or exterior of existing enclosure wall phases, shoring up already standing walls. Later in Egyptian history, the bases of wall segments were constructed as a series of concave beds, creating stronger, vertically undulating walls.⁶⁰

UNIQUE USES OF MUDBRICK IN ANCIENT EGYPT

Bricks were specially created or decorated for a variety of purposes. Some bricks were created as artifacts endowed with magical properties to aid the rebirth of the deceased in the afterlife, while other “magical” bricks were associated with birthing. Bricks were frequently interred in royal burial chambers during the New Kingdom, in association with four amuletic figures referenced in Book of the Dead Spell 151: a *djed* pillar, a reclining jackal on a shrine, a mummiform image, and a reed representing a flame.⁶¹ These bricks were deposited in magical niches either in pairs or along each of the four walls of the burial chamber. The specific ritual purpose or value of these bricks is often difficult to discern since their placement and association

⁵⁹ These techniques are further addressed later in this chapter. Many of them are briefly discussed in Kemp 2000, 88-92.

⁶⁰ Kemp 2000, 91-92.

⁶¹ Roth and Roehrig 2002, 121-122.

with particular amuletic figures and cardinal directions often varied significantly, but it seems likely that they served a protective or regenerative purpose.⁶²

In addition to rebirth in the afterlife, brick artifacts were also associated with traditional Egyptian birthing rituals. Occasionally, goddesses in Book of the Dead vignettes were personified as a brick topped with a human head—most notably Meshkhenet, a deity associated with childbirth who lends her name (*mshnt*) to the birth bricks attested in ancient Egyptian ritual.⁶³ Bricks feature prominently in the birth of three kings in *Papyrus Westcar*, where following his birth each royal child is deposited on an *ifd m dbt*—traditionally translated as either a cushion or bed of bricks.⁶⁴ More recently, Roth and Roehrig argue compellingly that *ifd* should be read as the number four, and thus the infants are placed on four bricks.⁶⁵ Regardless of their specific role bricks indisputably featured prominently in child birthing rituals. At South Abydos, an unfired birth brick was discovered within the 13th Dynasty mayoral residence. The brick's original upper face was destroyed, but the other sides were decorated with polychrome paintings of scenes that parallel apotropaic depictions on much better known birth wands dating to the Middle Kingdom.⁶⁶ Wegner suggests that the brick was likely actively involved in the birthing process itself, either as one of the four bricks upon which a mother balanced while delivering the child, or as a spiritually protected surface upon which the newborn could rest following birth.⁶⁷

⁶² Roth and Roehrig 2002, 126-129.

⁶³ Roth and Roehrig 2002, 130.

⁶⁴ Roth and Roehrig 2002, 131. For examples of such a translation, see Lichtheim 1973, 220.

⁶⁵ Roth and Roehrig 2002, 131-132.

⁶⁶ Wegner 2009, 452-455, 463-471, and 474-475, and 477-479 discusses various apotropaic properties of the Abydos birth brick.

⁶⁷ Wegner 2009, 475-477.

In rare instances, bricks were stamped with the titles and cartouches of the reigning pharaoh, though this practice is primarily attested in the New Kingdom and later.⁶⁸ Such artifacts not only embodied royal authority, but also contributed to the survival of the king's name. Bricks from the Old Kingdom and Middle Kingdom were frequently marked, often with the imprint of varying numbers of fingertips or scored with grooves on one side, but I am unaware of any examples with hieroglyphic stamps prior to the 18th Dynasty. Foundation deposits (known primarily from tombs) from the Middle Kingdom onwards occasionally contained model bricks or brick molds. Model or full-size mudbricks were interred in foundation deposits from the 11th Dynasty through the Ptolemaic period, and likely should be associated with foundation rituals.⁶⁹ Most such deposits had only a single brick, but some early 12th Dynasty examples had up to five or six bricks. Weinstein suggests that in such cases, such bricks regularly encased inscribed plaques, and only a single plain brick was included while the others served protective purposes.⁷⁰ The bricks were clearly one of the last items added to a deposit, since almost uniformly they were covered only by a layer of sand. Reliefs at temples describing Egyptian foundation rituals refer to the king ritually molding the first brick at the site as one of the integral steps of the process, though such care was not necessary for less sacral buildings (and certainly not for most enclosure walls).⁷¹

These brick artifacts served a variety of purposes, many of which remain somewhat ambiguous today, but there is little doubt that they could be imbued with powerful protective properties. Roth and Roehrig note that bricks themselves were constructed out of alluvial mud, a

⁶⁸ Spencer 1979, 144-146.

⁶⁹ Weinstein notes that bricks were less frequently associated with foundation deposits during the Ramesside period: Weinstein 1973, 419-420.

⁷⁰ Weinstein 1973, 419-422.

⁷¹ Weinstein 1973, 12-13.

generative, primal substance linked to the very toponym of Egypt: *kmt*, the fertile Black Land.⁷²

It is unsurprising that the Egyptians linked such a construction material to physical birth and spiritual rebirths. Mudbricks were also the core element of some of the most salient protective and imposing architectural features known to Egyptian society: specifically, fortresses and enclosure walls. In vulnerable moments like birth or the transition to the afterlife, bricks were an additional medium through which to communicate apotropaic scenes or amuletic protections.

ELEMENTS OF MUDBRICK ARCHITECTURE IN ENCLOSURE WALLS

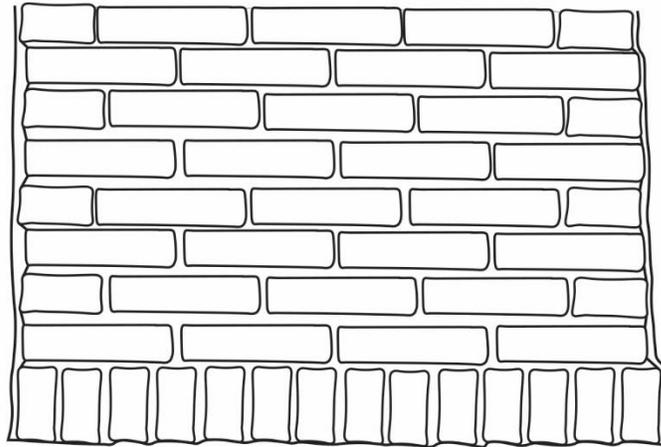
Before beginning a more detailed analysis of individual examples of enclosure walls, it is necessary to review a number of architectural elements that will be referenced in the coming chapters. Because of the diachronic nature of this dissertation, some of these elements changed or developed over time: for example, the towers, crenellations, and trenching of a Middle Kingdom fortress like Buhen is far more sophisticated than the earlier defensive architecture at fortifications like the Early Dynastic citadel at Elephantine, though antecedents of many of these elements in the Lower Nubian fortresses are already identifiable even at this early date.⁷³ Where possible, this section will note such changes, but it is intended as a concise summary to ground the reader before the more detailed descriptions of individual enclosure walls in Chapter Four and Appendix A.

The bonding patterns used in mudbrick architecture are complex, and in the case of many enclosure walls, somewhat inconsistent. The vast majority of ancient Egyptian enclosure walls prior to the New Kingdom used a basic bonding pattern where bricks along the interior and

⁷² Roth and Roehrig 2002, 139.

⁷³ For example, the North Palace at Balat possessed a thick enclosure wall, towers, and an internal water source—hallmarks of later Egyptian fortification efforts in Nubia: Soukiassian et al. 2011, 24-25.

exterior face of the wall were laid using alternating courses of headers and stretchers (**Figure 3.6**).



View of a typical alternating headers and stretchers bonding pattern in profile, showing a foundation layer of bricks set on edge.

Figure 3. 6: Typical brick pattern in an enclosure wall.

The internal core of the wall was often laid using headers alone, though this is not uniform, and numerous other bonding patterns have been identified—sometimes within the same wall. Bricks set on edge were sometimes employed as a levelling measure or on the lowest foundation courses. As Kemp notes, the primary concern was to avoid direct vertical joints, which could cause cracking or collapse.⁷⁴ The most comprehensive attempt to categorize the brick bonding used in ancient Egyptian architecture remains A.J. Spencer’s publication, *Brick Architecture in Ancient Egypt*. Spencer’s typology is at times quite complex given its thoroughness, and it can be difficult to discern the precise differences between certain subcategories. For the purposes of

⁷⁴ Kemp 2000, 88.

this dissertation, nearly all of the enclosure walls discussed in this work used bonds consisting of headers and stretchers (not necessarily alternating), or Spencer’s Type A bonds.⁷⁵

Cracking within walls as a result of uneven weight distribution was always a potential problem, and Egyptian builders developed a series of innovative techniques to prevent such a catastrophe. As early as the 2nd Dynasty, reed matting was used at regular intervals between brick courses to help bricks settle.⁷⁶ It is possible that such matting is represented by the yellow-brown streaks between courses of brickwork in reliefs from the 18th Dynasty tomb of Rekhmire depicting the construction of a large building (**Figure 3.7**).⁷⁷ This technique was regularly employed throughout the Pharaonic period, and was a regular feature of public constructions in particular. The use of woven reed matting would also perhaps have accelerated the drying process if some bricks were laid while still moist, and helped bricks to settle more evenly.

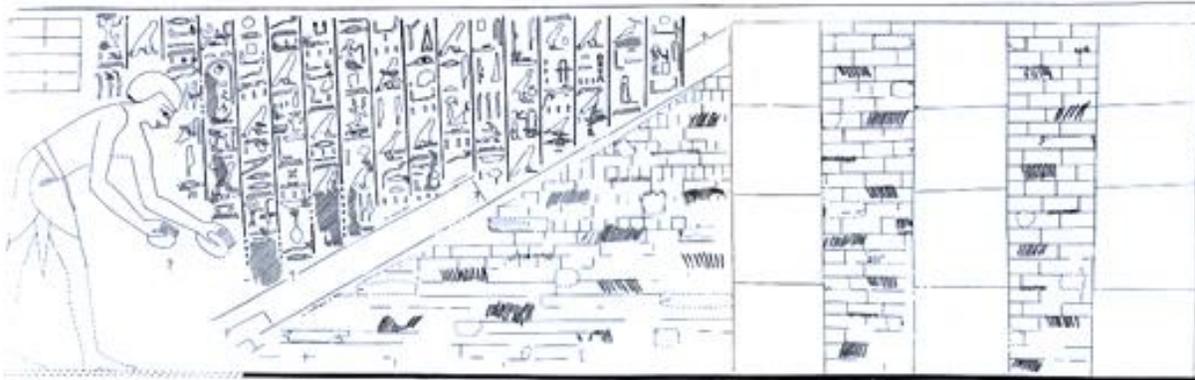


Figure 3. 7: Scene showing a mudbrick construction in the tomb of Rekhmire—note the presence of matting or non-brick material within the structure. After Davies 1943, Plate LX.

⁷⁵ Spencer 1979, 140-146, Pls. 1-2.

⁷⁶ Remnants of such matting have been observed at Khasekhemwy’s “fort” at Hierakonpolis: Friedman 2007, 316. See also Kemp 2000, 91.

⁷⁷ Davies 1943, 55-56, pl. LX.

The bedding or foundations of an enclosure wall also impacted how bricks settled. Some Late Period and Ptolemaic enclosure walls used complex, alternating concave and convex bedding patterns to create segments of vertically undulating walls, but these techniques were not regularly employed prior to the first millennium BCE.⁷⁸ Nearly all of the enclosure walls constructed from the Predynastic through the Second Intermediate Period made use of level foundations, though at times sloped bedding was needed as walls rose and fell with the local topography. Larger walls typically made use of foundation trenches cut into the existing strata, striving to create as stable and level a base for the overlying construction as possible. If special provisions were rarely made with regard to the bedding of an enclosure wall prior to the New Kingdom, Egyptian builders often took great pains to construct walls in numerous segments to minimize the damage caused by such cracking. In instances where large walls are preserved to a sufficient height, there are numerous examples where timber beams were inserted at regular intervals every 5 to 15 courses to provide a stabilizing internal framework for larger enclosures.⁷⁹ This technique developed as early as the Early Dynastic period, and was used at many different structures that were comprised of large masses of brickwork, from mastaba tombs to fortress walls. This innovation helped to distribute weight more evenly and also strengthened the structural integrity of the wall, particularly in instances where bricks in the wall's internal core were laid more haphazardly or without recourse to a regular pattern of bonding. These beams or poles could be set both longitudinally along and latitudinally across the wall, in some cases creating a regular internal skeleton.⁸⁰

⁷⁸ These types of enclosure walls are highlighted in Golvin et al. 1990. Pirelli 1999 suggests that the impetus for such constructions must have been religious or ritual in character, while others like Kemp 2000 highlight the technical advantages of such concave bedding rather than ascribing uncertain religious motivations to their builders.

⁷⁹ Kemp 2000, 90-91.

⁸⁰ For an example of a mastaba tomb employing large beams of wood, see the tomb of Rahotep, where Petrie 1892, 16 details the presence of wooden beams set at the corners of the mastaba. Timber was used to stabilize large walls

Individual courses of brick were coated with mortar. Mortar helps hold bricks in place and settle, but was not always strictly necessary. In rare instances, the inner core of bricks in large walls were laid absent any agent to bind them together.⁸¹ Mortar was created using a mixture of water and mud or rarely, crushed limestone or gypsum, and usually was fabricated close to the building site due to its simplicity. Indeed, mortar can often be created using leftover mud and other materials from the brick fabrication process. Kemp notes that mortar was often daubed on the bottom of bricks in small piles, and allowed to spread out naturally once the bricks were laid.⁸²

Buttresses or towers were a common feature of enclosure walls. The principal distinction I draw between these two types of exterior, projecting constructions is one of scale: towers were designed such that individuals could stand atop them, and not for the purposes of bolstering a wall's structural integrity or adding a decorative element to a wall's design like buttresses. In some instances, buttresses were clearly planned from the outset, as they were bonded to the construction of the wall itself. In other instances, buttresses were added as a later aesthetic or structural consideration, abutting the face of the original wall.⁸³ While some buttresses appear to have been simple, utilitarian constructions, many were somewhat ornate and made clever use of the versatility afforded by mudbrick to create visually striking designs. No architectural motif demonstrates this better than the "palace façade" style that has been identified at numerous

at Uronarti (Dunham 1967, 21) Karnak (Christophe 1951, Pl. VI), Buhen (mentioned in Emery et al. 1979, 39, Pl. 10 and visible in Emery's reconstructions of the fortress i.e. pls. 11-12), among many other sites.

⁸¹ Golvin and Hegazy 1993, 149, pl. IIa and Hölscher 1951, 3 note examples of this phenomenon. Kemp 2000, 92-93 discusses mortar more generally.

⁸² Kemp 2000, 92.

⁸³ Buttresses were frequently constructed at Edfu, and are attested at some of the earliest enclosure walls known from the site. Examples of buttresses that were bonded to the wall itself include those buttresses connected to Enclosure Wall Tell Edfu 4 (EWTE 4), the second phase of enclosure post-dating buildings near the center of the Old Kingdom settlement. The following wall phase associated with this sequence, EWTE 5, possessed buttresses that were clearly a later addition, abutting but not joined to the wall itself. For further details, see Chapter Four.

funerary monuments from the Early Dynastic period and 3rd Dynasty.⁸⁴ A single example from a settlement context has been identified, at the mudbrick palace at Hierakonpolis, though it is almost certain that this is a result of the dearth of exposed settlement remains dating to the late 4th and early 3rd millennia BCE: this architectural style is represented frequently on slate palettes and other artistic media from this period (**Figure 3.8, Figure 3.9**).⁸⁵ Using niches and decorative buttresses in tandem to create an exterior façade, this kind of public, architectural spectacle was rapidly seized upon by leaders of the Egyptian state as a way to illustrate their control. Indeed, its unique appearance became a kind of signifier for royal and elite power.



Figure 3. 8: Images of niched or fortified enclosures on the Bull Palette and Libyan Palette, using images from Wikimedia Commons.

⁸⁴ This hallmark of elite architecture in lower Egypt is known from mastabas and funerary enclosures throughout Egypt. Jiménez-Serrano 2001, van den Brink 2001, and Hendrickx 2001 investigate the origins of this architectural style, suggesting it emerged autonomously. Sievertsen 2008 argues for a Mesopotamian origin.

⁸⁵ Fairservis 1986, Hoffman 1971-72; Fairservis 1971-72 and Weeks 1971-72 detail the excavation of this structure. For a more recent appraisal of its function, see Friedman and Bussman 2017.

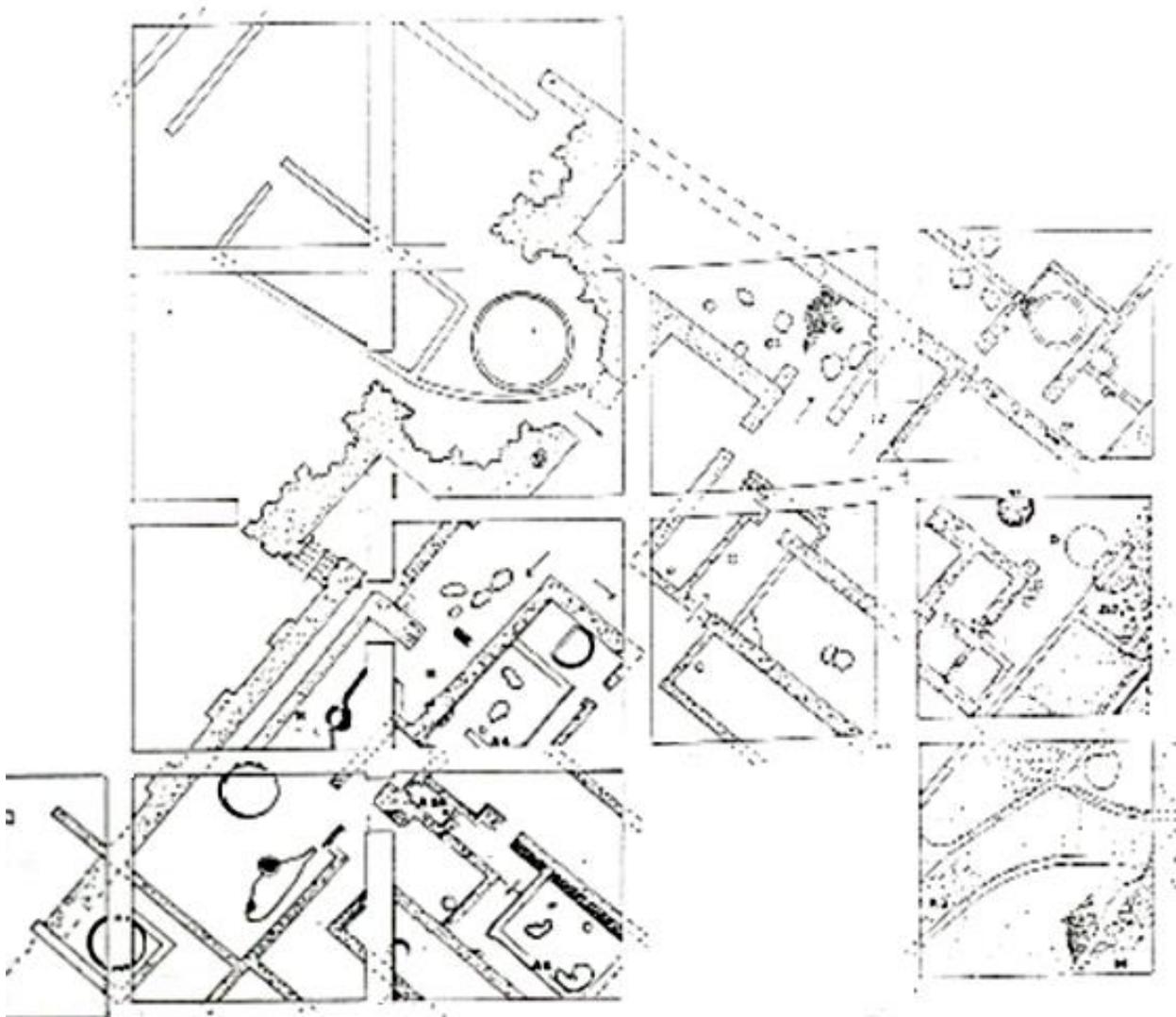


Figure 3. 9: Niched gate of the palace at Hierakonpolis, after Fairervis 1986, Figure 7A.

Whether or not they possessed decorative elements, walls were often plastered in an effort to reduce the corrosive effects of weathering and water damage.⁸⁶ Capillary action bringing moisture from the soil into contact with the wall itself always threatens the foundations of mudbrick walls, even in the best of circumstances, and particularly in locations like Egypt where high annual floods and the local water table could create additional complications.

⁸⁶ Kemp 2000, 92. See also Petrie 1938, 6-7.

Battering from winds also took a toll, sometimes leading to the spalling of exposed bricks. Plaster cannot alleviate the concerns caused by these factors, but regular re-plastering and maintenance could help limit the damage. In addition to being aesthetically pleasing, plaster also added to the mechanical strength of the wall itself.⁸⁷ Plaster uses similar ingredients used to make mudbricks themselves, and was fabricated by mixing water, straw, and a soil or mineral base that could be as simple as silt or mud, or include more prized materials like gypsum. Relative to mortar, plaster has a greater straw content. This greater amount of temper reduces the likelihood of cracking, though the passage of time and disappearance of the straw renders most surviving examples of plaster quite friable.⁸⁸ Moreover, plastered surfaces allowed walls to be elaborately painted, or could be finished in white to present a striking visual feature. At Khasekhemwy's enclosures at Abydos and Hierakonpolis, small streaks of white plaster are visible along the constructions' niched façades.⁸⁹ The remains from Early Dynastic tombs suggest that such elaborate geometric motifs and patterns were likely a fairly frequent occurrence; indeed, such designs highlight how significant the damage from weathering on many of these constructions has been.⁹⁰

Crenellations have been preserved only in select instances at the best preserved of the Nubian fortresses, other exceptionally well preserved temple enclosures, and frontier outposts.⁹¹ Sites like Buhen possessed a suite of defensive features including small crenellations together

⁸⁷ Kemp 2000, 92. See also Petrie 1938, 6-7.

⁸⁸ Kemp 2000, 92-93.

⁸⁹ For Hierakonpolis, see Friedman 2007, 316-317. At the Shunet el-Zebib at Abydos, some of this plastering is still preserved at the base of the enclosure.

⁹⁰ Photos from Emery's publication of Early Dynastic mastabas highlight this feature. For examples, see Emery 1949, pls. 50, 51, 52; Emery 1954, pls. XLII; Emery 1958, pls. 6-8, 13-17; Emery 1961, pls. 7. Numerous other examples of this decorative painting no doubt exist, but the above illustrations and plates should hopefully demonstrate that parts of the superstructures of at least some of these tombs were lavishly decorated.

⁹¹ Knudstad 1966, 185, pl. XXIVa; Emery et al. 1979, Pl. 83.

with loopholes for archers manning the ramparts.⁹² Due to conditions of preservation, crenellations appear far more prominently in artistic representations of town walls and citadels than in the archaeological record.⁹³ Ditches or moats occasionally reinforced the defenses of enclosure walls built for specifically military purposes, but were rarely implemented surrounding town or temple walls.⁹⁴ Beyond defensive purposes, such features also helped prevent runoff water from pooling near the base of an enclosure wall, though the dangers water damage or uneven settling remained.

The use of a glacis was another feature commonly employed in the most sophisticated Egyptian defensive architecture, most prominently at fortresses constructed as part of Egypt's imperial project in Lower Nubia during the Middle Kingdom (**Figure 3.10**). A glacis consists of an artificial slope created at the base of a fortification. In some instances, they were constructed using rubble rather than mud or mudbrick. In addition to making the approach to the base of any wall far steeper, a glacis also offered some rudimentary protection against battering rams. Like moats or ditches, the steeper slope afforded by this construction likely would have caused excess rainwater or runoff to drain further away from the base of the wall.

⁹² For loopholes, see Emery et al. 1979, 27-28, figs. 8-9, and Pls. 83, 84, and 87.

⁹³ Examples are too numerous to list here, but it is worth noting that some of the earliest artistic representations of mudbrick walls on the Libyan Palette or Bull Palette show enclosures crenellations (or perhaps a schematic rendering of niched facades: see Petrie 1953, Pl. G19 for the Libyan Palette, Pl. G18 for the Bull Palette, and Pls. J25 and K26 for the Narmer Palette.

⁹⁴ For one such example, see the section showing such a ditch in Emery et al. 1979, Pls. 9, 79, 80, 82, 83.

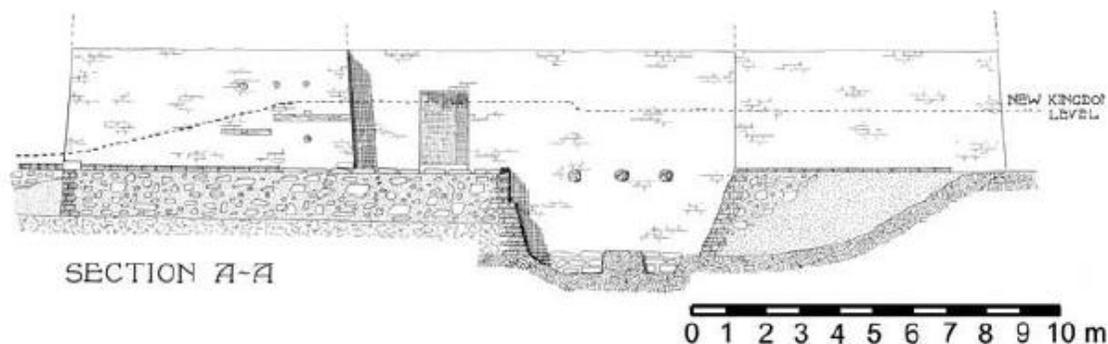


Figure 3. 10: Exterior view of the side of a gateway at Buhen, after Emery et al. 1979, Pl. 10.

Gateways were a focal point for defensive efforts at fortresses and architectural elaborations at enclosure walls that did not serve a military purpose (**Figure 3.11**).⁹⁵ Very few gateways in town walls have been identified—to my knowledge, the only example within the timeframe investigated by this dissertation is located at the town walls surrounding the settlement at Elephantine and dates to the Old Kingdom, and it was protected by additional flanking towers and reinforced with stone doorjambs.⁹⁶ Far more evidence exists when considering entrances to temples or fortresses. Such openings at times possessed stone doorjambs and lintels for added strength, and could be decorated with inscriptions or relief work. Egyptian military planners seemed to have intuitively grasped that gateways were always a potential vulnerability, and multi-chambered gatehouses and flanking towers frequently protected entry points at Lower Nubian fortresses from the Middle Kingdom. In military architecture, entrances were typically limited to as few as possible—often just a main gateway and a fortified passageway providing river access.⁹⁷

⁹⁵ Vogel 2010.

⁹⁶ Dreyer in Kaiser et al. 1980, 264-268; Ziermann 1993, 89, 99, 128.

⁹⁷ Vogel 2010, 301-302.

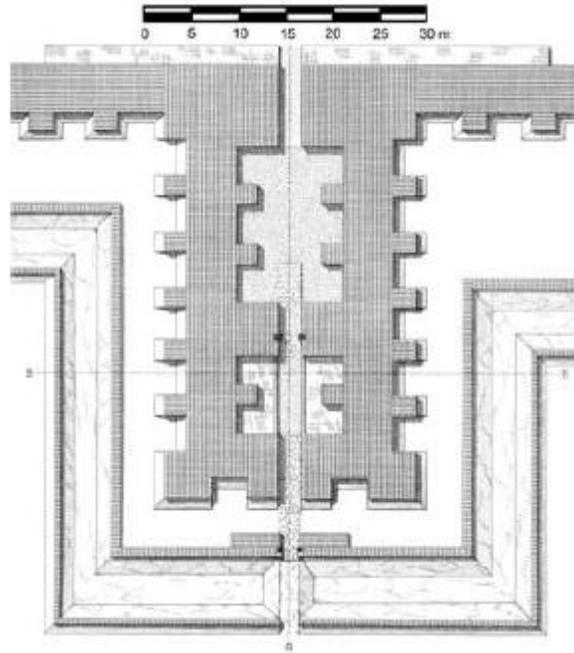


Figure 3. 11: Plan of the Outer Gateway at Buhen, after Emery et al. 1979, Pl. 5.

ACCRETION WALLS IN ANCIENT EGYPT

Finally, it is worth briefly noting the phenomenon of accretion walls in ancient Egypt: that is to say, the practice of building new phases of enclosure walls directly adjacent to previous phases. This custom allowed for the creation of massively thick walls, some 8 m thick at parts of Elephantine's Early Dynastic Period town walls.⁹⁸ The reasons for this practice will be explored in greater detail in subsequent chapters of this dissertation, but it is worth highlighting that such a pattern of wall building dramatically increased the scale and thickness of a town or citadel enclosure wall. Accretion walls could reinforce areas of older walls that had collapsed or cracked as a result of differential settling, while simultaneously introducing new structural complications by creating even thicker, larger masses of brickwork that were not always carefully bonded, filled, or planned. Moreover, this pattern of wall building highlights how

⁹⁸ Ziermann 1993, 77-79, 83-85, 127-128

Egyptian boundaries or borders defined by large enclosure walls could sometimes remain fairly static for hundreds or even thousands of years, simply reinforcing or building over an existing but dilapidated construction. Particularly in periods up until the Middle Kingdom, when many large walls were built with a slight inward batter, it was fairly logical to add to existing constructions by simply building a new wall phase directly adjacent to the exterior face of the old one. In some cases, these walls were built with a deeper foundation on their exterior face to provide added stability, such that the base of the wall was several courses lower than the foundation of the rest of the wall.

The development of this phenomenon, where new phases of sloped walls were simply layered against existing constructions, is in part rooted in several features of mudbrick architecture. Egyptian builders had realized by the Early Dynastic Period that walls with a wider base and a slight inward batter were sturdier than vertical walls.⁹⁹ Such walls could withstand weathering more easily, and allowed for the easy addition of subsequent phases of walling along the interior or exterior of the wall as necessary. As noted above, mudbrick requires regular maintenance in order to keep it from deteriorating, and these technical deficiencies may have encouraged more frequent renovation. Indeed, as at tell sites throughout the Near East, the accumulation of settlement debris alone would have necessitated some maintenance, as original walls were slowly eclipsed by the rising ground level of the urban environment. When set on solid foundations, new phases of walling both increased the thickness of the wall and could allow the upper part of the wall to reach a more imposing height.¹⁰⁰ In cases where speed was a priority, the use of sloped accretion walls could allow for construction to be completed quickly.

⁹⁹ Nearly all of the earliest enclosure walls were completed with a slight inward batter. Sloped enclosures are the norm prior to the Middle Kingdom, and continued to be used throughout the Pharaonic period.

¹⁰⁰ At Edfu, the late Old Kingdom/First Intermediate Period town walls seem to have been conceived as two sloping wall phases layered atop one another, with the second phase being executed shortly after the first was completed.

Bricks in a later wall that were supported by an existing backing wall could be laid more quickly and haphazardly. Perhaps most importantly, such walls would often stand in the short term, but did not require the kind of lengthy levelling process employed when the foundations of new vertical walls were constructed. The stability of accretion walls was much inferior to such carefully planned walls, and cracking, settling, or sliding did occur. Nonetheless, such deformations could often be remedied in the short term by simply adding an additional accretion wall or targeted repair work. Moreover, because large walls were typically completed in sections, structural damage in one section of the wall did not necessarily threaten the entirety of the walling project.¹⁰¹

The technical advantages of sloped accretion walls, layered one atop the other, is evidenced not only in mudbrick enclosure walls, but also in stone at some of the most famous Egyptian architectural monuments: mastabas and pyramids. The exterior walls of mastabas were typically completed with a significant inward batter. In many instances during the Early Dynastic period, these mudbrick walls were clad with a kind of niched façade. The outer walls of the mastaba themselves typically surrounded a rubble core or a series of transverse walls that formed small compartments or rooms within the mastaba superstructure.¹⁰² This construction technique is essentially analogous to the first phase of a series of accretion walls used to form an enclosure wall. Whether such wall techniques first developed in a funerary or settlement context remains unclear, but it is likely that any advances in wall building techniques first developed in one setting were rapidly employed in the other.

¹⁰¹ The town enclosure walls at Edfu seem to have been completed in sections and will be discussed in greater detail in subsequent chapters. Late Period Egyptian enclosures whose undulating wall segments were built upon alternating convex and concave foundation beds demonstrate this more obviously: Golvin et al. 1990; Pirelli 1999.

¹⁰² For several examples, see the examples from Emery 1949, Emery 1954, or Emery 1958.

The construction of the earliest pyramids has been the subject of numerous treatises by archaeologists and Egyptologists alike, but indisputably, the core of early pyramids like Djoser's Step pyramid was formed through the setting of stone blocks in vertical layers leaning atop one another, rather than entirely distinct horizontal steps of limestone blocks as in 4th Dynasty "true" pyramids.¹⁰³ Indeed, the beds for these accretion walls inclined in tandem with the slope of the accretion wall itself (**Figure 3.12**).¹⁰⁴ Later Old Kingdom pyramids often used a rough masonry core, clad with an outer layer of casing stones that established the slope of the pyramid. This technique was itself quite reminiscent of the techniques used by Egyptian builders to build the stone enclosure walls surrounding these pyramids, where rough fieldstones formed a core that on both sides was clad with an outer course of canted stone blocks. In the pyramid of Senwosret I, 3-5 cubit thick limestone walls radiated out from the core of the pyramid in the four cardinal directions and along the diagonals of the superstructure, forming a series of skeleton walls that retained the mass of local fieldstones that formed the core of the pyramid. This technique was used throughout the 12th Dynasty, though starting with the reign of Senwosret II, these pyramids were built with a mudbrick rather than masonry core.¹⁰⁵

¹⁰³ For the accretion wall layers in Sekhemkhet's pyramid, see the brief discussion in Stadelmann 1985, 72; Lehner 1997, 218-219 treats the subject more generally.

¹⁰⁴ Lehner 1997, 218.

¹⁰⁵ Arnold 1988, 66.

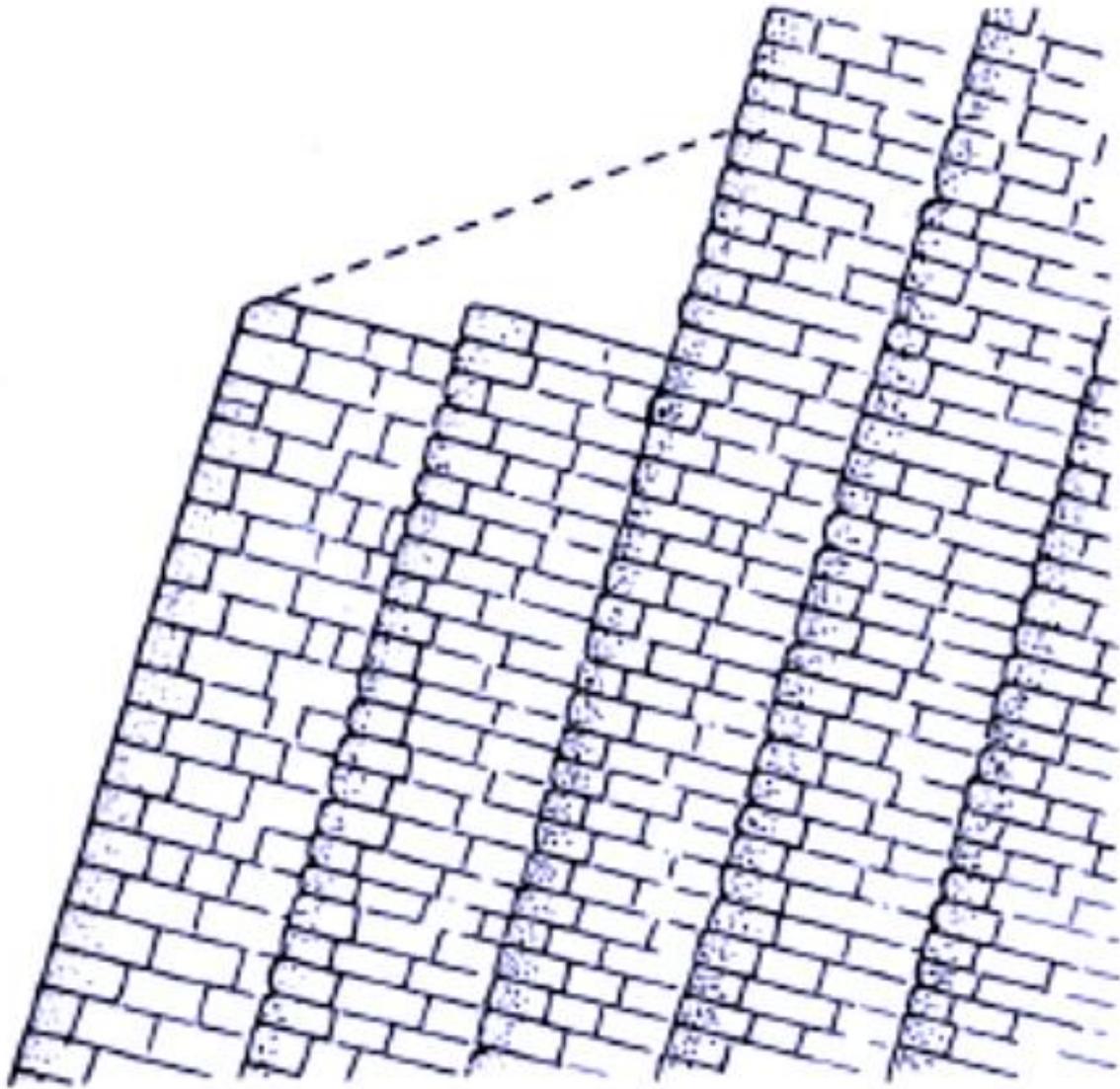


Figure 3. 12: Schematic of internal structure of Third Dynasty pyramids, after Lehner 1999, 218.

Other, less technical reasons for the development of accretion walls might lie in features somewhat more unique to Egyptian culture. First, urban areas in Egypt were often somewhat circumscribed environments, constrained by both the local topography, the flood patterns of the Nile, and the existing built environment.¹⁰⁶ Even in desert cemeteries, where there was typically far more area to build, care was taken to avoid unnecessarily disturbing earlier tombs or burials.

¹⁰⁶ Moeller 2016, 44-57 details the environmental constraints upon Egyptian settlement during the periods discussed within this dissertation.

In places where space was at a premium, builders often chose to restore and refurbish older constructions rather than build wholly new enclosure walls. This is especially true at major settlement sites in the Nile Valley and Delta, which were frequently occupied for thousands of years over the course of the Pharaonic period and often developed complex internal layouts.¹⁰⁷ In such cases, the construction of new enclosure walls might (and at times did) drastically alter the existing urban space. There was also an economic incentive, since renovating or adding to an existing wall was significantly less time consuming and less costly than dismantling a wall and building an entirely new construction.

Another subtle contributing factor may have been the Egyptian reverence for their own often mythologized past. The Egyptian worldview not only idealized the past, but tended to conceive of it as normative.¹⁰⁸ King-lists often included the spectacularly long reigns of deities at the dawn of time, conceptualized as rulers who civilized the known world.¹⁰⁹ Texts were sometimes backdated for additional legitimacy, and royal decrees regularly boasted of restoring the magnificence of earlier monuments even as each pharaoh claimed to surpass all his predecessors with his own monumental construction projects.¹¹⁰ It is plausible, though all but impossible to prove, that this generalized conception of an idealized past helped to foster a climate where older walls were more likely to be renovated and expanded rather than replaced. This is not to say that the Egyptians ever lacked technical ingenuity, or that Egyptian culture,

¹⁰⁷ Moeller 2016, 3. For a general view of the development of Elephantine, a particularly well known “organic” settlement, see Moeller 2016, 305-317.

¹⁰⁸ Tait 2003, 12-13, Kemp 2007, 61-62.

¹⁰⁹ Kemp 2007, 65.

¹¹⁰ For one such text that was deliberately backdated and composed in an archaic style that long confused scholars as to its actual, 25th Dynasty date, see the Shabaka Stone. Lichtheim 1973, 51-57, Lichtheim 1980, 4-5; Junge 1973, 195-204.

craftsmanship, art, or literature ever stagnated.¹¹¹ Certainly, it is extremely doubtful that the builders of such accretion walls would have been guided by thought of Egypt's broader past when they were deciding to add additional phases to a large enclosure wall; indeed, practical concerns or the changing symbolic landscape of an urban area frequently led to the construction of new enclosures or the razing of old ones. Nonetheless, this relatively unique cultural emphasis on the importance of not merely the past but specifically the refurbishing of earlier monuments could perhaps have contributed slightly to the Egyptian tendency to build large series of accretion walls rather than simply razing and replacing earlier walls.¹¹² At the least, in addition to the host of technical and environmental factors that would have inspired the use of walls built in accretion layers, there are numerous cultural signifiers within Egyptian life that one can point to that would also encourage such a practice.

¹¹¹ The richness of Egyptian art history attests to this dynamism: Robins 1997. And indeed, from a scholastic point of view, as Kemp notes, "The whole modern scholarly apparatus of art history in Egyptology is based upon the premise that style did change from period to period." Kemp 2007, 68.

¹¹² Khaemwaset, most famously, investigated numerous monuments, leaving inscriptions on numerous Old Kingdom monuments and drawing architectural inspiration from their features even as he exploited them for limestone for his own constructions: Gomaà 1973; Takamiya, Kashiwagi, and Yoshimura 2011, 412-421. Many of the pharaohs that we now consider among the most prolific builders in Egyptian history boast of restoring or adding to existing temples in addition to constructing new ones—nearly every pharaoh from the 18th and 19th Dynasties attempted minor renovations at Karnak and Luxor, for example. Many of these kings ruled during later periods of Egyptian history, but there are hints that elements of archaism were present even during the Old Kingdom. Kemp 2007, 101-110 and in particular 142-158 emphasizes how certain elements of Djoser's funerary complex rendered idealized wooden and reed shrines in stone, recalling hieroglyphs depicting what scholars assume to be the earliest forms of Egyptian temples.

CHAPTER 4: THE ENCLOSURE WALLS OF TELL EDFU—A CASE STUDY

In previous chapters, the concept of monumental enclosure walling in ancient Egypt was introduced, the study corpus was defined and categorized, and due to its prominence in enclosure wall construction, the implications of using mudbrick as a building material have been briefly outlined: what has yet to be undertaken is a specific case study investigating both the technical details of enclosure wall construction and how such features related to the broader urban fabric. The site of Tell Edfu provides an especially interesting test case for examining the heretofore largely unexamined cultural practice of enclosure wall construction in greater detail. The symbolic and pragmatic impetuses for enclosure wall construction will be discussed in subsequent chapters, incorporating data from the wider range of sites considered in the appendix together with the archaeological data from Edfu, but this chapter will highlight how a variety of pragmatic imperatives, from security concerns to local topography, helped spur and guide enclosure wall construction at Edfu.

Less explicitly, a host of cultural practices and symbolic associations were also bound up in enclosure wall construction—these will be treated only in brief in this chapter, but it is crucial to note how enclosure walls defining the boundaries of communities or discrete entities within a settlement played a symbolic role in defending the civilized, ordered world of “*mꜥꜣt*” from threatening external forces of chaos, or “*isft*.”¹ This was one of the most integral elements of

¹ Important treatises on “*mꜥꜣt*” include Assman 1989, Brunner and Röllig 1988, and Lichtheim 1992. Smith 1994 summarizes and synthesizes a number of conclusions highlighted by these scholars. Barry Kemp also explicitly associates “*mꜥꜣt*” and the containment of unruly with the intellectual foundations of the Egyptian state, and highlights the importance of monumental architecture in articulating such a message: Kemp 2006, 92-110.

ancient Egyptian religious thought, and the maintenance or expansion of this order was one of the primary responsibilities of any political leader. Beyond analyzing the archaeological data, the conclusion to this chapter will note how the walling at Edfu should not be disassociated from this broader cultural milieu.

The archaeological data from Edfu is particularly valuable given the presence of numerous enclosure walls, and in most cases, well-preserved stratigraphy located directly adjacent to these constructions.² Over the course of field seasons in 2014, 2015, 2016, and 2017, remnants of at least twenty-seven different enclosure wall phases within the timeframe of this dissertation have been identified and analyzed at Tell Edfu. All of these twenty-seven construction phases can be linked to one of several distinct systems of enclosure walls within the broader settlement of Edfu on the basis of general location, parallel architectural features, construction techniques, ceramic material,³ and small finds retrieved from associated stratigraphy. Specifically, we can identify a series of wall segments from a settlement enclosure wall built during the late Old Kingdom and early First Intermediate Period (c. 2200 BCE or slightly later), a series of renovations completed during the early to mid 12th Dynasty (c. 1900-1850 BCE), and a more robust Middle Kingdom enclosure wall constructed during the mid 12th Dynasty (c. 1850 BCE). A sequence of enclosure walls have been identified surrounding the remnants of two buildings that were used during the reign of Djedkare Isesi (c. 2400-2350 BCE), and a final collection of enclosure walls spanning a number of periods have been identified to the

² See Table 4.1 for a summary detailing location, brick size, approximate date, and unique features of each enclosure wall discussed in this chapter.

³ For drawings of the pottery from these layers (organized by US number), see Appendix B.

west and south of the columned hall built during the late Middle Kingdom occupied through the early Second Intermediate Period (c. 1750-1600 BCE).⁴

Before addressing the archaeological material related to these walls directly, however, some discussion of their broader geographical and archaeological context is necessary. The site of Edfu is located roughly 100 km north of Aswan and 85 km south of Luxor. Edfu served as the capital of the second nome of Upper Egypt (**Figure 4.1**). The site has a rich history of occupation, with preserved stratigraphy from various periods ranging from as early as the Fifth Dynasty (though it is attested textually as early as the Third Dynasty) to as late as the Byzantine period.⁵ While the paleolandscape of Edfu and its environs is still a subject of ongoing inquiry, preliminary analyses derived from excavations have suggested that the tell site was founded upon bedrock that declined gently from north to south. The modern town of Edfu conceals the limits of the tell to the east of the preserved archaeological remains, but it is possible that Edfu's famed Ptolemaic temple once stood near a cliff face that helped to define its eastern border. Edfu itself may once have been a sandstone island.⁶ Remnants of enclosure walls constructed as early as the 6th Dynasty and as late as the Late/Greco-Roman Periods define much of the western and northern perimeter of the tell, while *sebbakh* digging and modern construction activities unfortunately removed almost the entirety of the southern reaches of the site beyond the Old

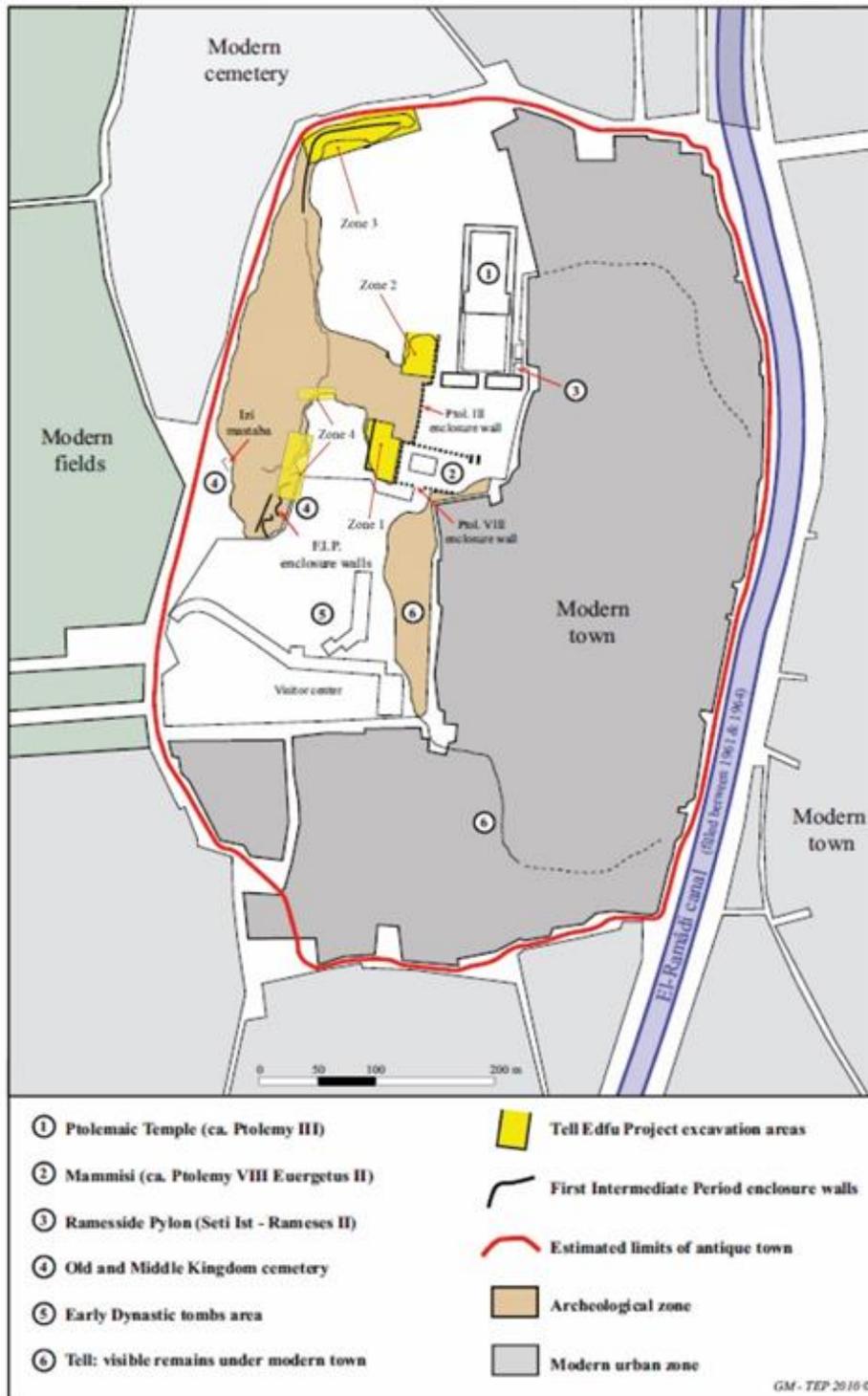
⁴ See Table 2 for a list of these five groups of enclosure walls and the specific wall numbers that are part of each walling project.

⁵ For the earliest textual references, see Zibelius-Chen 1978, 79-80. Some of the earliest publications of Edfu's archaeological material, including Henne 1924 and Guéraud 1929, detail findings from the Greco-Roman and Islamic periods.

⁶ This conclusion is based on satellite images and ground penetrating radar that was carried out during the groundwater lowering project at the temple. Personal communication from Thomas Nichols. See also the results of Judith Bunbury, Angus Graham, and Kristian Strutt which suggest that Edfu was an island: Bunbury et al. 2009, 5-7.

Kingdom cemetery. All told, the settlement's walls and the nearby cliffs likely enclosed an urban area of up to 30 hectares.⁷

⁷ Moeller 2010a, 83.



4. 1: Plan of Edfu showing the excavation areas, after Moeller and Marouard 2014.

Local farmers seeking soil rich with organic material for use as fertilizer (*sebbakh*) cut away large portions of the tell before Edfu was granted to the Institut Français d'Archéologie (IFAO) Orientale as an archaeological concession in 1914, and this continued even during the earlier years under the supervision of the IFAO mission. Indeed, Henne notes that colleagues from the antiquities service monitored the *sebbakhin* excavations for any finds during the 1921-1922 season of excavations.⁸ The sweeping cuts created by *sebbakh* digging stripped away much of the tell to the southwest and northwest of the temple, leaving deep, vertical exposures of the remaining stratigraphy. Though much archaeological data was destroyed as a result of these informal excavations, the damage caused by *sebbakhin* also revealed layers of stratigraphy that would have taken modern archaeologists decades to reach otherwise. In one instance, these exposures cut through several large enclosure walls, providing a rare chance to view such walls in section, including their foundations. Despite the portions of the tell removed by *sebbakhin*, Edfu attracted significant interest from early 20th century papyrologists and Egyptologists. Following excavations led successively by Henri Henne, Octave Guéraud, and Maurice Alliot in the 1920s and early 1930s, a Franco-Polish mission under Bernard Bruyère and Kazimierz Michalowski conducted work at Edfu over three seasons from 1937-1939.⁹ These campaigns focused primarily on excavating the uppermost layers of stratigraphy (i.e. Islamic, Coptic, and Greco-Roman remains) together with the mastabas and tombs of the local elite cemetery near the southwestern margins of the site. The outbreak of World War II led to a cessation of all activity at the site, and it was not until the 1970s that any archaeological work resumed, when surveys by Barry Kemp and Manfred Bietak highlighted sizable undisturbed settlement remains.¹⁰ Since

⁸ Henne 1924, 3.

⁹ Henne 1924, Henne 1925, Guéraud 1929, Alliot 1933, Alliot 1935, Bruyère et al 1937, Michalowski et al 1938, and Michalowski et al 1950.

¹⁰ Kemp 1977, 189-191; Bietak 1979, 110-114.

2001, the investigation of the Pharaonic settlement has been the primary focus of ongoing excavations led by Nadine Moeller, with Gregory Marouard as co-director since 2007.¹¹

In sum, archaeological work at Edfu shows that the site was an important regional center from the Old Kingdom through at least the late Roman period. Given this lengthy history of occupation, this study will only investigate a small fraction of the monumental construction activity at Edfu—and indeed, not even all of the enclosure walls known from the site, as many seem to post-date the New Kingdom. However, the ample material from the Old Kingdom through the Middle Kingdom allows for a greater understanding of the technical aspects and symbolic meaning of Egyptian enclosure walls within a more restricted space and timeframe.

THE ENCLOSURE WALLS AT TELL EDFU (OLD KINGDOM—MIDDLE KINGDOM)

Enclosure walls have been identified in all four major excavation areas at Tell Edfu, and their remains indicate that the total ensemble of monumental enclosure walling at the site was far more complex than a single perimeter ring. For the purposes of clarity, these walls will be discussed individually, zone by zone, before summarizing and elaborating upon this material at the close of this chapter. Each phase of contiguous walling has been assigned a number in the Tell Edfu database (i.e. Enclosure Wall Tell Edfu 1, hereafter abbreviated EWTE). Not all of these walls served as independent constructions; many were large scale renovations or additions to previous enclosure walls. The width, preserved height, foundation details, brick pattern, matrix, color, size, mortar details, and the presence or absence of any larger architectural features like buttresses or a glacis associated with the wall will be identified. Before delving into these

¹¹ Moeller 2010a ; Moeller 2005 ; Moeller and Marouard 2015; Moeller and Marouard 2013 ; Moeller 2012a ; Moeller 2011; Moeller 2009 ; Moeller 2008 ; Moeller, Marouard, and Ayers 2011; Moeller 2013

features, however, it is necessary to present a general overview of these excavation areas (**Figure 4.1**).

Zone 1 has been the site of extensive excavation since 2005, and is located near the top of the tell, to the west of the Ptolemaic Mammisi. Excavations in this area revealed a series of installations of administrative character, the latest of which dates to the 17th Dynasty. Massive circular silos, some with an external diameter as large as 6.86 m, characterized this phase of occupation.¹² Prior to the construction of the silo court, the most prominent architectural features in this excavation area were a pair of columned halls oriented on a north-south axis which belong to a large administrative complex. Sealings, small finds, and ceramics date the occupation of the Northern Columned Hall and Southern Columned Hall to the Late Middle Kingdom and early Second Intermediate Period (c. 1750-1600 BCE). Numerous seal impressions attest to the receipt and opening of various commodities in boxes, baskets, and ceramic storage containers. Other small finds like ceramic weights, a grain measuring pot, and a deposit of intensely burned grain around a column base attest to various endeavors carried out in this building in addition to administrative activities.¹³ Small fragments of amethyst and rock crystal discovered on the floor level in the northern columned hall suggest that gemstones were also processed within the confines of the building, another activity that likely would have been controlled by a degree of administrative oversight. After the administrative building complex had been abandoned and partially dismantled, several phases of large grain silos dating to the Second Intermediate Period were completed atop the earlier remains. This silo courtyard was bounded on the southern side by an older enclosure wall that was perhaps refurbished as the southern limit of this courtyard. Multiple phases of dismantled enclosure walls helped to influence the western limits of the administrative building,

¹² Moeller 2010a, 89-100.

¹³ Moeller 2010a., 100-108.

though no large standing enclosure walls have been excavated surrounding this feature. It is unclear when the earliest foundations in this part of the tell were established, but fill layers with First Intermediate Period material had been reached underneath the later columned hall complex in this zone, and sealings from the late First Intermediate Period would seem to attest to the administrative character of this part of the tell even at this early date. However, from the exposed *sebbakh* cuts it is evident that there is also older stratigraphy present and the earliest levels have only been reached in conjunction with sondages and test trenches dug to ascertain the foundation level of these earlier enclosure walls.

North of Zone 1 and west of the Ptolemaic temple pronaos, Zone 2 refers to the northeastern portion of preserved remains on the tell, just west of the Ptolemaic temple enclosure wall. Intact layers as early as the 5th Dynasty have been revealed in this part of the tell, and are the most extensive exposure of *in situ* Old Kingdom strata excavated at the site thus far. In addition to late Old Kingdom/First Intermediate Period silos, the earlier phases have revealed two fairly substantial buildings that Nadine Moeller suggests may be the first archaeologically attested examples of a *ḥwt*: a kind of royal administrative center in the provinces.¹⁴ The more southerly example seems to have architecture typical for buildings of an official character, while the more northerly building has 2.5 m thick sloped walls for which it is difficult to find many clear parallels. Excavation is ongoing in this part of the site, but numerous sealings dating to the reign of Djedkare Isesi suggest that activities relating to expeditions in search of precious metals occurred in these buildings. Numerous titles mention the *smntjw*, often translated as “prospectors”, and large amounts of copper slag were excavated near these structures.¹⁵ Multiple

¹⁴ Nadine Moeller kindly allowed me to look at a draft of a chapter in a forthcoming volume detailing the results of these excavations and making this argument regarding the identification of these two structures.

¹⁵ Yoyotte 1975; Seyfried 1976.

enclosure walls have been identified in this portion of the site. Some lie on a north-south axis to the west of the Ptolemaic temple, while other enclosure walls that can likely be linked to these examples stretch east to west, atop the northern limits of an earlier perimeter wall of the northern building. The enclosures were added after the construction of these buildings, whose foundations rest on the natural sand. Excavations in this area sought to understand construction techniques employed to build such walls, their date of foundation, and the nature of the area which they enclosed.

Zone 3 is located along the northern perimeter of the Edfu archaeological area. Defined in large part by a series of enclosure wall phases and their associated stratigraphy, this area was identified as an excavation priority because it was the only location in the northern part of the site where strata leaning against the town's perimeter walls could be excavated. Work conducted over the 2012 and 2014 seasons confirmed that ceramic material as late as the 12th Dynasty rested against the initial phases of the enclosure wall.¹⁶ In addition to the ceramic assemblage, architectural features also suggested a Middle Kingdom date for the higher levels of stratigraphy—in one instance, a serpentine wall cuts across a silo being used as a dump for ash and other occupational debris. The ceramic assemblage confirms that the earliest material, just above the natural sand, dates to the late 6th Dynasty. Generally speaking, the character of the installations just within the enclosure wall seems to have been relatively modest. Cooking or some sort of manufacturing process seems to have been present in many of the rooms, as indicated by plentiful ash deposits and the blackened interior face of multiple parts of the earliest settlement enclosure wall. Though relatively large, the round silos seem to cut into the enclosure wall itself, and it is unknown if they were linked with any larger administrative entity; however,

¹⁶ Le Provost 2014.

a concentration of discarded clay sealings showing decorative motifs of the early 12th Dynasty were found in a small room situated against the interior face to the first enclosure wall phase, suggesting that such an association was likely.¹⁷ There are at least three phases of square and round silos present in this part of the tell. The bodies of three individuals and at least two dogs were deposited inside the fill of one such installation found as the enclosure wall curves to the southwest.¹⁸ Recent excavations in this area sought to discover the approximate date of foundation of the massive perimeter walls in Zone 3 and to better understand their relationship to the expansion of the original Old Kingdom settlement.

Zone 4 has been assigned to the region on the southwestern side of the tell centered around the Old Kingdom cemetery, but also including the sections of multiple monumental walls that were exposed by a massive *sebbakhin* cut to the south and west of Zone 1. The Old Kingdom cemetery was the site of extensive excavations by the IFAO and Franco-Polish missions in the 1930s.¹⁹ In addition to the mastabas of local magnates like Isi, or later in the 6th Dynasty, Qar, excavations in this area of the site revealed that the cemetery itself was partitioned by a series of enclosure walls during the Late Old Kingdom and First Intermediate Period. Alliot's earlier excavations together with Bruyère's clearance of much of the *sebbakhin* rubble from the cemetery area allowed the latter to produce the first plan showing the track of the earliest town enclosure walls through the mastaba field.²⁰ Excavation efforts in recent seasons have concentrated on identifying the approximate chronology of these enclosure wall phases, understanding why they cut through the older local elite cemetery rather than simply enclosing it,

¹⁷ Moeller and Marouard 2013, 119-120.

¹⁸ Moeller and Marouard 2013, 121.

¹⁹ Bruyère et al 1937, 2-17; Michalowski et al 1938, 175-198; Michalowski et al. 1950, 1-60.

²⁰ Bruyère et al 1937, 10-13 and Plan 2.

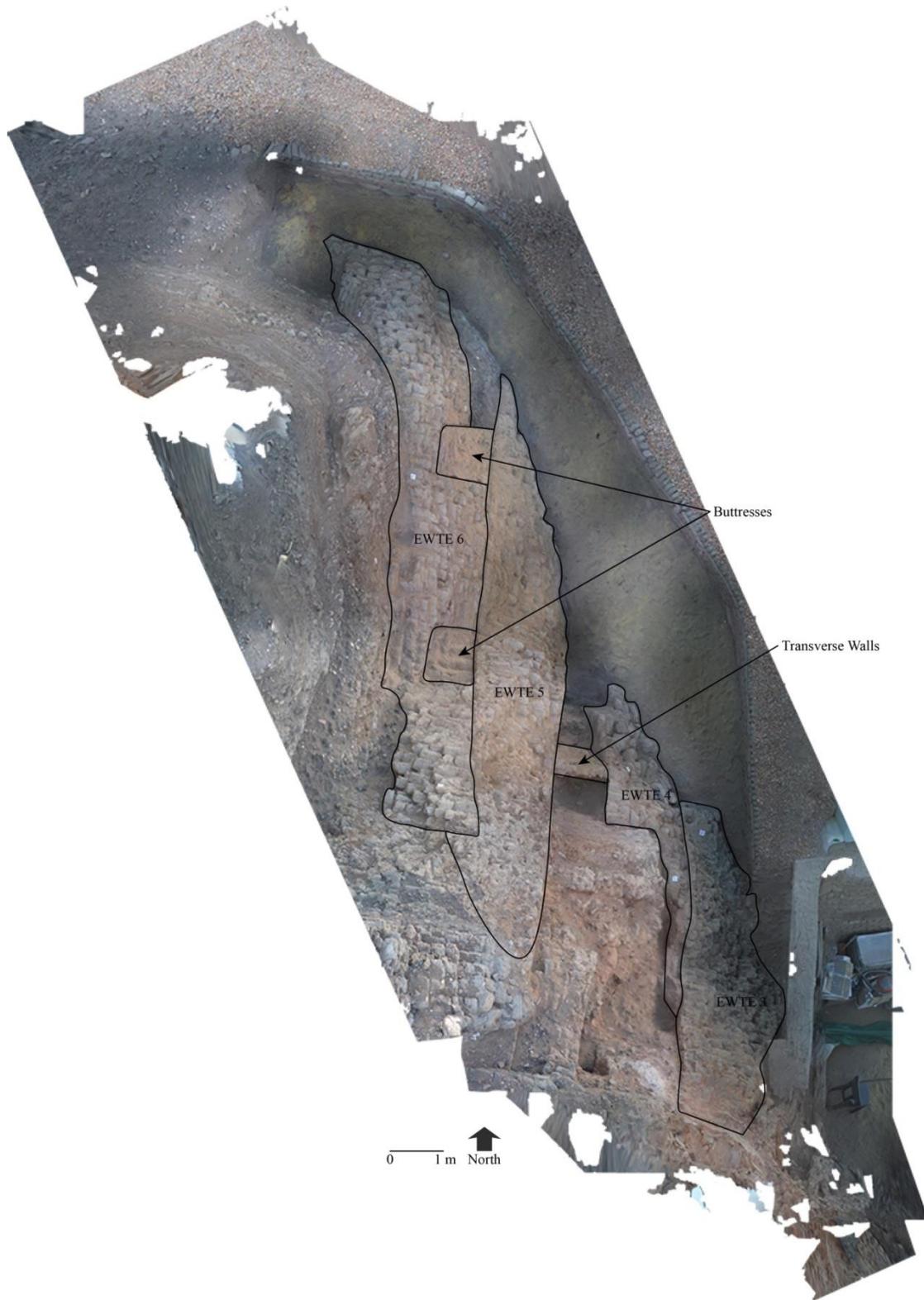
and to elucidate various technical aspects of their construction that could only be seen in section, and are thus only visible in this part of the tell.

When treating the individual walls in the sections below, I will begin by addressing the earliest walls known from Tell Edfu in Zone 2. These walls seem to be a sequence of enclosure walls built during the late 5th/early 6th Dynasty (c. 2400 BCE) surrounding official, administrative buildings in this part of the tell. Following this, I will discuss the settlement's perimeter walls discovered in Zone 3 and Zone 4. These walls reflect sequences of enclosure wall construction during the late Old Kingdom (c. 2200 BCE) and Middle Kingdom (c.1900-1850 BCE). I will conclude by noting the findings from Zone 1, where the absence of related stratigraphy and more fragmentary preserved remains of the walls themselves make it more challenging to confidently assign dates or functions to these walls. It is less clear how these walls relate (if at all) to enclosure walls elsewhere on the tell, though it seems unlikely that they were defining the edges of the settlement. After describing the physical features of Edfu's enclosure walls, this chapter will finish by synthesizing this information to better understand when larger systems of enclosure walls were being constructed at Tell Edfu, the impetuses for their construction, and how the local inhabitants of Edfu went about building them.

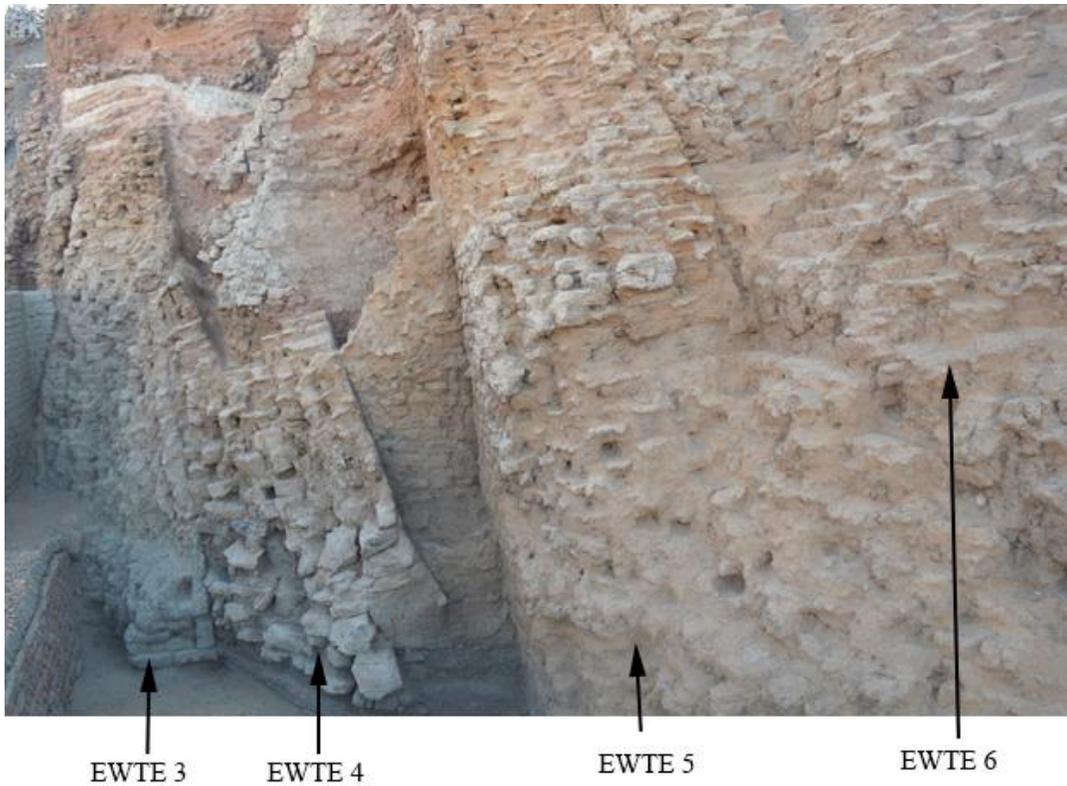
ZONE 2

In total, seven enclosure walls have been revealed during excavations in the 2012, 2014, 2015, 2016, and 2017 seasons. Pottery finds from the earliest use layers leaning against the foundations of these walls suggest that the enclosure walls in this zone are the earliest monumental walls that have been found at Tell Edfu thus far, likely founded in the early 6th Dynasty (c. 2350 BCE). Four enclosure walls have been identified running north-south on the western edge of Zone 2. Three further enclosure walls with an east-west orientation were

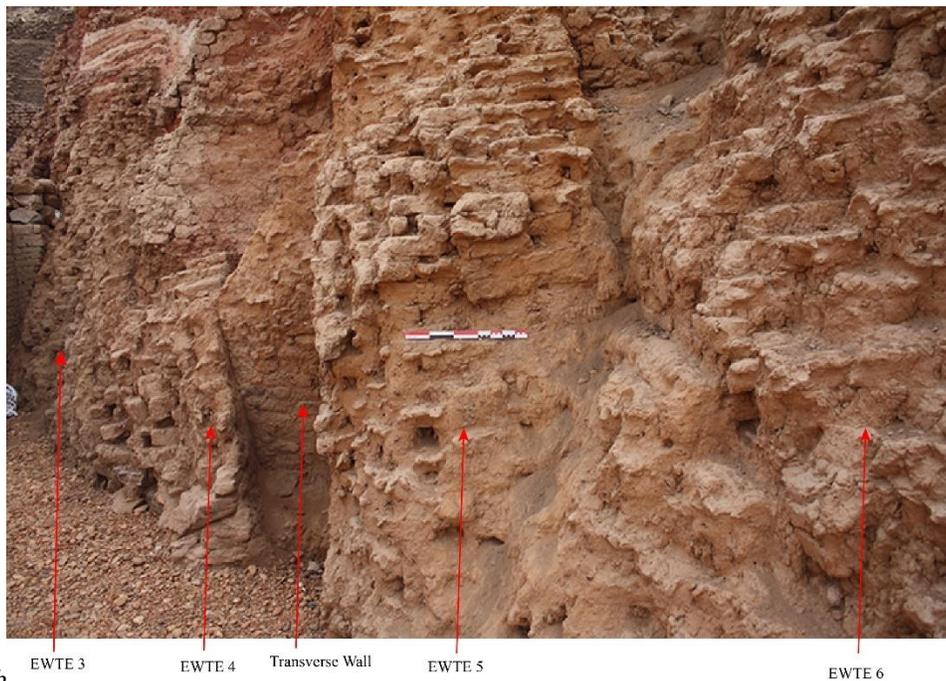
revealed through excavations further to the northeast and most probably originally turned at a right angle which is now lost in the area where the Tell Edfu blockyard is now situated. These walls appear to enclose the abandoned remains of a building or series of buildings in this part of the tell. Strong architectural parallels link three consecutive walls at the western edge of this excavation area (**Figures 4.2 and 4.3**) with the sequence of three walls that track east-west across the Old Kingdom settlement area. However, given that the segments of the wall that would have joined these locations have been lost due to *sebbakh* digging and erosion, they will initially be treated separately below.



4. 2: Orthophoto showing a plan view of the four phases of enclosure walls from Zone 2.



3a

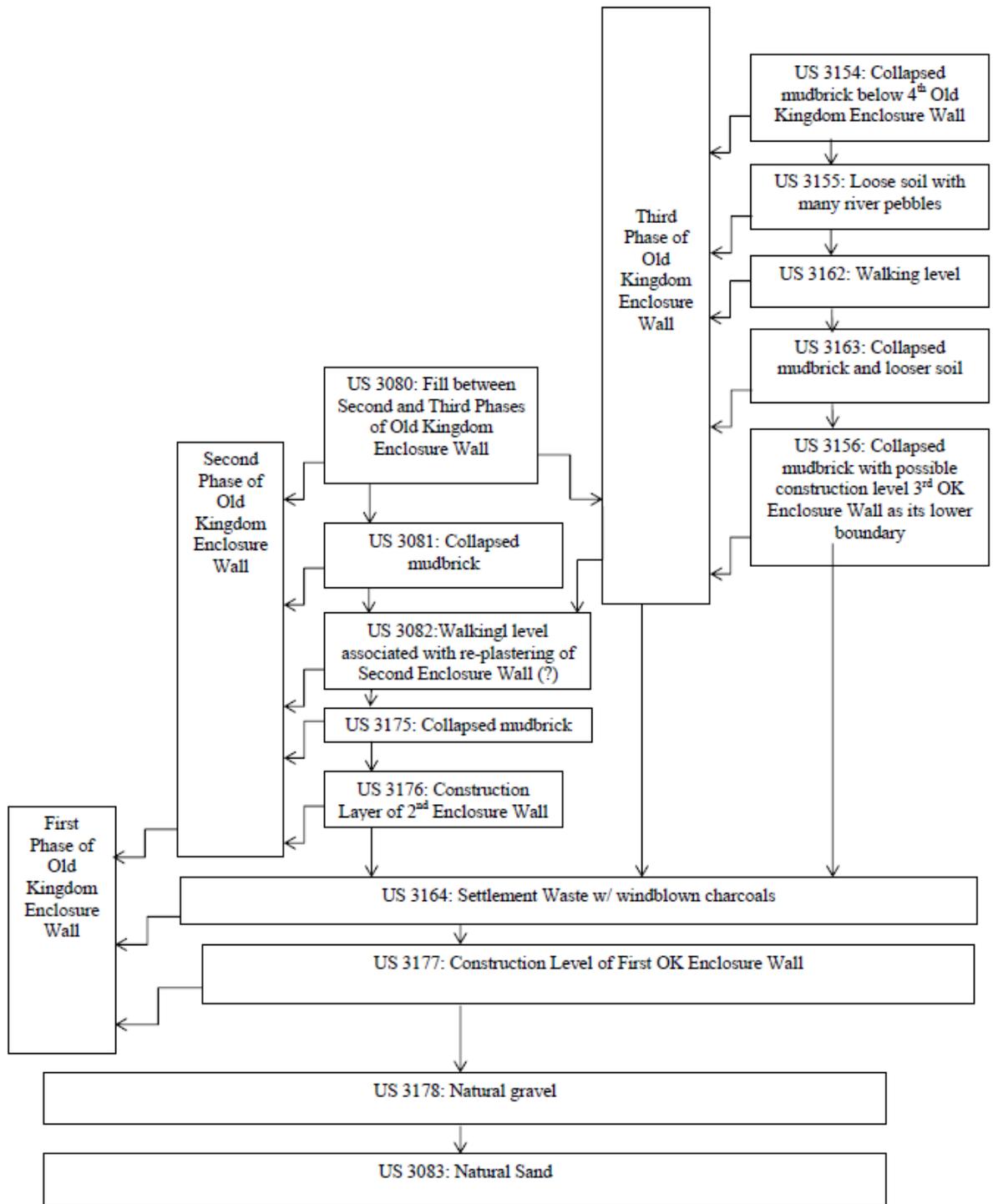


3b

4. 3: 4.3a—Zone 2 walls shown in section: from left to right: EWTE 3, EWTE 4, transverse connecting wall, EWTE 5, EWTE 6, looking south. 4.3b—similar view looking south, this time including a scale for comparative reference.

The earliest of the four north-south walls, EWTE 3, was founded directly above an earlier perimeter wall surrounding the northern administrative building, and followed the same path as this earlier wall. This earlier wall stood above very fine natural sand (US 3083) and a layer of natural gravel and pebbles (US 3178) (**Figure 4.4**). A construction level associated with this earliest enclosure wall has been identified in the section (US 3177). A thin layer of settlement waste and windblown charcoals (US 3164) accumulated against the exterior face of this wall shortly after its construction. Sherds retrieved from this layer date this wall to the Old Kingdom, likely the late 5th or early 6th Dynasty. The earlier perimeter wall of the northern building was constructed using small (28 x 13 x 7 cm) whitish-grey bricks very distinct from most other enclosure walls at Tell Edfu (**Figures 4.2 and 4.3**). The upper portions of this wall were burned in part of a larger fire or series of fires; indeed, burnt soil and bricks are visible in numerous profiles in this part of the tell. As with most enclosure walls at Tell Edfu, the face of the wall was built using alternating courses of headers and stretchers with a foundation course using exclusively headers, but the bricks within the internal parts of the wall were often laid in a more haphazard pattern. The exterior face of the wall inclines slightly, giving the wall a sloped exterior face typical for large walls from the Old Kingdom and First Intermediate Period.²¹ At its widest preserved point, this wall had a width of roughly 1.5-1.6 m.

²¹ Moeller in Kemp et al. 2004, 265.



4. 4: Harris matrix showing the stratigraphic layers and walls in the western part of Zone 2.

The second enclosure wall phase in this area, EWTE 4, leans against EWTE 3 (**Figures 4.2 and 4.3**). This second phase appears to have been a fairly modest renovation to strengthen the lower part of the existing enclosure wall—its highest preserved courses are just over half as high as those of the preceding phase, though the form of this wall may to a certain degree be an accident of preservation. This wall also possessed decorative buttresses, of which only a single example is partially preserved. Including its projecting buttress, EWTE 4 itself measures only 1.04 m wide at its widest preserved extent. Regardless, the foundations of EWTE 4 are fairly unique among enclosure walls at Edfu: it was built upon a base of large, unworked sandstone slabs measuring between 20-30 cm in length and 10-15 cm high and mud mortar (**Figures 4.2 and 4.3**). This presumably allowed for increased stability and would have aided with drainage, as any water that collected at the base of the wall would dissipate more quickly through the sandstones rather than pool and gradually erode the wall's more vulnerable foundations.²² Upon these rough stones, the wall itself (and its associated buttress) were constructed using a pattern of alternating headers and stretchers. Despite the efficacy of this feature, this foundation technique was not ever replicated for later walls at Edfu, leaving open an outside possibility that the unusual foundations of EWTE 4 might simply have been fabricated out of whatever materials were easily at hand, and not serving a larger structural purpose. A similar stonework foundation has only been found at one other monument at the site: an Old Kingdom mastaba excavated by Alliot located south of the Ptolemaic Temple and Mammisi, some way to the east of the mastabas of Qar and Isi.²³

²² This appears to have been a concern for foundations of monumental structures at various sites outside of Egypt. For example, mudbrick fortifications were founded on stone foundations at Crete during the first millennium BCE. In most cases, this mudbrick superstructure has weathered away, and only the stone foundations remain. Coutinas 2013, 96.

²³ Alliot 1933, 29-30, Pl. XXVI.

In terms of the broader stratigraphic context for the wall, the stone foundations of EWTE 4 are just above occupational debris from US 3164, and a construction level associated with this second enclosure wall phase was identified just above this layer (US 3176). A layer of collapsed mudbrick overlies this construction level (**Figure 4.4**). Additionally, the *sebbakhin* appear to have cut through EWTE 4 at precisely the location where a single preserved buttress appears. This buttress is quite small, but it is difficult to precisely determine its measurements given the extant state of preservation. The lower stones of the buttress are bonded to the foundations of the wall itself, suggesting they were likely envisioned and planned at the start of construction. The brickwork from the upper portion of the buttress uses alternating headers and stretchers. Unlike many of the enclosure walls at Tell Edfu, there is evidence that the exterior of EWTE 4 was protected with a thick layer of fine mud plaster. The bricks in EWTE 4 are somewhat larger than EWTE 3, some 32-33 x 15-16 x 8 cm. The bricks have generally been reddened by exposure to heat at some undefined point, but the unburned bricks of EWTE 4 are a much browner color than the whitish grey bricks of the perimeter wall of the northern building below EWTE 3. Some effort may have been made to refurbish EWTE 4, given the presence of a second walking level (US 3082) above the stratum of mudbrick demolition denoted by US 3175. This level may perhaps be associated with the re-plastering of EWTE 4, for mud, or “muna”, plaster was found covering not only the wall, but also at the point where the walking level runs into the wall itself. A stratum of demolition (US 3081) overlies this walking level, and above this lies the fill between the second and third phases of enclosure walls in this part of the tell. The following wall phase is connected to EWTE 4 by a small transverse wall 90 cm long and one brick (28-32 cm) wide (**Figure 4.5**). By analogy with other examples known from Elephantine, it is highly

likely that other transverse walls connected EWTE 4 and the subsequent enclosure wall phase, EWTE 5, at irregular intervals, but only one example has been preserved thus far.²⁴

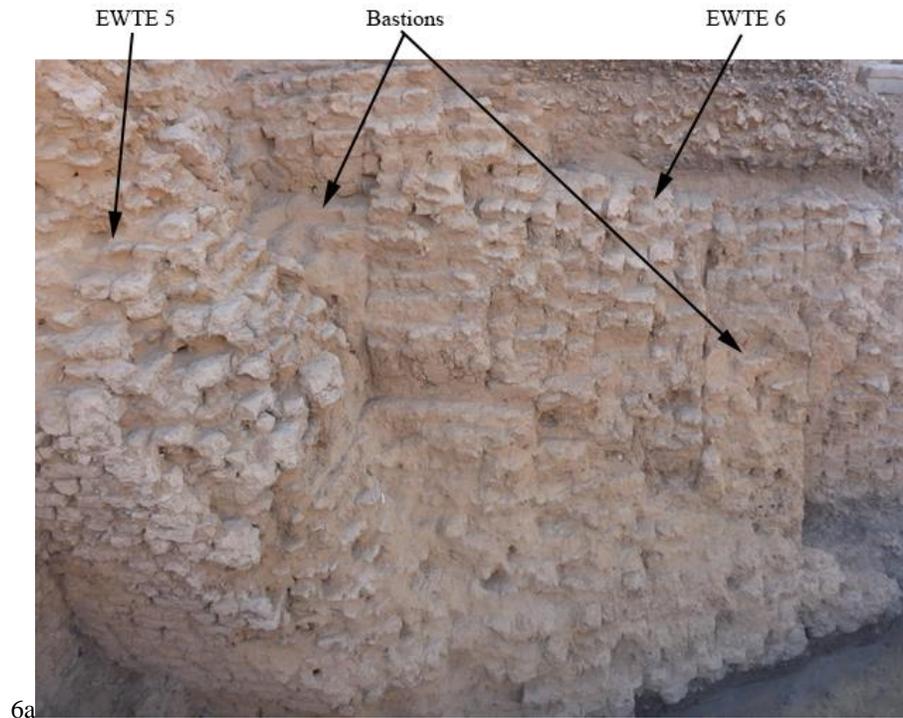


4. 5: Transverse wall between EWTE 4 and EWTE 5, seen from above, looking west.

The foundations of the third enclosure wall phase, EWTE 5, extended deeper than that of the second phase, nearly to the construction level of the first enclosure wall phase (**Figure 4.3**). The wall appears to have been founded upon a course of headers. EWTE 5 appears more robust than its predecessors, with a width of 2.05 meters at its greatest preserved width (**Figures 4.2 and 4.3**) The three phases together would have had a combined width approaching 7 m near their base. Like EWTE 4, EWTE 5 also had buttresses; unlike EWTE 4, these buttresses were clearly

²⁴ For parallels, see examples from Elephantine in Ziermann 1993, Abb. 16.

plastered, and more than one is preserved along the exterior face of the enclosure wall. The buttresses are spaced some 2.13 meters apart, and likely were found at regular intervals along the exterior of the wall (**Figures 4.6a, 4.6b, and 4.7**). They do not appear to have been bonded to the wall itself, suggesting that they were perhaps a later addition, shortly after the completion of the wall itself. The bricks are identical to those used to construct EWTE 5, and the two preserved buttresses measure approximately 1.17 x 1.11 m and 1.17 x 1.09 m respectively. They are too small to have served a military purpose, but perhaps served to help support the exterior face of the wall or held a particular symbolic or aesthetic value. Like the wall, the buttresses seem to have been built using a brick pattern of alternating headers and stretchers—though headers predominate among the bricks that form the internal core of the wall. Nearly all of the bricks of EWTE 5 and its associated buttresses were exposed to a degree of heat at some point during their use history, save for the lowest courses on the wall's interior, eastern side. The burned, reddish brown bricks along the exterior appear to have been re-plastered at some point, since parts of the “muna” plaster covering the wall's buttresses and coating the bricks of the wall's exterior face remain brown and was not burnt to a creamy whitish color as in other places on the tell where walls were burned. The bricks themselves were relatively small, some 27-28 x 13-14 x 7 cm in size, and the brick matrix consisted primarily of a mixture of mud, sand, straw, with infrequent river pebble inclusions.



6a



6b

4. 6: 6a—view from oblique angle looking west at the two preserved bastions along EWTE 5.
4.6b—view looking west at the more northerly bastion, with scale included for reference.



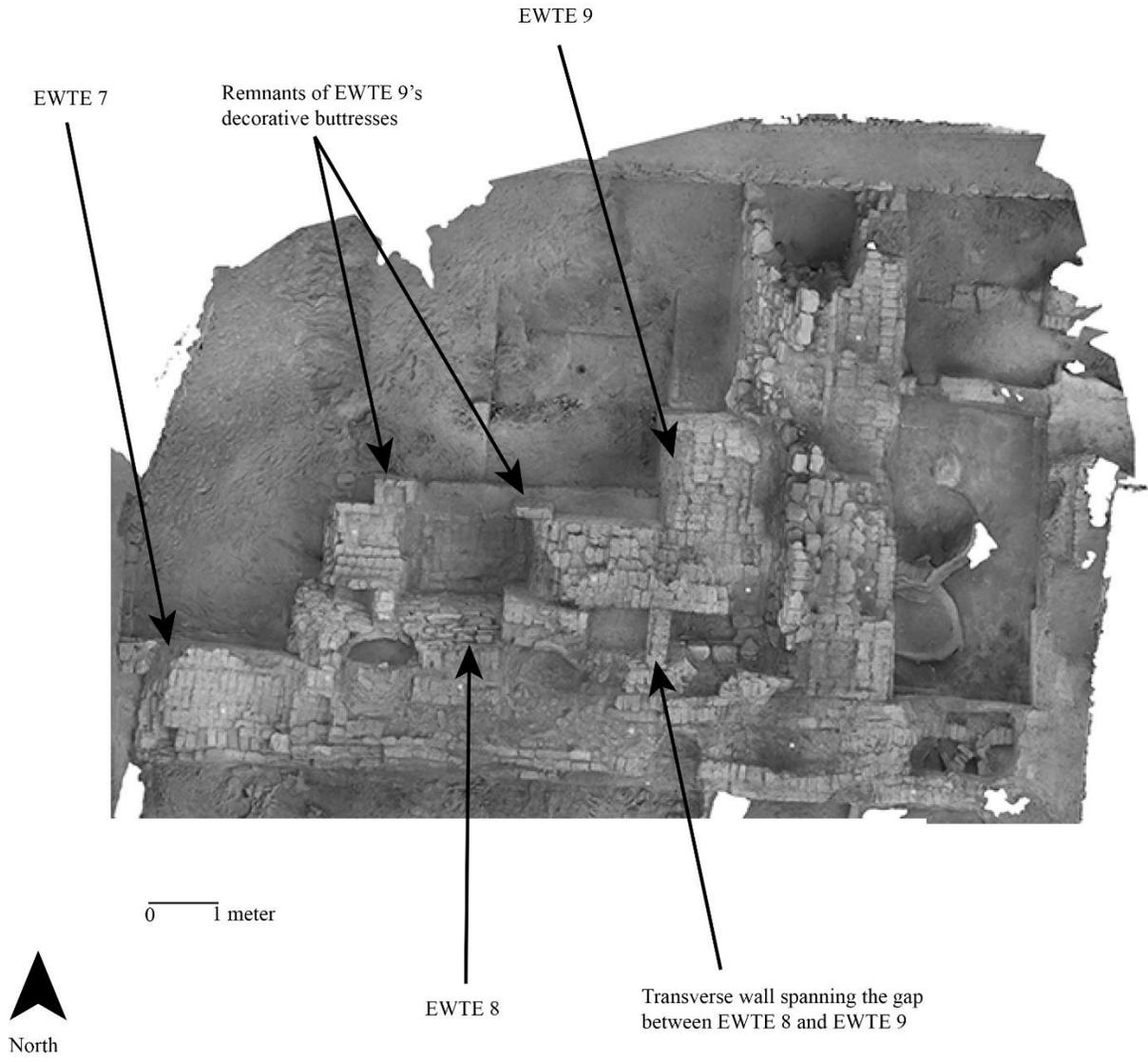
4. 7: View looking west at the stratigraphy adjacent to buttress of EWTE 5 and below EWTE 6.

A number of strata lean against the exterior face of EWTE 5 and help to date the installation (**Figures 4.4 and 4.7**). A layer of demolition and collapsed mudbrick (US 3156) rested above the possible construction level of EWTE 5. A layer of looser soil but still containing collapsed mudbricks (US 3163) overlies US 3156. Above this, a walking level (US 3162) possibly associated with the re-plastering of the third enclosure wall phase, or at least the re-plastering of one of the buttresses along its exterior face, separates a layer of looser soil with many river pebbles and charcoal inclusions (US 3155). The muna plaster from the buttress bleeds onto the walking level in places where the two meet. The stratum above this occupational debris and directly below the foundation of the fourth enclosure wall phase consists primarily of settlement waste, collapsed bricks and demolition (US 3154). Diagnostic ceramic material (bread mold rims and Meidum bowl rims) excavated in these strata seems to date from the late Old Kingdom, likely the 6th Dynasty.

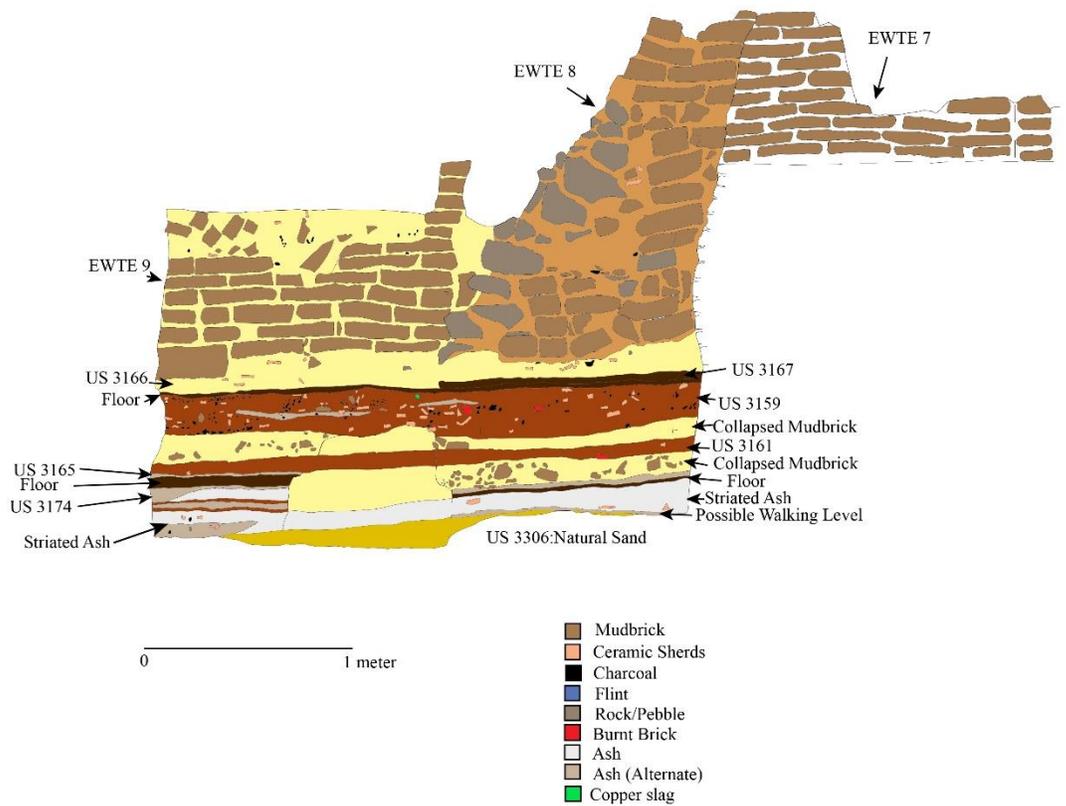
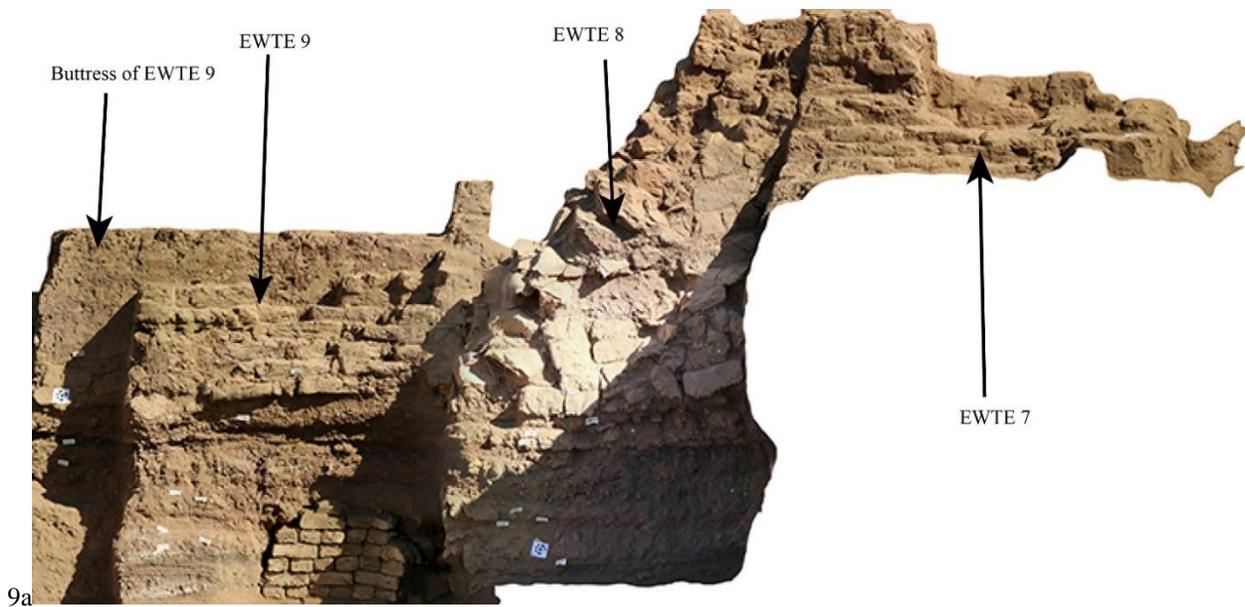
The fourth and final phase of the north-south enclosure wall system in this area (EWTE 6) does not have a correlate from among the east-west walls further to the northeast in Zone 2. Furthermore, it is unclear if this wall continues straight along a north-south axis towards Zone 1, or bends to the east or west. The bricks along the internal and external faces of this wall were laid in a pattern of alternating headers and stretchers, and bricks set on their edge were used in places along the foundations of EWTE 6's exterior face. Unlike the third phase of the enclosure wall, EWTE 6 was built directly against the buttresses of the preceding phase, and the accumulated settlement waste between the two walls appears to have been simply left in place as fill (**Figures 4.2 and 4.3**). On its exterior side, there appears to have been a major street. The bricks were relatively small, 27 x 13 x 6-7 cm, and darker grey in color with occasional river pebble inclusions. The almost perfectly horizontal striated occupational debris and ashy lenses

leaning against the sloping exterior face of EWTE 6 suggest that this location was left open as a circulation area for at least a period of time. Bricks further to the east in the upper preserved portions of the wall may have been burned in the same incident that affected this portion of the tell. It is roughly 1 m thick. A mass of brickwork above and just to the west of EWTE 6 might perhaps represent a wall constructed during the First Intermediate Period, but further investigation is necessary to confirm this supposition.

Three substantial walls with strong parallels to the first three phases of the enclosure walls discussed above have been identified inside the modern wall guarding the access to Zone 2 (**Figures 4.8, 4.9a, and 4.9b**).

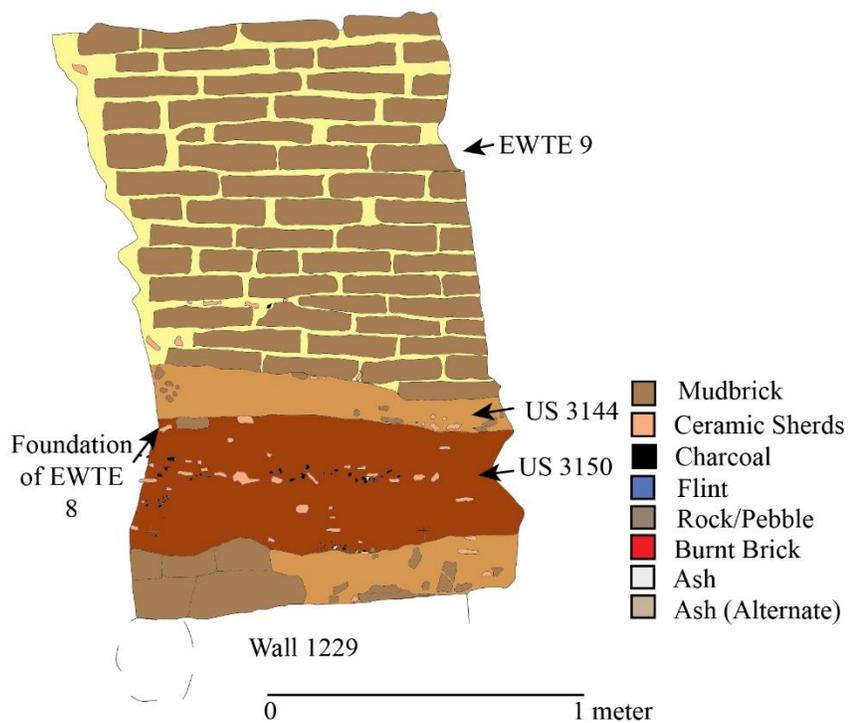
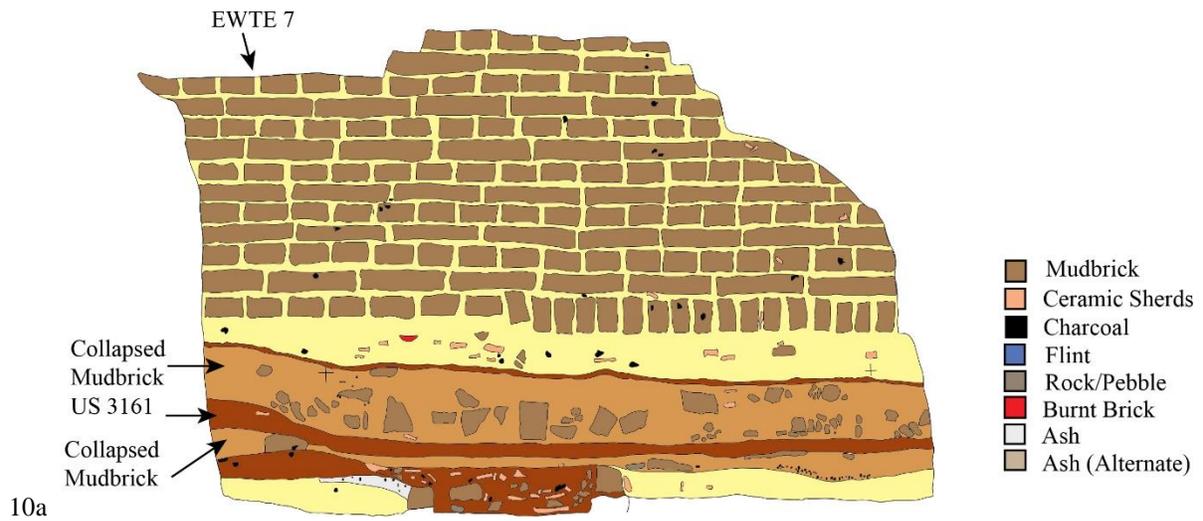


4. 8: Orthophoto showing plan view of EWTE 7, 8, and 9.



4. 9: 9a—view looking east at section of EWTE 7, EWTE 8, and EWTE 9. 4.9b—section of EWTE 7, EWTE 8, and EWTE 9.

It seems likely that somewhere within the *sebbakhin* cut, these three walls angle to the east across the northern third of Zone 2. During the First Intermediate Period, a series of conical silos cut through portions of these walls; in some cases, the builders hollowed out areas beyond the depth of the walls themselves. The walls have been linked to the phases to the western side of the modern wall primarily on the basis of architectural similarities and the comparable timeframe suggested by pottery from strata leaning against these walls. EWTE 7 thus has bricks nearly identical in size to EWTE 3, 27 x 14 x 6-7 cm in size, and its widest point is also close 1.6 m in breadth. The brick pattern of alternating headers and stretchers is similar, but in parts of the foundation of EWTE 7, bricks were set on edge (**Figure 4.10a**).



10b

4. 10: 4.10a—section drawing of stratigraphy underlying EWTE 7, looking south. 4.10b—stratigraphy underlying EWTE 9, looking south.

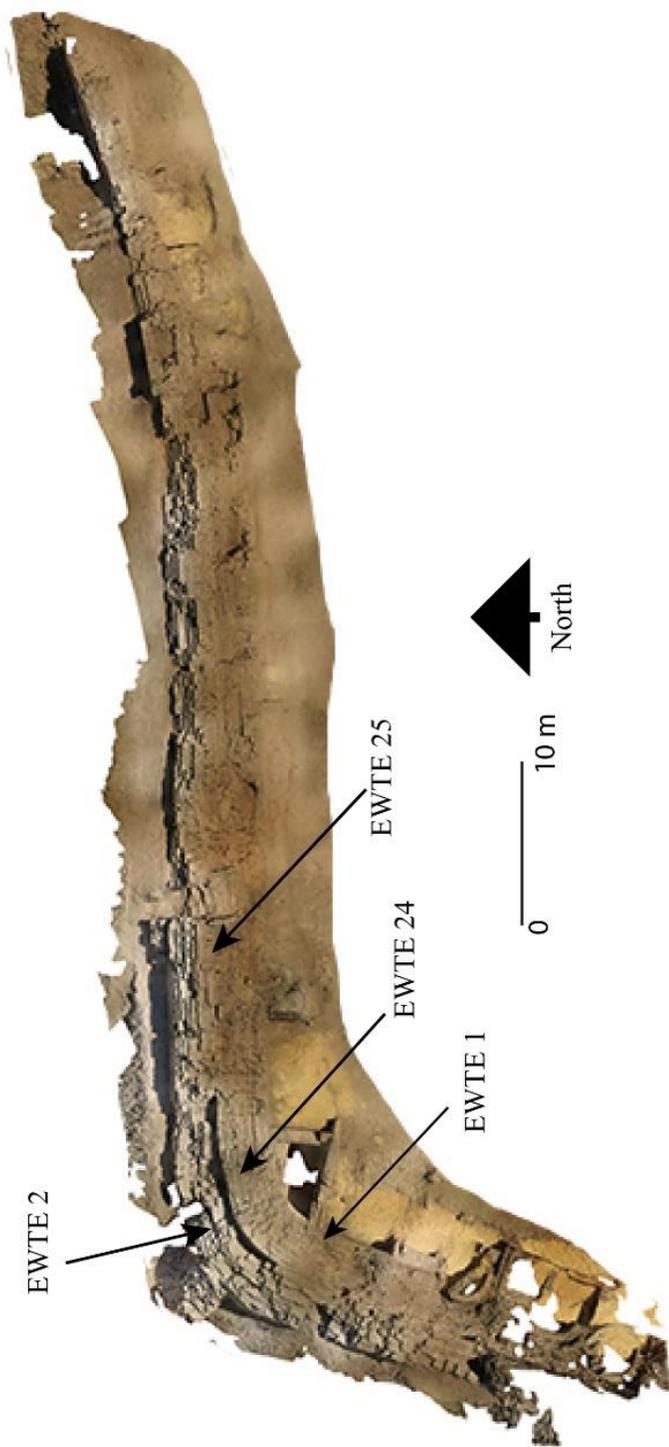
The bricks of EWTE 7 appear comparable to those of EWTE 3, but still are a lighter grey than subsequent phases of enclosure walls found in Zone 2. Whitish-grey clay deposits have been discovered roughly 1 meter below the natural sand in test trenches excavated in the southern portion of Zone 2, and it is tempting to suggest that these local deposits were the source of clay for bricks in the perimeter wall of the monumental northing building, but perhaps not the bricks of EWTE 3 and EWTE 7. EWTE 7 does not rest on the natural sand, and while it is plausible that changes in the local topography are responsible for this, it is still more likely that EWTE 7 was also built directly atop an even earlier enclosure wall. Midway through Zone 2, EWTE 7 turns northward at an abrupt right angle, though remnants of the wall also seem to continue along an east-west path as well.

EWTE 8 corresponds to EWTE 4, and the resemblance between these walls is particularly strong. First, EWTE 8 was constructed upon a foundation of large stones—just like EWTE 4 and unlike any other enclosure wall discovered at Tell Edfu thus far (**Figure 4.9a and 4.9b**). The stones were placed such that the exterior face of EWTE 8 was sloped, and it measured 1.22 m thick at its base. The bricks were somewhat larger than other examples from Edfu during this period, some 31 x 15 x 8 cm, according well with the examples known from EWTE 4. Finally, EWTE 8 also possesses a series of small buttresses built at regular intervals along the wall. Unlike the buttresses of EWTE 9 or EWTE 5, those of EWTE 8 were bonded to the wall itself. It is clear that these buttresses were completed as part of a singular conceptual design, rather than later additions. The stone foundations of the wall also served as a cladding for the often haphazard cluster of mudbricks that helped to form the inner face of the wall. It was constructed directly against the exterior face of EWTE 7, and similarly turns northward at a near right angle. Similarly, EWTE 9 resembles EWTE 5, though the brick sizes (29-30 x 14 x 8) are

slightly larger and unlike EWTE 5, they have not been burned. Portions of at least two buttresses with the familiar pattern of alternating headers and stretchers have also been identified, and the muna plaster associated with them seems very similar in color and texture to those of EWTE 5 (**Figure 4.8**). These buttresses appear to have been constructed after the completion of the walls. The lowest course of both the wall itself and its two buttresses were founded with the lowest course set on edge. The wall was built using alternating headers and stretchers on its inner and outer face, while the interior of the wall was predominantly headers. It measured approximately 1.53 m thick at its widest point. This wall was not maintained for a lengthy period of time: it was clearly allowed to deteriorate sometime prior to the silos constructed in the area during the First Intermediate Period. A thick layer of mudbrick demolition from the wall's upper layers actually helped preserve the lowest courses of the wall. Like EWTE 7 and EWTE 8, it angles sharply northward midway through Zone 2.

ZONE 3

Excavations and large-scale clearing revealed four enclosure walls along the northern perimeter of the tell, ranging from the late 6th Dynasty (c. 2200 BCE) to the Middle Kingdom (c. 1850 BCE) (**Figures 4.11, 4.12, and 4.13**).



4. 11: Orthophoto showing plan view of EWTE 1, EWTE 2, EWTE 24, and EWTE 25.



4. 12: View looking east at Zone 3, showing the path of the town enclosure walls from the late Old Kingdom and Middle Kingdom.



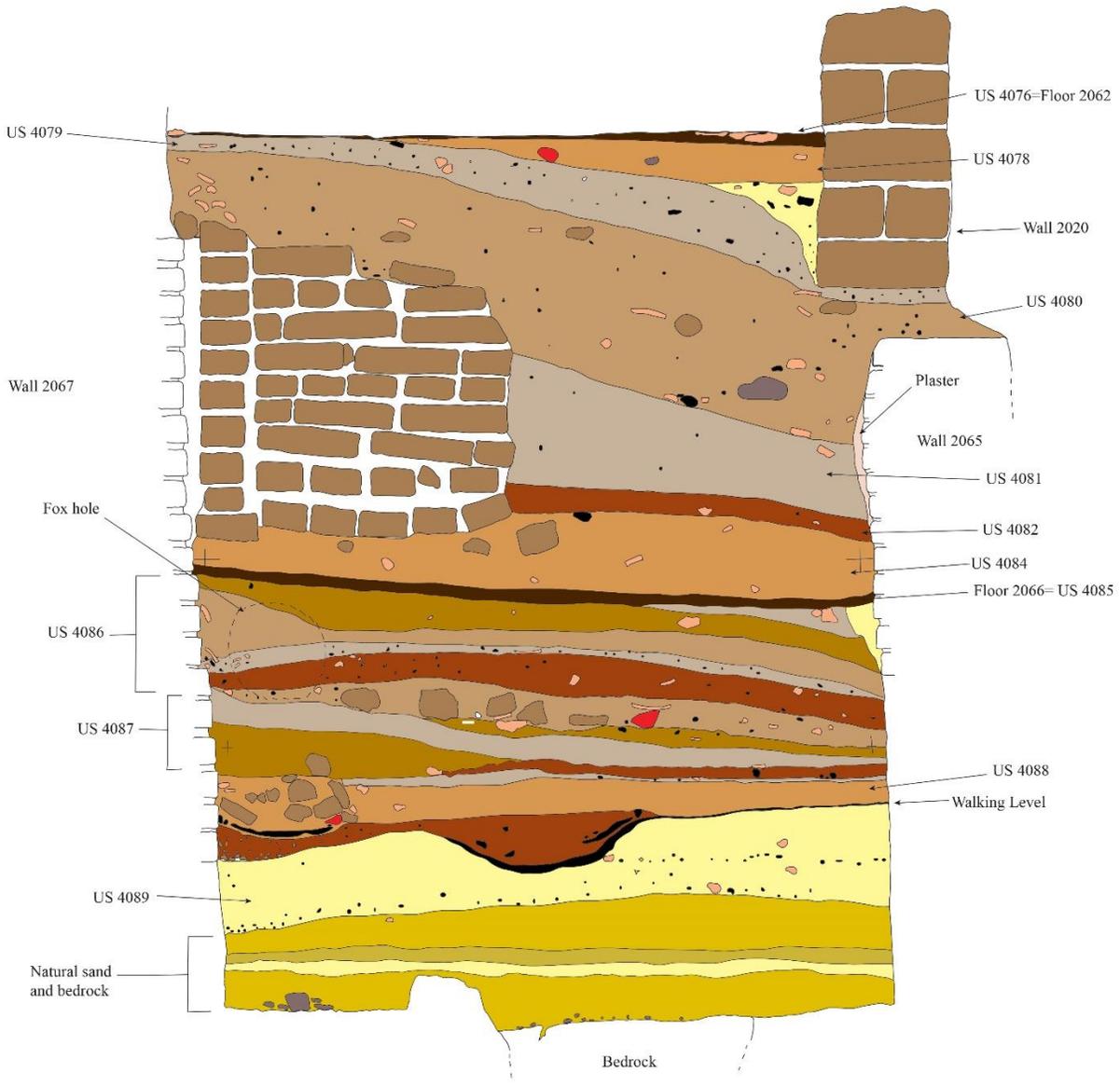
4. 13: Aerial view looking eastwards at the four phases of enclosure walls in Zone 3, from left to right: EWTE 2, EWTE 25, EWTE 24, EWTE 1,

The four walls in this part of the tell seem to have been built sequentially, though pottery recovered from layers of stratigraphy against and just below the internal faces of these walls suggests that two walls were built in rapid succession during the late 6th Dynasty and/or early First Intermediate Period, while a third phase was added in the 12th Dynasty, and a more comprehensive renovation was completed shortly thereafter. The walls define the northern edge of the tell, and curve towards the southwest (**Figure 4.12**). Silos cut into the interior face of the wall (**Figure 4.14**) and further to the southwest, much later structures and stratigraphy from the Late Period and Ptolemaic Period obscure any view of these walls.



4. 14: View looking southwest at later silos and rooms built against the interior side of EWTE 1. The lighter, almost white colored bricks in the foreground are modern.

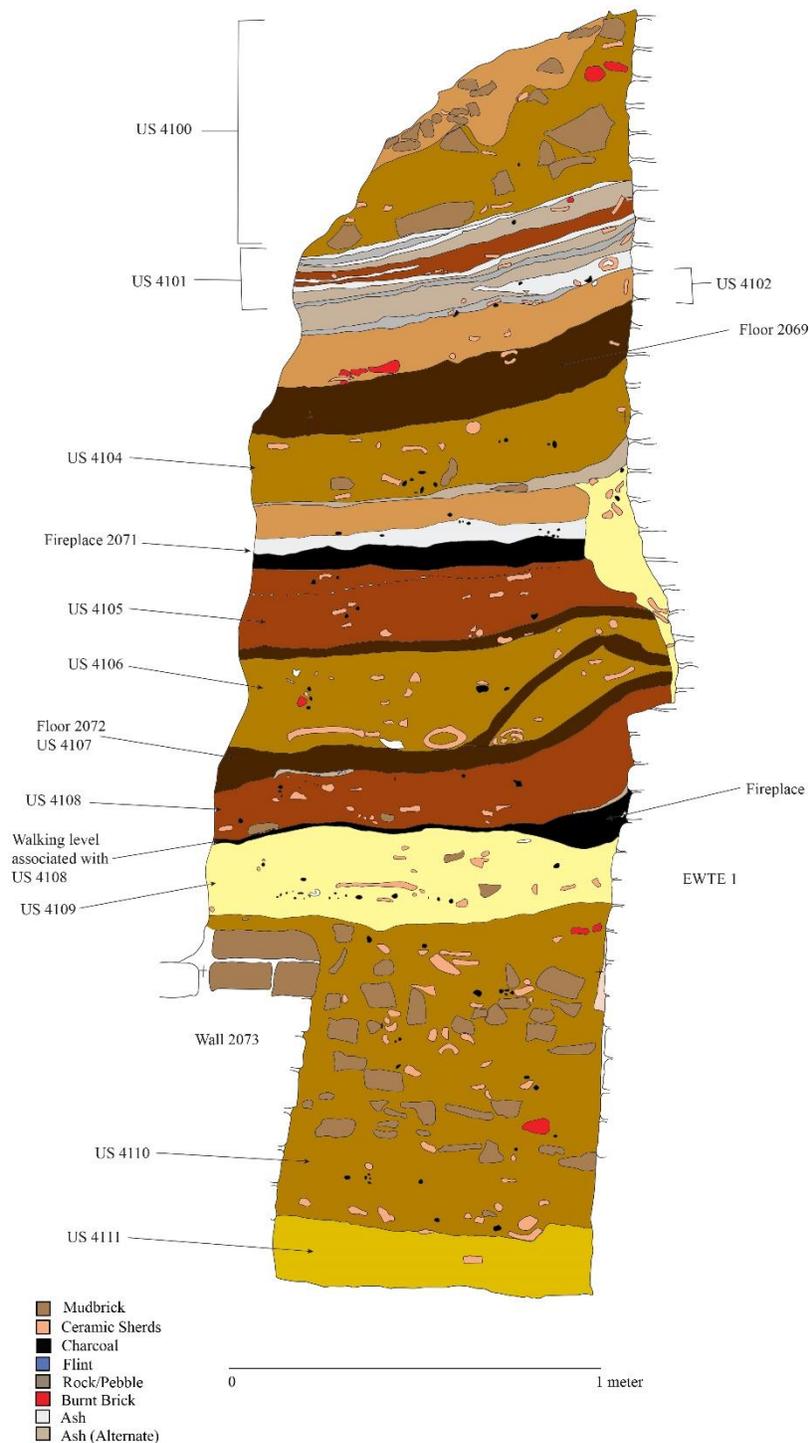
The earliest of these enclosure wall phases, EWTE 1, has been dated on the basis of ceramic material from the earliest strata associated with the foundation and use of the wall in multiple places (along the curve as the wall tracks towards the southwest into a north-south orientation, and a small sondage along its southern face further to the east) to the late 6th Dynasty (**Figures 4.15 and 4.16**).



- Mudbrick
- Ceramic Sherds
- Charcoal
- Flint
- Rock/Pebble
- Burnt Brick
- Ash
- Ash (Alternate)

0 1 meter

4. 15: Section drawing of preserved stratigraphy east of EWTE 1, looking north. (Drawing originally made by Nadine Moeller).



4. 16: Section drawing of preserved stratigraphy south of EWTE 1, looking west.

The wall itself is notable for being relatively well preserved over the course of a long stretch curving from south to east. This wall delimited the extent of urban area of the tell during the late

Old Kingdom and early First Intermediate Period. The wall itself stood at least 3.16 m tall at its highest preserved points, and seems to have been a wall constructed in typical late Old Kingdom fashion with a gently sloping outer face. At the top, the wall was approximately 80-90 cm wide. The base of this wall is far more difficult to measure, since it is only visible in section at one point at the easternmost extremity of the extant portions of this wall. Furthermore, the weathered nature of the bricks at this location renders it more challenging to ascertain precise phasing than from a birds-eye view. However, it seems likely that this wall was roughly 1.0 m at its base, a figure which accords well with its sloped form.

The construction of EWTE 1 appears relatively nuanced, and the large preserved expanse of its interior face has allowed for a greater number of technical variations to be documented than for most other enclosure walls at Tell Edfu. The bricks themselves are a grey brown with occasional river pebble and ceramic inclusions. The size of the bricks used was not uniform, but most are roughly 28 x 14 x 7 cm, though some are almost as large as 30 cm. This wall was founded on sand just above the bedrock with occasional sherds (US 4089)—the earliest stratum leaning against the wall itself is US 4088. A relatively thick mud mortar was applied liberally, since the sloped form of the wall sometimes necessitated uneven spacing between the bricks. Broadly speaking, the brick patterns within this wall were primarily alternating headers and stretchers, but there was considerable variation. Surprisingly, the foundation of the wall itself was anything but uniform, and thus far, no foundation trench has been identified. In the sondage where the wall begins to curve towards the east, many bricks of the lowest course were set in an almost herring-bone fashion and laid diagonally, while the second course consists entirely of headers. However, in other test trenches dug further to the east, the wall's first course was comprised of simple headers. More significantly, the foundation of the wall in these locations

seems to rest upon a thin layer of occupational debris and is much higher above the bedrock as it extends further east (**Figures 4.15 and 4.16**). Several details suggest that this perimeter wall may well have been divided into various segments that were individually completed and later joined. First, in the most central of the three sondages in Zone 3, there is a clean but substantial vertical break that extends nearly to the wall's foundations (**Figure 4.17**). Near the base of the wall, where the wall itself expands slightly outward, this break is not visible since this portion of the wall may well have been added later in order give the wall a more homogenous interior face. Even should this not be the case, it would be unsurprising to see later attempts to reinforce the inner side of the wall, given the load this wall was intended to bear. Second, the differing techniques employed in this wall's foundational course indicates that while efforts to build this feature were certainly coordinated, they were not consistent in all technical details. In some areas, exclusively headers are used at the wall's foundation, while other portions of the wall use bricks set diagonally or on an edge. Additionally, the foundation levels of this phase vary considerably. Though a concerted effort seems to have been made to excavate a foundation close to the natural sand in all parts of this wall, the altitude of the foundation of EWTE 1 rises considerably as the wall moves to the east as the level of the natural sand climbs. The mass of these enclosure walls is substantial; a conservative estimate would suggest nearly 50,000 bricks were necessary to complete the northwestern portion of EWTE 1 alone.²⁵

²⁵ Given a wall with a length of 55 meters, a breadth of 1 m, and a height of 3 m, and using bricks with dimensions of 28 x 14 x 7 cm together with 1 cm of mortar applied on all sides of each brick, one reaches a rough estimate of 47,414 bricks. In reality, it is possible that the wall was somewhat thicker at its base, used slightly less mortar, and almost certainly attained a greater height.



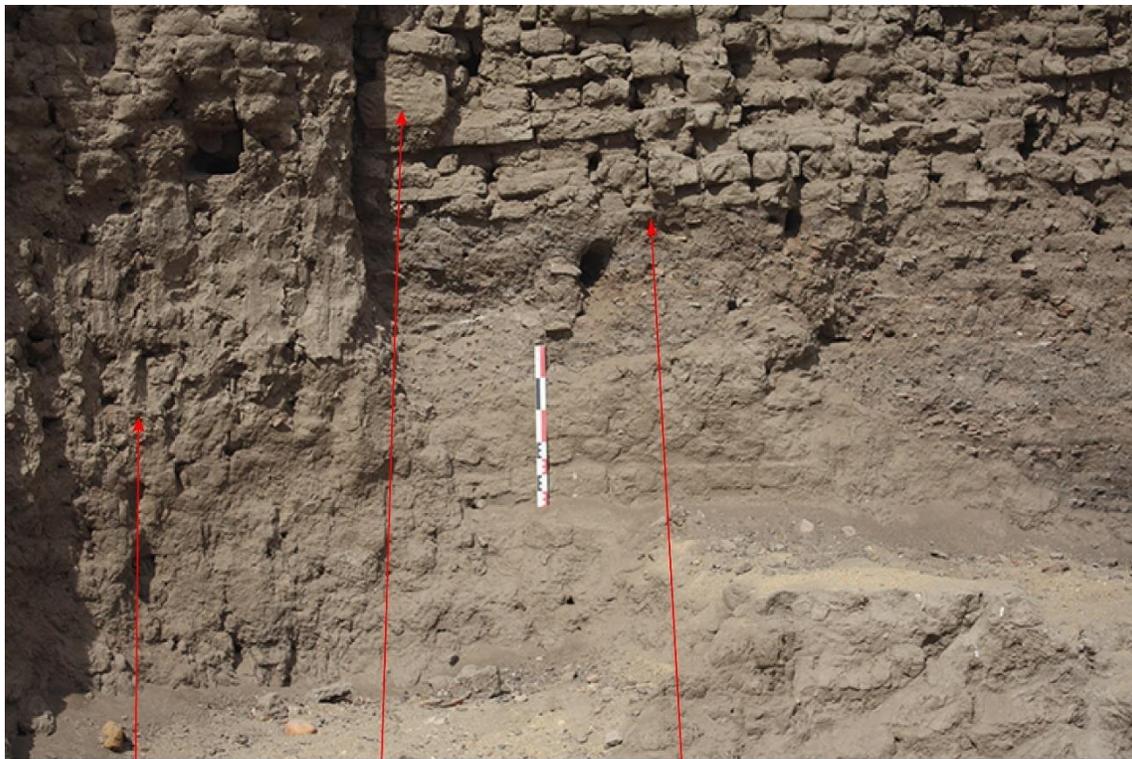
4. 17: View looking north that shows a vertical break in EWTE 1.

Almost immediately after (or perhaps in tandem with) the construction of the first late Old Kingdom perimeter wall (EWTE 1), an accretion wall was added (EWTE 24). A less detailed description of this wall can be given since its interior face is not visible in any stretch as

it is concealed by that of the preceding phase (EWTE 1). The bricks of these two phases are almost identical in size (28 x 13-14 x 7 cm), and the second phase possesses a similar brick matrix to the first: occasional river pebbles and ceramic inclusions, and minimal straw temper. The second enclosure wall phase in Zone 3 generally uses alternating headers and stretchers, comparable to the first phase of the enclosure wall in this area. The bricks within this second layer of walling are also grey to greyish brown and use a relatively fine, silty clay. In the section view, only at the most northeastern segment of the wall is there any distinction in the level of this wall's foundation from that of the first phase of perimeter wall (EWTE 1) in the area; no preserved stratigraphy leaning against the first enclosure wall phase but underlying the second was revealed. The foundations of EWTE 24 in this part of the tell seem to have had a first course of headers. EWTE 1 and EWTE 25 obscure the views of the foundation of this wall on both its interior and exterior sides. As with its predecessor, EWTE 24 can be most easily distinguished from the surrounding phases of enclosure walls from above (**Figures 4.11 and 4.13**). Such a view demonstrates the absence of any point where the two phases of walling are bonded together. This second phase (EWTE 24) has a width of 1.12 m at its highest preserved point, and accentuates the sloped form of the preceding phase more dramatically towards its base. Together with EWTE 1, EWTE 24 appeared to have served as the settlement enclosure wall throughout the First Intermediate Period.

A third phase (EWTE 25) was added to the exterior of these initial two phases somewhere towards the beginning of the Middle Kingdom. Unlike its predecessors, this wall was founded upon a thick stratum of occupational debris dumped outside the earlier enclosure walls (**Figure 4.18**). Ceramics from the layers underlying this wall seem to suggest it was a 12th Dynasty foundation. While this third phase of walling also uses a simple brick pattern of

alternating headers and stretchers (with occasional variations to this pattern when necessary), the composition of the bricks in this wall is substantially different than the earlier phases of enclosure walls in Zone 3. These bricks use more straw temper, are much sandier, and have fewer river pebble inclusions within their matrix. Relative to previous phases, the bricks in EWTE 25 possess a more brittle, uneven texture but have a similar brownish grey color and are roughly the same size: 28 x 13 x 6-7 cm. Because it follows the contours of the preceding phases, EWTE 25 also slopes outwards—a rather unusual feature for enclosure walls erected after the First Intermediate Period. One explanation for this may be that this wall was intended as a rather hasty renovation to ensure the structural integrity of the existing enclosure walls—EWTE 25 is only preserved to a height of roughly 2.58 meters in areas where its foundation is clearly visible, and not long afterwards, a much more substantial enclosure wall was added. Comparable to EWTE 24, an earlier enclosure wall phase (EWTE 24) and a succeeding one (EWTE 2) make it impossible to view EWTE 25's foundations except in a small section view near the northeastern edge of its preserved remains. The wall was founded much higher than its predecessors, and seems to have been built using alternate headers and stretchers, with headers largely comprising the lowest course.



EWTE 24

EWTE 25

EWTE 25 Foundation Level

4. 18: View looking north showing the much deeper foundation of EWTE 24 relative to EWTE 25.

This additional wall, EWTE 2, can be dated to the 12th Dynasty on the basis of diagnostic pottery found in stratigraphy leaning against the foundation levels of this wall. In terms of architectural form, brick size, brick matrix, and various technical details of its construction, it marks a fairly substantial departure from previous enclosure walls in Zone 3. First, the bricks themselves are significantly larger, roughly 35 x 18 x 10-11 cm. The bricks themselves were a lighter brown color, with straw temper, small potsherds, and occasional river pebble inclusions, but were far less weathered than the bricks of the third phase of enclosure walling. More attention was paid to the foundations of this wall as well—though no foundation trench was identified during excavation of the surrounding stratigraphy, this fourth enclosure wall phase was founded lower than the foundations of the third phase, indicating that some of the surrounding layers were excavated in order to create a more stable, level foundation.

Furthermore, the foundations of the outer face of EWTE 2 seem to have been one course lower than those closer to the interior, with bricks placed on their edge (**Figure 4.19**). Even within the center of this wall, the bricks are often laid in a pattern of alternating headers and stretchers, though some portions have simply a mass of headers. A simple mud mortar was applied between bricks in this phase, allowing builders to more easily navigate complications presented by this wall's barely sloping outer face and occasional inconsistencies in brick size. Relative to previous iterations of the settlement's perimeter wall, this phase has a much straighter, almost vertical exterior face. Unlike with EWTE 1, if this wall was constructed in discrete segments, these are not readily identifiable. However, the foundations of this wall are almost entirely buried by material turned over by the *sebbakhin* everywhere save the northeastern corner of Zone 3, so this conclusion is hardly certain. EWTE 2 also possessed a large buttress or tower at the corner where it turns southwards, near the northwestern limit of the tell. The purpose, role, and indeed the foundation date of this installation are difficult to specify given the absence of adjacent stratigraphy, but the bricks appear identical to those within the body of the wall itself.



4. 19: View looking west showing a section view of EWTE 2 and its foundations.

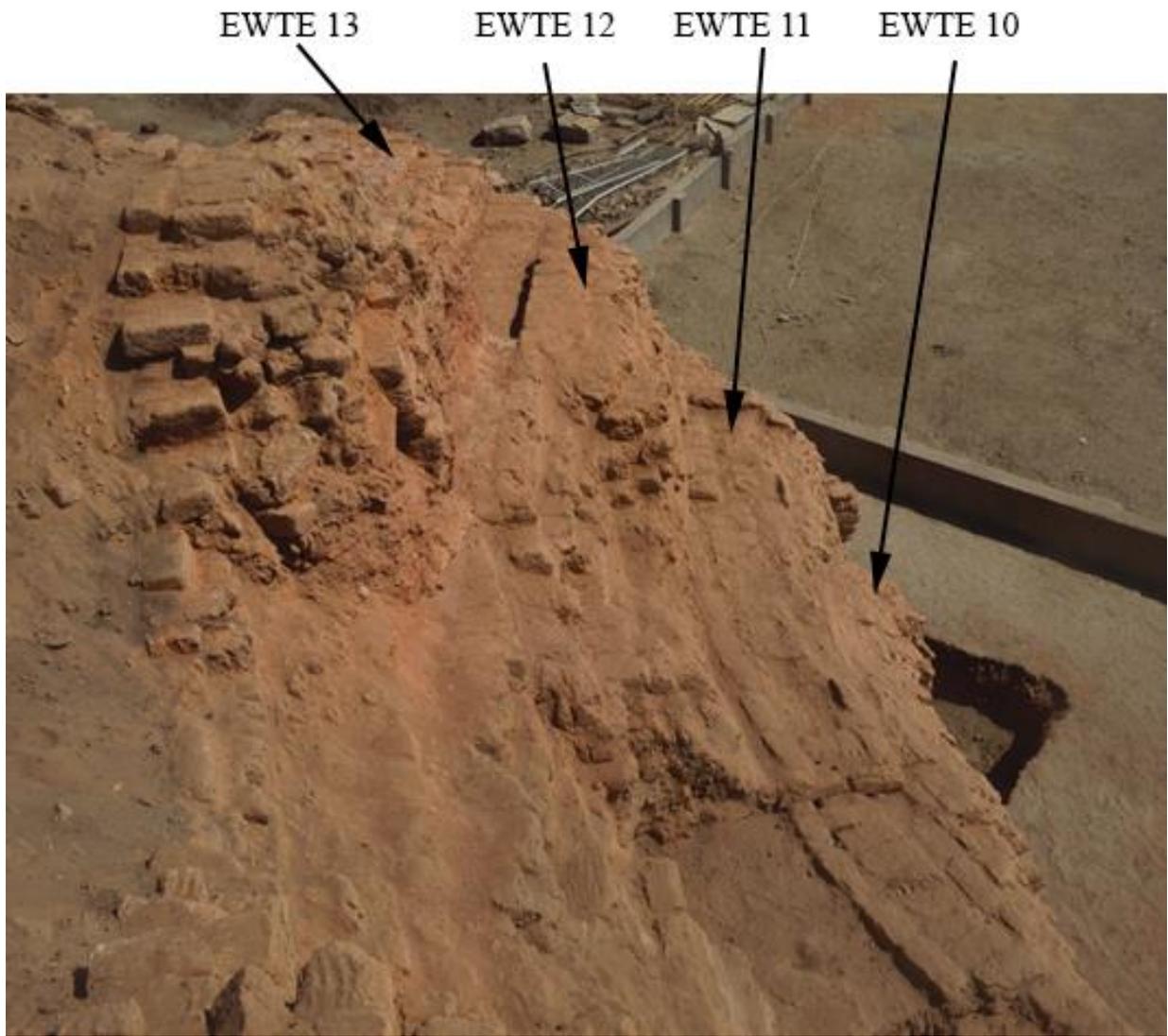
This wall seems to have been an enduring presence in the local landscape of Tell Edfu. It was preserved to a greater height than its predecessors (at least to 3.62 meters in locations where the foundation is clearly visible, and likely higher in other locations where overlying debris has not been cleared away), and there is evidence that a doorway was cut through part of the wall sometime after its completion, likely after the wall had fallen into obsolescence (**Figure 4.20**). Its width measures some 2.2 m. Unfortunately, given the absence of any associated stratigraphy or in situ material culture of any kind associated with this feature, it is unclear when this alteration was made. Together with preceding phases, the enclosure wall at times would have reached a breadth of over 5 meters along the stretch of the northern wall, and it is unsurprising that local exigencies may have necessitated the construction of a new passageway at some point over the wall's lengthy use history. In any case, there never seems to have been a comprehensive effort to dismantle the wall during subsequent periods. And it might have continued to function for a long time after its initial foundation.



4. 20: View looking south at a later door/passageway cut into EWTE 2.

ZONE 4

Excavation and cleaning during the 2015 and 2016 seasons focused extensively on the enclosure walls running through the Old Kingdom cemetery and in the southern *sebbakh* quarry created to the west of the spoil heap created by excavations in Zone 1 and Zone 2. In total, parts of nine enclosure walls were excavated in Zone 4: a sequence of four winding through the Old Kingdom cemetery area, four consecutive walls in the *sebbakhin* cut west of Zone 1, and one in the intervening space between these locations. Strikingly, the enclosure walls cut through the Old Kingdom cemetery area rather than simply incorporating it into or excluding it entirely from the settlement (**Figures 4.21 and 4.22**).



4. 21: Zone 4 cemetery area, looking northeast. From left to right: EWTE 13, EWTE 12, EWTE 11, EWTE 10.



4. 22: View looking west-southwest at a section view of the enclosure walls identified near the Old Kingdom necropolis.

Indeed, the mastaba of the famed local saint Isi was left outside of the town enclosure walls, while that of his son, Qar, served as a backing wall for the internal face of the first phase of perimeter walls in this area (**Figure 4.23**). After cleaning away the debris disturbed by the *sebbakhin* and excavating a small trench nearby, four phases of enclosure walls were identified near the Old Kingdom cemetery. Because of the nature of the *sebbakhin* digging, these walls can be seen in irregular sections. As in Zone 3, the internal face of the earliest phase (EWTE 10) and the exterior of face of the latest phase (EWTE 13) are most easily observed and have been most extensively documented.



4. 23: View looking west at EWTE 10 running alongside and leaning against the mastaba of Qar.

The earliest phase of enclosure walling in this area (EWTE 10) is founded just above the natural sand (**Figure 4.24**). A 10-15 cm layer of brown silty soil with river pebbles mixed with occasional sherds is found throughout this part of the cemetery, and clearly leans against the mastaba of Qar (US 5002). The rims of several Meidum bowls recovered from this layer suggest a late 6th Dynasty date for this stratum.²⁶ US 5002 is thus bounded by the natural sand directly beneath it and the walking level associated with EWTE 10 above it. A small band of stratigraphy (roughly 5 cm) is visible above the construction level associated with EWTE 10 and below the foundation of the second phase of enclosure walling in the vicinity of the necropolis, EWTE 11. Unfortunately, few diagnostic sherds were recovered from this small exposure. This notwithstanding, the fabric and character of the fine ware body sherds recovered therefrom suggests that EWTE 10 was likely founded, unsurprisingly, in the late Old Kingdom, probably in the late 6th Dynasty.

²⁶ See Appendix B, Plate 1.



4. 24: Section drawing looking west, showing the stratigraphy adjacent to EWTE 11 and underlying EWTE 12.

The bricks of the first enclosure wall (EWTE 10) were a light greyish brown, with river pebbles and straw inclusions, separated from one another by a thin, light brown, almost cream-colored mortar. They were not particularly sandy, and were of a modest size: 28-29 x 13-14 x 7-8 cm. The interior face of this wall is preserved to the south as the wall curves towards the mastaba of Qar to the southwest. The foundation of the wall's internal face was uneven, with parts using bricks set on edge while headers were used in others (**Figure 4.25**). A layer of compact mud, almost certainly a walking/construction level associated with this wall, underlies the entirety of the preserved portions of this construction. This walking level forms the boundary between US 5002 and US 5003/5004 above. Generally speaking, the bricks of this wall were laid in a pattern of alternating headers and stretchers, though exceptions were made as necessitated by the wall's sloping exterior face. While great care seems to have been taken with the faces of this wall, views from above and within the section show that bricks were at times laid in a more hodge-podge fashion in the wall's interior. As this wall curves to the southwest, it zigzags through the Old Kingdom cemetery area, often times leaning against or built atop mastabas themselves. These mastabas allowed the wall to make more abrupt jags (often almost right angle turns) than would have been otherwise possible given the technical limitations of the uneven foundations of the wall itself and the weakness of smaller bricks when forced to bear a wall's immense weight at corners. Thus, the mastaba of Qar provides a *terminus post quem* for this construction in the latter half of the 6th Dynasty.²⁷ The bricks in the mastaba of Qar are similar in color and comparable in size (29-30 x 14 x 8 cm), but slightly sandier and with far

²⁷ Qar was the son of Isi, an official who later served as a nomarch and vizier, who later was revered as a kind of local saint at Edfu. His autobiographical inscription provides a window into the changing role of provincial authorities at the end of the Old Kingdom, and showcases their important role in resolving local disputes—a role that would continue into the First Intermediate Period: Moreno Garcia 1998a. For Qar, see also Kanawati 2011 for his tomb near Giza and El-Khadragy 2002 for a reappraisal of some of the inscriptions associated with his mastaba near Edfu. For Isi, see Alliot 1935, 9-28.

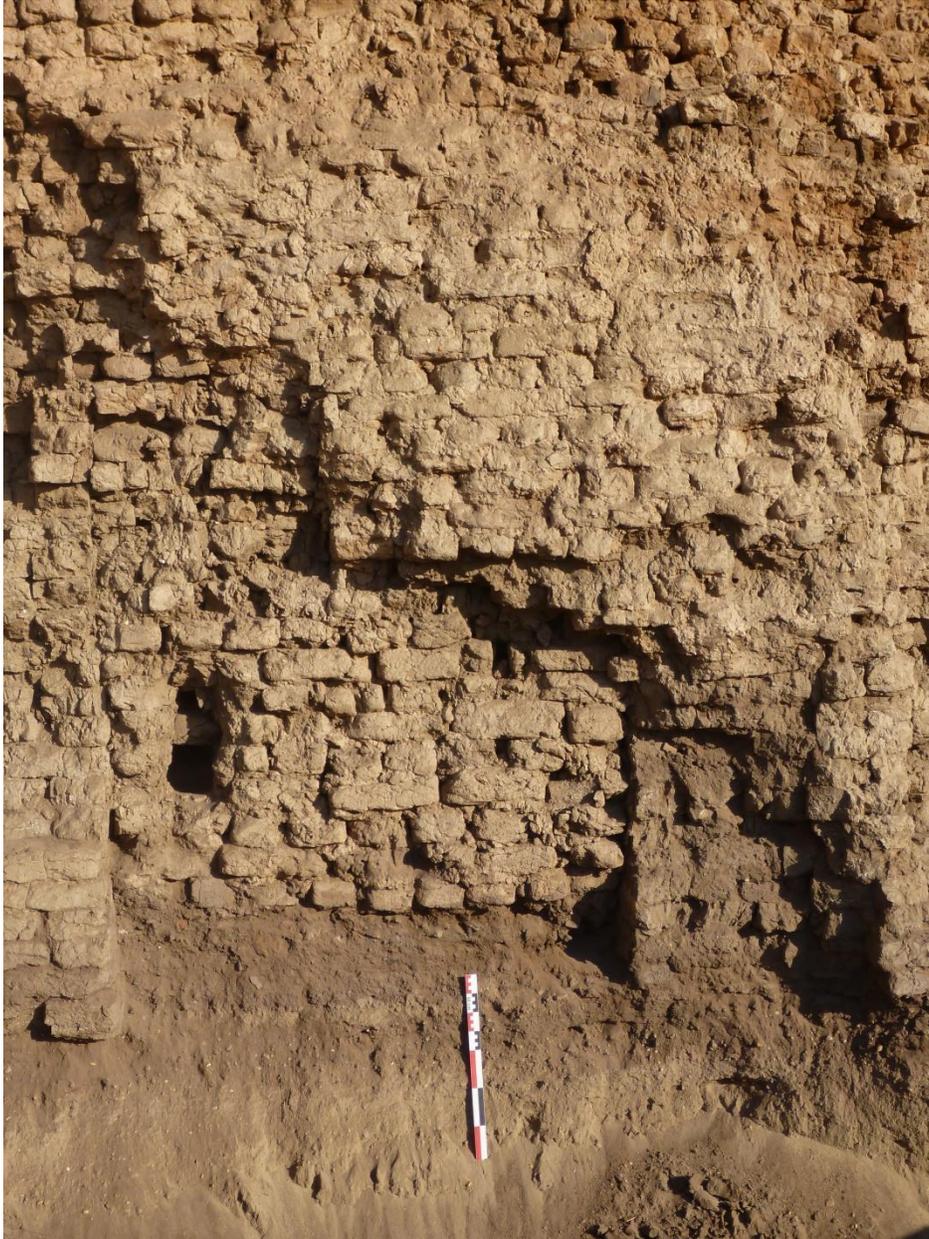
more stone chips from the bedrock inside their brick matrix. Throughout this area, the upper reaches of the wall were subjected to intense heat, and the bricks were burned to an almost reddish brown color.



4. 25: View looking northwest showing a side view of EWTE 10.

EWTE 10 is also interrupted by a technical construction in mudbrick that seems to have been used to close an opening between two segments of the wall (**Figures 4.25 and 4.26**). Though a break is clearly evident, the bricks in this construction are essentially indistinguishable from those of EWTE 10—they are 28-29 x 13-14 x 7-8 cm in size, grey brown in color, with river pebble inclusions and minimal sand in their brick matrix. This technical feature was

founded some 20-25 cm higher than the preserved portions of EWTE 10 to the southwest and northeast. This stratum of compact mud, collapsed mudbrick, occupational debris, and striated ash can be clearly dated to the late Old Kingdom on the basis of the preserved ceramic material. Thus, it seems as though this gap was filled not long after the completion of the enclosure wall. This break was clearly intentional, as mud plaster was preserved on the edge of both of the faces of EWTE 10 that define the limits of this opening. The construction was only visible as a result of weathering that fortuitously eroded the outer face of the wall in the vicinity of this technical opening; the homogenous internal face of EWTE 10 that is visible in better preserved, higher parts of the wall demonstrates that this gap was originally clad with bricks to mask the presence of any kind of break.



4. 26: View looking northwest showing a bricked up passage/technical opening in EWTE 10.

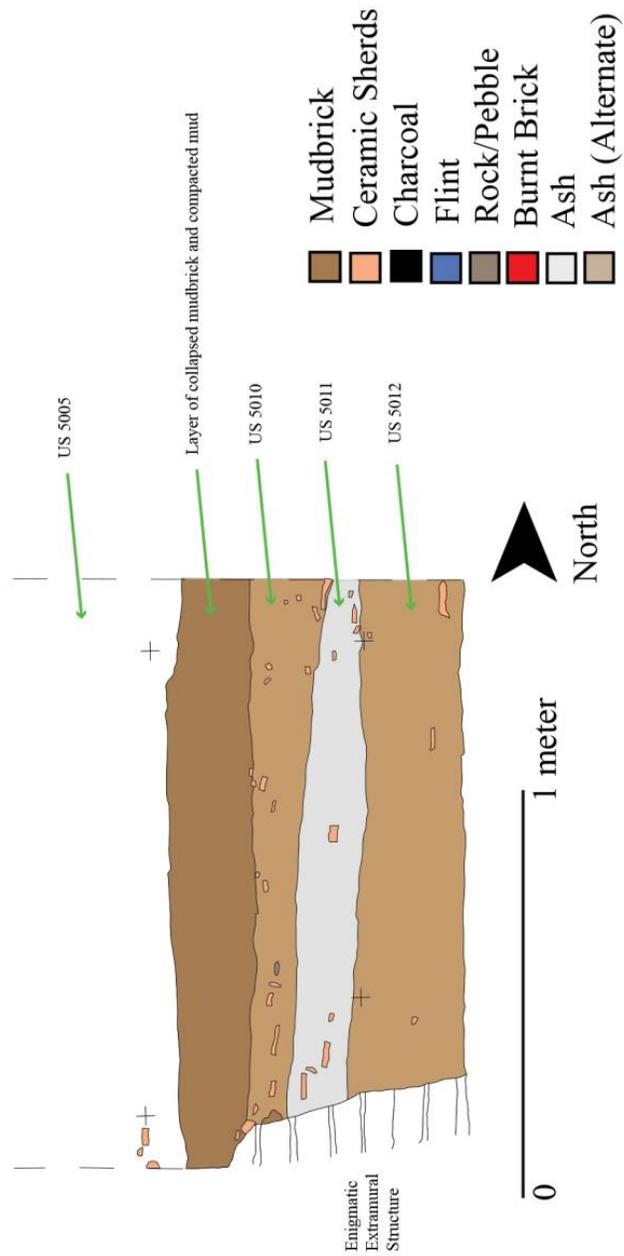
The second enclosure wall phase in this area (EWTE 11) was founded almost immediately after EWTE 10 (**Figures 4.21 and 4.22**). Only a small, at most 5 cm high layer (US 5003) separates the foundation course of EWTE 11 from the walking level associated with its predecessor. This second phase of walling had a slightly more pronounced slope than the initial enclosure wall. Because this wall was constructed directly against EWTE 10, very little care was taken with the internal face of EWTE 11—at one point, a grinding stone was simply dumped

against the external face of the preceding phase, while in others, compact ash or other debris was used to fill space instead of mortar or additional bricks (**Figure 4.27**). EWTE 11's exterior face was built with considerably more precision. It was founded at a slightly deeper level, one or two courses deeper than the rest of the wall, and this "foot" would seem to help distribute the weight of the wall towards its exterior edges and reducing the chance of damage from cracks or uneven settling in the less sturdy, less meticulously constructed interior of the wall. The bricks of EWTE 11 are fairly similar to those of the preceding phase—they are roughly 29 x 14 x 8 cm, with straw temper and river pebbles in the brick matrix.



4. 27: View looking to the northwest showing a grindstone and ashes that were tossed as fill into the internal core of EWTE 11.

An enigmatic extramural structure was built against EWTE 11. It possesses similarly sized (if slightly lighter in color) bricks relative to the initial two phases of enclosure walls, and due to a lack of preservation little can be said about this structure—it would seem too broad and short to serve as a buttress, and unnecessarily wide were it an architectural feature related to providing additional support at the base of the wall. It clearly leans against EWTE 11, though its foundations were cut slightly deeper in US 5002, so that in its vicinity US 5003 has been cut away entirely. However, pottery from a sequence of stratigraphy (US 5010, US 5011, US 5012) leaning against the walls of the building that itself was supported by EWTE 11 shows that this second phase of enclosure walling must have been completed by the late Old Kingdom (or at the latest, the early First Intermediate Period) (**Figure 4.28**). In US 5011, a fairly sizable (roughly 10 cm) ashy lens sandwiched between two layers of occupational debris, excavation revealed a bread mold of classic Late Old Kingdom type (rim diameter, 15 cm). The northernmost preserved part of this extramural structure rests almost upon the bedrock, showing that the slope of the bedrock generally seems to slightly decline from north to south in this part of the tell.



4. 28: Section drawing looking west depicting strata adjacent to the extramural structure and underlying EWTE 13.

Above this extramural structure but below the foundations of the third enclosure wall phase near the Old Kingdom cemetery are three strata: US 5005, US 5006, and US 5007 (**Figures 4.24, 4.29a, and 4.29b**). US 5005 is directly above a walking level overlying the extramural structure and leans against the second enclosure wall phase, EWTE 11. Further north, it passes just above US 5010. Fine lenses of ash and dark brown occupational debris characterize this layer, and the presence of broken mudbricks further north in the section may be the result of the partial collapse of either the aforementioned extramural structure, or less likely, EWTE 11 itself. The presence of tubular bread molds suggests that this layer likely dates to the Middle Kingdom, or at the absolute earliest, the very end of the First Intermediate Period. A small walking level separates US 5006 from US 5005 below. The soil matrix of US 5006 is comprised of darker brown hues of occupational detritus together with white and grey lenses of ash. Comparable to US 5005, the recovered ceramic sherds would seem to date this layer to the Middle Kingdom.²⁸ Finally, US 5007 overlies US 5006 and directly underlies the third enclosure wall phase, EWTE 12. This US is composed of settlement debris burnt to a reddish orange color, just above the uppermost layer of white ash. The estimated diameter and orange slip on the interior of the bread mold sherds recovered from both US 5005 and US 5007 suggests a 12th Dynasty date.²⁹

²⁸ See Appendix B, Plate 1.

²⁹ Le Provost 2014, 139.



29a



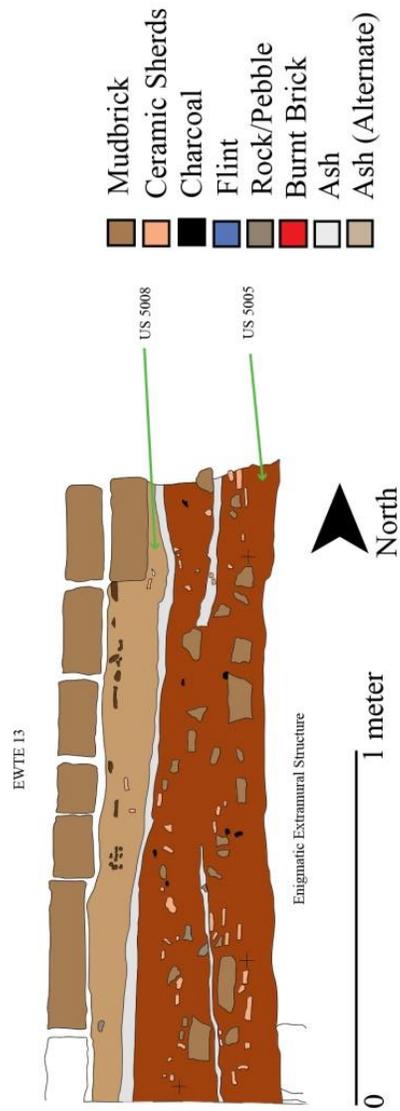
29b

4. 29: 4.29a—general view looking west at stratigraphy leaning against EWTE 11 and below EWTE 12. 4.29b—closer view of the stratigraphy visible in 29a that better shows EWTE 12's foundation trench in the upper right corner.

Above this sequence of stratigraphy rest the foundations of EWTE 12 (**Figures 4.21, 4.22, and 4.24**). The bricks of this wall are comparable in size to EWTE 10 and EWTE 11, approximately 28 x 14 x 8 cm in size. This renovation is built directly against the preceding two phases, perhaps the product of a Middle Kingdom attempt to refurbish these walls prior to the construction of the much larger Middle Kingdom enclosure wall (EWTE 13). Like EWTE 11, EWTE 12 was exposed to a significant amount of heat at one point—all of the bricks visible in section have been badly burned together with the underlying soil in US 5007. Despite the comparable size of the bricks and their burnt character, those of EWTE 12 are easily distinguished from the bricks of preceding phases given the higher quantity of sand, lower frequency of river pebble inclusions, and seemingly greater amount of straw found within their brick matrix. The texture of these bricks feels rougher and more brittle, and the bricks themselves are lighter than those of the preceding phases of enclosure walls in this area. Notably, the brick composition and thick mortar seem more similar to the fourth phase of the enclosure wall by the cemetery, EWTE 13.

If earlier phases were simple renovations of the existing enclosure wall system, EWTE 13 represents a fairly dramatic change (**Figures 4.21, 4.22, 4.30, and 4.31**). Indeed, it only follows the trajectory of the earlier enclosure walls in select locations—just beyond the mastaba of Qar, EWTE 13 diverges from preceding phases and follows a slightly more westerly path. The bricks and mortar of this fourth enclosure wall phase are also substantially different with respect to the first two phases of the enclosure wall in this area: the mortar is much thicker, and the bricks themselves are far larger, 34-36 cm x 17-18 x 10 cm. The brick matrix is broadly comparable to EWTE 12, the preceding phase. The upper part of EWTE 13 has been exposed to the same intense heat as the surrounding walls, but the lower courses of the wall retain a light brownish

grey color, though less white than the bricks of the extramural structure or the first enclosure wall phase, EWTE 10. This wall appears to have been founded with a much less pronounced slope than preceding phases, though a gentle incline remains visible.



4. 30: Section drawing looking west, depicting stratigraphy underlying EWTE 13.

Both the internal and external faces of EWTE 13 are clearly preserved. The foundational course at the wall's outer face was founded one brick lower, using exclusively headers. Otherwise, this wall is notable for its fairly consistent use of courses of alternating headers and stretchers, even in the interior of the construction. The foundation of EWTE 13 varied somewhat, but was clearly founded lower than that of EWTE 12. Further to the northeast, where the wall can be viewed in section just north of the mastaba of Qar, it is clear that the wall was founded upon layers of occupational debris some 1.23 m above the bedrock. Further south, this occupational debris becomes far thinner. However, to compensate for this, as the wall winds southwest through the cemetery, it seems to have been founded upon a layer of *tafl* and grey-green stone chips (**Figure 4.31**). The apparent slope of the bedrock here suggests that this is not likely a natural layer, but rather debris collected from near the cemetery area—perhaps even produced centuries before when burial shafts in the necropolis were excavated into the bedrock and then simply reused by the builders of the Middle Kingdom wall.



4. 31: View looking north at the foundations of EWTE 13—note the use of stone chips to create a sturdier foundation.

North of the mastaba of Qar, the preserved stratigraphy allows for greater insight into the foundations of EWTE 13 than earlier phases, since these have been obscured by the deep foundations of other enclosure walls (in the case of EWTE 12) or extramural structures (EWTE 11). A foundation trench associated with EWTE 13 has been identified (US 5009) which cuts through US 5007 and the ashy lenses of US 5006 (strata underlying EWTE 12, described above) (**Figures 4.24 and 4.28**). Unfortunately, few sherds were recovered from this layer, but it is very visible in the section. The wall itself was founded on a layer of fill (US 5008) whose lower bound appears to be the same walking level that separates US 5005 and US 5006 further to the south. This would seem to indicate that the builders of the fourth enclosure wall phase in the cemetery area sought a relatively firm, level base even for the fill that would provide the foundation for the wall itself. The pottery from this fill (US 5008) was unsurprisingly mixed,

with lots of periods represented ranging from the Late Old Kingdom through the Middle Kingdom.³⁰ In particular, the latest marls and fragments of tubular bread molds with a thick orange slip suggest a 12th Dynasty *terminus post quem* for this wall. Lots of organic material, small animal bones, charcoal inclusions, and animal bones were recovered from this stratum.

Unlike previous iterations of enclosure walls in this area, EWTE 13 seems to have turned at sharper, perhaps even right angles, as opposed to the gentler, less abrupt curves of EWTE 10 and EWTE 11. Save for occasions when these banked against the mastabas of the cemetery themselves, the small brick size and construction techniques used in these earlier walls may have mitigated against such angular turns. Diverging near the northwest corner of the mastaba of Qar, EWTE 13 traverses the mastaba field along a more westerly track than these earlier walls, and the larger bricks, uniform foundation courses, and strong internal cohesion of its construction allowed it to be built at angles that were apparently an impossibility for earlier constructions. The wall angles towards a more south-southwestern path, zigzagging track between and atop certain mastabas. Though the totality of the earlier enclosure wall sizes reached a similar width, EWTE 13 was far wider than the individual phases of EWTE 10, EWTE 11, and EWTE 12. At its base, EWTE 13 approached a width of roughly 2.4 meters, tapering slightly to a width of some 2.25 meters at the highest course preserving the internal and external faces of the wall.

Some 20 meters north of the cemetery, an isolated portion of a large enclosure wall, EWTE 14, is visible (**Figures 4.32, 4.33, 4.34a and 4.34b**). This wall is in many ways comparable to this fourth and final phase of enclosure walling near the cemetery, discussed immediately above. Its width at its base is roughly 2.5 m, and its exterior side is straight, rather than sloped. The bricks are of an identical size (34-36 x 18 x 10 cm) and composition to EWTE

³⁰ See Appendix B, Plate 1. See also Le Provost 2014 more generally on ceramics at Edfu during these periods.

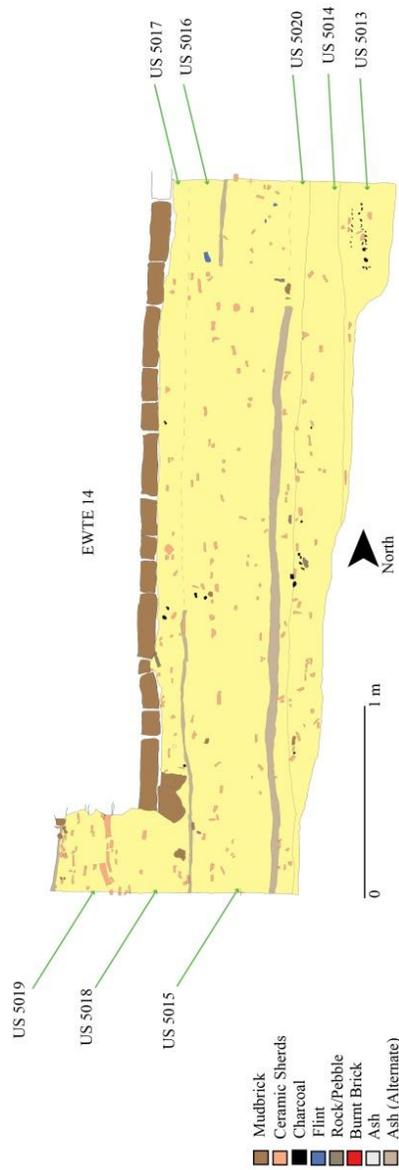
13. Like EWTE 13, the individual bricks are light brown in color, with straw inclusions and copious amounts of mortar between courses. The foundations of EWTE 14 closely parallel those of EWTE 13: the outer face is founded one course lower, and the lowest course is comprised exclusively of headers. A layer of fill, here understood as US 5017, underlies the wall itself (**Figure 4.33**). It is probable that this fill was to provide a level foundation for the wall, comparable to US 5008 below EWTE 13. The soil matrix of US 5017 and US 5008 were quite similar, with lots of organic material and small charcoals. The pottery from US 5017 was somewhat less mixed, however, and the latest diagnostic bread molds and marls suggests a firm Middle Kingdom, and probably 12th Dynasty date for the construction. Ceramics pulled from the layers of occupational debris underlying the wall (US 5014, 5015, 5016) show a sequence of pottery stretching from at least the First Intermediate Period/Late Old Kingdom into the Middle Kingdom.³¹ A single seal impression with a geometric pattern motif recovered from US 5015 would also fit well within the known corpus of First Intermediate Period sealings. A 12th Dynasty date for the foundation of the wall is further aided by the pottery found in strata leaning against the exterior of the wall. US 5018 is the lower of two bands of stratigraphy that lean against the enclosure wall itself, just above the walking level associated with its foundation. This layer was composed of striated occupational debris, rich in organic material and with numerous pot sherds that confirm a Middle Kingdom date. At the top, it was bounded by a grey ashy lens. Above this ashy lens, a similar layer of occupational waste accumulated, and is denoted by US 5019. The ceramic material from this stratum is less plentiful than US 5018, but does not show significant differences—a marl ring base and tubular bread molds with a thick orange slip / coating on the interior suggest a 12th Dynasty date. Unfortunately, a foundation trench

³¹ Appendix B, Plates 3-4.

comparable to US 5009 could not be identified as the stratigraphy near the enclosure wall itself was poorly preserved.



4. 32: Orthophoto showing a plan view of EWTE 14.



4. 33: Section drawing depicting stratigraphy underlying EWTE 14, looking west.



34a



34b

EWTE 14

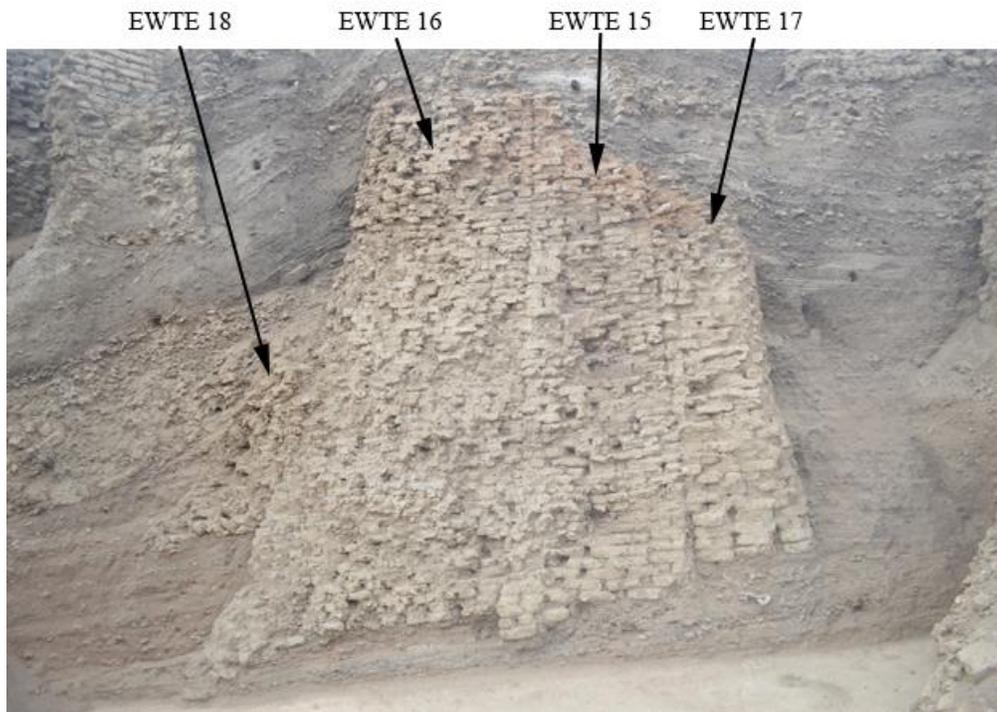
4. 34: 4.34a—view of the stratigraphy below EWTE 14. 4.34b—view of EWTE 14, with scale for reference.

Similar to the enclosure walls near the cemetery, the upper parts of EWTE 14 were exposed to heat at some later point and burned to a reddish pink color. The brick patterns in evidence at EWTE 14 are identical to EWTE 13: alternating headers and stretchers. A view looking into the preserved section of this wall demonstrates that this brick configuration remained consistent even in the interior of the wall itself. Because so much of this wall was covered by later constructions and *sebbakh* digging spared parts of both the internal and external face of this wall, both the internal and outer faces of EWTE 14 are identifiable. The wall seems to have had a width of roughly 2.2 m at its greatest height and slightly wider at its base. EWTE 14 was preserved to a height of over 4.5 m, comparable to the preserved height of EWTE 13. The myriad technical similarities and close physical proximity (some 25 meters north of the trench dug to investigate the enclosure walls near the mastaba of Qar) suggest EWTE 13 and EWTE 14 are part of the same Middle Kingdom enclosure wall. If this hypothesis is correct, then the wall must jog to the west somewhere in the *sebbakhin* cut.

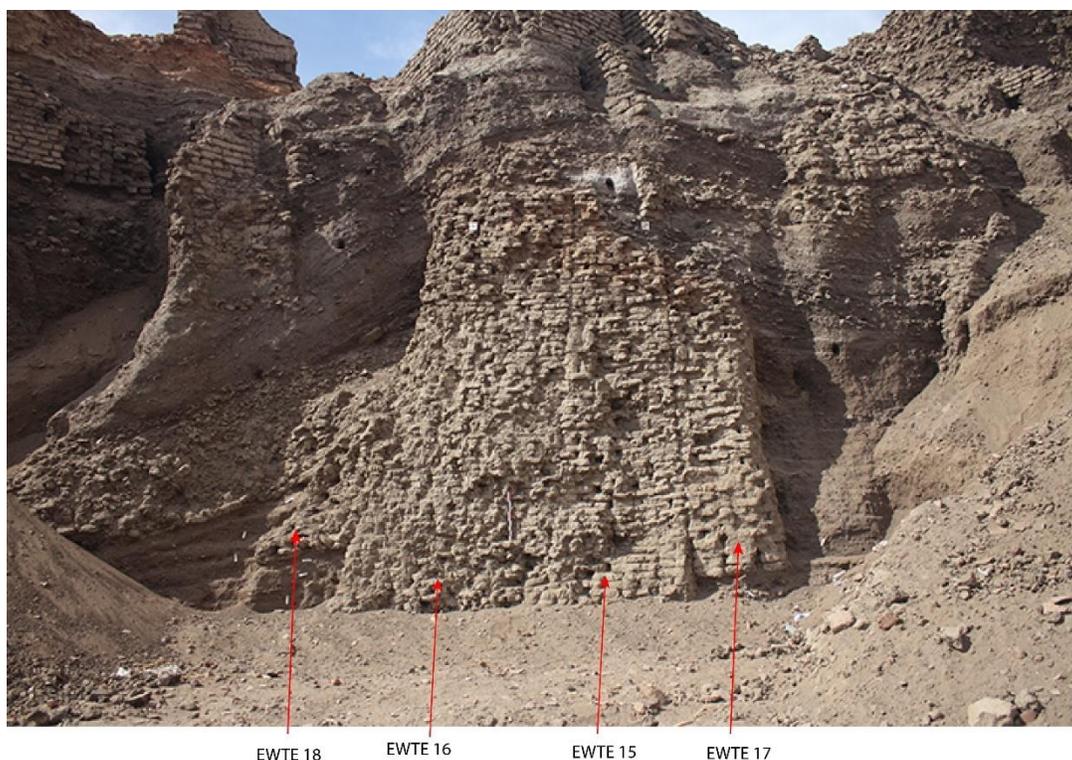
Some distance further to the north, at the northwestern edge of the southern *sebbakh* quarry, four additional phases of enclosure walls were revealed and documented following clearing and cleaning efforts in the 2015 and 2016 seasons (**Figures 4.35 and 4.36**). Underlying all four walls and just above the natural sand itself is a thin layer of loamy brown soil, ashy lenses, scattered sherds, and occupational debris (US 5021). The bread mold rims recovered from this layer date this stratum to the 6th Dynasty.³² The deepest foundations at the external face of the first enclosure wall phase, EWTE 15, cut down to this stratum. The remainder of the wall is founded upon US 5022, a grey-brown occupation layer that was cut to provide a level foundation for the remainder of the wall. Charcoals, bones, and a moderate number of sherds characterized

³² See Appendix B, Plate 5.

this layer. The ash within this stratum gives it a greyish hue that distinguishes it from the more tan colored US 5024 found above this layer as it continues within the intramural space of the tell.



4. 35: View looking northwest at EWTE 15, EWTE 116, EWTE 17, and EWTE 18.

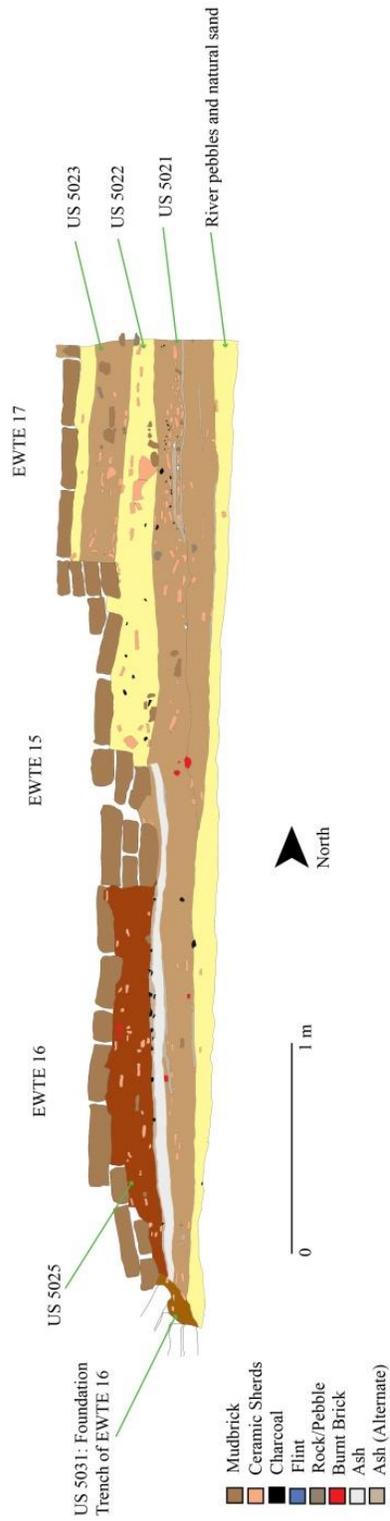


4. 36: View looking northwest at EWTE 15, EWTE 16, EWTE 17, and EWTE 18 with scale included for comparative reference.

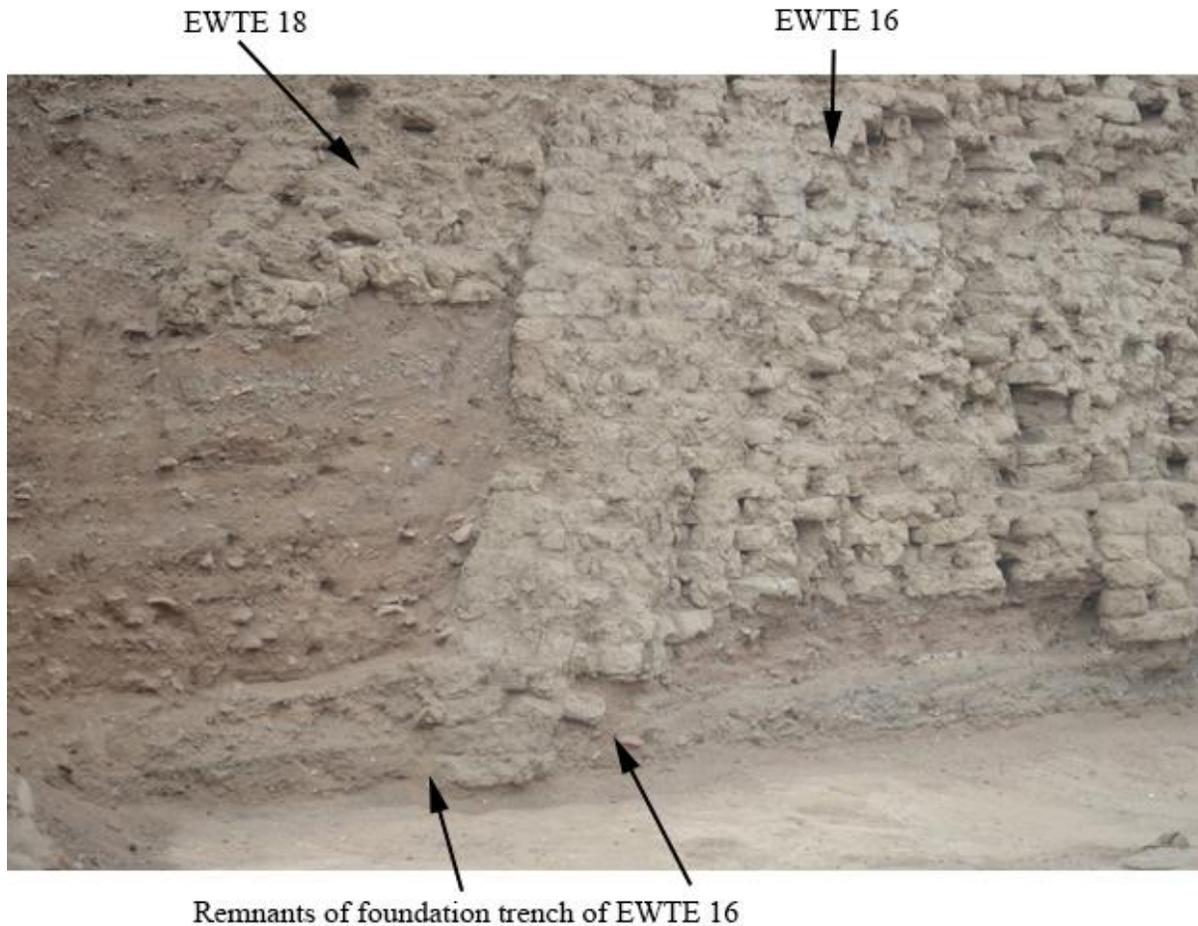
Of the four walls visible in the section, EWTE 15 is the second most northerly enclosure wall phase. Its interior face appears straight, while its exterior face has a sloped form typical of enclosure walls from the Late Old Kingdom-Middle Kingdom. As noted above, the wall seems to have been founded with a base set three courses deeper along the EWTE 15's exterior face, similar to but larger in size than the similar construction described in association with EWTE 11 above. The bricks themselves are roughly 28-29 x 14 x 8 cm. The brick composition is broadly similar to EWTE 10 and EWTE 11 near the necropolis, with river pebbles, the occasional stray sherd, and evidence of straw temper. The soil matrix of these bricks feels relatively fine, but not particularly sandy. The color of the bricks is broadly comparable to those near the Old Kingdom cemetery that escaped burning. The wall is preserved to a height of approximately 4.83 m, and

was approximately 1.4 m wide at its base. The top of the wall seems to have collapsed in antiquity, and to the modern viewer appears as though it had been sheared off together with the top of EWTE 17—an apparent renovation founded just inside EWTE 15.

EWTE 16 denotes the second phase and third most northerly enclosure wall in the *sebbakhin* quarry. Like EWTE 15, its foundations are deeper along its exterior face, where a similar base extends four courses below the foundations of the rest of the wall. This foundation is sunk even deeper into the surrounding soil than its predecessor's—all the way to the natural sand (**Figures 4.37 and 4.38**).



4. 37: Section drawing showing the stratigraphy underlying EWTE 15, 16, and 17, looking north.



4. 38: View looking north showing the foundation trenches associated with EWTE 16 as well as its unique base on its exterior face.

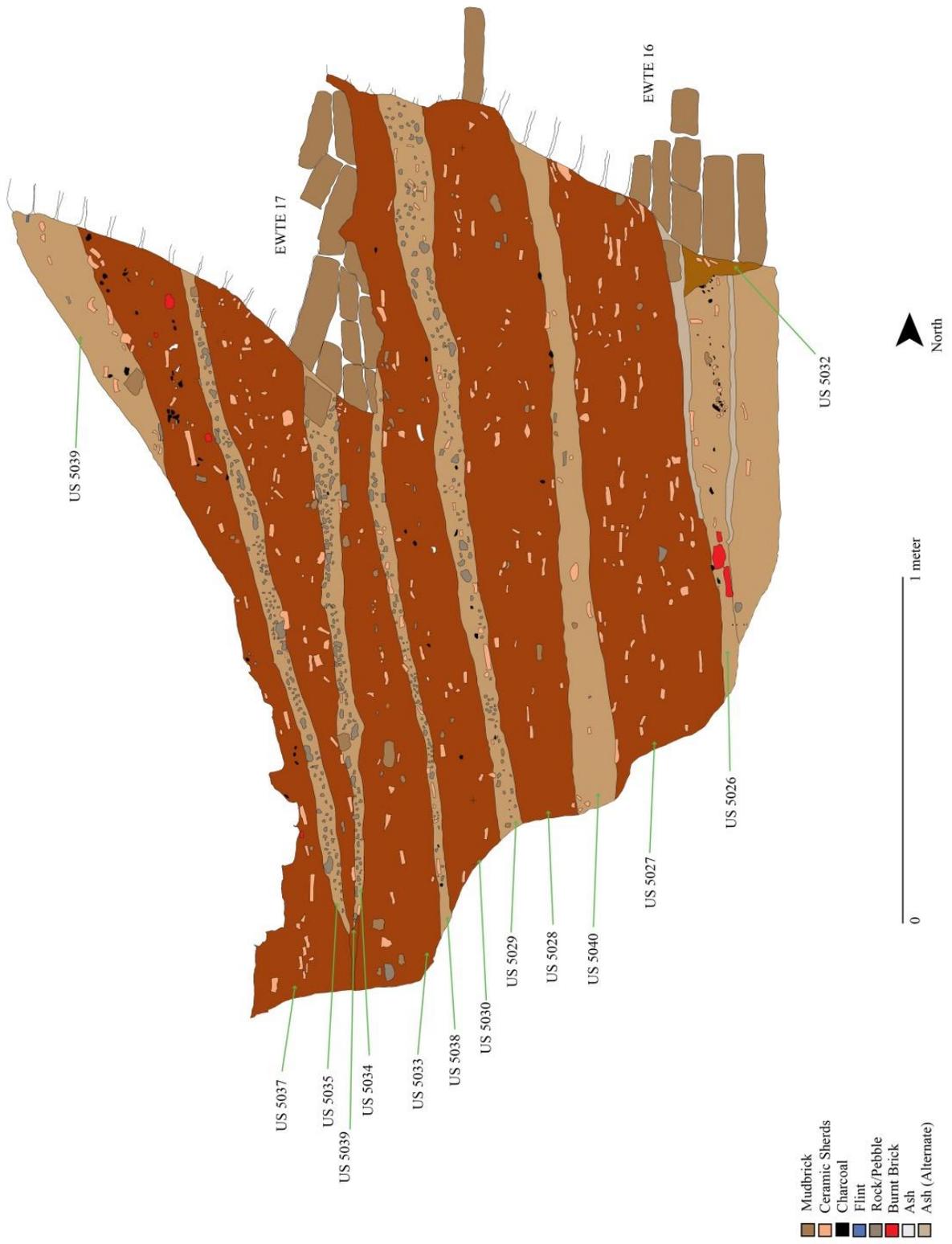
However, numerous technical details related to its construction make plain that EWTE 16 must have been founded after EWTE 15. First, the pronounced slope of EWTE 16's external face and the much subtler but still extant slope of its internal face show that this wall must have rested against an earlier construction—a wall bearing so much weight in such a slanted position could not have been structurally sound without another construction upon which to lean. Second, the foundation of trench EWTE 16 (US 5031) actually cuts through the thick walking level associated with the construction of EWTE 15 together with US 5021 below. Third, only the base associated with the exterior face of EWTE 16 is sunk to a deeper level than the preceding

enclosure wall phase—the remainder of the wall was founded at approximately the same level as that of EWTE 15; indeed, there is a small stratum of deep reddish-brown soil, relatively fine with plentiful white inclusions and likely rich with organic material, that accumulated against the exterior of EWTE 15 prior to the construction of EWTE 16. The pottery from this US is not plentiful enough to distinguish it from US 5021 below it, but the bread mold rims clearly date it to the late Old Kingdom, almost certainly the 6th Dynasty or later. The bricks of EWTE 16 are very similar to those of the first enclosure wall phase, a light greyish brown in color, and roughly the same size: 27-28 x 13-14 x 7-8 cm. Both walls use courses of alternating headers and stretchers, though this was not always strictly followed within the interior of the wall, where headers often predominate. The wall was preserved to a height of 4.95 m and was 2.06 m wide at its base. A sequence of stratigraphy leans against the exterior of this wall (US 5026-US 5030) and ceramics recovered from these layers show that this wall seems to have been maintained through the First Intermediate Period.

Not long after the completion of the initial two phases of enclosure walls, a third wall (EWTE 17) appears to have been constructed along the internal face of the first enclosure wall (**Figures 4.35 and 4.36**). This wall was entirely straight, and perhaps served only as additional support for EWTE 15—it is only 85-90 cm wide at its base. The bricks from this wall are very slightly larger and sandier than the earlier two enclosure wall phases, 29-30 x 14 x 8 cm, but possess a similar light grey-brown color. No foundation trench was found in association with this wall, and it seems probable that it was built directly atop existing strata leaning against the interior face of EWTE (US 5024). The pottery from US 5024 below EWTE 17 suggests this refurbishment to the internal face of EWTE 15 was completed in the late Old Kingdom or First

Intermediate Period, while that of US 5036 leaning against EWTE 17 is essentially identical in character.

A final enclosure wall (EWTE 18) in the “bay” of the *sebbakhin* cut was added just beyond EWTE 16 (**Figures 4.35, 4.36, and Figure 4.39**). This 90 cm wide, sloped wall follows the contours of the earlier enclosure wall phases, and has comparably sized bricks (28-30 x 14 x 7-8 cm). However, the brick matrix is much sandier and seems to have used a greater amount of straw, and the bricks themselves are brittle and weathered. The wall appears to have been very poorly constructed, with bricks at times seemingly piled in a jumble. Generally, however, a token effort to place the bricks in a simple pattern of alternating headers and stretchers was undertaken. The exterior face appears to have been founded one course lower than the remainder of the wall’s foundations, but this may simply be a result of following the natural stratigraphy rather than a deliberate effort to mimic the foundations of EWTE 15 and EWTE 16.



4. 39: Section drawing depicting the strata to the west of EWTE 16 and underlying EWTE 18, looking west.

The wall itself seems to have partially collapsed not long after its construction. The latest stratum prior to the collapse would seem to date to the Middle Kingdom, given the presence of tubular bread molds and prototypes of hemispherical cups from US 5035.³³ This view is strengthened since tubular bread molds are visible in the section directly above the wall's collapse. Determining the date the wall was founded is more challenging, as no foundation trench was identified and the pottery taken from the layers visible in the section was not especially plentiful. However, diagnostic bread mold sherds from the stratum of occupational debris just above the wall's foundation (US 5033) would suggest a Middle Kingdom date.

ZONE 1

The enclosure walls in Zone 1 are some of the most complex at Edfu, and given the limited exposures of such walls in this part of the tell, it is not entirely clear how the full ensemble of enclosure walls functioned together. Elements of seven enclosure walls have been found near the southern and western edges of Zone 1. Four phases of an enclosure wall system following a north-south orientation have been identified to the west of the columned hall (**Figures 4.40 and 4.41**). Further to the south, two phases of walling form a corner, turning from a northeast-southwest trajectory to a southeast-northwest track. Still further to the south, parts of a large enclosure wall traverse the southern margins of Zone on an east-west path. It is far from clear how these walls relate to one another, and in situ archaeological layers are not preserved against most of these enclosure walls, meaning the few ceramics available to help date these walls have been recovered from between or within bricks comprising the walls themselves. While this can help provide a *terminus post quem*, the mixed nature of such deposits cannot securely date these walls to a specific period. In some cases, architectural parallels with other

³³ Appendix B, Plate 9.

walls on the tell or the depth of the foundations of these walls can suggest plausible dates, but these are far less certain than the foundation dates of monumental walls from all other portions of the tell.



4. 40: Orthophoto showing a plan view of the enclosure walls identified in Zone 1.



4. 41: Remnants of four enclosure walls in Zone 1, looking south.

The earliest of the four north-south phases of walling appears to have been EWTE 19 (Figures 4.40 and 4.41). This wall is arguably the most prominent enclosure wall to the west of the Middle Kingdom columned hall complex. Its foundations have been obscured by the three later phases of accretion walls. Only a portion of the top of the wall remains visible, though this nearly 10 m stretch allows for a rough estimate of its orientation. The wall itself had almost certainly fallen into disuse, whether dismantled or simply covered by debris, by the time the columned hall was constructed. Nonetheless, it appears that EWTE 19's presence influenced the western boundaries of the late Middle Kingdom administrative complex in this part of the tell. On the western side of the Southern Columned Hall, builders actually cut a triangle out of the earlier enclosure wall, removing a portion in order to build the southwest angle of the hall's exterior wall.

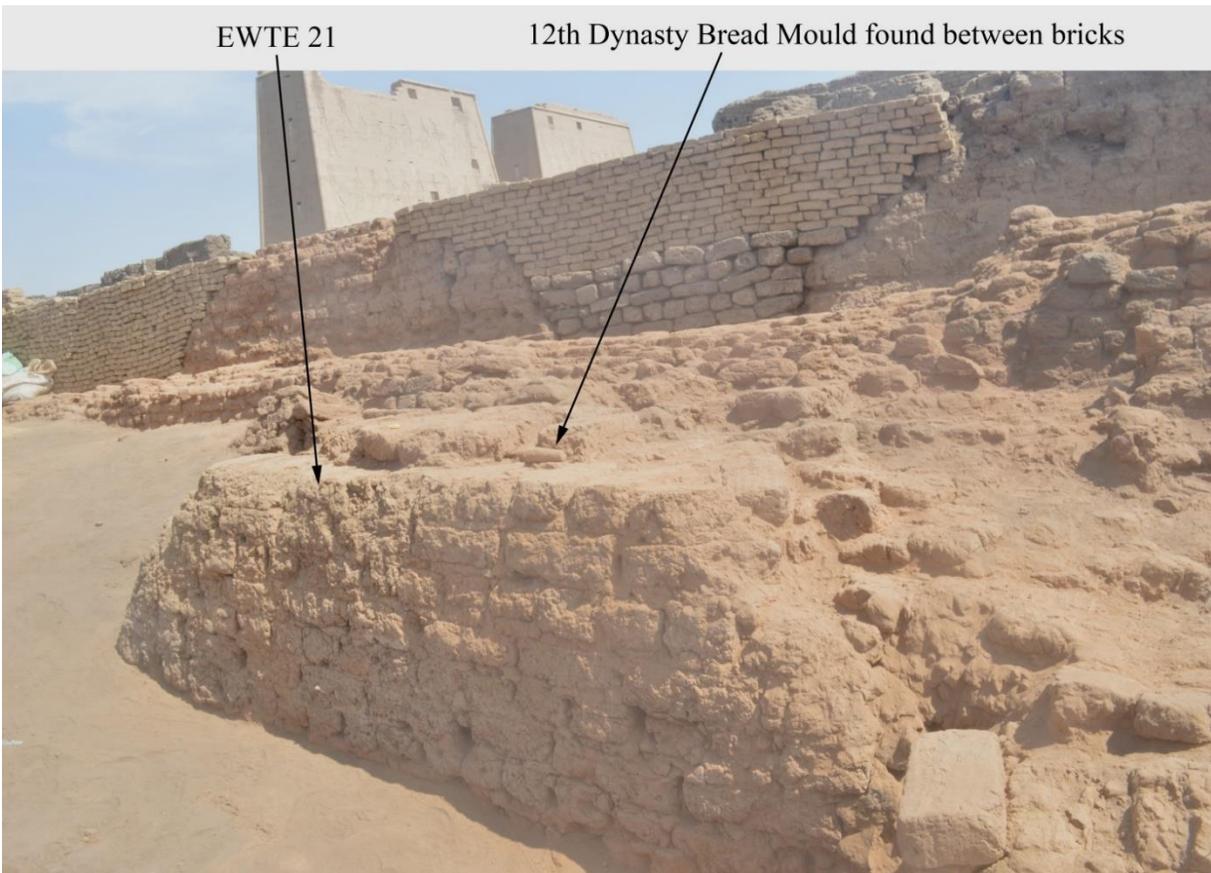
The bricks appear a reddish-brown color, and it appears that the walls in this part of the tell were subjected to multiple episodes of burning, though it is not possible to specifically date any of these incidents. Unlike many other enclosure walls at Tell Edfu, there are few river pebbles but ample amounts of sand in their brick matrix. The bricks are relatively small in size, roughly 28-29 x 13-14 x 8-9 cm. Unfortunately, no trench has reached the foundations of this wall; excavations have not continued beneath the columned hall levels, and accretion walls (EWTE 20, EWTE, 26, EWTE 21) block any view of the foundations of EWTE 19 from the west. Unfortunately, *sebbakhin* digging and earlier excavations have stripped away any intact archaeological layers leaning against the western faces of these walls.

Given the sloped angle of the first addition to this enclosure, EWTE 20, it seems probable that EWTE 19 also had a similarly inclined outer face. Only small fragments of the face of this

wall were preserved but plotting them together with the remnants of EWTE 19 suggest that EWTE 20 was essentially an accretion layer added to the exterior face of the preceding phase (**Figures 4.40 and 4.41**). The bricks of EWTE 20 are comparable in size to those of the earlier phase, approximately 28 x 14 x 8 cm. Like other bricks in other walls from this part of the tell, it appears as though the bricks of the upper preserved portions of EWTE 20 were exposed to intense heat—they appear reddened, and the mortar between such burned courses appears to have been altered by the intense heat to an almost creamy whitish color. The brick matrix of EWTE 20 is quite similar to that of the preceding phase, EWTE 19, with greater amounts of sand used in these bricks than in examples from many of Edfu's other walls. The total width of this phase at the top of the preserved remains is approximately 90 cm. The remnants of the interior show a preponderance of headers, but where the face is preserved, only alternating headers and stretchers are visible. The foundations of EWTE 20 are blocked from view by later enclosure walls.

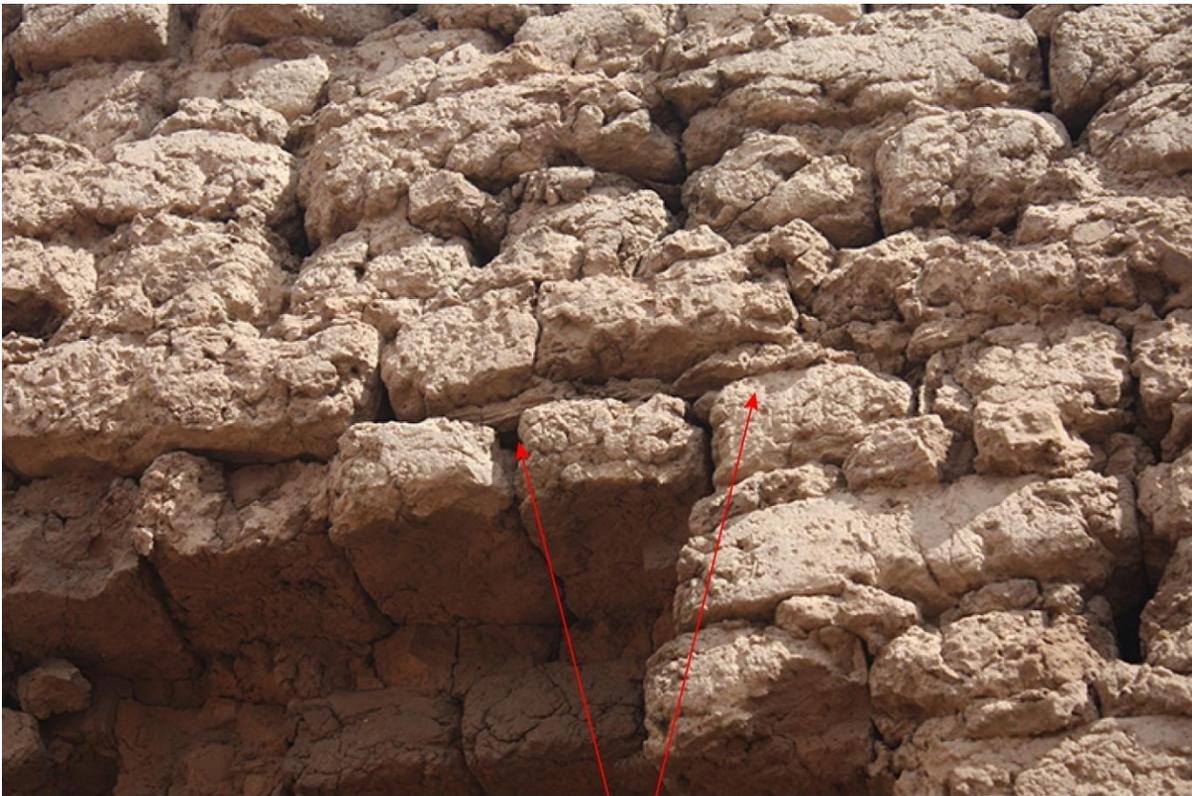
Directly adjacent to this second phase of walling, a small accretion wall was added, EWTE 26 (**Figures 4.40 and 4.41**). It is extremely similar to EWTE 20 in terms of brick composition and brick pattern, but the bricks of this outer accretion wall are less well preserved and slightly more jumbled. They are roughly 28 x 14 x 8 cm, and appear to have been burned in places. A final enclosure wall phase or extramural structure was constructed just beyond and above EWTE 26. The bricks of this phase, EWTE 21, overlie the uppermost bricks of EWTE 26 (**Figures 4.40 and 4.41**). The bricks are much larger than those of the earlier enclosure wall phases, some 35 x 18 x 10 cm in size. In terms of size and brick matrix, they are sandier, lighter brown, and evidence greater amounts of straw and ceramic inclusions than the earlier phases. Occasional river pebbles or small pot sherds are the most common inclusions from this phase.

Copious amounts of mortar were used between courses and individual bricks. A base of a tubular bread mold was found wedged between two bricks within this structure, suggesting a 12th Dynasty *terminus post quem* for this feature (**Figure 4.42**). EWTE 26's foundations are not visible as a result of EWTE 21's placement along its exterior and a significant amount of loose soil already disturbed by the *sebbakhin* together with later rubbish prevents any investigation of this wall's foundations.



4. 42: View looking northeast showing the remains of EWTE 21. Note the cylindrical 12th Dynasty bread mold found between bricks of this wall, providing a *terminus post quem* for its construction.

Further to the south, a large wall forms the southern boundary of the south silo courtyard. This wall, EWTE 22, has not been excavated extensively and thus does not have a set, defined date for when it was founded (**Figures 4.40 and 4.43**). Nonetheless, a Middle Kingdom foundation seems likely given the size and matrix of its bricks, which are very similar to EWTE 21. Furthermore, its position relative to surrounding architecture suggests that it predates the silo court, though in the absence of further excavation it is impossible to determine this definitively. The bricks were approximately 35-37 x 18-19 x 10-12 cm. The wall was built using alternating headers and stretchers. Impressions of reeds on bricks from this wall in two locations some nine courses apart show that beds of reed matting were occasionally used to stabilize the wall and better allow bricks to settle (**Figure 4.43**).

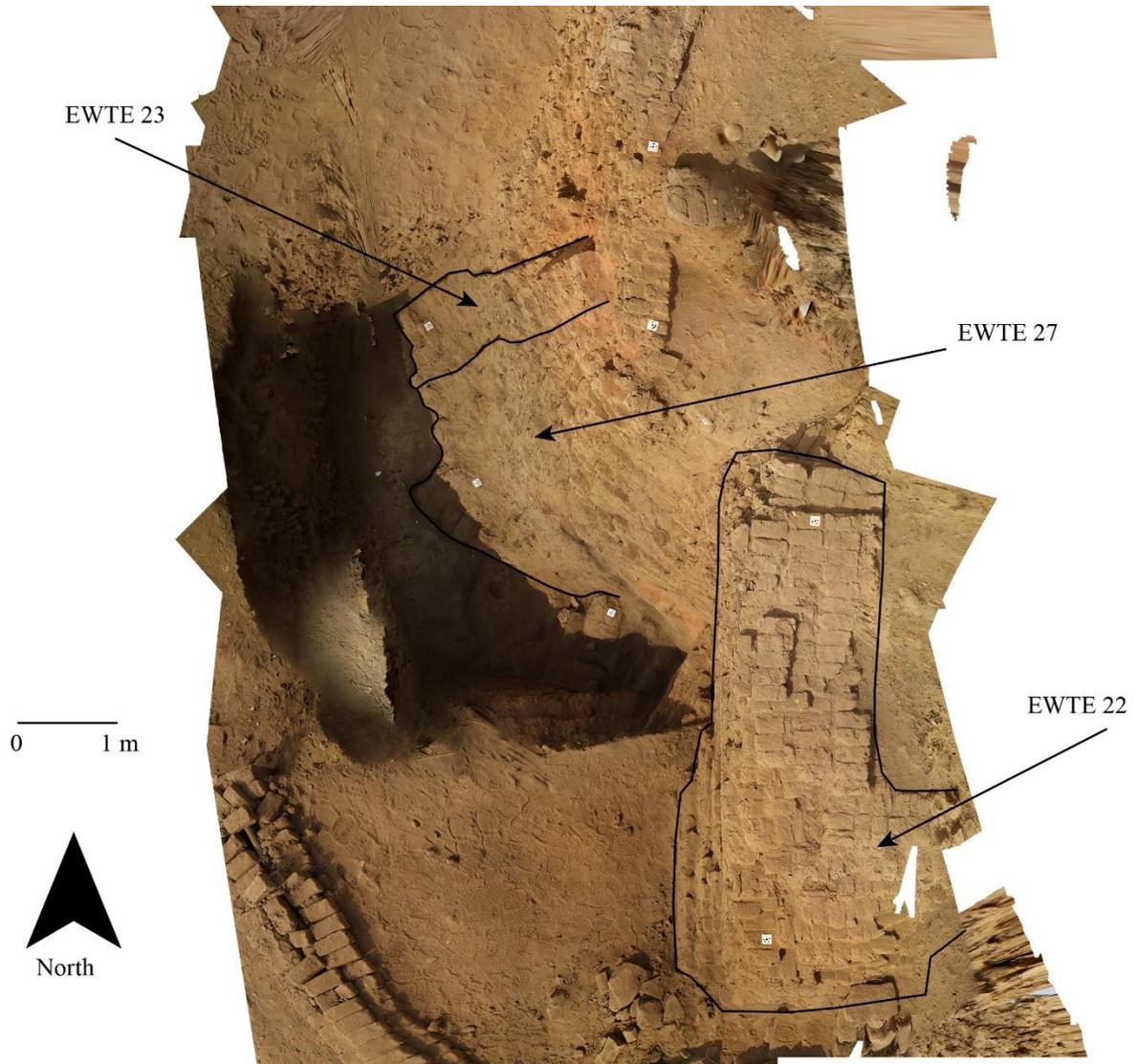


Impressions of reeds in the mortar between courses of bricks in EWTE 22

4. 43: Remains of EWTE 22; impressions of reeds in the mortar between two layers suggest that reed matting was used sporadically to help courses of bricks settle.

Unlike the bricks of EWTE 19, 20, 21, and 26, this wall does not seem to have been burned. The bricks themselves have small river pebble inclusions fairly frequently and are a light brown color not altogether dissimilar to EWTE 13 and EWTE 14 in Zone 4. The foundations of this wall seem substantially higher than those of other Middle Kingdom enclosure walls at Tell Edfu, suggesting that this wall perhaps defined a distinct area within existing perimeter walls.

A sondage just outside and to the southwest of the boundary of the silo court confirmed the presence of additional enclosure wall phases in this area, albeit along a slightly different orientation than the other enclosure walls in Zone 1 (**Figures 4.44 and 4.45a and 4.45b**).



4. 44: Birds-eye view of the corner formed by EWTE 23 and EWTE 27.



45a



45b

EWTE 27

EWTE 22

4. 45:4.45a: View looking east at the upper reaches of EWTE 23 and EWTE 27. EWTE 22 is visible further to the right. 4.45b: View of EWTE 22 and EWTE 27 looking east, with a scale for comparative reference.

Two phases are clearly visible in the section, following a roughly NE-SW trajectory. EWTE 23 and EWTE 27 were founded upon the natural sand, but unfortunately there is no preserved stratigraphy directly adjacent to either face of this corner to provide an exact date for these constructions. The foundation courses of both walls are comprised of headers. Most significantly, however, the preserved remains of the earlier of the two walls (EWTE 27) would seem to make a kind of corner (**Figure 4.46**). These walls are slightly sloping, very typical for monumental walls of the Old Kingdom and First Intermediate Period. The outer phase (EWTE 23) may perhaps be a renovation to strengthen EWTE 27 wall as it begins to turn at the corner; such sharp turns were particularly treacherous as the relatively small (and essentially identically sized) bricks used in these walls (approximately 27-30 x 14 x 7-8 cm) were less adept at withstanding the weight of the wall than larger bricks. Moreover, while straighter or more gently curving sections of the wall could be built in separate segments, the intensity of the pressure exerted on the bricks during sharper turns perhaps demanded that the bricks within the corner be bonded together rather than simply abutting one another—such a construction technique would risk the structural integrity of the enclosure wall as the different segments of the wall could begin collapsing in different directions. In sum, it would tentatively seem as though there are a series of earlier walls from the late Old Kingdom/First Intermediate Period (EWTE 19, EWTE 20, EWTE 23, EWTE 27) that were subsequently overbuilt by later walls from the later First Intermediate Period and Middle Kingdom (EWTE 21, EWTE 22, EWTE 26).



4. 46: View looking east showing the partially preserved corner formed by EWTE 23 and EWTE 27.

CONCLUSIONS: IDENTIFYING SYSTEMS OF ENCLOSURE WALLS AT EDFU

The conclusions derived from this data will be organized as follows: the first portion of this section will detail precisely where and when monumental enclosure walls were constructed at Edfu between the late Old Kingdom and the Second Intermediate Period. It will focus on a series of major walling projects that have been identified thus far and noted below in Table 4.2: the late 5th/early 6th Dynasty constructions surrounding official buildings in Zone 2, the late 6th Dynasty/First Intermediate Period town enclosure walls, the minor renovations to these town walls in the early to mid 12th Dynasty, the new town wall constructed during the mid to late 12th Dynasty, and the collection of enclosure walls that help to define space in Zone 1. The second part will discuss what excavations from recent seasons can demonstrate regarding how these

walls were constructed. Following the analysis of the technical aspects of these walls, this chapter will conclude with a discussion of the broader purposes of these walls and their ongoing presence in Edfu's local landscape.

The data from excavations demonstrates that there were at least five distinct enclosure wall systems at Tell Edfu (See **Table 4.2**).³⁴ The earliest enclosure walls at the site (EWTE 3, EWTE 4, EWTE 5, EWTE 6, EWTE 7, EWTE 8, EWTE 9) surrounded what seems to have been an important precinct within the Old Kingdom settlement within Zone 2, to the west of the Ptolemaic temple. These walls were only constructed after the abandonment of two large buildings (the so-called Northern and Southern Buildings). The ceramic material recovered from excavations near the walls suggests an early 6th Dynasty date. The recovery of numerous seal impressions bearing the cartouche of Djedkare Isesi provides a rough estimate for when these earlier building complexes were in use, providing a secure *terminus post quem* for the enclosure walls that were completed only after these buildings were abandoned. Some of these sealings reference the *smntjw*, usually translated as “prospectors.” Given these seal impressions and the large amounts of copper slag found in loci associated with these buildings, it seems likely that administrative activities related to the managing and processing of precious metals occurred in these buildings. It is likely that some of these administrators were officials associated with expeditions seeking gold or copper deposits in the Eastern Desert. Moeller suggests that these buildings may have been part of a *hwt* complex that was augmented with different buildings over time.³⁵

³⁴ Though they are not discussed extensively, see Moeller in Kemp et al. 2004, Moeller and Marouard 2015 for brief discussions of some of these enclosure wall systems.

³⁵ Moeller forthcoming.

Significantly, no structures, smaller outbuildings, or walls directly border the enclosure walls of this building on its exterior. This kind of separation was rarely if ever maintained except with buildings of cultic significance, important official buildings, royal palaces, or the most sophisticated of Pharaonic military architecture.³⁶ Indeed, structures abut either the interior or exterior of every other system of enclosure walls at Tell Edfu. The Zone 2 walls are also the only enclosure walls from Edfu that appear to have employed elements like a plaster finish or regularly spaced buttresses. While these embellishments could potentially have served a structural purpose, they very likely served an aesthetic one as well—these decorations helped to spectacularize the enclosure walls of a kind of internal citadel within the town. While the exact function of these buildings is unknown and will be investigated in future seasons, it seems likely that the enclosure walls in this part of the tell formed a perimeter wall and internal wall system encompassing at least two sizable administrative buildings that were not dismantled even after they had fallen out of use. The later enclosure walls preserved and respected the limits of these now abandoned buildings, ensuring that they remained a factor in the local urban landscape until the latter 6th Dynasty.

The enclosure walls excavated in Zone 3 and Zone 4 seem to have defined the limits of the urban agglomeration at Edfu. Although they are not connected stratigraphically, clear architectural parallels, small finds/ceramic material that suggest similar dates of foundation, and nearly identical phases of renovations and refurbishments strongly argue that these discrete segments of enclosure walls should be considered part of the same town wall. In sum, one can identify several phases of settlement enclosure walls comprised of walls from the Old Kingdom cemetery area near the southern edge of Tell Edfu, the walls seen in section in the bay created by

³⁶ Moeller 2016, 68 details how most settlement constructions were completed in a more agglutinated fashion.

sebbakhin digging west of the Middle Kingdom columned hall, and walls at the northern margins of the site. Taken together, these walls formed several distinct systems that during the First Intermediate Period and Middle Kingdom served as the settlement's enclosure wall. Pottery recovered from strata leaning against the foundation of the wall suggests that two phases of walling were completed during the late 6th Dynasty (c. 2200 BCE) and perhaps the early First Intermediate Period (EWTE 1, EWTE 10, EWTE 11, EWTE 15, EWTE 16, EWTE 24). These greatly expanded the area of the tell bounded by walls, as the only earlier enclosure walls known from Edfu (EWTE 3, EWTE 4, EWTE 5, EWTE 6, EWTE 7, EWTE 8, EWTE 9) enclosed a comparatively smaller precinct in the Old Kingdom settlement area. A rather shoddy attempt to refurbish (EWTE 12, EWTE 18, EWTE 25) the late Old Kingdom and earlier First Intermediate Period town wall was made during the 12th Dynasty (c. 1900-1850 BCE), before the construction of a much more substantial town wall shortly afterward, also in the 12th Dynasty (c. 1850 BCE) (EWTE 2, EWTE 13, EWTE 14). At times along the northern boundary of the site, this second major settlement enclosure wall was built directly against its predecessor, but the Middle Kingdom wall tracks further to the west near the cemetery. The late Old Kingdom wall (and its associated renovations and refurbishments) had a more sloped outer face and made less angular turns than the Middle Kingdom enclosure wall.

While the ceramic material from adjacent strata strongly indicates that Edfu's perimeter walls were largely constructed during two major episodes in the late Old Kingdom/early First Intermediate Period, architectural parallels and comparable phases of construction suggest that the distinct portions of enclosure walls throughout Zone 3 and Zone 4 should be linked together. Three similar phases of construction are associated with all of the late Old Kingdom/First Intermediate Period town walls. In preserved segments near the northern edge of the site, in the

bay created by *sebbakhin* digging west of Zone 1, and near the Old Kingdom cemetery area, two phases were built either in tandem or shortly after one another (EWTE 1 and EWTE 24 in Zone 3, EWTE 15 and EWTE 16 in the bay west of Zone 1, and EWTE 10 and EWTE 11 near the Old Kingdom cemetery). These walls use comparably sized bricks comprised of a similar matrix of river mud, clay, and sand with similar frequencies of inclusions (typically river pebbles or small pieces of ceramic material). These walls also frequently, though not always, used a kind of base on their exterior face to help bear the weight of their construction (EWTE 10, EWTE 11, EWTE 15, and EWTE 16). Moreover, these enclosure walls were uniformly founded extremely close to or upon the natural sand. A third, much later and more carelessly constructed phase of renovation dating to the 12th Dynasty has been identified along the exterior edge of the walls in Zone 3 and Zone 4 (EWTE 25, EWTE 18, EWTE 12). Fortuitously, the preserved remains of EWTE 18 show the subtle curvature of the wall as it bends to the southwest, allowing for a rough approximation of the pathway followed by this first series of settlement enclosure walls to be estimated. In addition to being more haphazardly placed, the bricks in all three of these walls are much more brittle and apparently made more liberal use of straw temper than the earlier phases of the perimeter wall. Unlike earlier examples, it was simply founded upon existing stratigraphy, though in places it made use of a smaller but similar “foot” on its outer face that was excavated one or two courses deeper than the rest of the wall.

Similar arguments can be marshalled to argue that segments of distinct walls in Zone 3 and Zone 4 (EWTE 1, EWTE 14, EWTE 13) are part of a separate enclosure wall system constructed during the 12th Dynasty. In addition to tubular bread molds excavated from layers directly underlying and leaning against EWTE 13 and EWTE 14 that argue for a 12th Dynasty date, these walls were all built using similar sized bricks (roughly 35 x 18 x 10 cm) that were

substantially larger than those from earlier phases. The bricks from all three walls were similar in color and composition, evincing a light brown hue, and using bricks with more straw temper. Relative to earlier walls, the bricks seem to have been more meticulously placed in a pattern of alternating headers and stretchers, and the wall makes much more angular turns than the earlier town wall. Each wall's exterior face was founded roughly one course deeper than the rest of the wall, though their sloping outer face is much less pronounced than in earlier phases. Unlike the earlier enclosure walls, each segment of the Middle Kingdom town wall above this "foot" below the exterior face was founded upon a course of headers. Care appears to have been taken to cut a more level foundation, as a foundation trench is visible in certain areas, while in others the wall was founded above a man-made base of *tafl* chips (perhaps debris that was left over following the excavation of burial shafts in the cemetery). While the Middle Kingdom wall leans against parts of the earlier enclosure wall system along its northern perimeter, it appears to diverge and follow a more westerly path as it angles southwards. While the earlier enclosure wall curves slightly to the east before bending southwest and zigzagging through the Old Kingdom cemetery, the 12th Dynasty enclosure wall appears to follow a more westerly trajectory. In the cemetery, it briefly adjoins the earlier perimeter wall before resuming an orientation that once again traces a route through the necropolis further to the west.

The relationship of the walls found in Zone 1 to the other existing enclosure walls in Zone 2, Zone 3, and Zone 4 is far less clear. It seems unlikely that the enclosure walls found in Zone 1 (EWTE 19, EWTE 20, EWTE 21, EWTE 22, EWTE 23, EWTE 26, and EWTE 27) can be related to the perimeter walls excavated in Zone 3 and Zone 4. It is possible that EWTE 19 could be linked to one of the enclosure walls from just beyond Zone 2 that extended further to the south. However, the absence of any buttresses or plastering would leave only the earliest or

latest phases of enclosure walling in this area (EWTE 6) as plausible candidates. Moreover, the bricks of EWTE 19 are both slightly larger and a different color than the bricks of EWTE 6 and the brownish-grey bricks of EWTE 3. Larger scale plans of Tell Edfu also suggest that EWTE 19 possesses a more northwest-southeast orientation than the north-south walls in Zone 2, but it is possible that these walls make a turn slightly further to the south. Moeller suggests in a forthcoming publication that this wall (EWTE 19) might be linked to the later phases of the Zone 2 walls, and were completed as the administrative quarter of Edfu shifted to the south, where it would remain throughout the Middle Kingdom. This seems eminently plausible, but at this juncture it is not possible to definitively link the earliest Old Kingdom walls found in Zone 1 to examples elsewhere in the site.

Even within Zone 1, it is unclear how these walls relate to one another. The precise foundation date of EWTE 19 remains unclear, though it has been tentatively dated to the late Old Kingdom or First Intermediate Period since it clearly preceded the construction of the northern and southern columned halls. The foundations of EWTE 23 and EWTE 27 rest on the natural sand, and it is possible that they were completed during the Old Kingdom as activity at the site seems to have expanded southward at this time. The size, brick matrix, and brick color are comparable to examples from this period found elsewhere at the site, but in the absence of ceramic material or small finds to confirm this identification, it has proven impossible to clarify when these walls were built or how they relate to EWTE 19. EWTE 23 and EWTE 27 have a slightly different northeast-southwest orientation compared to the more north-south trajectory of EWTE 19 or any of its associated accretion walls, EWTE 20, EWTE 21 and EWTE 26. It seems significant that EWTE 23 only had a single later wall added to its exterior, while EWTE 19 was

the subject of far more renovation work—it seems unlikely that walls in such close physical proximity would have such different construction histories if they were part of the same edifice.

Despite this wealth of ambiguity, several conclusions can be made regarding the monumental walls in Zone 1. First, as in Zone 3 and 4, there appear to have been two main phases of enclosure wall construction in this part of the tell: one during the late Old Kingdom, where walls were founded almost upon the natural sand (EWTE 19, EWTE 23, EWTE 27), and one during the 12th Dynasty where new walls (for example, EWTE 22 or the structure tentatively identified as EWTE 21) using much larger bricks were constructed. Second, these walls seem to be part of an internal wall system (or systems) that seemed to restrict access to certain areas within the settlement. It is unclear precisely how the walls in Zone 1 relate to the enclosure walls cordoning off access to the precinct in Zone 2, though it is possible that the walls in Zone 1 enclose a separate series of buildings. Third, it seems that the orientation of the enclosure walls in this part of the tell changed at some point prior to the construction of the Middle Kingdom columned hall. EWTE 23 and EWTE 27 form a corner, providing a small clue about the broader orientation of the earlier complex. Later enclosure walls in the area followed a more north-south path, and seem to have provided a template for the boundaries of the later northern and southern columned halls and silo court.

From a technical standpoint, the enclosure walls at Edfu can easily be compared to contemporaneous examples from other sites in Egypt. All of the Old Kingdom and First Intermediate Period walls (and at least one renovation effort of the perimeter walls during the Middle Kingdom) were built with sloping exterior faces. By contrast, the larger Middle Kingdom enclosure walls at the site were built with a nearly vertical exterior face, and used much larger bricks. Other enclosure walls constructed during the Old Kingdom at sites like Kom

Ombo, Elephantine, and El Kab made use of similarly sloping walls.³⁷ From a technical point of view, this architectural form helped distribute weight to the edges of the wall itself, and allowed for the easy construction of later phases of accretion walls to renovate cracks or minor collapses.

Though many questions remain, excavations from recent seasons at Tell Edfu allow for a much clearer picture of how these walls were constructed. While the perimeter walls seem to have been built to a relatively similar height and width throughout the site, one of the more striking features of the walls at Edfu is the relative lack of standardization with regard to technical details even within the same enclosure wall. The foundations of walls were not always particularly level—the foundations of the Middle Kingdom wall (EWTE 13) in the Old Kingdom cemetery area occasionally rest on an artificial base of *tafl* but in other cases, a foundation trench was simply cut into existing stratigraphy. Perhaps more striking is the different patterns of brick laying used in the foundations of the late 6th Dynasty, EWTE 1. In some places, the first course was laid as headers, while in other locations, the bricks were set on edge or in an almost herring-bone fashion. It is possible that such modifications were made to compensate for incremental differences in the elevation of the natural sand along certain segments of the wall.

In other cases, however, it appears as though the walls were assembled rather haphazardly—particularly the accretion walls that were added to existing constructions. Edfu's enclosure walls almost always made use of a bricklaying pattern of alternating headers and stretchers near the faces of a wall with a mass of headers in the center. However, this pattern became far more irregular in the internal portion of most accretion walls. In some cases, rubbish seems to have been dumped in rather carelessly to serve as additional fill: a grinding stone and a large granite slab can be seen in the phases of the late 6th Dynasty wall near the cemetery area.

³⁷ Moeller in Kemp et al. 2004, 265.

In cases where such features were inserted between the earlier wall and were clad with meticulously laid bricks along the new exterior facing, this likely did not dramatically affect the wall's internal cohesion.

Other features also helped to improve the structural integrity of these walls. Small buttresses along the second and third phases of enclosure walls in Zone 2 served both an aesthetic purpose, distributed weight, and retained the wall itself. Plastering on such walls would have also helped mitigate the corrosive effects of erosion along the base. Furthermore, the inhabitants of Edfu seem to have rather liberally renovated and refurbished these walls, often adding sections some one meter thick just outside (or in the case of EWTE 17, just inside) existing phases of enclosure walls. In between EWTE 4 and EWTE 5, small transverse walls connected the existing phases of the wall and were filled in with rubble, comparable to enclosure walls found at Elephantine's Early Dynastic citadel.³⁸ In the case of EWTE 4 and EWTE 8, large stones were used in the foundations, perhaps providing a better drainage system than foundations upon existing strata; however, this technique was not emulated at other enclosure walls elsewhere at the tell.

The perimeter walls seem to have been built in sections, rather than as a single contiguous unit. This is visible in multiple instances along the 6th Dynasty settlement wall, particularly along the northern side, where a clear break between segments of EWTE 1 is visible, and near the Old Kingdom cemetery area, where a gap in the wall was clearly filled in only after the surrounding segments of EWTE 10 were completed. It seems likely that the Middle Kingdom settlement walls were also built in a similar manner. Even if no specific breaks were identified within the extant sections of this wall, this seems likely to have been an accident of

³⁸ Ziermann 1993, 54, Abb. 19.

preservation given the relatively sharp turns the wall makes at certain points near the Old Kingdom necropolis. Moreover, the gap in the late Old Kingdom/First Intermediate Period walls was concealed with bricks and revealed only by chance erosion, and it is likely similar renovations were undertaken with their Middle Kingdom counterpart. Building the wall in discrete units had numerous advantages. First, if structural problems in the form of cracks or unstable foundations emerged, such deficiencies only threatened a limited section of the settlement's enclosure walls. Second, the gaps between segments of the perimeter wall allowed for construction materials and personnel associated with building the enclosure wall to more easily enter and exit. It is also likely that the decision to build the wall in separate segments was a consequence of how the workforce was organized, whether in the form of different work gangs or more kin-based units.

It is unclear what precipitated the flurry of enclosure wall construction at Tell Edfu during the late Old Kingdom. While enclosure walls surrounding important public buildings, monuments, or cultic installations are attested throughout the Old Kingdom, it is significant that settlement enclosure walls were added during a period of relative decentralization. Indeed, the late 6th Dynasty perimeter walls documented along the northern edge of the site and in the Old Kingdom cemetery area dramatically increased the amount of urban space protected by enclosure walls. Understanding the motivations for the construction of such enclosure walls at Edfu depends in many respects upon how one interprets the consequences of more decentralized rule during the latter half of the 6th Dynasty and the First Intermediate Period. Were the enclosure walls reflective of a period of growing insecurity, precipitating the regional conflicts of the First Intermediate Period? Or do the walls at Edfu instead reflect a period of relative prosperity in the provinces, where despite a climate of relative insecurity, greater amounts of resources and

manpower were available given the diminished extractive power of the crown during this timeframe?

The evidence from Edfu is far from conclusive, but would seem to argue for a nuanced, middle-ground perspective between these extremes. Undoubtedly, the decision to construct such substantial town walls would seem to indicate a climate of insecurity and uncertainty. The choice to construct a wall that cuts through an existing cemetery, and to use standing mastabas to help bolster the wall itself, would seem to suggest that the completion of the enclosure walls required some urgency. Indeed, the venerable Isi's mastaba was not even included within the intramural space of the settlement. Evidence from other sites suggests that many settlements in Upper Egypt also built sizable settlement enclosure walls during the late Old Kingdom and early First Intermediate Period, including El Kab, Abydos, and Kom Ombo (see Appendix A).³⁹

On the other hand, the walls at Edfu share few similarities with contemporary or even earlier walls known from specifically military contexts. Indeed, antecedents of the distinctive, sophisticated military architecture known from Middle Kingdom fortresses were already in evidence at various citadel walls in the late Old Kingdom. For example, the walls of the North Enclosure at Balat (6th Dynasty) possessed an internal water source, regular rounded buttresses, circular towers at corners, and screening walls, while even the 1st Dynasty citadel at Elephantine made use of semi-circular buttresses and walls that after several phases of renovation attained a breadth of 4.7 meters—roughly twice as thick as the two phases of enclosure walls constructed at Edfu during the late Old Kingdom!⁴⁰ Though earlier walls in the heart of the Old Kingdom

³⁹ For Abydos, see Kemp 1977, 186-189, and Adams 2005, 581-583. For El Kab, see Hendrickx et al 2010; for Kom Ombo, see Kemp 1985.

⁴⁰ For the northern enclosure at Balat, see Jeuthe 2012, 29-30; Soukiassian et al. 2005, 473-474; Soukiassian et al. 2006, 401-403; Schaad in Soukiassian et al. 2007, 310-311; Soukiassian et al. 2011, 24-28; Laisney 2010, fig. 21, fig. 25-30, and fig. 40. For Elephantine, see Ziermann 1993, 28-35, 132-135, and Abbildung 24.

settlement area at Edfu possessed buttresses that served structural and perhaps aesthetic purposes, these clearly were too small to have any military efficacy. Moreover, the Old Kingdom/First Intermediate Period outer town walls lacked any buttresses or towers (though the Middle Kingdom town wall had a rather large buttress at its northwestern corner). In sum, it seems unlikely that the walls at Edfu were built entirely for defensive purposes given the complete absence of many of the features that characterized contemporaneous or earlier military architecture. Nonetheless, the town walls were massive in size (and nearly 3 m thick during the First Intermediate Period), and at a minimum reflect growing insecurity during a period where textual and forensic evidence suggest the presence of intense if sporadic local warfare.⁴¹

The size of the area surrounded by enclosure walls together with the earliest strata with occupational debris in Zone 4 and Zone 3 (which contain pottery dating to the late 6th Dynasty) suggest that the settlement at Edfu was growing substantially during this time period. It is unclear if this expansion was the result of increased prosperity in the absence of dues owed to the state, or if settlement nucleation ensued when inhabitants from more remote villages immigrated to the town for greater security or increased economic opportunities. Indisputably, the urban area of the tell seems to have expanded dramatically.⁴² A series of round silos that at times seem to have cut into the enclosure wall have been excavated in the northwestern corner of the settlement.⁴³ Near the cemetery area, at least one extramural structure of unknown purpose

⁴¹ For textual evidence, see the inscriptions of Ankhtifi of Mo'alla: Vandier 1950. Corinne Duhig's analysis of skeletal remains from a variety of Upper Egyptian sites suggests an uptick of traumatic injuries during the First Intermediate Period relative to preceding and succeeding periods, but there was no evidence to suggest greater malnutrition or physiological stress during this period of decentralization: Duhig 2009, 64.

⁴² Moeller 2016, 219, 226-231 describes Edfu during this period. See also Moeller and Marouard 2018, 33-42, 54-55.

⁴³ It is worth noting that these silos date to the Middle Kingdom, and cut into the walls of the late Old Kingdom and First Intermediate Period enclosure wall only after the Middle Kingdom wall had been completed. Moeller and Marouard 2013; Moeller and Marouard 2015.

leaned against the walls themselves, suggesting that the local climate was not so dangerous as to preclude any extramural construction or private modification of the enclosure walls themselves.

On balance, there is little evidence to suggest that the town was suffering a dramatic decrease in fortune during the late Old Kingdom and First Intermediate Period. Tantalizing hints, if not explicit proof, of royal foundations during the late 5th Dynasty (given the presence of a seal impression of a priest and also marked with the *serekh* of Djedkare Isesi) and a series of local notables like Isi and later Qar who received positions within the national bureaucracy suggest that Edfu was on the rise (or at least the recipient of royal favor) prior to the collapse of the Old Kingdom state.⁴⁴ In any event, it is clear that the local inhabitants possessed the available resources, manpower, and organizational acumen to orchestrate the construction of massive enclosure walls during late Old Kingdom/early First Intermediate Period, and that the urban area of the town expanded significantly during this timeframe.

The surge of wall construction during the 12th Dynasty also raises questions about the motivations for erecting such structures and their broader historical context. In short, if increasing insecurity spurred wall construction during the late Old Kingdom, why would a similar flurry of construction be necessary during the height of the Middle Kingdom, a period that most Egyptologists and archaeologists would describe as among the most stable in all of Pharaonic history? Although there are occasional hints of dissent and disorder in literary texts, coregencies helped to ensure a relatively smooth transition of power throughout the 12th Dynasty, while Pharaonic Egypt for the first time in its history emerged as an imperial power.⁴⁵

⁴⁴ For Qar's autobiography, see El Khadragey 2002 and Moreno Garcia 1998. For Isi, see Edel 1954; Klothe 2002, 7 (10) and 46-48, Abb. 2 a-c and Taf. 1a-d. Strudwick 2005, 340-345 provides translations of these biographies. Alliot 1935, 8-38 details the excavation of Isi's mastaba.

⁴⁵ Certainly, the treachery noted in the *Instruction of Amenemhat I for his Son Sesostri I* and hinted at in the *Story of Sinuhe* highlight such dangers: see Lichtheim 1973, 135-139 for the *Instruction of Amenemhat I*, and Lichtheim 1973, 223-224 for the death of Amenemhat I in *Sinuhe*. Nonetheless, the mid to late 12th Dynasty was comparatively stable relative to the periods that immediately preceded and followed it. See also Dt. Arnold 1991 for

Indeed, over the course of the 12th Dynasty, some local magnates took positions within the national administration rather than continue ruling as nomarchs.⁴⁶ If an absence of centralized state power played a role in the decision to build earlier enclosure walls, such conditions could not have inspired the second wave of enclosure wall construction at Edfu. Nonetheless, security concerns related to threats beyond Egypt's southern border may still have impelled the inhabitants of Edfu to construct more substantial walls during the Middle Kingdom: just to the south, the fortifications at Elephantine were also renewed during the mid to late 12th Dynasty.⁴⁷ Given that both walls were comparable in breadth, use similar construction techniques, and lack towers known from fortresses further to the south, it is tempting to wonder if these settlement walls attest to a wave of wall construction at multiple sites near the southern margins of Egypt proper, even as fortresses were still being founded as far south as the Nile's 2nd cataract.

Regardless of the impetus for their foundation, the material remains associated with these walls leaves little doubt that they should be dated to the 12th Dynasty. Tubular bread molds found in strata leaning against the foundations of EWTE 2, EWTE 13, EWTE 14, and EWTE 22 date the foundation of these walls to the mid to late 12th Dynasty. A serpentine wall found inside the northern perimeter wall also suggests that there was frequent activity in these areas during the Middle Kingdom.⁴⁸ Furthermore, the bricks themselves are much larger than those from earlier enclosure walls at Tell Edfu, and more significantly, are composed of a very similar matrix of clay, straw, and sand. It is tempting to speculate that this burst of wall construction coincided

the history of the early Middle Kingdom, and particularly the reign of Amenemhat I. For coregencies, see Murnane 1977.

⁴⁶ Franke 1991.

⁴⁷ Cornelius von Pilgrim tentatively estimates that the late Middle Kingdom walls at Elephantine were constructed during the reign of Senwosret III: von Pilgrim, personal communication. This date would match nicely with the Edfu material. The excavation report detailing these walls can be found in von Pilgrim in Seidlmayer et al. 2016, 207-212. The rising state of Kush was clearly a preoccupation of Senwosret III's policy in Lower Nubia, and it would not be shocking if such concerns led to the renovation or addition of fortifications at major settlements in southern Egypt.

⁴⁸ Siegel 2016.

with some of the other well-known building projects from the Middle Kingdom at Tell Edfu—specifically the initial construction of the columned hall buildings near the top of the tell.

However, it is impossible to link or separate the enclosure wall construction from these buildings with any certainty given that it remains unclear what the specific impetuses for enclosure wall construction were. Could the walls and columned halls reflect renewed local prosperity, bolstered by support from the state? Or were they entirely separate initiatives, with the enclosure walls a more local project carried out by Edfu's inhabitants?

Whatever rationale underpinned their construction, it seems highly unlikely that security concerns alone motivated the construction of these enclosure walls given the stability of the mid to late 12th Dynasty. Indeed, as with the earlier Old Kingdom and early First Intermediate enclosure walls at Edfu, these walls conspicuously lack any kind of sophisticated military architecture known from contemporary sites in Nubia. It is possible that this threat of invasion from the south was exaggerated or loomed larger within the imagination of Edfu's inhabitants than in reality, given the presence of an Egyptian boundary stela at Semna and permanently occupied fortresses being constructed over 400 km further to the southwest, beyond the Nile's 2nd Cataract.⁴⁹ Though the Kushites were able to launch razzias as far North as El Kab during the Second Intermediate Period, there is no evidence for such reprisals during a period when the Middle Kingdom state already controlled much of Lower Nubia.⁵⁰

Indeed, it is quite possible that these walls, not unlike the earlier settlement enclosure walls at Edfu, also served to define internal limits within the settlement and the confines of the

⁴⁹ The representation of foreigners was often complex and nuanced (see S.T. Smith 2003, 1-9, 24-32, and his discussion of the distinction between the foreigner *topos* and *mimesis* in particular). However, it is reasonable to wonder if concerns about the dangers of Nubian attacks were exaggerated or spiked in periods like the mid to late 12th Dynasty, when Egyptian pharaohs actively campaigned in, conquered, and colonized lower Nubia.

⁵⁰ For this famous raid, see Davies 2003.

urban site at least as much as they did to ward off attackers. Beyond defense, enclosure walls helped to shelter settlements from encroaching sand dunes and reduce annoyances caused by the buildup of aeolian sand.⁵¹ Such walls could also help to protect the inhabitants of the tell from dangerously high Nile floods and wandering wild animals. Furthermore, internal wall systems near the top of the tell in Zone 1 and in the Old Kingdom settlement area just to the north would have allowed local elites to control and restrict access to important precincts within the town, if perhaps in a less elegantly designed and managed manner than enclosure walls at sites like Heit el-Gurob.⁵²

Just as significantly, the walls defined the urban area of town as a unit, in opposition to the extramural space beyond. This creation of a “contained community” is familiar from previous studies of city walls in precolonial Africa, but in ancient Egypt specifically such a practice has clear symbolic undertones.⁵³ Protective walling as a concept reflects one of the most fundamental tenets of Egyptian religion: the importance of preventing chaos, or “*isft*,” from encroaching upon the just, ordered realm of the sacred, or “*mꜥꜣt*”—a protective responsibility closely entwined with political authority (and particularly royal power) in ancient Egypt from a very early date.⁵⁴ Similarly, the establishment, maintenance, and the expansion of the boundaries of this ordered world was a critical part of the duty of both royal and non-royal individuals in positions of authority.⁵⁵ As a physical embodiment of such symbolic boundaries, monumental walls were quickly seized upon as a medium where political power could be overtly

⁵¹ See, for example, the screening walls at Balat. Schaad in Soukiassian et al. 2007, 310-311.

⁵² For a general overview of the enclosure walls and internal wall systems at Heit el-Gurob, see Lehner and Tavares 2010.

⁵³ Connah 2000, 19.

⁵⁴ See footnote 1 at the start of this chapter. It is worth noting that this was to a certain extent, a broadly held worldview. Smith 1994, 67-74 highlights a number of non-royal examples where tomb biographies of Egyptian nobles highlight their performance of “*mꜥꜣt*”, highlighting its importance as a kind of social code.

⁵⁵ Numerous private individuals reference the importance of performing “*mꜥꜣt*” already during the Old Kingdom: see Smith 1994, 67-74, and more generally, Lichtheim 1992.

demonstrated. Some of the earliest royal monuments were massive funerary enclosures, instantly recognizable by their niched facades, and festivals like “The Circumnavigation of the Walls” are already attested at the beginning of the Old Kingdom.⁵⁶ As early as the late 2nd Dynasty, Memphis, arguably the most prominent city in all of Egypt, was referred to by its metonym: “White Wall.”⁵⁷ There is no reason to divorce the settlement enclosure walls or smaller enclosures within Edfu from this cultural context. Indeed, these symbolic associations are one of the few explanations that can help to explain why the builders of the enclosure walls in Zone 2 took such pains to adorn certain enclosure walls with decorative buttresses and plaster as well as why such monumental walling projects were undertaken even during times of relative safety and prosperity.

The related political principle of restoring, refurbishing, or expanding old foundations provides an explanation for why so many enclosure walls at Edfu were built right next to one another or follow nearly identical paths. Because the ancient Egyptians often hearkened back to a kind of normative, idyllic past, many pharaohs boasted of renewing or expanding earlier temples.⁵⁸ Although later texts refer to the renovation or restoration of enclosure walls,⁵⁹ no contemporary texts do so, and it is highly doubtful that any king was responsible for ordering the construction of additional accretion walls at Edfu. Nonetheless it is important to consider that the maintenance and renovation of existing enclosure walls fits neatly within an already existing cultural paradigm; this is not to diminish the importance of local topography or other more pragmatic factors in guiding the placement of new sequences of enclosure walls, but it is

⁵⁶ This festival is already attested on the Palermo Stone during the reign of Neferirkare: Strudwick 2005, 72. For the royal funerary enclosures at Abydos, see Bestock 2008 and Bestock 2009.

⁵⁷ Garstang 1903, 8-11, pl. 10.

⁵⁸ Kemp 2006, 68 touches upon the importance of an idealized past in ancient Egyptian thought.

⁵⁹ For one example, see Aimé-Giron 1926 notes a stela that commemorates the successful renovation of the temple enclosure walls at Dendara during the reign of the emperor Tiberius.

significant that there were cultural motivations together with pragmatic concerns that would also have driven Edfu's inhabitants to refurbish and expand existing enclosure walls.

Many of the enclosure walls at Edfu continued to demarcate local boundaries long after the settlement's inhabitants stopped maintaining them and they deteriorated into obsolescence. The Middle Kingdom perimeter walls in many places followed a similar course as the earlier late 6th Dynasty-early First Intermediate Period settlement walls; at times, they were even built directly against and on top of the latest renovations of the exterior face of the late 6th Dynasty enclosure wall. Moreover, these Middle Kingdom settlement walls marked the limits of the tell even into the Roman period and beyond. Scattered, less well-preserved examples of settlement walls from the late Roman period can be recognized in places along settlement's western border, oftentimes directly above the remains of the earlier walls.⁶⁰ Given Edfu's lengthy history of occupation, it is conspicuous that the core of the urban settlement at Edfu does not appear to have ever strayed significantly beyond the limits established by walls built in the Middle Kingdom. Even though Isi was revered as a local saint well into the Middle Kingdom, the later settlement enclosures did not include his mastaba within their walls.

The position of smaller, internal enclosure wall systems also had long lasting effects in some parts of Tell Edfu. The path of an earlier enclosure wall (EWTE 19) influenced the western boundary for the Middle Kingdom columned halls, even as later builders cut into sections of this wall to create larger rooms within these buildings. Even later monumental constructions in this part of the tell, like the 17th Dynasty silo court, respected the border defined by this much earlier, and entirely dismantled, enclosure wall. Similarly, a Middle Kingdom

⁶⁰ Clearing by the Franco-Polish expeditions in the late 1930s exposed this wall, but the wall itself received minimal comment compared to the nearby housing complexes on the "central Kom." Bruyere 1937, 19-23, 59-99; Michalowski et al. 1938, Michalowski et al. 1950, 110-160. See in particular Bruyere 1937, Plan I, which shows the much later walls approaching the eastward curve of the earlier enclosure walls.

enclosure wall just to the south served as its southern boundary for both the southern columned hall, and later, the silo court. The imprint such features left in Edfu's local landscape and upon Edfu's inhabitants, whether it be physically, culturally, or mentally, attests to their symbolic potency—a feature that will be investigated in far greater detail in subsequent chapters.

Table 4. 1: Details of enclosure walls identified at Tell Edfu

Enclosure Wall Number	Brick Size (cm)	Brick Color	Brick Pattern	Foundation	Features	Date of Foundation
EWTE 1	28 x 14 x 7	Greyish Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	No uniform foundation course, some bricks are headers, others are set on edge or laid diagonally	Vertical break suggest wall was built in segments	Late 6th Dynasty
EWTE 2	35 x 18 x 10-11	Light Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Foundation course of bricks set on edge	N/A	Mid 12th Dynasty
EWTE 3	28 x 13 x 7	Brownish Grey	Alternating headers and stretchers on faces, headers in the central part of the wall	Founded atop the perimeter wall of the earlier Northern Building	N/A	Early 6th Dynasty
EWTE 4	32-33 x 15-16 x 8	Silty Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Founded upon unworked sandstone slabs	Buttresses	Early 6th Dynasty
EWTE 5	27-28 x 13-14 x 7	Light Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Cut into existing strata, foundation course of headers	Buttresses, transverse walls connected to previous phase	Early 6th Dynasty

Enclosure Wall Number	Brick Size (cm)	Brick Color	Brick Pattern	Foundation	Features	Date of Foundation
EWTE 6	27 x 13 x 6-7	Dark grey and brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Headers, occasionally set on edge	N/A	Early 6th Dynasty
EWTE 7	27 x 14 x 6-7	Light Grey	Alternating headers and stretchers on faces, headers in the central part of the wall	Foundation course of headers and bricks set on edge	N/A	Early 6th Dynasty
EWTE 8	31 x 15 x 8	Silty Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Founded upon unworked sandstone slabs	Buttresses	Early 6th Dynasty
EWTE 9	29-30 x 14 x 8	Light Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Foundation course of bricks set on edge	Buttresses, transverse walls connected to previous phase	Early 6th Dynasty

Table 4.1 (continued)

Enclosure Wall Number	Brick Size (cm)	Brick Color	Brick Pattern	Foundation	Features	Date of Foundation
EWTE 10	28-29 x 13-14 x 7-8	Light Greyish Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Foundation course of bricks set on edge and as headers	Technical opening subsequently bricked over	Late 6th Dynasty
EWTE 11	29 x 14 x 8	Light Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Exterior face founded at least one or two courses deeper	N/A	Late 6th Dynasty
EWTE 12	28 x 14 x 8	Sandier bricks reddened by heat	Alternating headers and stretchers on faces, headers in the central part of the wall	Foundation course of headers	N/A	Early to Mid-12th Dynasty
EWTE 13	34-36 x 17-18 x 10	Silty Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Foundation course of headers, one extra course added below exterior face	N/A	Mid 12th Dynasty

Table 4.1 (continued)

Enclosure Wall Number	Brick Size (cm)	Brick Color	Brick Pattern	Foundation	Features	Date of Foundation
EWTE 14	34-36 x 18 x 10	Silty Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Foundation course of headers, one extra course added below exterior face	N/A	Mid 12th Dynasty
EWTE 15	28-29 x 14 x 8	Light Greyish Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Deeper foundations set below exterior face	N/A	Late 6th Dynasty
EWTE 16	27-28 x 13-14 x 7-8	Light Greyish Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Deeper foundations set below exterior face	N/A	Late 6th Dynasty
EWTE 17	29-30 x 14 x 8	Light Greyish Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Foundation course of stretchers	N/A	Late 6th Dynasty

Table 4.1 (continued)

Enclosure Wall Number	Brick Size (cm)	Brick Color	Brick Pattern	Foundation	Features	Date of Foundation
EWTE 18	28-30 x 14 x 7-8	Sandy Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Exterior face founded at least one or two courses deeper	N/A	Early to Mid-12th Dynasty
EWTE 19	28-29 x 13-14 x 8-9	Reddish Brown from heat exposure	Obscured by later walls	Foundations obscured by later walls	N/A	Possibly Old Kingdom?
EWTE 20	28 x 14 x 8	Reddish Brown from heat exposure	Alternating headers and stretchers on faces, headers in the central part of the wall	Foundations obscured by later walls	N/A	Possibly Old Kingdom?
EWTE 21	35 x 18 x 10-11	Light Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Foundations obscured by debris	N/A	12th Dynasty or later
EWTE 22	35-37 x 18-19 x 10-12	Light Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Foundations obscured by debris	N/A	Possibly Middle Kingdom?

Table 4.1 (continued)

Enclosure Wall Number	Brick Size (cm)	Brick Color	Brick Pattern	Foundation	Features	Date of Foundation
EWTE 23	27-30 x 14 x 7-8	Light Brown		Founded upon natural sand with a foundation course of headers	Forms a corner	Possibly Old Kingdom?
EWTE 24	28 x 13-14 x 7	Greyish Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Foundation course of headers	N/A	Late 6th Dynasty
EWTE 25	28 x 13 x 6-7	Sandy Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Foundation course largely headers	N/A	Early to Mid-12th Dynasty
EWTE 26	28 x 14 x 8	Light Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Foundations obscured by later walls	N/A	No later than the 12th Dynasty
EWTE 27	27-30 x 14 x 7-8	Light Brown	Alternating headers and stretchers on faces, headers in the central part of the wall	Founded upon natural sand with a foundation course of headers	Forms a corner	Possibly Old Kingdom?

Table 4.1 (continued)

Table 4. 2: Table Enclosure wall systems identified at Tell Edfu.

Old Kingdom Administrative Complex Walls	EWTE 3, EWTE 4, EWTE 5, EWTE 6, EWTE 7, EWTE 8, EWTE 9
Late Old Kingdom/First Intermediate Period Town Wall	EWTE 1, EWTE 10, EWTE 11, EWTE 15, EWTE 16, EWTE 24
Middle Kingdom Renovation of Town Wall	EWTE 12, EWTE 18, EWTE 25
Middle Kingdom Town Wall	EWTE 2, EWTE 13, EWTE 14

CHAPTER 5: THE ECONOMICS OF ENCLOSURE WALL CONSTRUCTION

The previous chapters of this dissertation have discussed categories of enclosure walls, the materiality of the mudbrick that comprised most of these constructions, and the results of an archaeological investigation into the enclosure walls at Edfu; in tandem with these chapters, the appendix to this work attempts to catalogue the most important enclosures at various sites throughout Egypt from the Predynastic through the Second Intermediate Period. The remainder of this dissertation will be devoted to analyzing and supplementing the core data presented in the preceding chapters. The coming section will discuss the labor organization undergirding enclosure wall construction. This chapter will review commonalities between enclosure walls with different functions, outline the process by which monumental walls were built, investigate who built such walls, and examine how they were recruited. It will argue that one of the key metrics for evaluating monumental enclosure wall construction is the degree of royal/state involvement in their construction. The preponderance of textual evidence discussing ancient Egyptian construction projects during these periods suggests that compulsory labor service played a substantial role in how larger building projects were staffed and organized; nonetheless, I do not wish to dismiss the possibility that other community or kin-based forms of labor organization might have driven construction at more local building projects like town walls or the enclosure wall demarcating the mortuary monument of a local notable. Following this discussion, this chapter will examine when during the year labor might have been available to construct monumental walling projects and offer up an estimate of how long enclosure wall construction might have lasted at two representative projects: the fortress of Buhen, and the town walls of Edfu. By considering not only the archaeological evidence, but also texts related to other

Egyptian construction projects and ethnographic analogies, this chapter will attempt to provide a more complete view of the costs associated with enclosure wall construction.

COMMONALITIES IN ENCLOSURE WALL CONSTRUCTION

Despite the wide range of functions for which enclosure walls were employed, they shared numerous similarities, from the material used in their construction to the chain of operations involved in their construction process. The vast majority of Egyptian enclosure walls were completed using mudbrick. Indeed, in areas where mudbrick was available, only enclosure walls surrounding royal funerary monuments, or in extremely rare cases, elite tombs, were finished in stone.¹ The basic process of wall construction will be detailed below, but was broadly similar since techniques to prepare the construction area, excavate foundations, produce bricks, lay bricks, plaster or paint walls, and finally maintain or refurbish were typically quite comparable regardless of the function of the wall. Certainly, greater effort was expended decorating the niched façades of the palace enclosure wall at Hierakonpolis or plastering the Shunet el-Zebib of Khasekhemwy than the Early Dynastic town walls at Elephantine, but the basic steps effected by the builders and maintainers of these walls were generally akin to one another.²

How the labor necessary to build such large walls was organized is less well known, but it is likely that there were significant similarities here, as well. With the exception of those individuals in charge of directing the bricklaying process, much of the labor required for

¹ For one such example of an inner stone enclosure wall at a pyramid complex, see Arnold 1988, 58-63. This example will be discussed in greater detail later this chapter.

² For the palace façade wall at Hierakonpolis, see Weeks 1971-72. For the Shunet el-Zebib and Early Dynastic funerary enclosures more generally, see Bestock 2008 and Bestock 2009.

enclosure wall construction was of the relatively unskilled variety.³ Hauling bricks together with accumulating the raw materials for brick production, scaffolding, and internal frames or mats requires significant effort but minimal expertise. Even brick fabrication (detailed in Chapter Three) was not an overly complicated process, though arriving at an appropriate mixture of clay, sand, and silt was slightly more difficult. Most walls would have been completed with the aid of a smaller group of skilled artisans or bricklayers and a larger number of less skilled laborers.⁴ Bigger differences in terms of labor organization likely occurred at departmental levels: directors of projects with national significance, like enclosure walls at royal mortuary monuments, for example, could likely draw upon different bureaus or streams of labor from throughout the country as opposed to those administrators in charge of purely local constructions like town walls.

OVERVIEW OF THE BASIC CONSTRUCTION PROCESS FOR AN ENCLOSURE WALL

The first steps in any enclosure wall's construction process could likely be taken concomitantly: preparing the construction site, and fabricating or quarrying the necessary building materials. The process of brick production was discussed in Chapter Three, and will not be rehashed at length here. Ideally, the brick production process began long before the construction project commenced, so that the bricks had several months to dry out prior to being laid in an enclosure wall. This was likely only possible in circumstances where speed or urgency was not required—in the case of the initial phases of frontier fortresses, completing the tombs of already deceased pharaohs, or walling a town under the immediate threat of attack, it is likely

³ La Loggia and Ormeling arrive at similar conclusions when modelling the labor required to build Early Dynastic mastabas and the 1st Dynasty fortress at Elephantine, respectively: La Loggia 2015, 139, 184-15; Ormeling 2016, 367.

⁴ Determining the exact size of a workforce is extremely difficult, but parallels with mudbrick construction in modern Egypt and contemporary wooden tomb models like MFA 21.411 highlight the larger number of workers necessary to transport bricks and/or raw materials. See also La Loggia 2015, 139.

that bricks were not given such a lengthy time to dry prior to being placed.⁵ Alternatively, existing stores of already fabricated bricks could have been used.⁶ Brick production would have required collecting substantial amounts of alluvial or desert clay, earth and/or Nile silt, sand, and straw temper in order to create a mud mixture from which bricks could be molded.⁷ Additionally, a steady supply of water for mixing the mud was necessary—indeed, the absence of water together with local geological conditions likely accounts for the decision to build many of the enclosure walls at outposts in the Eastern Desert using fieldstones rather than mudbrick.⁸

At the construction site itself, an initial priority was to create a level surface for the erection of the wall. It seems likely that simple, repurposed agricultural tools like hoes would have been all that was necessary to accomplish this in most cases. This process would have varied considerably according to the decisions of those in charge of the construction project: some projects clearly demanded extensive levelling and care prior to laying the first bricks or cornerstones, in particular pyramids or other large stone monuments. Even in these cases, however, most efforts to provide a level foundation were somewhat imperfect. Few studies have acknowledged the efforts necessary to prepare a chosen site for construction, but certain analyses of Early Dynastic fortress construction have attempted to quantify the labor necessary for such a process.⁹ The amount of labor expended levelling a surface obviously depended on the existing

⁵ This could cause major structural problems, since Fathy 1969, 252 estimates that pure Nile mud shrinks up to 30% after drying. Even with straw temper or sand, this could cause problems.

⁶ I am somewhat reticent to suggest that such huge stores of bricks were readily available, particularly for larger town or fortification walls, given the complete absence of any comparable features in the archaeological record. However, bricks would have been in fairly constant demand, and myriad purposes could be found for any kept in reserve. Whether bricks were fabricated in advance or on an *ad hoc* basis, this does not affect total calculations of the labor required to build an enclosure wall.

⁷ Kemp 2000, 79-84; Emery 2009, 2-4.

⁸ Richardson estimates that the total volume of poured water would likely be roughly 25% of the volume of the wall itself: Richardson 2015, 307. The large amount of water required is highlighted in Ormeling 2016, 361. Other materials were also required in large numbers: in describing the construction of the modern dig house at Tell Brak, Oates 1990, 388-389 notes that 60 kg of straw were required for every 100 mudbricks fabricated, and some 800 liters of water were consumed every day just in making the plaster used to coat the building.

⁹ Ormeling's work is notable in his concern for this aspect of ancient construction: Ormeling 2016, 366-367.

strata—removing settlement debris or loose soil clearly was less demanding than excavating into rock formations.¹⁰ Indeed, levelling efforts in local bedrock were essentially limited to royal pyramids.¹¹

After the building site was levelled to the satisfaction of the presiding architects and masons, foundation trenches for the wall could be excavated, if necessary. Not all enclosure walls were built with foundation trenches, and such trenches were not dug uniformly—at Edfu, for example, foundations trenches were excavated only in certain areas of the site, presumably those deemed particularly unstable.¹² This might be the result of some walls being particularly tall and narrow, while in other instances, the instability or friability of the underlying soil might have necessitated a more robust foundation trench. Excavations at Edfu and Dendara have shown that some foundations were excavated quite deep into the earth, while others made room only for several courses of bricks. Still other examples were built directly atop existing enclosure walls which in some cases may have provided a more stable foundation. Often, in cases where enclosure walls were built upon natural sand, and sometimes even in cases where they traversed the existing tell, the base of the wall simply followed the natural contours of the settlement mound without any particular concern paid to its foundations.¹³

In tandem with the digging of foundation trenches, additional material necessary for wall construction would have been accumulated. A host of materials unrelated to mudbrick were required for such large construction projects. Sand was often used to help provide a level

¹⁰ La Loggia 2015, 130-131.

¹¹ Even these efforts were often flawed or somewhat uneven, cf. Arnold 1988, 65.

¹² See Chapter Four for further detail on the monumental enclosure walls at Edfu.

¹³ The Middle Kingdom temple wall at Dendara does exactly this, rising and falling with the topography of the ancient settlement. For additional details, see the section on Dendara in the appendix to this dissertation. Other examples abound: fortification walls were at times built directly upon the geological formations at Uronarti, while sand terracing seems to have been used in other locations (see the corresponding section in Appendix A). At Edfu, the earliest enclosure walls in Zone 1 and Zone 4 were built atop light settlement debris that sat atop natural sand (see Chapter Four). For further information, see the appendix to this dissertation more generally.

foundation in trenches resting upon existing strata, and of course could be used for additional brick production.¹⁴ Indeed, because sand is not very compressible, it is often employed in the foundations of modern constructions as well.¹⁵ Smaller wooden branches and beams (usually from locally available *Acacia Nilotica*) were sometimes employed as a stabilizing internal framework within an enclosure wall, in an effort to reduce damage from cracking or shrinkage as bricks dried.¹⁶ Similarly, reeds were necessary to weave mats inserted between brick courses. These mats helped bricks continue to dry while also limiting the effects of differential settling in sections of a wall. Mortar needed to be created and spread upon mudbricks as they were ready to be placed in the wall, necessitating a steady supply of mud and copious amounts of water close to the construction site.¹⁷ Similarly, plaster for walls must have been produced and applied on site. While plaster was typically soil-based, in some cases lime or gypsum would have been imported in order to give the mixture a whiter finish.¹⁸ Large quantities of straw were required for continued brick production, and also used as temper for mortar or plaster.¹⁹ Animal dung could also be used as a binding agent within such mixtures, as well. Even in the case of walls built using mudbrick, gateways and corners were often reinforced with a stone foundation, cornerstone, threshold, or lintel.²⁰ Finally, with the exception of town walls, enclosure walls were rarely built as an end unto themselves, but rather as part of a broader construction project

¹⁴ For one such example, consider the Middle Kingdom town wall at Edfu (EWTE 13) and its *tafl* and sand foundations as it passed through the Old Kingdom cemetery. Recent fieldwork at the site of Uronarti seems to indicate that sand was used to help create terraces to better approximate a level surface for the foundation courses of some of the administrative buildings at the site.

¹⁵ For example, sand and sand mixed with stones forms the foundation of the Eiffel Tower: Kerisel 1991, 71, fig. 64.

¹⁶ Kemp 2000, 90-91.

¹⁷ La Loggia 2015, 143.

¹⁸ Kemp 2000, 92-93.

¹⁹ Oates 1990, 88-89.

²⁰ Vogel 2011, 302 details one example of a stone foundation for a gateway at the Middle Kingdom fortresses of Kubban. For an example of mudbrick walls using a limestone cornerstone, see Arnold 2005, 82, fig. 4 a-d, where the presence of a limestone cornerstone at the northwest corner of the town wall at Lahun is detailed—a feature first noted by Borchardt.

together with the building they encompassed; thus, materials like large wooden beams, stone blocks, and ochres or pigments for painting might not be required for the enclosure wall itself, but needed to be procured for the building that formed the core of the complex.

At sites with a sacral character like temples, palaces, or perhaps mortuary foundations, rites involving foundation deposits and/or the laying of ceremonial first bricks or cornerstones may have been carried out, though evidence for this practice being employed for their enclosure walls is limited.²¹ Efforts to survey and orient the temple would perhaps be determined by the king or another high official acting in his stead during the “Stretching of the Cord” ritual.²² In some cases, a layer of sand was added to ritually purify the area upon which a sanctuary was to be built.²³ More robust plans of the dimensions of the building and perhaps the enclosure wall would be finalized at this stage, though unfortunately few examples of these documents survive from antiquity, and none from the timeframe which this dissertation discusses.

With the construction site adequately prepared, architectural plans developed, and much of the necessary materials gathered close at hand, the physical construction process could begin. Bricks and stone blocks were likely laid by more skilled laborers or masons with at least some experience or training. Ethnographic estimates from modern day Egypt suggest that roughly 800 to 1000 bricks could be laid per day by a team of two bricklayers and two or three porters transporting bricks to the construction site.²⁴ It is difficult to say with certainty, but it is highly likely that enclosure walls were some of the last elements to be completed at a construction

²¹ The most comprehensive treatment of foundation deposits and their associated rituals remains Weinstein 1973. Foundation deposits were placed beneath the Middle Kingdom temple enclosure wall at Medamud, but this is a relatively isolated example (Robichon and Varille 1939, 86).

²² The precise meaning of this ritual is not entirely clear, and may relate to surveying or setting cornerstones as well, cf. Badawy 1968, 63 and Zaba 1953, 61-62. Belmonte et al. 2009, 197-201 suggest that the ceremony may have played a more instrumental role in setting the axis of a temple.

²³ Shafer 1997, 7 notes the role of shoveling sand to establish purity.

²⁴ La Loggia 2015, 132, 143.

project, since their completion would self-evidently hamper the delivery of building materials to the interior of the construction site. Evidence from numerous sites throughout Egypt suggests that large enclosure walls were often completed in discrete segments.²⁵ This not only facilitated work by different work groups on distinct sections of the wall, but also allowed for the easy delivery of construction materials through openings left in the wall. At Edfu, there is evidence that construction openings may have been left in some places, and were only closed at some time after neighboring segments in the wall had been completed.²⁶

Specific patterns of bricklaying varied dramatically from wall to wall. Some walls reflect the inexperience or the lack of technical competence of the bricklayers who built them, with inconsistent bonding or massive vertical joints contributing to the instability or cracking of walls.²⁷ In other instances, bricks were scrupulously laid on the inner and outer faces, but were placed more haphazardly towards the center of the wall.²⁸ In rare instances, the bricks of an entire wall were meticulously laid, though even in these cases, bonding patterns varied and occasionally bricks were set on edge or diagonally in order to ensure a level surface for succeeding courses.²⁹ Frequently during the periods studied by this dissertation, the inner and outer faces of a wall were built with alternating courses of headers and stretchers, while the internal core of the wall consisted simply of a mass of headers. Modern parallels suggest that

²⁵ For further information, see the appendix to this dissertation, but in addition to the examples at Edfu, the construction of large walls in discrete segments is visible in fortifications and associated walling systems at Middle Kingdom fortifications in Nubia—as attested by the change in the numbers of courses between layers of reed matting and timber inserts from four to six on the southern and western walls at Uronarti. Few other town walls or temple walls have been identified over comparably large expanses, however.

²⁶ Recent excavations at Edfu would seem to confirm this. For more information on specific enclosure walls built in discrete segments, see Chapter Four.

²⁷ Indeed, even well-built constructions that consisted of unbonded accretion walls might crack or collapse along the lines of each phase of walling, as at Khasekhemwy's "fort" enclosure at Hierakonpolis: Friedman 2007, 313-317. Kemp 2000, 88 highlights the broader problems caused by vertical joints in his discussion of mudbrick architecture.

²⁸ The late Old Kingdom/First Intermediate Period town walls of Edfu are one such example.

²⁹ As at the mortuary temple of Senwosret III at Abydos: Wegner 2007, 61-63.

while some laborers must have been employed transporting bricks from the stacks where they dried to the construction site, actually coating the bricks in mortar and then placing them was likely a position for more experienced and skilled workers.³⁰

Archaeological evidence also contributes much to our knowledge of how these walls were constructed. At Edfu, variations between the different enclosure walls highlight how some were seemingly constructed quickly or under duress; indeed, the late Old Kingdom and early First Intermediate Period town walls left the mastaba of the local saint Isi outside their confines even as the walls used the maze of existing mastaba walls closer to the town for additional support.³¹ The traditional Egyptian separation between necropolis and town seems to have been abandoned in this instance, though only partially, and without care for arguably the most well-known tomb in the necropolis. Furthermore, these town walls were not always immaculately constructed. The interior core of the late Old Kingdom town walls consists of a kind of hodge-podge of bricks, several ashy lenses, and even a grinding stone was tossed in as additional fill.³² Greater care seems to have been taken when building the Middle Kingdom town wall, where bricks were laid according to a consistent pattern and with near uniform foundations.³³

Other sites show the care that was taken when building particularly important structures: at the mortuary temple of Senwosret III at Abydos, it is clear from the identical heights of the reed matting between brick courses that all of the walls must have been built simultaneously.³⁴ Numerous pyramids preserve mason's marks, but actual levelling lines were noted on the white limestone facing of the unfinished enclosure wall of Sekhemkhet's "buried" pyramid.³⁵ The

³⁰ Ormeling 2016, 369; La Loggia 2015, 18

³¹ See the section on Edfu's enclosure walls in Chapter Four.

³² See the section on Edfu's enclosure walls in Chapter Four.

³³ See the section on Edfu's enclosure walls in Chapter Four.

³⁴ Wegner 2007, 61-63.

³⁵ Goneim 1957, 2-4.

enclosure walls surrounding part of the Old Kingdom settlement at Edfu were built with a series of decorative buttresses upon either the natural sand or carefully levelled foundations.³⁶ Old Kingdom town walls were frequently built with a gentle slope on their outer side, comparable or perhaps even less than the one palm per cubit slope of many pyramid enclosure walls, and later examples were built in an even more rectilinear fashion.³⁷ Nonetheless, all the examples of town walls at Edfu suggest that the foundations of the exterior face were sunk more deeply into the earth, likely in an effort to lend greater structural integrity to the wall.³⁸ Indeed, the variety of construction techniques employed in enclosure wall assembly showcases the ingenuity of Egyptian artisans.

Once the wall was complete, further plastering, whitewashing, and decoration could begin. Perhaps even more than the bricklaying, this process demanded a greater degree of precision and skill on the part of the artisan. Wall plaster was typically applied quite delicately and thinly, otherwise unsightly drips or cracking could occur. Plaster also necessitated mud, clay or gypsum, and large amounts of water.³⁹ In rare cases, once the plaster was applied, further decoration or painting could occur. The possible boundary wall of HK6, an elite cemetery at Predynastic Hierakonpolis, showed evidence for figural and geometric designs upon the wall itself, but few paintings have been preserved upon mudbrick enclosure walls.⁴⁰ Often only the lower courses or foundations of walls are present, and it is possible that more walls were painted in antiquity. Stone enclosures, like that surrounding Senwosret I's pyramid at Lisht, were occasionally elaborately decorated, but as with mudbrick walls, these cases are exceptional—

³⁶ See the section on Edfu's enclosure walls in Chapter Four.

³⁷ This figure is regularly arrived at by Dieter Arnold in his work at the pyramid complexes of Amenemhat I and Senwosret I, while Maragioglio and Rinaldi have arrived at similar figures in their investigations of enclosure walls surrounding pyramids at Giza and Abusir.

³⁸ See the section on the late Old Kingdom/First Intermediate Period town walls from Edfu in Chapter Four.

³⁹ Kemp 2000, 92-93; La Loggia 2015, 145.

⁴⁰ Friedman 2008, 1185.

perhaps in part because enclosure walls were frequently used as quarries for stone blocks by later generations.⁴¹

Even after a wall was completed, mudbrick walls in particular necessitated significant maintenance and refurbishment.⁴² Re-plastering an entire wall requires as much labor as the initial plastering, while more targeted efforts would require a keen eye and a somewhat skilled craftsman in order to avoid further damaging the older plaster nearby. In some cases, cracks or other structural flaws within a wall might necessitate the addition of accretion walls or retaining walls that would replicate much of the chain of operations necessary to build the original wall, albeit on a much smaller scale. The organization of the workforce that was employed to complete this chain of operations forms the focus of the remainder of this chapter.

RELEVANT TEXTUAL SOURCES REGARDING LABOR ORGANIZATION FROM THE OLD KINGDOM AND MIDDLE KINGDOM

No tomb paintings, graffiti, papyrus documents, commemorative inscriptions, or ostraca discovered thus far directly discuss the construction process and labor organization employed when building enclosure walls or town walls in Pharaonic Egypt. Nonetheless, a wealth of sources detail aspects of labor organization at other large construction projects like Old Kingdom pyramids or Middle Kingdom temples. Most of these documents are partial or incomplete, and a discussion of Egyptian labor organization at construction projects must make wide generalizations from fragmentary, highly specific evidence. I will begin by first reviewing those

⁴¹ For the enclosure of Senwosret I's pyramid at Lisht, see Arnold 1988, 58-63. It was decorated with a Horus falcon bearing a double crown, the king's birth name and Horus name or throne name, all surmounting a palace façade motif with a fecundity figure bearing offerings at the base. See the appendix to this dissertation for more information. Other, less ornate decorations might include the paneled recesses of the enclosure walls of the pyramid complexes of Djoser and Sekhemkhet. For Djoser's enclosure, see Lauer 1936, 82-86; for Sekhemkhet's see Goneim 1957, 1-6.

⁴² Kemp 2000, 78.

documents which detail aspects of construction projects from the Old Kingdom and Middle Kingdom, before subsequently treating those documents that discuss labor organization more generally in the context of expeditions, military campaigns, and administrative management.

From the Old Kingdom, graffiti or mason's marks left by teams of workers at various 4th or 5th Dynasty pyramids and papyrus fragments of daybooks unearthed at Wadi el-Jarf and recording labor on the Great Pyramid are among the most important sources.⁴³ From the Middle Kingdom, portions of Papyrus Reisner I and Papyrus Reisner III discuss the construction of a large building (most probably a temple) during the early 12th Dynasty, and fragments of letters from Lahun seem to relay information about brick production.⁴⁴ The control notes documented by Felix Arnold show that the workers who completed the royal pyramids during the Middle Kingdom were levied from districts within Lower and Middle Egypt from both domains of officials and various settlements.⁴⁵ An ostrakon from the reign of Ramesses III reports on the progress of a building, but this is already several centuries beyond the timeframe of this dissertation.⁴⁶

The Reisner Papyri, Wadi el-Jarf papyri, and the records from Lahun are worth describing in greater detail, as they represent the most prominent Egyptian sources detailing labor at construction projects or related activities like brick production; for this reason, they are likely the most secure sources upon which to base inferences about labor organization at Pharaonic construction projects. Papyrus Reisner I and Papyrus Reisner III both document

⁴³ A comprehensive overview of mason's marks is a task far beyond the scope of this dissertation, but a nice starting point is Dobrev, Verner, and Vymazalová 2011. For the Wadi el-Jarf Papyri, see Tallet 2017.

⁴⁴ For the Reisner Papyri, see Simpson 1963, Simpson 1965, Simpson 1969, and Simpson 1986. For the Lahun letters, see Collier and Quirke 2006. Among others, see UC 32190 C recto (Collier and Quirke 2006, 15), UC 32125 recto column 2 (Collier and Quirke 2006, 68-69), UC 32093C (Collier and Quirke 2006, 193), and UC 32137A (mentions an earth carrier/basket, Collier and Quirke 2006, 235).

⁴⁵ F. Arnold 1990, 22-26; see also Moreno Garcia 2013b, 99.

⁴⁶ Koenig 1997, 9.

building activities during the Middle Kingdom, with the former in particular providing information about the amount of time certain construction activities necessitated. The Reisner Papyri are particularly valuable for the purposes of this dissertation since they detail so many of the practices required for enclosure wall construction (brick making, moving earth, etc.), and some of the construction involves the use of mudbrick rather than stone. Moreover, like records from Lahun, they provide a window into construction organization practices during Egypt's Middle Kingdom. Most letters from Lahun are somewhat later in the 12th Dynasty than the Reisner papyri, but these provide important information about tool names and work rosters. Recent research corroborates Eyre's assumption that much of the work quarrying and transporting stone occurred during the winter months, when laborers were freed from agricultural duties and the Nile facilitated naval transport of personnel and finished stone blocks.⁴⁷ Finally, the Wadi el-Jarf papyri provide a window into the activities of a small team of skilled workers transporting stone for the great pyramid of Khufu. These records help to confirm notions of how such teams might have been organized during the Old Kingdom.

Written documentation of labor practices beyond construction projects can supplement this material significantly. Records of expeditions or military campaigns from both the Old Kingdom and Middle Kingdom, and perhaps more importantly, how the personnel for these expeditions was marshalled, provide ample information regarding labor organization at some of the few projects comparable in scale to monumental wall construction.⁴⁸ The trove of documents associated with the archive of the mortuary temple of Neferirkare at Abusir shed significant light on the organization of labor at a temple complex, albeit for a work force whose tasks were

⁴⁷ Di Teodoro 2018, 163-166, Eyre 1987a, 15-18.

⁴⁸ Moreno Garcia 2010, 14, 21-25 highlights the parallels between Old Kingdom military logistics and the organization of large expeditions. For Old Kingdom expeditions, see Eichler 1993, and for Middle Kingdom expeditions, see Seyfried 1981.

typically not focused upon construction.⁴⁹ The Gebelein Papyri show that villagers from different settlements were grouped under the broader administrative umbrella of a *pr-dt* during the reign of Snefru. The names, titles, homes, and occupations of various *hm njswt*, or “royal serfs,” are recorded in the context of their work delivering grain and textiles at a local temple.⁵⁰ Furthermore, exemption decrees issued by Pepi I and Pepi II help to highlight the institutions and laborers immune to impressment or corvée labor during this time period.⁵¹ The continuity of this at times predatory system of corvée labor is reinforced by a broadly similar but much later decree issued by the 19th Dynasty pharaoh Seti I, protecting the workers assigned to one of his temple foundations at Nauri, in Lower Nubia.⁵²

Further information is available in Middle Kingdom administrative documents like Papyrus Boulaq 18,⁵³ Papyrus Brooklyn 35.1446,⁵⁴ and papyri from Lahun⁵⁵ that record the activities of the two most critical institutions for requisitioning, managing, and enforcing the corvée system—the *hnrt wr* (“Great Seat”) and the *h3 n dd rmt* (“Bureau of Issuing People”).⁵⁶ Though these sources document the activity of the late Middle Kingdom palace at Thebes and activities at a specialized settlement, respectively, they are nonetheless crucial when reconstructing the larger government organs responsible for marshalling and overseeing labor. Papyrus Boulaq 18 records twelve days of accounts noting the receipt and delivery of goods to

⁴⁹ For the Neferirkare archive itself, see Posener-Kriéger 1976. That being said, certain mason’s marks and tablets from the sun temple of Userkaf seem to record phyles of temple personnel laboring at construction. With regard to this evidence, Roth 1991, 137-142, examines the inscriptions first published by Edel in H. Ricke 1965-1969, 2:1-22.

⁵⁰ Posener-Krieger 2004; Moreno Garcia 2013b, 98-99.

⁵¹ Muhs 2016, 25-27. At least 10 royal decrees from the Old Kingdom exempt individuals working at a specific temple or under a specific administrator from the corvée, translated by Strudwick in Strudwick 2005, 97-101, 102-114. For copies of the original hieroglyphic text, see Sethe 1932-33, *Urk I.* 160, 170-172, 207-208, 209-214, 277-293. See also the autobiography of Harkhuf, where the king authorizes Harkhuf to get supplies for the expedition from any temple or estate storeroom: Sethe 1932-33, *Urk I.* 120-131; Strudwick 2005, 328-333.

⁵² Edgerton 1947; Griffith 1927.

⁵³ Scharff 1922a; Scharff 1922b; Quirke 1990.

⁵⁴ Hayes 1955.

⁵⁵ Collier and Quirke 2002; Collier and Quirke 2006.

⁵⁶ Di Teodoro 2018, 152-153.

and from a 13th Dynasty palace.⁵⁷ The recto of Papyrus Brooklyn 35.1446 lists seventy six fugitives from Gebel Silsila to Akhmim who avoided completing labor service owed to the state, a series of instructions to the *hnrt wr* for dealing with these people according to Egyptian law, and finally, notations regarding the resolution of many of these cases.⁵⁸ These sources help to provide a broader understanding of the administrative landscape of ancient Egypt during the Middle Kingdom, and who was responsible for overseeing the various departments of the state.⁵⁹ Other documents like the Berlin Leather Roll (Papyrus Berlin 10470) showcase the importance of census lists, since the routine transfer of a servant between two entities in Elephantine was recorded and documented for preservation in the records of the central administration.⁶⁰ This document is notable since it illuminates ties between local officials like the Herald/Reporter of Elephantine and the office of the vizier, even in the seemingly granular matter of the transfer of a single servant. If Quirke's interpretation is correct, such involvement reinforces the notion that the maintenance of labor rosters was a key task of both local and state officials.⁶¹

MARSHALLING THE LABOR FORCE: WHO ACTUALLY BUILT MONUMENTAL ENCLOSURE WALLS?

The two examples offered later in this chapter rely on the assumption that much of the workforce would have been conscripted to serve as labor for intervals of time at specific construction projects, and this section will principally focus upon reviewing the current state of knowledge regarding compulsory labor in ancient Egypt during the Old and Middle Kingdoms in roughly chronological order. However, there remains a distinct possibility that smaller

⁵⁷ Grajetzki 2013, 237, see also 238-247. For Papyrus Boulaq itself, see Scharf 1922a, Scharff 1922b, and Quirke 1990, 9-121.

⁵⁸ Hayes 1955, 19.

⁵⁹ For a recent overview of Middle Kingdom administration, see Grajetzki 2013.

⁶⁰ Quirke 1990, 203-207; Muhs 2016, 73-75; Vittmann in Porten 1996, 36-42.

⁶¹ Quirke 1990, 203-207.

construction projects or even larger town or temple walls could have been built using different, less coercive modes of labor organization, whether in the form of different kin-groups or lineages that were responsible for certain segments of a wall, or as a community wide response to a particular spiritual or defensive need. This possibility notwithstanding, while a wealth of hieratic documents discuss *corvée* labor, I am unaware of any textual evidence mentioning construction organized through kin-groups rather than forced labor. This absence of evidence certainly reflects the paucity of sources detailing construction projects of any kind, but moreover, it is crucial to note that such records were almost always generated by state officials overseeing tasks where there by definition was significant royal/state involvement. In other words, the extant rosters of laborers exist precisely because institutions and officials needed to manage the personnel allocated for their usage, and more communal, less coercive methods would not necessitate the creation of such documentation.

Yet even at more local constructions like the Edfu town and citadel walls, the standardization of construction practices and brick size argues in favor of a degree of centralized planning. The connections between enclosure wall construction and sovereignty will be explored in far greater detail in Chapter Six, but the political nature of walling projects likely also encouraged a degree of official involvement (or at least authorizing the existence of such walls) even at smaller, more localized constructions. The use of less coercive approaches to build and maintain local temple, town, or citadel walls is certainly plausible, but at this juncture it remains an entirely unprovable possibility, and one that does not accord well with the existing documentation for ancient Egyptian construction projects. Because it is not possible at this juncture to substantiate the existence of this method of labor organization, I am privileging the limited existing documentation that accords compulsory labor service a rather large role.

Finally, while voluntary versus compulsory labor certainly affects the character of the labor and the institutions involved in enclosure wall construction, it should not dramatically affect the total cost (evaluated in person days of labor) related to wall construction.

Unskilled workers would have provided the bulk of the manual labor that produced and transported bricks and stones for monumental enclosure walls. Much of this labor seems to have been organized as part of a kind of *corvée* system whereby individuals annually owed the state, or at least their local administrator, a period of labor service (*hꜣw*) on various projects.⁶² These projects included but were likely not limited to activities like going on expeditions to procure raw materials, serving as a soldier on expeditions abroad, mining or quarrying stone, brick production or transport, and construction. The precise mechanics of this system remain somewhat elusive for many periods of Egyptian history. In particular, the specific obligations of local nomarchs or mayors to higher officials in the state administration remain somewhat obscure, and it is unclear what punishments awaited those officials who were derelict in supplying enough manpower. Administrative texts highlight how the names of the laborers as well as their foremen were recorded in lengthy rosters.⁶³ During the late Middle Kingdom, such lists fell within the purview of the *hꜣ n dd rmt* (literally, “the bureau of giving people”), though it remains unclear whether copies of these lists were maintained in a national archive or simply at a local level, in the charge of the scribal administration of mayors or nomarchs.⁶⁴

Fewer administrative texts are known from the Old Kingdom, and thus the *corvée* system is still more poorly understood.⁶⁵ It appears that mayors, nomarchs, or village leaders were

⁶² Di Teodoro 2018, 14-26.

⁶³ Note the examples from Papyrus Reisner I (Simpson 1963), P. Brooklyn 35.1446 (Hayes 1955), and the host of lists contained in the Lahun accounts published in Collier and Quirke 2006.

⁶⁴ Di Teodoro 2018, 82-83, 152-153.

⁶⁵ Even less is known about how *corvée* labor functioned during the First Intermediate Period, but since the central government was so weak during much of this period and so few royal monuments are attested, it is reasonable to conclude that any construction projects typically must have relied on locally available labor rather than any kind

responsible for supplying a certain number of laborers when called upon by higher officials.⁶⁶ In his tomb autobiography, Weni recounts his command of a military expedition, when he led magnates from throughout the country, including mayors, chief priests, and district officials from Upper and Lower Egypt who in turn were “at the head of their troops,” suggesting that perhaps such local officials were responsible for marshalling them.⁶⁷ It is unclear whether detailed rosters of names were kept by state administrators beyond the local bureaucracy, but there remains the possibility that this may simply be the result of the lack of preserved evidence. Another complicating factor when considering how labor was organized during the Old Kingdom is the phyle system, a system by which teams of workers were rotated in and out of service at temples and royal monuments.⁶⁸ Whether phyles were used beyond the temple sphere or in the provinces beyond the Memphite capital zone remains uncertain, and this will be addressed in greater detail in the discussion of labor organization below.

For the late Middle Kingdom, Micòl Di Teodoro meticulously outlines a system whereby the *ḥ3 n dd rmt* was responsible for maintaining lists of available laborers and allocating them in response to requests for labor.⁶⁹ It seems that this bureau involved itself in certain property transfers as well, perhaps related to efforts to maintain accurate lists of existing households eligible for labor conscription.⁷⁰ Workers eligible for conscription are described in the Reisner

national corvée system. During the Second Intermediate Period, the situation is also unclear. Though less powerful than a united Egypt, it is certain that the 17th Dynasty pharaohs could command military forces mustered from numerous provincial centers throughout Upper Egypt together with Thebes itself. It seems likely that a comparably powerful Hyksos dynasty in Lower Egypt could similarly exert power over much of the land under its control. Certainly, complex trade relations linked the settlements within and between these two large polities (Moeller, Marouard and Ayers 2011, 106-107). Whether the earlier corvée system was employed in royal monument construction is considerably less clear during these periods, though it is certainly plausible that it was.

⁶⁶ Muhs 2016, 31.

⁶⁷ Sethe 1933, 102 (lines 16-18).

⁶⁸ Roth 1991, 1-4; Baines 1993.

⁶⁹ Di Teodoro 2018, 82-83, 152-153.

⁷⁰ Di Teodoro 2018, 83.

papyri and Lahun registers as *ḥsbw*, (“one who is counted”, or “counted man”).⁷¹ Some subset of these *ḥsbw*-workers could be described as *mnjw*-laborers, but the precise meaning of this term remains unclear.⁷² The *ḥnrt wr* office (usually translated as “great seat” or “great prison” was responsible for managing and accomplishing state labor service.⁷³ Both of these departments were at least in theory administered by the vizier (or at the least there is textual evidence of a vizier acting as a liaison between the *ḥ3 n dd rmt* and an Overseer of the Fields) making them linked with the highest levels of the national bureaucracy.⁷⁴ This is hardly surprising, since ensuring the crown received its due from taxes (whether in labor or in kind) was one of the core responsibilities of the vizier.⁷⁵

Quirke rather elegantly solves the problem of locating a physical *ḥnrt wr* by following Hayes in emphasizing its role as an institution; the physical form of the building likely would be difficult to distinguish from other administrative complexes.⁷⁶ Previous efforts to identify a *ḥnrt* have until recently fixated on its role as a prison or labor camp, but the agrarian nature of ancient Egyptian society meant that labor was only rarely aggregated in specific locations at scale, with the notable exception of construction projects, military campaigns, and large mining expeditions. Quirke proposes redefining the term as a kind of enclosure or compound to house laborers.⁷⁷ Possible exceptions in a more military or prison-like context might include the Nubian fortresses, where a *ḥnrt* is referenced in sealings recovered from both Askut and Mirgissa.⁷⁸ However, it is

⁷¹ Di Teodoro 2018, 49-62.

⁷² It seems all *mnjw* were *ḥsbw* but that the reverse was not necessarily true.

⁷³ Di Teodoro 2018, 152-153.

⁷⁴ Di Teodoro 2018, 153;

⁷⁵ Van den Boorn 1988, 310-324. The date of the *Duties of the Vizier* text is disputed, but there can be little doubt that ensuring taxation went smoothly was a central responsibility regardless of time period.

⁷⁶ Quirke 1988, 106; Hayes 1955, 142-143.

⁷⁷ Quirke 1988, 106.

⁷⁸ Gratien 1994, 195-196; Smith 1995, 44. Smith identifies a relatively small building beyond the walls of the fortress as a potential *ḥnrt*: Smith 1995, 45. See also Śliwa 2005, who suggests the presence of a *ḥnrt* at Qasr el-Sagha, though the evidence for identifying the Western Settlement with this institution is not especially convincing.

worth noting that these fortresses were located beyond the traditional boundaries of the Egyptian state, where labor was frequently organized for expeditions to the gold mines in the nearby Wadi Allaqi. In any case, the *hnrt wr* served to ensure that each individual's service in the corvée (termed *h3w* in Middle Kingdom Egyptian sources) was accomplished, while likely coordinating with smaller, more local *hnrt* branches. It likely was also the office responsible for coordinating the logistics required to obtain and maintain this labor force.⁷⁹

Larger or wealthier households could send replacement workers to perform *h3w*-service in the stead of the man named on the existing rosters.⁸⁰ Such legally sanctioned substitute laborers were typically denoted as “man of X” in records noting the presence or absence of workers.⁸¹ The use of such substitute laborers was a privilege of more affluent households, and not accessible to some lesser officials. If a household did not supply enough labor, officials of the *hnrt wr* could seize other household members as *iw3w*, a kind of second order hostage/substitute that would serve until the fugitive surrendered his allotted labor to the state.⁸² There is evidence that women could be taken as an *iw3w*, though they might labor at different tasks than those for which the fugitive was originally requisitioned.⁸³ Once the required labor was accomplished by the individual who had fled, the other members of his household could be released.

Scholars have arrived at different appraisals regarding the difficulties of corvée labor. Though his work addresses topics far broader than labor conscription, Wilkinson decries the

⁷⁹ Quirke 1988, 102. It is likely but uncertain if this responsibility also extended to provisioning these laborers, or if other entities assumed these obligations.

⁸⁰ Di Teodoro 2018, 27-49.

⁸¹ P. Berlin 10021 actually records the presence or absence of workers. Luft 2006, 43-48. UC 32121, UC 32170, UC 32174, and UC 32182 seem to record attendance marks as well.

⁸² Di Teodoro 2018, 27-49.

⁸³ Di Teodoro 2018, 27-30, 149-150.

rose-colored glasses through which many scholars have viewed the Pharaonic state. Rather than viewing it as a kind of benevolent dictatorship, Wilkinson conceives of the ancient Egyptian state as authoritarian and coercive, with minimal regard for the livelihood of its subjects.⁸⁴ In contrast, Seth Richardson's recent study of wall building at Larsa emphasizes the community building aspects of town wall construction and how rapidly such edifices could be constructed. Richardson astutely notes that the expenditure in labor-days on monumental public buildings was considerably less than on agricultural production, and suggests that such building projects were a prudent ideological investment for rulers of Mesopotamian city states. However, he also argues that the communal nature of the work and any accompanying public feasting might even have made such labor less miserable than the everyday drudgery of work in the fields.⁸⁵

I am considerably less sanguine about any positive aspects of the *corvée* system in ancient Egypt. Many rosters of workers record large numbers of fugitives who failed to show up for duty (*wꜥrw*) and the seizure of other members of a household to serve in their stead.⁸⁶ While collective feasting and labor might strengthen communal bonds, I remain highly skeptical that these benefits together with the splendor of the monuments created by such work outweighed the negative elements of *corvée* service: the loss of one's own time and labor, a severely restricted or perhaps even utter lack of freedom of movement, and frequent separation from one's household for extended periods. In the case of those laborers designated for work in quarries or serving as soldiers helping to safeguard mining expeditions, the backbreaking nature of the work and the threat of hostile attack seem at least as unpleasant as toiling in fields.⁸⁷ As noted above, the

⁸⁴ Wilkinson 2010, xxxiii-xxxiv.

⁸⁵ Richardson 2015, 298-299.

⁸⁶ Hayes 1955, 19-25 describes Section A of P. Brooklyn, a list of 76 fugitives from *corvée* service. Sections B and C seem to provide further identifying information about these fugitives

⁸⁷ For a slightly later example showing the hardships of daily life in ancient Egypt at the site of Amarna, see Stevens et al. 2016, 17-20. Their analysis of skeletal remains from the northern cemeteries of Amarna documents the extreme hardship of many of the non-elite inhabitants of the city.

frequent mention of fugitives fleeing from corvée labor suggests that a significant number of ancient Egyptians felt that even potentially horrific consequences like the collapse of one's household (or at least the indefinite seizure of certain members) were worth risking in order to avoid state labor service.

The careful bookkeeping of the late Middle Kingdom is not attested as extensively in earlier periods, though the Gebelein papyri hint at comparable rosters of laborers maintained in local archives.⁸⁸ More than the extant written sources, the barracks style housing of the galleries at Heit el-Gurob and the elaborate system of internal walls that facilitated the regulation of traffic throughout the settlement also point towards a coercive system.⁸⁹ While town walls inherently defined an intramural community in opposition to extramural forces, they also facilitated official management of the population contained within them. In one provocative, perhaps hyperbolic essay, Bruce Williams describes the Egyptian fortresses in Nubia as a kind of “mud-brick curtain” that served not only the broader Egyptian imperial project, but also as a check on fugitives fleeing the state.⁹⁰ During the earliest known labor strike by tomb builders during the reign of Ramesses III, the workers at Deir el-Medina traversed no less than “five walls of the necropolis” in order to petition for their unpaid rations.⁹¹ In many cases, laborers building enclosure walls were working on constructions that despite all their other functions, also served to further administrative control over individual movement in a particular settlement or across a given region. It is all but impossible to reconcile these coercive aspects of Egyptian labor organization with the more optimistic appraisals offered by some scholars.

⁸⁸ Posener-Krieger 2004.

⁸⁹ Tavares and Lehner 2010, 213-214.

⁹⁰ Williams 1999, 449

⁹¹ Edgerton 1951, 139.

All that being said, it is crucial to understand that the evidence detailed above, and written documentation in particular, tends to overstate the power the ancient Egyptian state exercised over its inhabitants. The coercive control of Old and Middle Kingdom Egypt was restrained by significant technological limitations compared to modern totalitarian states, and it was always in the interests of Pharaonic officials to exaggerate the power of their institutions over their subjects. The meticulous record-keeping suggested by attendance rosters or the minutia discussed in communications like the Semna dispatches should be seen as part of a subtle but broader ideological program that emphasized the coercive powers of the state, but also reflected its very real limitations: just as the Semna dispatches record nomadic groups frequently transgressing Egypt's southern borders, so too do attendance rosters from sections of Papyrus Reisner I or Lahun demonstrate that individuals or households frequently *did* manage to escape or delay labor service, and huge resources were required to enforce such regulations.⁹² Moreover, while such administrative documents tend to highlight the power of institutions at the expense of personal relationships, it is crucial to recognize that such relationships of patronage and mutual trust formed a core part of the economic and legal life in Pharaonic Egypt.⁹³

The methodology behind the rosters recording who was eligible for labor service is not entirely clear, but it seems as though households headed by a member of the *ḥmw njsw* (king's slaves/servants, and part of the broader lower socio-economic group of *mryt*, or servants/underlings) social class were expected to contribute at least one laborer.⁹⁴ Given that minor officials are also included on the rosters of names together with dependents and less

⁹² Lehner and Tavares 2010, 214; Padgett and Ansell 1993, 1260. For the Semna Dispatches, see Smither 1945. For evaluations of two additional papyri that discuss Middle Kingdom fortress administration in Nubia, see Liszka and Kraemer 2016 and Kraemer and Liszka 2016.

⁹³ Moreno Garcia 2013a, 4-14 and especially 6 highlights the flexibility of ancient Egyptian bureaucracy and the importance of close relationships with the king and other powerful officials.

⁹⁴ On the *mrt* and *ḥmw-njsw* classes, see Moreno Garcia 1998. Di Teodoro 2018, 84.

prestigious professions, this social class seems to have designated a substantial subset of the Egyptian population during the Middle Kingdom, the time period when the processes associated with marshalling *corvée* labor are best attested.⁹⁵ Free but untitled farmers as well as some lesser officials seem to have been part of this social group. Craftsmen tended not to be called for labor service, but it seems likely that many of these skilled workers were already attached to palatial or temple estates, and thus connected to the broader administrative system. There clearly were large distinctions in terms of the wealth of the households that were listed on labor rosters, as many were able to send a servant or dependent in the stead of the household's head, while others were unable to afford such a luxury.⁹⁶ Outside of the wealthy elite and craftsmen who in most cases were already enmeshed in the national bureaucracy in a royal, religious, or civil capacity, it seems that most other households would have been obligated to contribute laborers. The status of most laborers seems to have been low, and large numbers of the workers recorded in rosters known from texts from Lahun were dependents sent in place of a household head.⁹⁷ Nonetheless, there are occasional instances where household heads appear on roles of names together with dependents.⁹⁸

A further complication is the role of those individuals whose legal status was that of a slave (that is to say, an individual whose person was legally defined as the property of another individual), within the broader workforce. As scholars have noted with respect to slavery in Mesopotamia during the Old Babylonian Period, there is no evidence that the labor that slaves performed was an enormous part of the ancient economy. There is little evidence to suggest that Egypt was an exception to this rule. While there is some evidence that foreigners of unknown

⁹⁵ Di Teodoro 2018, 83.

⁹⁶ Di Teodoro 2018, 17-18, 150 notes that minor officials appear together with substitute workers in P. Berlin 10104.

⁹⁷ Di Teodoro 2018, 17-19, citing P. Berlin 10104.

⁹⁸ Di Teodoro 2018 17-19, also citing P. Berlin 10104.

social status were used as laborers (workers described as Asiatic are noted in P. Brooklyn 35.1446), it seems that they were only a small part of the group called for *corvée* service.⁹⁹ The extent to which prisoners of war captured on military expeditions were a part of the work force remains unclear, but there is no evidence to suggest that they were present in large enough numbers to constitute a dominant part of the workforce. Put bluntly, the life of most people in ancient Egypt was filled with intense manual labor, and the day to day lives of free peasants, tenant farmers, or dependents of larger estates would have been quite similar in many respects. The patronage system that formed the backbone of so many social and official relationships in Pharaonic society meant that many individuals could be conceptualized as a “dependent” of (or at least owed obligations toward) some higher official.¹⁰⁰ This is not meant to suggest that the lot of slaves in ancient Egypt during the timeframe of this dissertation was somehow preferable to even the lowest free individuals in Pharaonic society; rather, it is to emphasize that the institution was fundamentally different than chattel slavery, and was not the structuring element of the economy.¹⁰¹

While scholars have typically assigned roles in construction projects exclusively to men on the basis of tomb paintings, wooden models, and more contemporary prejudices, it is plausible that women also performed some of this labor. In cases of duress or where extreme speed was required, it is possible that the workforce was perhaps less strictly gendered than idealized depictions in mortuary settings might indicate. Recently excavated hieratic ostraca have highlighted the presence of women in work groups, included in rosters in essentially identical

⁹⁹ For P. Brooklyn 35.1446, see Hayes 1955, especially 103-107.

¹⁰⁰ While Egypt’s robust national bureaucracy makes it less applicable than in contemporary or Late Bronze Age Levantine contexts, the “House of the Father” model developed by Schloen is certainly useful when considering social relationships in ancient Egypt as well. Schloen 2001, 313-316. For a similar argument more directly concerned with Pharaonic civilization, see Lehner 2000.

¹⁰¹ Richardson 2019, 289-291.

fashion among male laborers.¹⁰² It is also possible that women taken as *jwꜣw-* hostages/replacements were designated other tasks related to construction or quarrying, like repairing or fabricating tools or processing unrefined ore.¹⁰³ Nonetheless, most of the laborers mentioned in the Reisner papyri seem to be male, as are the members of Merer's team that ferried stone blocks from quarries to Khufu's pyramid.¹⁰⁴

LABOR ORGANIZATION DURING THE CONSTRUCTION OF MONUMENTAL ENCLOSURE WALLS

The physical tasks carried out by workers at most monumental enclosure walls were nearly identical; variations in labor organization were the product of which (if any) administrative departments were implicated in marshalling the labor force and managing the construction project. Thus, differences in labor organization would typically have been the result of differences in the degree of royal/state intervention into the project and differences in scale. It is impossible to confirm in the absence of corroborating textual evidence listing total expenditures, but it seems likely that massive building projects were frequently correlated with royal sponsorship: this was certainly the case at some of the largest and most expensive building projects like royal pyramids and frontier fortresses founded *ex nihilo*. Yet even smaller projects might benefit from the king's largesse, as in the case of royal ka chapels or provincial temples, and in some instances these projects may have had the ability to requisition more expensive building materials and the most skilled artisans and craftsmen to work on their constructions. It seems probable that enclosure walls at such projects were subject to far stricter oversight than say, the wall encompassing a private individual's mastaba or a family chapel. Official state

¹⁰² Bandy 2016, see especially 116-129, 364.

¹⁰³ Di Teodoro 2018, 149-150.

¹⁰⁴ The women mentioned in Section N of Papyrus Reisner I are a notable exception: see Simpson 1963, 46-47, 130.

investiture and oversight would appear to be the most critical factors in determining how the labor to build enclosure walls was organized, and thus, when conceptualizing the cost of enclosure wall construction, it is helpful to envision each building project as falling somewhere along a spectrum of royal/state involvement.

For enclosure walls that were part of royal projects, a much wider range of administrative departments and personnel were likely involved. For constructions that were more local endeavors, like town walls or those walls that surrounded a governor's mansion within an urban enclave, it is less likely that the upper echelons of the national bureaucracy were involved. Particularly during periods like the late Old Kingdom when multiple towns constructed their own walls, it seems likely that only local departments tasked with maintaining lists of workers eligible for *corvée* labor, marshalling these laborers, and finally monitoring construction were associated with these projects. Conversely, Old Kingdom pyramid construction (presumably including their enclosure walls) was supervised by the Overseer of Royal Works, one of the highest officials in the Old Kingdom state.¹⁰⁵

However, the complexities of Egyptian administration were not constant over the roughly two thousand years covered by this dissertation. As Ann Macy Roth's investigation of the evolution of the phyle system over the course of the Early Dynastic and Old Kingdom periods shows, institutions could change dramatically even within a much smaller time frame.¹⁰⁶ That being said, the physical process of mudbrick enclosure wall construction remained essentially unchanged, and there is no evidence that any technical or administrative innovations would have substantially altered the total amount of labor required to complete an enclosure wall. Moreover, while the names and purviews of institutions could and did change throughout the span of time

¹⁰⁵ Strudwick 217-250.

¹⁰⁶ Roth 1991, 207-216.

investigated by this dissertation, the central underlying assumption is that important royal or state building projects had the opportunity to draw upon a wider pool of resources and personnel. Only a few periods of Egyptian history possess the quantity and diversity of written sources that allow for the reconstruction of a clear picture of how *corvée* labor was requisitioned, secured, and managed. For much of the timespan covered by this dissertation, we must rely upon sources produced during the late Middle Kingdom (mid to Late 12th Dynasty through the mid 13th Dynasty), and to a lesser extent, during the 4th through 6th Dynasties.

I do not wish to posit a stark difference between royal and local administrative practices because the two were so intimately intertwined in ancient Egypt during periods where a strong central government existed. The theoretical authority of the vizier over nearly all conscripted labor during the Middle Kingdom muddies any efforts to maintain stark distinctions between royal and local building projects. Moreover, most local agents acted in the name of the crown, rendering even highly specific and localized actions part of the purview of the royal administration. During periods of political fragmentation, local control is more easily identifiable; in contrast, officials in charge of “local” construction projects during the height of the Old or Middle Kingdom would inevitably liaise at least occasionally with members of the central administration (or in the case of provincial governors, might well be part of that system themselves). Additionally, the provisioning of expeditions and laborers assigned to a construction project is rarely completely explained by the textual evidence; under certain circumstances, it is plausible that an important temple or administrative complex might be completed using local labor but supplemented with provisions or materials from state granaries or storehouses. During periods that witnessed significant royal investment in temple foundations in the provinces (like the 6th, 11th, and 12th Dynasties), it would not be surprising to see the state

make some effort to aid in their construction as well as endow them—especially since later royal ideology demanded that the king play at least a metaphorical role in their foundation.¹⁰⁷ The Reisner Papyri also attest to the complexity of the sources from which labor could be drawn. Simpson suggests that some of the accounts in Papyrus Reisner III (sections F and G) are in actuality receipts provided to a royal administrator detailing the amount of work performed by laborers with whom the state contracted privately, together with estimates of the amount of work remaining.¹⁰⁸ Whether this interpretation is correct or not, the complexity of the papyri's accounts and the difficulties scholars have had trying to explain their intricacies point towards the notion that labor organization was likely more rather than less sophisticated, with personnel and material drawn from a variety of different sources.

Moreover, it is unclear how some regional institutions or actors, and major temple complexes most specifically, would fit into a schema positing stark distinctions between local and royal construction projects. During later periods in particular, large temples might possess agricultural estates and land holdings throughout the country, and skilled craftsmen may well have been attached to them as well. The Coptos Decrees of Pepi I and II together with the Dahshur Decree of Pepi I suggest that tenant farmers or low status individuals working on temple lands or attached to temple production facilities more generally were liable to be conscripted for the purposes of forced labor in the absence of specific protections offered by the crown.¹⁰⁹ There is scant evidence to suggest that temples could raise laborers on their own during

¹⁰⁷ Letellier in Helck, Otto, and Westendorf 1977, 912-914 details how the king serves as a protagonist in foundation rituals. On Egyptian temples more generally, see Wilkinson 2000. The 6th Dynasty exemption decrees together with Pepi I's ka chapel at Bubastis point towards increasing royal largesse in the provinces during the later Old Kingdom, while Nebhepetre Mentuhotep was one of the more prolific builders of provincial temples of the 11th Dynasty following his reunification of the country. Stone temples are known from more provincial areas at sites like Qasr el-Sagha.

¹⁰⁸ Simpson 1969, 14.

¹⁰⁹ See footnote 50 above in this chapter for information about these decrees.

the Old or Middle Kingdom, but once founded by either local actors or at the behest of the king, such foundations needed to be maintained and occasionally renovated. The realities hinted at by the Reisner papyri and the wealth of other documents that furnish details about Egyptian labor organization illuminate its highly nuanced, complex, and changing nature.

With these caveats in mind, the diversity of methods by which construction labor was organized in ancient Egypt is worth articulating in greater detail. At the extreme end of the spectrum of royal investment outlined above, we might find the largest enclosure walls encompassing features of considerable royal or strategic importance. In the case of fortification efforts on the frontiers, royal tombs, cenotaphs, or pyramids, it is likely that workers beyond just locally available laborers from the capital region played a role in procuring materials and possibly even the construction itself. The decorative program of many of these monuments emphasized how the totality of Egypt contributed to these national projects, with regional deities associated with various nomes depicted in relief and statuary as supporting and protecting the king.¹¹⁰ Certainly, raw materials in the form of granite, semi-precious stones, and cedar wood needed to be obtained from far flung locales either through trade or expeditions to these regions. During periods of strong, centralized rule during the Old Kingdom and Middle Kingdom, it is extremely likely that the Egyptian state relied on laborers from various parts of the country in order to obtain such goods.

Indeed, the closest analogs in terms of scale and scope to royal monument construction were expeditions or military campaigns into Lower Nubia, the Eastern Desert, and the southern

¹¹⁰ The triads of deities standing near Menkaure in his Valley Temple highlight how the king's mortuary foundation was at least theoretically supported by the produce of nomes throughout Egypt together with their associated deities (Friedman 2015, Friedman 2011, Friedman 2009). Djoser's festival court also emphasizes the role of both Upper and Lower Egypt in confirming his kingship (Goedicke 1997; Lauer 2003). Other relief fragments from later foundations depict the king visiting other sanctuaries and receiving assemblies of gods together with offerings (El Awady 2009, 65-67, 78-79).

Levant and Sinai. Old Kingdom texts like inscriptions commemorating expeditions to the quarries near Hatnub¹¹¹ and the tomb autobiography detailing the official Weni's razzia into the Sinai highlight the geographic diversity of these teams.¹¹² In the case of Weni, his account notes that recruits were drawn from throughout Egypt and led by their district leaders, while an inscription detailing an expedition to Hatnub during the reign of Pepi II describes a force of 1600 men mustered from three different nomes.¹¹³ Weni in particular notes the geographic diversity of his expedition, stating that his force was comprised of "mayors of towns of Upper and Lower Egypt...chief priests of Upper and Lower Egypt... and chief district officials at the head of the troops of Upper and Lower Egypt and from the Nubians of those foreign lands."¹¹⁴ Multiple rock inscriptions from Lower Nubia record an expedition of 20,000 men sent "to hack up the land of Wawat."¹¹⁵ The size of the expedition alone suggests that multiple localities almost certainly contributed members. During the Middle Kingdom, an expedition of roughly 18,500 individuals, including some 20 mayors who presumably accompanied detachments of troops from their respective districts, was dispatched to the quarries in the Wadi Hammamat in Year 38 of Senwosret I.¹¹⁶ On a somewhat smaller scale, Inscription 6 from Wadi el-Hudi records the arrival of an expedition consisting of 1000 recruits from Thebes, 200 troops from Elephantine, and 100 more troops from Kom Ombo, sent to mine amethyst from nearby deposits.¹¹⁷ A somewhat earlier inscription left by the steward Henu in the Wadi Hammamat describes a smaller scale

¹¹¹ Anthes 1928, pl. 11

¹¹² Strudwick 2005, 352-357, esp. 354. For the full text of Weni's autobiography, see Sethe 1932-1933, *Urk. I* 98-110.

¹¹³ For Weni, see Sethe 1933, 101-102 (lines 16-18) and Lichtheim 1973, 20 for a translation. For Hatnub, see Anthes 1928, pl. 11.

¹¹⁴ Sethe 1933, 101-102 (lines 17-18) and Lichtheim 1973, 20.

¹¹⁵ Lopez 1967.

¹¹⁶ Goyon 1957, no. 61, 17-20; Farout 1994, 145-148.

¹¹⁷ Sadek 1980, 16-17, pl. 3.

expedition during the reign of Mentuhotep III Sankhkare of some 3000 men to the Wadi Hammamat, with troops marshalled from Imyotru to Shabet.¹¹⁸

Beyond showing that the Egyptian state was frequently able to marshal troops or laborers from nomes throughout the country, the examples above demonstrate the logistical acumen of the scribes in charge of provisioning such large numbers of individuals. The quantity of food necessary to supply the workforce of the great pyramid or 18,500 individuals in the Wadi Hammamat was enormous—and particularly onerous in the latter case, which by virtue of its distance from the Nile was divorced from the most efficient transport network available to the Egyptians.¹¹⁹ While the robustness of the bureaucracy during the Old Kingdom is typically thought to pale in comparison to that of the Middle Kingdom, it is worth noting that the management of workforces capable of supplying and building the 4th-6th Dynasty pyramids would most probably have generated huge numbers of records, of which unfortunately little has survived.¹²⁰ One rare example, Wadi el-Jarf Papyrus H, records the accounts of cereals delivered to an expedition team, sometimes in the form of unprocessed grains or flour.¹²¹

For larger projects, the *corvée* system appears to have provided the bulk of the labor related to procuring raw materials, brick making, transport, and construction, but the specifics of this system changed significantly over time. During the Old Kingdom, local officials like nomarchs or mayors were responsible for providing a certain amount of laborers to the state. That is to say, taxation was organized at a level beyond the individual—settlements were responsible for providing a certain amount of goods and workers, and when they were found in

¹¹⁸ Couyat and Montet 1912, 99.

¹¹⁹ For the importance of networks of rivers to transportation of goods and personnel as well as the extension of state power more generally in premodern states, see Scott 2009, 54-58.

¹²⁰ Merer's journal recording his small team's activities represents only a tiny fraction of the stone transport being undertaken, to say nothing of the numerous other activities being undertaken in service of building Khufu's pyramid. For this journal, see Tallet 2017.

¹²¹ Tallet 2017, 113.

default, higher officials from the bureaucracy would presumably begin by pressing the local overseer, nomarch, or mayor to investigate.¹²² Lists of some individual laborers were present in the Old Kingdom and likely kept in local archives, as evidenced by the content of the Gebelein papyri, which document the names titles, occupations, and localities of a number of villagers close to Gebelein.¹²³ Given the provisions in the Coptos decrees that exempt personnel from the temple from royal levies at the behest of any number of overseers, it seems likely that some kinds of rosters were maintained.¹²⁴ More comprehensive lists began to be kept starting in the Middle Kingdom, in tandem with more individualized cadastral records that allowed the crown to better maximize its earnings from taxation in both labor and kind. As Brian Muhs notes, the greater efficiency of taxation presumably offset the cost of training the additional scribes necessary for more detailed record keeping.¹²⁵ While local officials were still the point men for any investigations into labor deficits, the more detailed rosters reduced the likelihood that individuals or households dodged state mandated labor service without consequences. For the largest, most highly prioritized construction projects, we should expect that higher state officials interfaced with local leaders in order to obtain laborers from throughout the country, and subsequently deployed them where necessary. It seems likely that once laborers were requisitioned and co-opted by the state for a larger building project or expedition, local officials or mayors were no longer responsible for provisioning them.¹²⁶

¹²² Muhs 2016, 29-31. See also Papazian 2013, both generally and specifically pp. 42, 82-83, for a discussion of importance of local bureaucracies in administration as a result of the geographic extent of the Old Kingdom Egyptian state.

¹²³ Posener-Krieger 2004.

¹²⁴ For one such decree, see Strudwick 2005, 107-108, or for the original, see Sethe 1903, 280-283.

¹²⁵ Muhs 2016, 90-91.

¹²⁶ This is not entirely certain, since individual texts rarely provide a full chain of provisioning for laborers on an expedition or construction project, particularly during the Old Kingdom. Merer and his team were specialists of a sort, but it seems like food was readily provided to them when necessary.

It is also probable that specialist masons or builders were more or less constantly, or at least consistently, employed constructing royal monuments or serving on expeditions procuring materials for such projects. The day books of Merer seem to attest to such a practice, as they describe Merer and his team's efforts transporting limestone blocks from quarries to the construction site of Khufu's pyramid.¹²⁷ It seems that the same team was engaged in expeditions to the Red Sea coast and Sinai, since the papyri themselves were excavated outside of storage galleries at Wadi el-Jarf.¹²⁸ Particularly when building royal pyramids or other large edifices, experienced and capable workers would have been preferred when orchestrating the placement of cornerstones and establishing the plan of the construction. In much the way that Middle Kingdom texts speak of specialists among those recruited for work quarrying stone in the Wadi Hammamat or distinguish between types of warriors sent on expeditions, it seems highly likely that similar specialist masons must have emerged over the course of the pyramid age.¹²⁹ Indeed, it is plausible that much of the *corvée* labor marshalled for such projects was directed or at least operated in support of such skilled workers.

The organization of workers at a royal construction site (as opposed to how they were marshalled) is far less well understood. Egyptian sources like tomb autobiographies from high officials tend to highlight the role of institutions and the allegedly "self-made" careers of administrators while glossing over political and social realities: in one prominent example, Weni's rise to the position of vizier looks considerably less extraordinary when one confirms that his father held the same office before him.¹³⁰ The flexibilities of the ancient Egyptian bureaucracy also contribute to confusion when outlining a specific chain of command at major

¹²⁷ Tallet 2017.

¹²⁸ Tallet 2017, 3-5

¹²⁹ For the example from the Wadi Hammamat, see Goyon 1957, no. 61, 17-20; Farout 1994, 145-148.

¹³⁰ Richards 2002, 90.

construction projects. Personal interactions with the king are frequently the subject of earlier Old Kingdom autobiographical tomb inscriptions, emphasizing the importance of personal relationships within ancient Egyptian bureaucracy.¹³¹ While the power of the king may have waxed and waned over the course of the Old Kingdom, it is indisputable that the pharaoh retained the power to affect fairly granular policies through royal fiat—exemption decrees for personnel at specific temples,¹³² or indeed the youthful Pepi II’s communication to Harkhuf, demonstrate exactly such interventions.¹³³ Because individual relationships were so crucial to the implementation of policy and the wielding of power, it is unsurprising that the state bureaucracy was often quite malleable. It is quite easy to identify administrative spheres (viziers, court officials, mayors, nomarchs, temple administrators, expedition leaders, etc.), but far more challenging to delineate and map career tracks or the power relations between officials in charge of different organs of the state bureaucracy.¹³⁴ Broader reforms of the administrative hierarchy changed things substantially within the Old Kingdom, even within a given Dynasty.¹³⁵ The *cursus honorum* of Pharaonic officials was in many respects less straightforward than their later Classical counterparts, and dependent on a host of factors including familial power and personal relationships with the king.

For certain high priority projects in the Old Kingdom, it is certain that the highest levels of the national bureaucracy were engaged in their construction. In his capacity coordinating the labor and logistics of the project, the vizier himself was very likely involved. Within the uppermost ranks of the administration, royal building projects were managed by the *jmj-r k3t nbt*

¹³¹ Stauder-Porchet 2017 provides an overview of this literary genre.

¹³² See footnote 50 above.

¹³³ Strudwick 2005, 331-333; Sethe 1932-33, *Urk. I* 120-131.

¹³⁴ Moreno Garcia 2013a, 6-7

¹³⁵ For one example, there seems to have been some substantial administrative reformations undertaken by Djedkare Isesi: Barta 2013, 171.

nt nswt, or “Overseer of All Royal Works.”¹³⁶ During the Old Kingdom, holders of this title were exceptionally powerful and well-connected individuals—after the reign of Pepy I and until the end of the 6th Dynasty, this title was held exclusively by men who were viziers or later received that title.¹³⁷ During the 5th Dynasty, multiple officials seem to have held this title simultaneously, suggesting that they were perhaps employed at different construction projects.¹³⁸ Pyramids often would have taken years or perhaps even decades to complete, and the Overseer of Royal Works as well as many higher officials laboring beneath him likely had experience executing construction projects initiated by previous kings. The chain of officials reporting to an Overseer of Royal Works is unfortunately less well documented.¹³⁹

Laborers themselves were organized into larger work crews/gangs, or *prw*.¹⁴⁰ The precise organization of these crews is often opaque, and may well have varied both over time and according to the demands of individual building projects. Work crews were at times divided into northern and southern halves (perhaps paralleling the organization of sailors on ships), and these gangs further subdivided into phyles or companies (*z3*).¹⁴¹ These were smaller groups with rotating periods of service far more familiar from ancient Egyptian temple organization than construction activities, and it is unlikely that their size was consistent over time.¹⁴² A host of titles reflect more specialized divisions on expeditions or at a given site. Generals/overseers of an expedition (*jmj-r mšꜥ*) often led expeditions, but this title understandably is not associated with

¹³⁶ Jones 2000a, 49, 262, Vymazalová 2013, 178-179. For a comprehensive overview of this title, see Strudwick 1985, 217-250.

¹³⁷ Vymazalová 2013, 178-179.

¹³⁸ Strudwick 1985, 217-250.

¹³⁹ Strudwick 1985, 249-250.

¹⁴⁰ Vymazalová 2013, 180-182.

¹⁴¹ For the overlap in nautical terminology, see Roth 1991, 41-59. Dobrev 2003, 30 suggests that phyles might actually have been overseeing the gangs of less skilled laborers. This is plausible but uncertain, and emphasizes how much remains to be reconstructed about how ancient Egyptian construction projects were organized.

¹⁴² Roth 1991, especially 207-217; Kóthay 2007, 149-150.

construction work. More frequently, a director (*hrp*), commander (*tsw*) or multiple individuals holding such a title might be in charge of more localized work at a site.¹⁴³ Inspectors (*shd*) and scribal deputies (*sš*) likely helped organize smaller contingents.¹⁴⁴ Within a phyle, smaller units of 20 men seem to have been common, which were often halved into smaller platoons consisting of 10 men each, headed by an aptly named *jmj-r mdw*, or Overseer of 10.¹⁴⁵ There is some evidence these groups could be further subdivided into groups of five headed by an *jmj-r djwt*, or Overseer of 5.¹⁴⁶ There is frequently an overlap in terms of nautical terminology and how these groups were organized, as well as with the organization of more explicitly military expeditions.¹⁴⁷ The importance of naval transport for moving both stone blocks, grain, and personnel makes such similarities unsurprising. Until the establishment of a permanent standing army, military service seems to have been organized in much the same way.¹⁴⁸

The division of at least part of the workforce into phyles was a regular feature of 4th Dynasty royal construction projects.¹⁴⁹ There are a large number of mason's marks naming phyles at the monumental funerary projects, and tools and other objects are frequently labelled with the name of a phyle.¹⁵⁰ This material evidence shows that phyles served as some kind of organizing principle within larger work gangs. Roth has identified at least three phases of their evolution during the Old Kingdom: in the early 4th Dynasty, phyles seem to have been used to

¹⁴³ Di Teodoro 2018, 161-162.

¹⁴⁴ The Wadi el-Jarf papyri document the activities of a *shd* inspector and his team: Tallet 2017.

¹⁴⁵ Roth 1991, 120-121. Jones 2000a, 143-144 provides a list of attestations for the title Overseer of 10.

¹⁴⁶ This title is rarely attested and frequently seems to be associated with a commander of five ships. For one example where it seems to be a commander of five laborers, see Ward 1982, no. 420, 53.

¹⁴⁷ Roth 1991, 41-59 convincingly argues that the terms for phyles did not develop out of notions of a ship's watch, but the overlap in terms is hardly surprising given the riverine transport and seafaring expeditions attempted by Merer's team: Tallet 2017.

¹⁴⁸ Spalinger 2013, 393, 460-471.

¹⁴⁹ Roth 1991, 119-143.

¹⁵⁰ Roth 1991, 119-143 analyzes this evidence and a comprehensive documentation of original sources. See Spalinger 2013b for a recent investigation of phyles in the Old Kingdom.

govern the temporal organization of workers (that is, when groups rotated in and out of service) while gangs and divisions governed the spatial locations where workers were deployed at a site. During the reign of Menkaure, Roth notes that the system is better documented.¹⁵¹ A royal work crew was divided into two gangs, which were in turn divided into at least four and possibly five phyles, two of which served simultaneously.¹⁵² The exact size of a phyle is unknown and likely changed over time or according to the needs of a given temple or building project.¹⁵³ Roth identifies a fairly significant shift during the 5th Dynasty, when phyles were assigned specific geographic areas to work at within a monument, as demonstrated by clear spatial differentiations where phyle names appear as part of mason's marks from the sun temple of Userkaf.¹⁵⁴ Tarek el Awady's investigation of the Sahure causeway revealed many mason's marks and graffiti, but to my knowledge this study remains unpublished.¹⁵⁵

It is crucial to note that phyle names are essentially absent outside the Memphite capital zone save on tools recovered from royal expeditions.¹⁵⁶ Local building projects may well have been organized in a different manner, or perhaps emulated elements of the phyle system when managing the labor required for monument or enclosure wall construction. Moreover, as Roth notes, mining expeditions in the Eastern Desert or Sinai would have far exceeded the typical, roughly one month long period of service known from priestly settings (though texts detailing this function primarily date from the 5th Dynasty, and thus post-date the 4th Dynasty work crews).¹⁵⁷ One wonders if the use of the phyle system at monumental building projects was in part an administrative effort to streamline the dispersal of provisions—or at least to better

¹⁵¹ Roth 1991, 142-143.

¹⁵² Roth 1991, 142-143.

¹⁵³ Helck 1973, 7 reconstructs the sizes of the phyles operating in the mortuary of Neferikare.

¹⁵⁴ Roth 1991, 133-143

¹⁵⁵ El Awady 2009, 134, fig. 77, and note 877.

¹⁵⁶ Roth 1991, 73-74, and see her note 38 for evidence of tools bearing phyle names found abroad in Nubia or Syria.

¹⁵⁷ Roth 1991, 124.

account for the individuals who were receiving them and recording receipts for how much they obtained. By linking phyles to systems of royal distribution, the question of whether the phyle system originated as part of the cultic sphere or in the organization of labor at royal work projects is rendered somewhat moot—whatever its origins and its eventual position as a structuring element of priestly organization, membership in a phyle meant that provisions and wages would be paid from the granaries and reserves of a larger institution. During the Old Kingdom, these institutions almost invariably were connected to the crown in some capacity.¹⁵⁸ Occasionally, the efforts undertaken to provision a phyle are described in the papyri discovered at Wadi el Jarf. While Merer and his phyle worked transporting stones from Tura to the pyramid site, the Overseer of 6 (Boats) (*jmj r sjsw n wjz*) Idjeru sailed to Heliopolis in order to obtain provisions for the team, presumably from the palace or royal granaries.¹⁵⁹ At provincial construction projects during the Old Kingdom, where labor was likely supplied with resources from local reserves rather than the crown, there may simply have been no need to introduce the phyle system. Moreover, the use of phyles might have been restricted to those skilled laborers who worked as masons, served on expeditions, and helped with transportation—that is to say, those workers who were employed on royal projects as a permanent career, rather than being conscripted for temporary, seasonal work as part of labor service owed to the state.

During the Middle Kingdom, phyles are not frequently attested outside of cultic or ritual activities linked to temples, but it seems as though they were employed with some skilled craftsmen for temporary projects¹⁶⁰ and tend to reoccur in situations where stone is being

¹⁵⁸ Moreno Garcia 2013b, 86-87. While Moreno Garcia 2013c highlights the importance of informal networks of power, his work also highlights the skill of the royal residence in integrating local elites into its broader schema of power during the Old Kingdom.

¹⁵⁹ Tallet 2017, 53-54.

¹⁶⁰ Kóthay 2007, 144, 150.

quarried and moved. Along with the prestige of the institution and its longstanding religious associations, it is plausible that workers constructing temples or shrines were assigned to a phyle in part so that they might obtain a small share in the redistribution of temple offerings. Some stoneworkers (both necropolis workers and quarrymen) seem to have been members of a phyle, though it seems as this was referring to more skilled craftsmen rather than workers cutting stones in quarries.¹⁶¹ A single reference suggests that phyles may have played a role in military organization as well.¹⁶² The general absence of the use of this term outside of temple related activities is conspicuous, however, and seems to indicate that phyles were no longer maintained as a method of organizing large scale royal construction projects as they were during the Old Kingdom. However, the term *pr-s3* appears in the Reisner Papyri, perhaps a legacy of the earlier phyle system.¹⁶³

Even if the basic chain of operations necessary to construct a massive wall was essentially identical, enclosure walls surrounding towns, administrative complexes, or local temples likely could not rely on such a wide pool of available labor as royal construction projects. Laborers must invariably have been drawn from the provincial center itself and any surrounding villages. Just as importantly, local leaders presumably would have had to rely on the available resources within their own nome when provisioning laborers. Less coercive methods centered around civic and familial pride may well have helped to encourage participation among the broader population; however, as discussed above, no sources definitively confirm the existence of this practice. If compulsory labor service was used at local building projects, it seems likely that this process replicated the practices by which labor was marshalled and

¹⁶¹ Kóthay 2007, 138-150.

¹⁶² Schäfer in Erman and Schäfer 1900, 43-45.

¹⁶³ Simpson 1963, 134 provides a list of references for this term in P. Reisner I. Simpson 1965, 57 provides a similar list for P. Reisner II. See also the general index in Simpson 1986, 28.

managed, albeit at a much smaller scale. It is worth noting that even building projects where the state was heavily involved relied extensively on local officials to assemble and organize local workers during the initial phases of the project.

Particularly during the Old Kingdom, the precise mechanics by which individuals would be drafted for labor service are somewhat unclear. Particularly in the provinces, the textual record is extremely sparse. Even fewer papyri related to economic or institutional activity survive than in the Middle Kingdom, and many of the monumental building projects known archaeologically would have had some connection to the state. The Early Dynastic fortress at Elephantine, the large palaces and ka-chapels known from Balat, the provincial step pyramids tentatively tied to the reign of Huni, and the 6th Dynasty ka chapels would all have been connected to the royal cult or were strategic concerns of the Egyptian state.¹⁶⁴ Even large administrative complexes, while not necessarily relying on state resources for their construction, were at least somewhat tied to the national bureaucracy by virtue of their function. Town walls were some of the most prominent monumental constructions whose functions were in many respects divorced from the broader apparatus of the state—large constructions whose practical purpose was limited to defining and protecting a given community.

For expeditions during the Old Kingdom, textual evidence shows that local mayors or nomarchs were responsible for rallying a certain number of individuals from the settlements they administered, and it seems likely that a similar pattern would have been employed at more localized monumental building projects as well.¹⁶⁵ It is unknown whether the kinds of

¹⁶⁴ For the fortress at Elephantine, see Ziermann 1993; for the Ka chapels at Balat, see Soukiassian 2013 and Soukiassian, Wuttman, and Pantalacci 2002; for the provincial step pyramids, see Papazian 2012, 51-54, and Marouard and Papazian 2012 for a more specific example. Finally, see Habachi 1957, 11-43 and Lange 2006 for the ka chapel of Pepi I, the only royal ka chapel from the Old Kingdom whose archaeological remains have been excavated.

¹⁶⁵ Moreno Garcia 2010, 25.

comprehensive name lists known from the Middle Kingdom were already in use at local archives in order to determine who was eligible and available for labor service, or whether the process was notably more informal, relying only on the social ties and obligations within particular villages and settlements. Given the scale of many of these projects and regular if not necessarily annual demands for additional personnel to participate in expeditions, trading missions, military campaigns, or construction projects, it is tempting to think that the former possibility is more likely, though I am unaware of any textual evidence that would confirm such a hypothesis.

As noted above, the evidence from Edfu tentatively suggests that workers were organized in different gangs that were employed on wall construction simultaneously. Evidence for phyles operating in the provinces is conspicuously absent, but the textual record is so limited that there remains a chance that this is simply an accident of preservation. Regardless of whether phyles were used as an organizing principle, it is logical that the total contingent of workers marshalled would then have been divided into smaller work groups. There is little reason to think that smaller groups headed by an “Overseer of 10” or even an “Overseer of 5” wouldn’t have been employed. It is unclear if the highest official who planned and supervised the construction would have been granted the title of Overseer of Works, or if this was only afforded to those officials in charge of building projects tied to the crown.

During the Middle Kingdom, after the creation of the offices of the *hnrt wr* and *h3 n dd rmt* to oversee the drafting and maintenance of rosters of laborers as well as their enforcement, nearly all labor was regulated by offices directed by the vizier. It is all but certain that smaller branches of at least the *hnrt* were present in other provincial centers, and names of officials who served in these institutions are attested from various funerary stelae.¹⁶⁶ However, most records of

¹⁶⁶ Di Teodoro 2018, 73-82.

how these departments operated come from Thebes, a royal seat, or Lahun, a specialized planned settlement that owed its very existence to long term strategic goals of the Middle Kingdom state: the settlement of Hotep-Senwosret was founded to better exploit the agricultural resources of the Faiyum region, and later the adjacent foundation of Sekhem-Senwosret served to perpetuate the mortuary cult of Senwosret II.¹⁶⁷ Thus, the vast majority of the documentation for the actions of the *hnrt wr* and *h3 n dd rmt* comes from either a major royal center or a provincial settlement with unusually close ties to the crown. Nevertheless, the evidence from Lahun suggests that nearly all of this work was managed at the local level, save in instances where laborers were working on royal projects (in the Lahun material, the most oft mentioned example is the mortuary complex of Amenemhat III at Hawara).¹⁶⁸ It is likely that nomarchs or mayors had a far better understanding of what projects were ongoing, who was recruited to work, where such efforts were taking place, and how labor was being allocated to them than non-local high officials from the *hnrt wr*. Officials from beyond the local population center would presumably only become involved in rare moments of crisis or catastrophe when local actors could no longer resolve them, or when projects had a more national importance to strategic, political, and symbolic goals of the crown.

SEASONALITY

While it is crucial to consider when during the year most enclosure walls might be constructed, the dearth of evidence means that little can be concluded with certainty beyond the rather obvious point that work on monumental construction was very likely curtailed when the fields were being sown or the harvest reaped. Nonetheless, it seems worthwhile to emphasize that

¹⁶⁷ For these two toponyms, see Horvath 2009. For a recent re-evaluation of the purpose of the settlement, see Moeller 2017, 203-205.

¹⁶⁸ Di Teodoro 2018, 153.

the process of enclosure wall construction does not fit neatly into seasonal boundaries. Brick production in theory could occur year-round, but gathering the necessary clay and mud would have been more easily accomplished when the Nile floodwaters were not at their highest point. Copious amounts of excess straw from the annual harvest or re-appropriated from animal pens must have been collected and stored in order to serve as temper or a surface upon which freshly molded bricks could dry. Ideally, bricks were fabricated in the spring, and then were subsequently stacked and allowed to dry for the entirety of the summer before being used in a construction project. Stone quarrying could similarly occur whenever there was a surfeit of laborers, but hauling stone from quarries to the construction site most likely occurred when the Nile's annual inundation facilitated transport by boat.

It is likely that many workers connected with monumental construction projects were only employed seasonally, while perhaps a corps of elite or skilled workers were employed more continuously. The Lahun papyri suggest that workers were called to perform *hꜣw*-labor service throughout the year, even during busier periods like the summer harvest prior to the Nile's inundation.¹⁶⁹ It is plausible that this reflects the ongoing need for labor throughout the year, even if many of these projects were simply local maintenance (canal digging, re-plastering existing buildings and walls, quarrying) unattached to a larger effort. Di Teodoro envisions a two-tiered system whereby workers were called to complete smaller tasks according to local exigencies, while larger rotations of workers would regularly be called up to participate in larger, ongoing construction projects.¹⁷⁰ That nearly all quarrying and procurement sites seem to have

¹⁶⁹ Di Teodoro 2014; Di Teodoro 2018, 164-166.

¹⁷⁰ Di Teodoro 2018, 153-156.

been seasonally occupied further underlines the limited timespan of many labor demands outside the agricultural sphere in Pharaonic society.¹⁷¹

DURATION OF WORK

It is impossible to know precisely how long it would have taken to complete a monumental enclosure wall in the absence of explicit textual evidence. For the periods investigated by this dissertation, however, no commemorative stelae or inscriptions note the date when an enclosure wall was completed, nor have scholars unearthed detailed records of the totality of provisions required by laborers on such a project, so even the total size of the workforce remains opaque. Each wall must be evaluated on a case by case basis, and even then, much uncertainty remains. Certainly, walls completed in mudbrick required considerably less effort than the stone walls built surrounding royal pyramids in the Old Kingdom and Middle Kingdom. Nevertheless, it is a worthwhile exercise to attempt to account for the total amount of labor needed to build such massive walls. Even crude estimates can problematize assumptions about the workforce used to complete such projects: for example, if the Edfu town walls required an amount of labor far beyond the capacity of a single settlement to accomplish on its own, this would seem to necessitate a revision of some of the core assumptions made earlier in this chapter. Generally speaking, the labor estimates calculated below will assume slower work rates and overestimate the amount of labor required when in doubt; many figures for work rates are based on modern ethnographic analogies, and even if some techniques like bricklaying remain relatively unchanged, modern steel tools considerably increase even manual excavation rates.¹⁷² Furthermore, due to the total lack of Egyptian sources stating that a given monumental wall was

¹⁷¹ Moeller 2016, 23-25.

¹⁷² Ormeling 2016, 373.

completed after a specific amount of time, contemporary parallels from Mesopotamia and the Levant are as close as we can come to an estimate of how long many of these walls should have taken to complete.¹⁷³

When calculating the labor required to complete a monumental enclosure wall, person-days of work seem to be the most logical unit of analysis. Not only does using such a unit obviate the need for knowing the precise number of workers assigned to a project, it also dovetails nicely with how the ancient Egyptians seem to have recorded payments for labor. In documents like Papyrus Reisner III, the scribe performs a number of operations where the number of days worked by an individual is multiplied by a constant. While the meaning of this operation continues to baffle scholars (Simpson suggests that in one column, its multiplication by 10 was to calculate the precise number of hours in a work day), it is clear that total days of labor were the basis from which other calculations were made.¹⁷⁴ Other studies investigating the time it would take to complete monumental walling projects in the Levant and Mesopotamia have also used days of labor as a base unit for calculating the amount of time it might take to construct an enclosure.¹⁷⁵ Labor-days are also a useful and easily comparable unit for comparing ethnographic analogies in order to approximate the rate at which certain tasks related to enclosure wall construction could be performed, as numerous studies have made estimates regarding the number of bricks that could be molded per day, the rate at which dried mud-bricks can be laid, or the volume of earth that can be excavated and moved in a day.¹⁷⁶ In rare cases where Egyptian sources provide detailed enough accounts to approximate a daily work rate,

¹⁷³ For an overview of Mesopotamian examples, see Richardson 2015. Some Mesopotamian walls were commemorated in inscriptions on bricks or within year names: Arnaud 1972, 34; Frayne 1990, 117-118. For an overview of the Levantine evidence, see Burke 2004, 287-330 and Burke 2008, 141-158.

¹⁷⁴ Simpson 1969, 13-15,

¹⁷⁵ Burke 2004, 304; Burke 2008, 144; Richardson 2015, 239.

¹⁷⁶ For Egyptian examples, see La Loggia 2015, Ormeling 2016, and Ormeling 2017.

these figures will be used; where Egyptian sources are more vague, ethnographic parallels or attempts from experimental archaeology will be used to fill in the gaps.¹⁷⁷

Having outlined the chain of operations related to enclosure wall construction at the beginning of this chapter, it is now time to assign work rates for each of these activities. Aaron Burke and Seth Richardson have made comparable estimates about the amount of labor required to build city walls in the Middle Bronze Age Levant, though there are minor problems with each study—Burke does not evaluate the amount of work related to transporting bricks or other materials, to say nothing of plastering the wall or mortar fabrication, while Richardson deliberately underestimates the speed at which certain tasks could be performed for the purposes of his broader point about Mesopotamian economic organization. Several scholars, most notably Angela La Loggia and Marinus Ormeling, have recently made efforts to model work rates at monumental construction projects during the Early Dynastic Period, though the absence of Egyptian source material from this period means that they frequently rely on modern parallels or ethnographic analogies to arrive at a given work rate.¹⁷⁸ Given that this time period fits within the timeframe covered by this dissertation and that there is little reason to expect that major technological changes dramatically increased work rates between the Early Dynastic Period and even the Middle Kingdom, I will rely on such estimates wherever possible.

Brick production rates have been discussed in previous chapters: while it is possible that the Reisner Papyri suggest that brick production could be substantially higher, I am inclined to agree with Fathy and La Loggia that brick production likely was roughly 2800-3000 units per day (depending on brick size) for each team of 4-5 individuals, or roughly 600-750 bricks per

¹⁷⁷ One particularly valuable example is Jürgen Seeher's experimental archaeological efforts to build some 65 m of the ancient city of Hattuša: Seeher 2007.

¹⁷⁸ La Loggia 2015, 141-147; Ormeling 2016, 357-362; Ormeling 2017, 427-430.

day per laborer.¹⁷⁹ Bricklaying would most likely occur at a rate of roughly 600-800 bricks per day per laborer.¹⁸⁰ Recent estimates have argued that a surface area of roughly 30m² can be plastered per day by a team of two plasterers and an assistant responsible for mixing the plaster.¹⁸¹ Rates of excavation would have varied depending on the hardness of the soil; La Loggia suggests that a laborer could loosen 0.4-0.8m³ of hard soil and 2.3-3.8m³ of loam per hour. Roughly 1m³ of gravel and rock could be dug through per day by a single worker, while quarrying stone that needed to eventually be faced progressed at a rate of roughly 0.8m³ per day per laborer.¹⁸² Most wooden beams within walls seem to have been only roughly shaped, but it nonetheless would have taken considerable effort to obtain some of this timber. Rates of felling trees also vary according to the size of a trunk's diameter, further complicating calculations of the labor required to build an enclosure wall. Finally, huge amounts of labor would have been required to transport raw materials and water for brick, mortar, and plaster production, as well as the finished bricks themselves to the construction site. Finally, the maintenance and repair of tools must have been required, particularly since ancient tools are less hardy than their modern steel counterparts.¹⁸³

For the purposes of this exercise, two walling projects will be considered. First, as highlighted throughout this dissertation, there were multiple kinds of walling projects, ranging from heavily militarized fortresses to limestone enclosures surrounding royal mortuary monuments to mudbrick town walls largely devoid of particular defensive considerations. To

¹⁷⁹ It is difficult to account for the amount of time it would take simply waiting for bricks to dry. One assumes that an effort would have been made to avoid bottlenecks, so workers would be tasked with excavating foundations, collecting other materials, or laying bricks that had already been fabricated. Of course, it is also possible that the Egyptians were not always scrupulous about waiting until mudbricks were sufficiently dry.

¹⁸⁰ La Loggia 2015, 142-143. In walls where wooden beams or reed matting were employed, it is possible that this number was substantially lower than 800 bricks per day.

¹⁸¹ La Loggia 2015, 133-134.

¹⁸² La Loggia 2015, 130-131.

¹⁸³ Ormeling 2016, 373.

that end, I will consider two distinct walling projects: the fortress of Buhen and the town walls at Edfu, as these represent two extremes on a broader spectrum of royal oversight, investment, and management. More work has been done evaluating the speed at which limestone blocks could be moved in estimates of how quickly the pyramids could be built, and it is very difficult to estimate the speed at which such features could be decorated, so elements like the limestone enclosure wall surrounding the pyramid of Senwosret I will not be considered in this particular study.¹⁸⁴ The fortress walls at Buhen present an interesting case study since their excellent state of preservation and Emery's extensive notes and publications offer some of the most comprehensive information about monumental enclosures from the Pharaonic period.¹⁸⁵ The dimensions and path of the fortress walls are also well documented; on its eastern side near the New Kingdom temple, the fortress walls stood almost 11 m high—likely approaching their original height.¹⁸⁶ Emery even calculated the total number of bricks required to build the fortress walls (roughly 13,357,018), allowing for some comparisons between the numbers arrived at in this analysis and his earlier efforts.¹⁸⁷

If Buhen was noteworthy for its excellent preservation, efforts to determine the amount of labor expended on the Edfu town walls must be far more speculative. Large portions of these constructions have been lost entirely, and only educated guesses can be made about the total area they enclosed. Nonetheless, much information about the process of their construction has been gleaned from recent excavations at the site. Just as importantly, the town walls at Edfu represent a fundamentally different kind of construction project than a military fortress in Lower Nubia;

¹⁸⁴ For Buhen, see Emery et al. 1979, for the pyramid enclosure wall of Senwosret I, see Arnold 1988, and for the town walls of Edfu, see the author's own research detailed in Chapter Four.

¹⁸⁵ Emery et al. 1979.

¹⁸⁶ Emery et al. 1979, 6, Pl. 89.

¹⁸⁷ Emery et al. 1979, 40-41

not only was their function in many respects unrelated to military purposes, but it is also likely that provincial town walls depended almost entirely on local labor and provisions.

The site of Buhen is an excellent starting point, since Emery's calculations of a total of 117 bricks per cubic meter allows for an easy calculation of the total volume of walling at Buhen, excluding the lower ramparts and screening walls which were too poorly preserved to be included in his estimates.¹⁸⁸ I have amended Emery's estimates of the thickness of the walls from 5 m to 5.25 m, in order to make their total width closer to 10 Egyptian cubits and to better conform with Emery's own descriptions which note that the outer fortification walls ranged between 5-5.5 m in width.¹⁸⁹ If this is a slight overestimate, it is in part compensated by the fact that Emery and Smith seem to underestimate the total length of the interior fortification walls, at times describing the fortress as 170 x 150 m or 150 x 138 m in size, while using 136 x 124 m for their brick calculations.¹⁹⁰ I have selected the lower estimate for the purposes of this model. This change leads to an estimate of some 98,051.25m³ for the volume of the fortification walls at the site, including all buttresses, spur walls, and towers. As noted above, fortress walls are not entirely comprised of bricks and mortar, which Emery's calculations neglect. Air vents were irregularly included within the construction, and Emery notes that a 1 cm reed mat was added after every six courses, and wooden poles were added just above these mats at a rate of roughly one beam for every 1.5 m of wall length.¹⁹¹ Because air vents were not regularly spaced, I have not included them within these calculations: while obviously an imperfect solution,

¹⁸⁸ Emery et al. 1979, 40.

¹⁸⁹ Emery et al. 1979, 5,

¹⁹⁰ Emery et al. 1979, 4, 6, 38, 40. Emery and Smith first describe the fort as 170 x 150 m, while it is described as 150 x 138 m some two pages later. In the section detailing the metrology of the fort, the inner walls of Buhen are described as 150 x 138 m and 136 x 124 m respectively. I chose the smaller estimate so that my calculations match with Emery and Smith's dimensions, and to emphasize that even when one assumes the smallest possible size, the Buhen fortifications required substantially more effort than the Edfu town enclosure walls.

¹⁹¹ Emery et al. 1979, 39-41.

overcalculating the number of bricks and other materials required for wall building helps to mitigate the fact that a small percentage of bricks, beams, and reed matting likely were discarded due to various flaws or deficiencies.

In order to obtain more accurate measurements, I elected to recreate a small subsection of the fortification walls in order to get estimates for the total volume of bricks, reed matting, wood, and mortar per cubic meter of walling at Buhen. I chose to select a section of walling that measured 3 m long by 5.25 m wide by 11 m high, in order to have an even two intervals between wooden poles laid transversely within the wall. Given the large brick size recorded by Emery (37 x 18 x 12) cm, and assuming that each face of each brick was coated in about 0.5 cm of mortar (thus allowing for a full 1 cm between each course of bricks), this suggests that a new layer of reed matting would occur every 78 cm.¹⁹² To find the number of instances where wooden polls would be placed within this 1.5 m long stretch of walling, I divided the total height of the wall (11m) by 79 cm intervals (six brick courses plus a layer of reed matting). This yields a figure of 13.924, but I rounded this figure downwards to 13 since Emery's reconstructions of the fortress show smaller numbers of wooden beams within the fortress, and more importantly, it is likely that reed mats were employed somewhat less frequently at the very base and apex of the wall. This figure of 13 was then multiplied by two in order to account for the 3 m interval of walling I decided upon above.¹⁹³

Emery does not note the diameter of the poles or the width and length of any beams found within the wall, but for the purposes of this exercise, I have assumed that each beam extended across the entire wall and was roughly 15 x 15 cm. This is perhaps an overestimate, but it helps to compensate for the fact that Emery seems to suggest that beams were placed more

¹⁹² Emery et al. 1979, 39.

¹⁹³ For Emery's drawings, see Emery et al. 1979, pl. 11-12.

frequently in the towers, where poles were laid in all directions. Moreover, additional wood would have been required to build the wooden drawbridges and massive doors for the gatehouses, and stone was used for the foundations of the gatehouse: features which are not included within my wall construction calculations.¹⁹⁴ A countervailing point is that wooden beams were not used at all in the buttresses. These numbers are among the largest of many uncertainties within this exercise, but as the calculations below show, it is clear that wooden beams constituted only a very small portion of the total construction, even if one deliberately overestimates how frequently they were employed.

The above assumptions lead to the following figures: for every 173.25m³ of walling at Buhen, there were approximately 2.0475m³ of reed matting (13 instances of matting multiplied by .01 x 3 x 5.25 m), 3.07125m³ of wooden beams (26 wooden poles multiplied by 0.15 x 0.15 x 5.25 m), roughly 24.97m³ of mortar and 143.16125m³ of bricks.¹⁹⁵ Thus, for each cubic meter of fortification walls at Buhen, there were approximately 0.82632765m³ of bricks, 0.14412690m³ mortar, 0.01181818m³ of reed matting, 0.01772727 m³ of wooden beams per cubic meter of walling. Multiplying these figures by the total volume of walling at Buhen leads to the following figures for the total cubic volume of the entire wall: 81,022.459m³ of bricks, 14,131.8227m³ of mortar, 1158.78732m³ of reed matting, and 1738.18098m³ of wooden beams. Dividing the total volume of brickwork by the volume of a single brick leads to an estimate of some 10,137,946 bricks for the entirety of the fortress construction at Buhen. Similarly, dividing the total volume of timber by the volume of a single wooden beam leads to an estimate of some 14,715 wooden

¹⁹⁴ Emery et al. 1979, 22-23, 30.

¹⁹⁵ With 0.5 cm of mortar applied to each face, each brick measured 38 x 19 x 13 cm. The total volume of a brick with mortar was thus 9386cm³, but the volume of the brick itself was 7992cm³, while the mortar was 1394cm³. Thus, mortar constituted about 14.851907% of the total volume of the 168.13125m³ of brickwork within each 3 m long stretch of wall. This figure was then rounded to get the 24.97m³ figure for mortar along a 3 m long stretch of walling at Buhen, leaving 143.16125m³ of bricks per 173.25m³ of wall.

beams. If one chooses to include additional lower ramparts or screening walls beyond Emery's calculation, which presumably lacked the reed matting or timber inserts, one could estimate that perhaps an additional 1,000,000 bricks might be required in order to build these features and serve as retaining walls in the fort's dry ditches, but since the dimensions of these features were far less well preserved, I will not include them in this exercise.

Once the fort was completed, its walls were surely plastered. Calculating the total surface area of Buhen's fortress is challenging given the large number of buttresses and towers added to the walls themselves. Emery notes that the dry ditches were also plastered.¹⁹⁶ Excluding towers and niches, the inner fortification walls of Buhen would have required 8,339.5m² of plaster, while the outer fort would have required 25,630m². The inner defensive ditch would have required roughly 5400m², while the outer ditch would have required roughly 12,000m².¹⁹⁷ The barbican gateway would have required at least 5202.5m². The seventy buttresses along the inner fortification walls would have necessitated an additional 4900m² of plaster. This totals some 58772m², before taking into account the large towers along the outer and inner walls, many of whose dimensions are uncertain. For the purposes of this exercise, I will assume a total of 80,000m² of plaster was required.

Prior to constructing the fortress, the surrounding earth was levelled in order to create a stable foundation, trenches for the walls themselves were excavated, and defensive ditches were completed beyond both the inner and outer fortifications. Emery's drawings and notes suggest that the depth of foundations for the various walls varied, with some being hardly visible while

¹⁹⁶ Emery et al. 1979, 5-6.

¹⁹⁷ The estimates for the ditches are slight overestimates, since this does not take into account that their scarp and counterscarp were canted rather than vertical, since the angle of their declines was not consistent or recorded by Emery.

others were excavated deep into the earth.¹⁹⁸ For the purposes of this exercise, I will estimate an average of 0.5 m deep foundations that extended slightly more than the width of the walls themselves (5.5 m) and extended along every stretch for which Emery records walling for the main walls. It is all but certain that foundations would have been dug for the larger towers and the barbican entrance, but in the absence of more detailed information regarding these features, I will not include these within this calculation. The outer defensive ditch varied in width and depth, but Emery cites an average of 6 m wide and 3 m deep.¹⁹⁹ The inner defensive ditch measured roughly 7.3 in width and was dug some 3.1 m deep.²⁰⁰ Emery lacked the time and resources to map out the exact pathway of the ditches in every instance, so I have estimated that the outer ditch covered a distance of some 1000 m (in order to account for its position beyond the 932 m of perimeter walling and its movement along the contours of the various bastions and towers from the outer fortification wall) and the inner ditch covered a stretch of roughly 400 m (the inner ditch had fewer large towers to navigate between, and the total measurement of these three sides of the perimeter walls was 384 m). Adding this total amount together leads to a total estimate of 31,045m³ of excavated earth, with 1430m³ accounting for the inner fortification wall foundations, 2563m³ dug out for the outer fortification foundations, 18,000m³ for the outer dry ditch and 9052m³ for the inner ditch.

In addition to the raw materials for building the fortress, huge amounts of labor had to be expended collecting these materials, fabricating bricks, mixing mortar and plaster, and shaping wooden branches. Transporting the finished products to the construction site would also have required considerable effort, though the proximity of the Nile meant that obtaining water and

¹⁹⁸ Compare Emery et al. 1979, 5, 6, and 13. Emery rarely recorded extensive information about the wall's foundations save in instances where stone blocks were used near the gatehouses.

¹⁹⁹ Emery et al. 1979, 5.

²⁰⁰ Emery et al. 1979, 6.

mud as well as transporting finished bricks would have been far easier than at many other sites. By analogy with the brick workshop excavated at the contemporary and nearby fortress at Mirgissa, it seems that multiple ateliers were likely responsible for creating bricks on site, close to where they were needed.²⁰¹ Therefore, I will estimate that bricks only needed to be carried some 100 m from the original workshop.

RECONSTRUCTING THE LENGTHS OF TIME REQUIRED TO BUILD THE FORTRESS AT BUHEN (see **Table 5.1**)

As noted above, the excavation of defensive ditches and foundations for the fortification walls would have necessitated loosening and moving 31,045m³ of earth. La Loggia suggests that workers could cut through 0.4-0.8m³ of hard soil and 2.3-3.8m³ of loam per hour.²⁰² At Buhen, workers typically were cutting through loam, but also encountered hard soil and sand. I will therefore assume the upper bound for hard soil as a general approximation, or roughly 0.8m³ per hour, and assuming a ten hour work day, 8.0m³ per day. Thus, excavation alone would have required some 3881 labor days. Much of this dirt would have simply been repurposed for use making bricks or mortar, so I will assume that laborers would only dump the earth some 50 m away from the construction site. At least ten bricks worth of earth could be carried at a time (0.07992m³), and at a rate of 2 km/hour, a worker could complete five trips per hour. La Loggia estimates that a worker could carry loads for some 22km per day, but I have rounded down to 20, so each worker would complete at most 50 loads per day.²⁰³ Thus, a single laborer could move about 3.996m³ of earth per day. Dividing the total amount of soil by this daily rate leads to a

²⁰¹ Vercoutter 1970, 214-216.

²⁰² La Loggia 2015, 130.

²⁰³ La Loggia 2015, 129. It is also worth noting that donkeys may well have been employed to drastically increase the loads of bricks, water, or other materials that could have been carried, but I am unaware of any tomb reliefs depicting such aid during construction projects. These estimates are also intended to err on the side of overestimating the total labor involved, so I am not overly troubled by not accounting for this aspect of the labor.

figure of approximately 7,770 labor days. Thus, at Buhen, roughly two workers for every digger could ensure that nearly all of the excavated soil was removed.²⁰⁴

While much of the straw required for producing bricks, mortar, and plaster was likely brought with the expeditionary force, trees and reeds had to be gathered from nearby sources. The rates of gathering this material are harder to quantify, and presumably involved trekking larger distances as the area near the fortress was slowly deforested. If one worker could cut down and roughly shape a little less than one beam per hour, with two colleagues then carrying it back to where the wood was needed at the construction site within an hour, roughly 1m³ of timber could be obtained per day. Thus, the collection of wooden crossbeams for the wall would take about 5217 labor days. Reeds were perhaps located closer to the construction site, but the added difficulty of weaving reed mats as well as transporting them back to Buhen suggests that a similar calculation is likely in order, with 1159 days spent gathering reeds and another 2318 spent transporting the reeds and weaving mats. This is perhaps a slight overestimate, but additional reeds could be employed as temper in bricks, mud, or plaster.

Water, clay, silt, and sand were required to mix the mud for bricks. While some small effort might have been necessary to add sand or clay to obtain the desired consistency, it is assumed here that the earth excavated in the initial building phase of the fortress and easily accessible alluvial silt and clay provided most of the material for brickmaking. For 81,022.549m³ of total bricks, I assume that some 85,000m³ of earth was required in order to account for wastage. If a worker needed to carry raw materials 20 m per trip, walking 2 km/hour bearing a load of 0.07992m³ each time, this suggests fifty trips could be completed per hour, and five hundred per day. If 39.96m³ of raw earth could be moved per day, this suggests that the entire

²⁰⁴ Interestingly, having two individuals carrying earth away for every one man excavating nicely approximates modern day rates of excavation of fill at Tell Edfu.

project would have necessitated roughly 2128 labor days. Moreover, much of this material would need to be excavated, since only 31,045m³ of earth was loosened for the fortress foundations, and much of it would be too far from any ad hoc brick yards. Thus, I assuming a total of 85,000 m³ needed to be excavated.²⁰⁵ While this earth ideally was muddy and La Loggia's lower estimates for excavating loam is 2.3m³ per hour, I will again use the rate of excavation used above: approximately 8.0m³ per labor day. Thus, an additional 10625 days of labor were required to excavate the additional earth required for brickmaking. La Loggia suggests that 200 liters of water are required for each cubic meter of mortar, and while this figure is perhaps slightly high for mudbrick, I will use it as a rough estimate required for each cubic meter of mud mixture.²⁰⁶ This leads to a total of 17,000,000 liters of water for making the mud mixture to fabricate all of the bricks necessary for the fortifications at Buhen. Assuming that a worker could bear 25 liters of water for 20 m at a rate of 2 km/hour, a worker could again accomplish five hundred trips per day, or move 12,500 liters of water per day. This leads to a total of 1,360 labor days devoted towards transporting the water required for brickmaking. Ormeling suggests that two workers could mix up to 5m³ per day, leading to an estimate of 34,000 days of labor to simply prepare the mud mixture for brick production.²⁰⁷

Given the large size of the bricks employed at the fortress and the rates of brick production evident in both the Reisner Papyri and Burke's collection of ethnographic parallels from throughout the Near East, I am inclined to assume that a team of four laborers could only produce about 1000 bricks per day, or about 1.998m³ of bricks per day per laborer since

²⁰⁵ This additional excavation helps to account for additional levelling work that likely would have occurred throughout the inner fortification area at the start of the project.

²⁰⁶ La Loggia 2015, 137-139.

²⁰⁷ Ormeling 2017, 427.

brickmakers worked in teams of four or sometimes perhaps five.²⁰⁸ Typically, two individuals were responsible for carrying the mud mixture to the production site, one worker filled the mold, and a final laborer struck the bricks. This yields an estimated 40,552 person days of labor required for brick production alone. Transporting the bricks from the workshop to the construction site also would have required a substantial amount of effort. La Loggia suggests that workers could carry up to 15 bricks per load, but the bricks at Buhen are larger than those of First Dynasty Mastabas, so I will assume that a worker could only carry 8 bricks at a time.²⁰⁹ Assuming that the bricks were fabricated and stored about 100 m from their eventual placement in the wall and an average walking speed of about 2 km/hour up to a total of 20km, a worker could make ten trips and carry a total of 80 bricks per hour, and 800 bricks per day. One might assume that individuals would alternate the workday between carrying loads of bricks and loading baskets for their comrades. This leads to an estimate of 12,673 days spent transporting bricks from storage yards to bricklayers at the construction site. Estimates regarding the rate at which wood and reed matting were transported vary somewhat, but the lighter weight of these materials and the small amount of volume they comprised within the wall lead me to believe the amount of labor required transporting these materials was small. Even overestimating their weight leads to an estimate that it would have taken about 353 days to transport all of the reed matting and timber required for building the wall.²¹⁰

²⁰⁸ Many scholars assume a higher rate of production, but generally base these estimates on smaller sized bricks. Ormeling 2016, 368 makes a compelling case that smaller numbers were often produced, at least in some cases.

²⁰⁹ La Loggia 2015, 130.

²¹⁰ To obtain this figure, I assumed that the labor required to move the bricks for the wall was the same percentage of total transport labor as the percentage of the wall's volume was comprised of bricks: 84.866523%. Reeds and timber make up 2.9454545% of the cubic volume of the wall, and the same percentage of transport labor leads to a rough estimate of 353 days. An overestimate is ideal, since additional work would have been necessary to weave the mats and shape the wooden beams.

Bricklaying is an art that has changed relatively little overtime, and modern bricklayers regularly place between 600-1000 bricks per day.²¹¹ Even with the large brick size, I estimate that the average Egyptian bricklayer could manage to set some 600 bricks per day, particularly since less care was frequently taken in the center of ancient Egyptian walls, leading to an estimate of roughly 16,897 person days of labor for laying the bricks of the wall, or 4.7952m³ of bricks per day, and roughly 5.80287921m³ of walling per day. This is far higher than the rates cited by Burke for brick construction in Iraq or Yemen, but these figures seem artificially low and do not accord well with modern ethnographic analogies from Egypt.²¹² Relative to brick production, this was more skilled labor.

Mortar and plaster would have been fabricated close to the location where they were used. This would have necessitated the transport of a large amount of mud and water. While much of the mud might have been easily available after the excavation of the foundation trenches and dry ditches, it would have been necessary to transport much of the water from the Nile. For the purposes of this exercise, I will estimate that mud and earth needed to be transported some 100 m, as did the water from the Nile. La Loggia states that 1m³ of mud mortar or mud plaster required 200 liters of water, and her calculations suggest a similar amount of water was required to make gypsum plaster.²¹³ Thus, in order to craft 14,131.8227m³ of mortar, a total of 2,826,364.54 liters of water would be required. La Loggia suggests that workers were capable of bearing 50-60 liters per trip in animal skins, but this estimate once again seems quite high, and I estimate only 25 liters per trip. Walking at about 2 km/hr, a worker could make a total of one hundred trips per day bearing 25 liters per trip, for a total of some 2500 liters of water per day.

²¹¹ La Loggia 2015, 132.

²¹² Burke 2004, 302.

²¹³ La Loggia 2015, 138-139.

These calculations suggest that 1131 labor days would be required simply to carry water from the Nile to the construction site where mortar was being mixed.

Mortar presumably would have been produced at the rate required by the brick layers, or at approximately 1.00767921m^3 per labor day. Given the previous estimate of 10 bricks per load, or $.07992\text{m}^3$ per load, and assuming a longer, 100 m distance from where the earth was excavated to the wall, a worker could carry 7.992m^3 of earth per day for making mortar. To reach the total $14,131.8227\text{m}^3$ of earth necessary for making mortar, this would have required an additional 1769 days. With all of the necessary materials transported for the mixer, a single worker could produce this amount daily for the duration of construction, presumably with time left over to help with other tasks like placing or shaping wooden beams or weaving reed matting. This activity would have continued throughout the duration of the brick laying process, or in other words, for another 16,897 labor days.

Finally, like mortar, plaster requires copious amounts of mud and straw, as well as gypsum or lime if a particular color is desired. Gypsum plaster was used in such quantities that the Egyptians almost certainly were exploiting local sources. Plaster could be applied at a rate of 30m^2 per day by a team of two plasterers and an assistant to mix the materials on site.²¹⁴ Given the roughly $80,000\text{m}^2$ of surface area that needed to be plastered, this would have necessitated an additional 8,000 labor days. A total of 8000m^3 of plaster needed to be prepared to spread 1 cm of plaster across the entirety of this surface. Using the above calculations, this necessitated the transport of 1,600,000 liters of water, plus an uncertain amount of gypsum. Assuming the water had to be transported on average 100 m from the Nile at a rate of 25 liters per trip with the laborer walking at a rate of 2km/hour, this assumes that an individual worker could carry about

²¹⁴ La Loggia 2015, 133-134.

2500 liters per day. Thus 640 days of labor would be required to transport the water required for plaster making. Assuming that at least 10,000m³ of gypsum were required to produce 8000m³ of plaster, workers would need to transport some 29,600,000 kg of gypsum.²¹⁵ Workers could again carry approximately 25 kg per trip, but presumably had to walk longer distances to obtain gypsum and mud. Assuming workers had to travel 300 m to obtain gypsum and mud, and travelled at a rate of 2 km/hour, a worker could complete 3 and 1/3 trips per hour and some 33 trips per day. This leads to an estimate of roughly 35879 days spent obtaining the earth and gypsum for plaster production.²¹⁶ The mixing of this material is accounted for in the rate of 30m² of plastering per day.

With these calculations complete, we can now estimate the total number of labor days required for the completion of inner and outer fortification walls of Buhen. The above figures lead to an estimate of 203,249 person days of labor. Even allowing for an additional 50,000 person days of labor to account for supply bottlenecks or hidden costs like the quarrying and placement of the stone foundations for the gatehouses or tool maintenance that are unaccounted for by this model, the work could easily be completed within two years by a team of 500 laborers, even allowing for a rest day on every fifth day. Obviously, substantially more work was required to build the totality of the structures at Buhen: the initial phase of fortification walling, for example, might add considerably to the length of time required for the project. Yet it seems clear that the resources of the Egyptian state would easily allow such a project to be completed over the course of several years, and indeed it is quite possible that larger expeditions had far more than 500 men available to help with fortress construction. The amount of food required to

²¹⁵ 1m³ of gypsum weighs approximately 2960 kg. The additional gypsum is obtained in an effort to overestimate the amount of work required and account for wastage.

²¹⁶ This number may be a large overestimate, if gypsum was brought with the expedition.

provision such an expedition and feed the laborers for the duration of the construction project would have been enormous, but this indirect labor associated with construction lies beyond the scope of this particular model.

THE EDFU TOWN WALLS (see **Table 5.2** and **Table 5.3**)

Having looked at a massive, well preserved fortress wall, it is now time to turn to a much more poorly preserved, less militaristic settlement enclosure wall. Large stretches of the town wall at Edfu still stand today, but the total length of their perimeter walls remain unknown. Two phases of walling will be investigated: the late Old Kingdom/First Intermediate Period enclosure, and a comprehensive Middle Kingdom rebuild. During the Middle Kingdom, there was a first attempt at a rebuild in the form of an accretion wall just beyond the Old Kingdom wall, but the technical characteristics and dimensions of this wall (as well as its shoddy workmanship) suggest that the effort expended to create this feature would at most have been one half of the effort needed to create original late Old Kingdom town wall. Even assuming that the largest estimates of the area in hectares of the Old Kingdom settlement at Edfu are accurate, the late Old Kingdom perimeter walls were likely no longer than 2.1 km in length. The first Middle Kingdom renovation was built directly outside the late Old Kingdom town walls, so its perimeter wall was only marginally larger. The major rebuild during the Middle Kingdom seems to have included a slightly larger area, so I will assume here that its perimeter measured some 2.5 km. The late Old Kingdom town walls and the first Middle Kingdom renovation had sloped outer faces and tapered toward the top, but for the purposes of this exercise I will simply use their base width, since this slightly overestimates the number of bricks required and will help account for wastage. The late Old Kingdom walls measured roughly 2.1 m thick (four cubits), while the initial Middle Kingdom rebuild was 1.05 m (two cubits) thick. The more robust Middle Kingdom town wall

measured roughly 2.625 (five cubits) m wide at its base. The height of these walls is uncertain, but there is no evidence they were higher than 5 m. However, for the purposes of overestimating the amount of work required to complete them, I will assume that the late Middle Kingdom wall was 5.5m high. No plaster was recovered from the face of any of these walls, and the late Old Kingdom and initial Middle Kingdom renovation phases were built using only bricks, without any reed matting. None of the walls used twigs or wooden crossbeams. The above assumptions lead to an estimate of 22,050m³ of walling for the late Old Kingdom/First Intermediate Period town walls, and 36,093.75m³ of walling for the final phase of the town wall from the Middle Kingdom. The bricks within the Old Kingdom town wall were 29 x 14 x 7, those of the first Middle Kingdom renovation were the same size, and those of the final Middle Kingdom renovation were roughly 35 x 18 x 10. As at Buhen, each face of the bricks is assumed to have been coated in roughly 1cm of mortar.

For the late Old Kingdom wall, a single brick with mortar measured some 3600cm³, and the brick alone comprised 2842cm³. Thus, for every cubic meter of the wall, roughly 0.78944444m³ was brick, while the remaining 0.21055556m³ was mortar. Multiplying these factors by the size of the wall leads to an estimate of 17407.2499m³ of bricks and 4642.7501m³ of mortar. Dividing the total volume of the brick portion of the wall by the volume of a single brick yields an estimate of 6,125,000 bricks required for the wall.

The Old Kingdom and First Intermediate Period wall appears to have been built upon the natural sand of the tell, in many places entirely lacking foundations. Given the quantity of earth required to fabricate bricks, however, it is reasonable to assume that some of the effort spent excavating also was directed towards providing a level foundation for the wall. Using the 8.0m³ daily rate of excavation, it seems that at least 2757 labor days would have been required to

excavate the earth required for brick fabrication and dig the foundations for the wall. Edfu seems to have been located close to the Nile in antiquity. With each cubic meter of brick mixture and mortar mixture requiring 200 liters of water, respectively, a total of 4,410,000 liters of water would have been required. 3,481,450 of this would be directed towards brick fabrication, with another 928,550 liters required for mortar fabrication on site. I assume that brick fabrication occurred close to the Nile, with workers only having to carry 25 liters of water some 20 m, at a rate of 2 km/hr. This leads to a total of 12,500 liters moved per labor day, and an estimate of 279 labor days moving water for brick fabrication. Moving water to mix mortar at the construction site would have been considerably more difficult. With a much longer carry of some 500 m, a worker could complete twenty trips per day. This leads to an estimate of 3715 labor days spent moving water to make mortar. For estimating the labor required to move earth to the brick fabrication site, I assume the same rate of carrying as the operations at Buhen, or 0.07992m^3 per trip. Assuming that workers had to walk some 50 m each way to the brickyard at 2 km/hr, this leads to an estimate of 15.984m^3 per day per worker. A total of 10,891 labor days would be required for this effort. Ormeling notes that two workers could mix 5m^3 of brick mixture per day, so a total of 6963 days would be required.²¹⁷

For these smaller bricks, I follow La Loggia and Fathy in estimating that a team of four workers could complete nearly 3000 per day.²¹⁸ If we adjust this to 2800 bricks per day to compensate for the slightly larger bricks of the late Old Kingdom town wall at Edfu, we arrive at a figure very close to the 1.9894m^3 of bricks fabricated daily per laborer as the Buhen constructions. At this rate, 8750 days of labor would have been required to fabricate all of the bricks for the town wall. Transporting the bricks to their position in the town wall would require

²¹⁷ Ormeling 2017, 427.

²¹⁸ La Loggia 2015, 128; Fathy 1989, 197-198.

additional effort. If we assume a similar 500 m distance, then each worker could complete twenty trips per day. The smaller brick size of the Edfu bricks leads me to think that a worker could bring at least 15 per trip and 300 per day. A total of 20,417 days would be required to move all of the bricks to the position where they were needed in the wall. Moving the earth to make mortar near the construction site would also require considerable effort. Assuming the same 500 m distance and 2 km/hour walking pace, a worker could complete 20 trips per day, carrying approximately 0.07992m^3 per trip. By moving 1.5984m^3 per day, moving this earth would require an additional 2905 days of labor.

I assume a slightly faster rate of bricklaying at Edfu than at Buhen for two reasons: first, the bricks at Edfu's late Old Kingdom town wall were smaller, and second, far less care was taken to set the bricks carefully, nor were reed mats or timber slotted in the wall. As noted in Chapter Four, the middle of the wall was often a jumble, and ash and even a grinding stone were tossed in at one part of the wall. Thus, La Loggia's estimates of 800 bricks per day seem reasonable for this particular scenario. This yields a total of 7657 labor days. If an additional worker aided the bricklayer and mixed mortar at the site each day, 7657 days must be added once more. There is no evidence that this wall was ever plastered. This yields a total of some 71,991 person days of labor required to complete this phase of the Edfu town wall. The initial Middle Kingdom renovation would have taken at most 35,067 labor days. Even if the Old Kingdom wall were plastered in some form, it is unlikely that the effort would have exceeded 100,000 labor days.

The Middle Kingdom town wall is slightly more challenging to calculate, since reed matting was occasionally employed. It is very poorly preserved, but it seems likely that it was employed roughly every 9 courses of bricks. Thus, for every meter of height, the wall consisted

of 9 bricks and their mortar together with one reed mat. Assuming a height of 5.5 m, it follows that reed mats were employed some five times. If we imagine a 1 m stretch of the wall, or 14.4375m^3 of the wall, reed mats would consist of 0.13125m^3 , bricks would comprise 11.9789175m^3 , and mortar would comprise 2.32733254m^3 . Thus, for a given cubic meter of the Middle Kingdom wall, bricks would comprise 0.82970857m^3 , mortar would make up 0.16120052m^3 , and reed mats would make up the final 0.00909091m^3 . The totality of the wall was 36093.75m^3 , so the wall would have required $29,947.2937\text{m}^3$ of brick, 5818.33127m^3 of mortar, and 328.125033m^3 of reed matting. Given a brick size of 35 x 18 x 10 cm, some 4,753,539 bricks would have been required.

The foundations of this wall were not deep, but here it is assumed that 0.5 m deep trenches were cut in order to provide a level foundation for the entire wall. This would have yielded some $3,281.25\text{m}^3$ of earth. This would have taken 411 days of labor. It is not assumed that the earth from the foundation trenches was used for brick production. At a daily rate of 8.0m^3 per day per laborer, some 3744 days of labor would be devoted to excavation of mud for brick making. Assuming this mud needed to be transported 20 m to the brick production facility, at a rate of 2 km/hour and 0.07992 per load, this yields a figure of 39.96m^3 moved per day, for a grand total of 750 labor days. Assuming 200 liters of water were required for each cubic meter of brick mix, some 5,989,458.74 liters of water would be required in total. Assuming the brickyards were within 50 m of the Nile, with laborers capable of moving 2500 liters per day, this suggests 2,396 labor days would have been required.

As noted above, mortar needed to be mixed near the wall itself. Thus, 5818.33127m^3 of mud and 1,163,666.25 liters of water needed to be carried to the place where they might be used. Assuming a much longer trip of 500 m, a single worker could carry 1.5984m^3 of earth per day,

and an additional individual could bring roughly 500 liters of water per day. According to these estimates, 3641 labor days would be required to transport earth, while an additional 2328 days were needed to bring the necessary water. 328.125033m³ of reeds had to be gathered. Using the same rates from Buhen, this leads to an estimate of 329 days spent gathering reeds, with an additional 658 spent transporting them and weaving them into mats.

According to the rates used in the above examples, two laborers could mix 5m³ of brick mixture per day with the materials already transported to them. This yields an estimate of 11,979 labor days spent preparing the mud mixture for brick making. A team of four laborers, once again striking only 1000 bricks per day given their larger size, would take 19,015 labor days to make all of the bricks for the town wall. Once again, transporting the bricks would take substantial effort, as only 200 bricks could be brought per day by a single laborer given their large size and the estimated 500m distance from the brickyard to the wall. 23,768 days would be required for transporting bricks to the bricklayer alone. If a brick layer could once again lay 600 bricks per day, 7923 days of labor would be required to build the wall, with an additional 7923 to account for a helper responsible for mixing mortar and helping with bricklaying and placing reed mats. This leads to a final estimate of 84,865 labor days to build the Middle Kingdom wall. While there is no evidence that the town wall was plastered, it is unlikely that the labor required to transport raw materials and mix plaster would extend the construction period beyond 125-135,000 days at the absolute most, even if unforeseen delays or hidden labor costs are included within this figure.

CONCLUSIONS

The immediate conclusion to be drawn from these calculations is that the effort to build a fortress like Buhen was far greater than the amount required to build a fairly unspectacular town

wall. Building the fortress at Buhen would have required between two and three times as many person days of labor as any of the Tell Edfu wall constructions. This difference would be even larger if it is assumed that transporting resources at Edfu was slightly easier—the longer carry required to bring bricks or earth from near the Nile to the settlement’s town walls means that the above models assume substantially higher costs to transport material for the settlement enclosure wall than the fortress. Broadly speaking, these results conform to what one would expect: the incredibly sophisticated military fortress would have been harder to build than a simple town wall, and both types of project seem to be well within the capability of the Egyptian state and a major settlement, respectively.

The total number of labor days for each project may at first seem like overestimates, since I deliberately chose slower work rates when possible. However, I believe that this helps to compensate for any hidden costs related to supply bottlenecks or unaccounted for costs, and it is possible that transporting bricks and earth would be more difficult than I assumed for these models. The creation and placement of Buhen’s wooden gates are not included in the model, nor is the acquisition of stone for foundations, or the repair of damaged tools. At all of the projects, additional labor would need to be expended carrying and distributing water for the workforce, but since we lack any information regarding the number of people employed building these walls, it is difficult to conjecture how much water would have been required. These deficiencies aside, the models provide general estimates as to how long it might have taken to complete these monumental walling projects. It is also worth remembering that numerous indirect costs supported monumental construction work, including but not limited to tool repair, basket production, and most importantly, growing, transporting, and allocating enough food for the workers employed building the wall itself.

It is unclear how long it might have taken to complete these monumental walls, but it is worthwhile to hazard some rough estimates. Emery and Smith reached the conclusion that fully manning the Inner Fortress at Buhen would have required at least 1000 troops, perhaps even 1500. For even a “minimally effective defense”, at least 500 individuals must have been garrisoned there.²¹⁹ As noted above, even assuming an additional 50,000 work-days were required to complete the fortress, a team of 500 people allocated to construction could still easily finish the fortification walls of the fortress within two years, assuming that every fifth day was a rest day. One thousand people might complete the job within a single year, if there were few bottlenecks in the construction process. In short, projects like the Nubian fortresses seem eminently feasible given the vast resources available to the Egyptian state. Such projects could be completed relatively quickly, particularly if the workforce and the rest of the expedition operating in support of it was large enough to ward off any would-be attackers.

The town walls at Edfu are a different matter. While requiring far less labor overall, it is unlikely that nearly as many individuals could be spared for construction work, save in cases where extreme urgency was required. Assuming a rest day every fifth day, fifty workers laboring on the Middle Kingdom town wall would require nearly 6 years to complete it. Larger numbers of workers would of course drastically shorten the time required to finish such a construction, but it is worth remembering medieval or Early Modern European examples like Exeter or Cologne, whose town walls were refurbished over decades and centuries.²²⁰ As noted in Chapter Four, there is evidence to think that the late Old Kingdom town wall at Edfu was built as quickly as possible. Certainly, 200 workers could finish the project in less than 15 months, even with a day off every fifth day. Doubtless, major provincial capitals in ancient Egypt would easily have been

²¹⁹ Emery et al. 1979, 41-42.

²²⁰ For Exeter, see Stoye 2003. For Cologne’s medieval town walls, see Binkowski 2008, 115-187.

capable of building town walls, though these efforts would have siphoned labor away from other important projects.

Table 5. 1: Rough calculations of labor and work rates for wall construction at Buhen's Middle Kingdom fortifications.

Labor Required for Buhen's Middle Kingdom Fortification Walls		
Task	Daily Work Rate	Labor Days
Excavating soil for foundations	8.0 cubic meters per day	3881
Removing excavated soil from foundations	39.96 cubic meters per day	7770
Cutting, transporting, and shaping timber for crossbeams	1 cubic meter per day for each of these three tasks	5217
Cutting, transporting, and weaving reeds	1 cubic meter per day for each of these three tasks	3477
Excavating earth for brick production	8.0 cubic meters per day	10625
Transporting earth to brickmaking facilities	39.96 cubic meters per day	2128
Transporting water to brickmaking facilities	12,500 liters per day	1360
Preparing mud mixture for brick production	2.5 cubic meters per day	34000
Brick production	1.998 cubic meters per day (250 per laborer)	40552
Transporting bricks	800 bricks per day= 6.3936 cubic meters per day	12673
Transporting timber and reed mats	6.3936 cubic meters per day	353
Bricklaying/Setting timber and reed matting	600 bricks per day= 4.7952 cubic meters per day/roughly 1 cubic meter= 5.8029 cubic meters of walling finished per day	16,897
Transporting water for mortar production	2500 liters per day	1131
Transporting earth for mortar production	7.992 cubic meters per day	1769
Mortar mixing and application	Working in tandem with the brick layer	16897
Transporting water for plaster production	2500 liters per day	640
Obtaining mud and gypsum for plaster production	825 kg per day	35879
Plaster application	10 meters squared per day	8000
	Total Labor (labor days)	203249

Table 5. 2: Rough calculations of labor and work rates for wall construction at Edfu's late Old Kingdom/First Intermediate Period Town Wall.

Labor Input for Late Old Kingdom/First Intermediate Period Town Wall at Edfu		
Task	Rate	Labor Days
Excavating foundations	8.0 cubic meters per day	2757
Transporting water for brick production	12500 liters per day	279
Transporting earth for brick production	15.984 cubic meters per day	10891
Mixing mud for brick production	2.5 cubic meters per day	6963
Brick production	200 bricks per day/1.9894 cubic meters per day	8750
Transporting bricks to construction site	300 per day/2.9841 cubic meters per day	20417
Transporting water for mortar production	500 liters per day	3715
Transporting earth for mortar production	1.5984 cubic meters per day	2905
Bricklaying	800 bricks per day/ 2.2736 cubic meters per day	7657
Mortar mixing and application	Working in tandem with bricklayer	7657
	Total Labor (labor days)	71991

Table 5. 3: Rough calculations of labor and work rates for wall construction at Edfu's Middle Kingdom town wall.

Labor Input for Middle Kingdom Town Wall at Edfu		
Task	Rate	Labor Days
Excavating foundations	8.0 cubic meters per day	411
Excavating mud for brick production	8.0 cubic meters per day	3744
Transporting water for brick production	2500 liters per day	2396
Transporting earth for brick production	39.96 cubic meters per day	750
Mixing mud for brick production	2.5 cubic meters per day	11979
Brick production	250 bricks per labor/1.575 cubic meters per day	19015
Transporting earth for mortar production	1.5984 cubic meters per day	3641
Transporting water for mortar production	500 liters per day	2328
Gathering, transporting, and weaving reed mats	1 cubic meter per day for each task	987
Transporting bricks to the construction site	200 bricks per day/ 1.260 cubic meters per day	23768
Bricklaying	600 bricks per day/3.780	7923
Mortar mixing and application	Working in tandem with bricklayer	7923
	Total Labor (labor days)	84865

CHAPTER 6: THE POWER OF MONUMENTAL WALLS IN ANCIENT EGYPT

While the previous chapter of this dissertation outlined and detailed the physical and administrative processes required to plan and construct a monumental wall, this chapter will examine their symbolic potency and political efficacy. Thus, in terms of a wall's "life-cycle", this chapter will analyze the effects of walls in ancient Egypt after they have been completed and during their actual usage. This chapter will be devoted to analyzing the symbolic power of monumental walling projects in ancient Egypt, from their roles defining boundaries of communities, designating sacred space, signifying certain types of authority, and their use as metaphors for other more abstract entities in Egyptian society. The chapter will conclude by analyzing the close connection of monumental enclosure walls and the exercise of power, and specifically political sovereignty, in Pharaonic Egypt. It argues that monumental walls are inherently political structures, and notes that the monumentality, ubiquity, and accessibility of large enclosure walls encouraged their adoption as a symbol and metaphor by political actors within the Egyptian state. This in turn helps to account for their prominence in reliefs, religious and literary texts, and in divine epithets.

THE SYMBOLIC POWER OF ENCLOSURE WALLS IN THE EGYPTIAN WORLD

In addition to more pragmatic functionality, enclosure walls in ancient Egypt were a potent political symbol, and one regularly instrumentalized by a host of actors (and most prominently officials acting on behalf of the Egyptian state) to further their aims. Enclosure walls figured conspicuously on many of the famous Early Dynastic palettes, were among the first stone constructions known from all of Egypt, functioned as an important feature of most palaces,

temples, towns, and citadels up through the Second Intermediate Period, and served as metonyms for the city of Memphis and indeed all of Egypt.¹ The multifaceted capacity of enclosure walls to stand as awe-inspiring symbols of state power even as they functioned as physical barriers that furthered state authority over the local landscape augmented their potential for use as a royal symbol.² It bears mentioning that the prominence of enclosure walls in urban areas meant that they may well have had varying, disparate meanings to the host of Egyptian subjects that witnessed and were impacted by their presence; unfortunately, the extant textual and pictorial sources mean that any discussion of the symbolism of enclosure walls must privilege an invariably elite, often royal view of these constructions. Although this is problematic, because enclosure walls in an Egyptian context seem frequently to have been imposed upon the populace by local or state authorities, this is perhaps not necessarily as damning a factor for the analysis of this particular architectural feature as it might be for others.

Enclosure walls possess several characteristics that encouraged their use as symbols in Egyptian society. First, their size often played a role structuring the landscape around them. By definition, enclosure walls limned entire settlements or important buildings within them, constraining and altering the possibilities for action by the inhabitants of an urban space. Their monumentality made them difficult to ignore, and large numbers of people were affected by their placement and involved in their construction. Second, enclosure walls were a feature that nearly all Egyptians passing through an urban environment encountered. For many Egyptians of a lower social status, enclosure walls barring entry to more privileged locations were likely the principal

¹ For examples on Bull, Libyan, and Narmer Palettes, see Petrie 1953, G17-20, J25, K26. For early stone construction at the Gisir el-Mudir, see Matthieson et al. 1997. For a succinct overview of how “White Walls” and “*ḥwt-kꜣ-Pth*” and their etymology, see Zivie in Helck, Otto, and Westendorf 1982, 26-27. See also Monnier 2013 for an overview of ancient Egyptian approaches to representing defensive architecture in paintings, reliefs, and sculptures.

² Brown 2010, 39-40 notes that early walls helped to spectacularize power in addition to serving as defensive fortifications.

parts of temples or administrative buildings that they experienced. The ubiquity of enclosure walls thus added to their symbolic potential—they were an architectural feature that was immediately recognizable to most Egyptian subjects. Third, walls were easily identifiable with basic functions like protection and the definition of boundaries. Even if walls were constructed with other, more insidious goals like population management in mind, their basic protective functionality made walls a more legible symbol than other architectural features that might require more specialized knowledge to interpret.

The capacity of walls to define and divide communities also contributed to their symbolic associations. On Early Dynastic palettes, enclosures were often represented with schematic niched and buttressed walls.³ Whether these represent enclosures surrounding palaces, walled citadels, temples, or even large town walls is not entirely clear, but it is all but certain that these walled entities are serving as stand-ins for larger communities than the restricted confines they depict. Given that the town walls of settlements like Edfu, El Kab, Abydos, Lahun, and the Middle Kingdom planned communities at Tell el-Dab'a manifestly lacked defensive features familiar from contemporary fortresses, it seems that many enclosure walls served as much to define interior communities as to defend against invaders. It is plausible that religious rites involving the circuiting of a mastaba or a pyramid complex not only served to protect such structures, but also defined their limits.⁴ Enclosure walls helped materialize these kinds of limits, defining the edges of sacred space when they marked the edge of temple complexes, delineating the margins of urban communities in the form of town walls, and demarcating the borders of important administrative or military complexes.

³ Petrie 1953, G17-20, J25, K26.

⁴ Gardiner 1955.

Enclosures serving as a stand-in for larger communities are present in some of the earliest artistic depictions from Pharaonic Egypt (**Figure 6.1**).



Figure 6. 1: Obverse of the Libyan Palette, from Wikimedia Commons.

The most obvious examples are found upon the Libyan Palette, where seven such enclosures are represented on the obverse of the slate object.⁵ Each enclosure possesses a kind of nched façade, and no entrances or gates are visible. Here, we seem to have indisputable evidence of representations of Egyptian architecture in plan rather than in profile. On the upper row, three of these enclosures clearly house animals, while the second from the left seems to contain two individuals grappling with one another. Within the enclosures, we see a frog, crane or ibis, and

⁵ Cairo CG 14238, Petrie 1953, Pl. G. 19-20. See also Bestock 2018, 47-49 on the difficulties of interpreting this object.

owl respectively. Small square objects next to each figure might perhaps be bricks that have collapsed from an assault on these walls, or simply reflect building materials present at their foundation. In the lower register, three enclosures are visible: in the leftmost, vegetation of some sort, possibly a papyrus plant or some sedge; in the center enclosure an unidentified object that might also be flora of some kind; in the rightmost, perhaps a clump of papyrus. As in the upper register, small rectangles within the enclosures might depict fallen bricks. On the exterior of each enclosure wall (or at least, in all places where the palette is sufficiently undamaged to see), a series of animals wielding repurposed agricultural implements attempt to either hack through the walls, or alternatively might be involved at founding construction at these sites. A falcon seems to labor at this task at the rightmost enclosure on the upper register. Below, two swallows, a scorpion, and a baboon surmount each redoubt.⁶ Two comparable looking enclosures also appear on the Bull Palette, housing a lion and a pot, while a bull gores a man above.⁷

An enclosure also appears on one of the most famous examples of ancient Egyptian art. In the bottom register on the obverse of the Narmer Palette (**Figure 6.2**), a bull barges through an enclosure wall, dislodging several bricks in the process and trampling a Lower Egyptian man.⁸

⁶ Cairo CG 14238, Petrie 193, G19-20.

⁷ Louvre E 11255, Petrie 1953, G17-18.

⁸ For a photograph, see Petrie 1953, J25, K26. For recent interpretations, see Bestock 2018, 65-69; Luiselli 2011, and O'Connor 2011.



Figure 6. 2: The Narmer Palette, image from Wikimedia Commons.

This enclosure is more oblong in shape than those on the Libyan Palette, but like those examples, buttresses seem to adorn its exterior. A structure or mound is also evident within the enclosure, depicted as roughly trapezoidal in shape with two extensions projecting vertically above both obtuse angles of the trapezoid. This presumably represents some kind of temple, palace, tomb, mound, or administrative center within the breached enclosure. Most scholars interpret the raging bull as the king, and thus the capture of this fortification and the subjugation of its defenders attests to the pharaoh's power, strength, and military acumen.⁹ As with the enclosures represented on the Libyan Palette, the scene on the Narmer palette emphasizes the awesome

⁹ O'Connor 2011, 148.

power of the king, who tears down these protective barriers in the course of his conquest. On the recto of the Narmer Palette, also on the lowermost register, a small enclosure with crenellated buttresses along the exterior is located just above the right elbow of the leftmost of two defeated lower Egyptian men.¹⁰ Little can be said about this fortress beyond the fact that it clearly seems to represent a wall, very likely with square niches and buttresses. It is quite small in size, perhaps serving as a kind of label for the broader setting of this particular scene. It is also possible that this scene has some connection to the lowest register on the verso, though this is far from certain. In any case, these images demonstrate that from the earliest days of the Egyptian state, the capacity to erect or raze enclosures was linked to the power of the king (or perhaps the divine). Slightly more subtly, it is clear from the schematic nature of these enclosure walls that they are symbolic of broader communities over whom the pharaoh triumphs.

The metonymic appeal of walls is also evident in an Egyptian term that came to signify the city of Memphis: at least as early as the Third Dynasty, a major settlement near the apex of the Nile Delta was known simply as *jnbw ḥd*, or “White Walls.”¹¹ What these walls refer to is unclear—most scholars suggest that it seems more likely that they reference the walls of a major temple, mortuary monument or perhaps a palace rather than city walls—but the term once again serves to illustrate the importance of walls as a signifier for larger urban sprawls.¹² Perhaps the most obvious datum illustrating the importance of enclosure walls in Egyptian society is that the traditional capital of the nation was referred to by its striking white walls. Archaeologists have

¹⁰ Petrie 1953, J25.

¹¹ Zibelius 1978, 39-42. Petrie 1901, pl. 23, (193) seemingly shows an early reference to “White Walls” from the reign of Khasekhemwy. Garstang 1903, pl. 9 shows one of the earliest attestations of the term from the reign of Djoser, and a pottery mark also has this toponym as well: Garstang 1903, pl. 28 (4).

¹² Monnier 2010, 178-179 provides an overview. Lauer suggests that they might relate to or imitate the enclosure walls of Djoser (or based on Goneim’s excavations, perhaps Sekhemkhet as well). Zibelius 1978, 39-42 provides an overview of the toponym, and suggests it originally designated a royal citadel but later referred to a broader city or settlement. Such citadels or royal walls also occur in the Palermo stone and in early seal impressions (see also Monnier 2010, 180-186 and Zibelius 1978, 42-43).

unearthed large whitewashed brick walls in the vicinity of Kom Tuman, but these date to the 26th Dynasty.¹³ Rather, the most likely candidates for the eponymous walls of the city are the striking white limestone walls of Djoser’s enclosure or the as yet undiscovered enclosure walls of the Early Dynastic and Old Kingdom temple of Ptah.¹⁴ The fact that it is the walls of the temple rather than the heart of the sanctuary that lend their name to the entirety of the city once again emphasizes how walls were often the public face of monuments whose spectacular interiors were visible only to small numbers of the Egyptian elite. It seems likely that the walls surrounding the temple of Ptah at Memphis were particularly impressive or at least figured prominently in public rituals, for walls figure prominently in epithets of the god: Ptah is regularly designated as “South of his Wall.”¹⁵ The word Egypt itself is derived from a Hellenization of the Egyptian term for Ptah’s temple in Memphis: “*ḥwt-kꜣ-Pth*”, literally translatable as “Ptah’s Ka-Enclosure.”¹⁶ Though a *ḥwt* is perhaps best described as center of royal, religious, or institutional power that was not necessarily an enclosure, it seems certain beyond a doubt that this particular one was walled given the prominence of walls around temples generally and the specific epithets of Ptah highlighting them in Memphis.¹⁷ Thus monumental walls, in effect, are intimately linked to the modern name for Egypt itself!

As evidenced by the wealth of examples detailed in Appendix A and their use as a metonym for the ancestral capital of the country, walls were clearly an integral part of ancient Egyptian urban life—and this is further reflected in the bounded nature of the *njw*

¹³ Belova 2018, Belova and Ivanov 2016.

¹⁴ See Zibelius 1978, 39-42 for a detailed discussion of what this toponym might be derived from. See also Monnier 2010, 178-179.

¹⁵ Neith is also referred to as being “North of her Wall” in a number of texts, suggesting a degree of complementarity: Hannig 2003, 153. Zibelius notes that Hathor too on rare occasions has a similar epithet (Zibelius 1978, 40. See her note 257 for additional sources).

¹⁶ Zivie in Helck, Otto, and Westendorf 1982, 26-27. Brugsch 1857, 83, and Gardiner 1947, 124* put forth and accept this etymology.

¹⁷ Zibelius 1978, 40-41.

determinative.¹⁸ Typically described as a village intersection or a crossroads, the sign first appears at least as early as the reign of Djer.¹⁹ The hieroglyph seems to depict a circular settlement divided into four quarters as a result of the junction of two perpendicular roads. Yet the sign does not simply depict four distinct neighborhoods or villages adjacent to two paths in an open area, but rather a bounded entity. A thin circular band marks the edge of the sign, and might perhaps be conceived of as enclosure walls.²⁰ The exact nature of this design element is of course debatable, as it is also plausible that it is entirely aesthetic, serving only to give greater definition to the sign itself. Nevertheless, this band is preserved and indeed even elevated slightly when the sign appears in hieroglyphic inscriptions at Senwosret I's White Chapel at Karnak, often regarded as among the most detailed and elegant renderings of hieroglyphic script ever produced by the ancient Egyptians.²¹ Given the detail added to the circular edge of the *njwt* sign in more meticulous relief work, it seems likely to me that this band may well depict an enclosure wall, or at least an informal boundary. This follows Griffith's and Moret's interpretations of the sign as representing a town bounded by an enclosure wall.²² Of course, not all towns were walled, though many administrative complexes or local shrines possessed at least rudimentary enclosure walls; regardless, many settlements were determined by a hieroglyph that portrayed them as bounded, defined entities.

Whatever messy realities persisted on the ground (and it is quite clear that the inhabitants of Egyptian towns, planned or organic, nearly always immediately set about altering existing ground plans to better accommodate their needs), the state certainly had an interest in perceiving

¹⁸ Badawy 1948, 57-58.

¹⁹ Kahl 1994, 648.

²⁰ Griffith 1898, 34, fig. 142.

²¹ Lacau and Chevrier 1969, pl. XVII, XVIII, XXIX. Plate XXI and XXII show fortified enclosures with the name inscribed inside them.

²² Griffith 1898, 34, fig. 142. Moret 1926, 48.

towns as having distinct boundaries for the purposes of taxation or conscription.²³ For extractive ancient states, there were obvious advantages to clear delineations of where people lived, concentrated in certain locations, and clearly under the thumb of particular administrators.²⁴ Indeed, one might reconceptualize the emphasis on newly founded, rigidly orthogonal planned towns during the 12th Dynasty as an effort to inaugurate distinct, easily controllable districts into the tax base. It should not come as a surprise that even the earliest schematic renderings of such towns by administrators were visualized in such a way as to render them, their populace, and their commercial products more easily “legible” to the state, to borrow James C. Scott’s terminology.²⁵ The *njw*t ideogram and settlement determinative thus reflects not only the pervasiveness of enclosure walls in defining Egyptian settlements, but also the aims and goals of those employing the writing system.

Egyptian texts understandably identify walls as a protective force on numerous occasions. The population of Avaris huddles behind and upon the ramparts of their town walls, protected from Kamose’s rampaging army.²⁶ In the famous literary tale, the Walls of the Ruler fortress guards the entrance to Egypt, as Sinuhe stealthily evades sentries while escaping the country.²⁷ In the hymns to Senwosret III, the king is described as a protector of Egypt’s walls: “How jubilant are the Two Lands because of your vigor, you having protected their ramparts!”²⁸ Funerary stele

²³ For modifications at planned settlements, see Czerny 2010 for the site at area R/I at Ezbet Rushdi, and see Frey and Knudstad for changes at Lahun. Moeller 2016, 254-255 notes that the inhabitants at area F/I at Tell el Dab’a were making constant changes and modifications to the layouts of their houses, highlighting the dynamic nature of these settlements when they were actually functioning. Scott 1998 and Scott 2009 highlight the priorities that the state places on a “legible” population whose produce can be appropriated via taxation and labor through conscription.

²⁴ Scott 1998; Scott 2009. Scott’s 2017 work *Against the Grain* develops many of these points specifically in the context of the first Near Eastern civilizations. His theoretical framework meshes nicely with the more detailed analyses of ancient Egyptian administration advocated by specialists in volumes like Moreno Garcia 1999; Moreno Garcia 2013; Papazian 2013.

²⁵ Scott 1998, 2-3; Scott 2009, 74-79, 84-85, 91-94.

²⁶ Habachi 1972, 34-35. For the physical remains of these fortifications, see Forstner-Müller 2013.

²⁷ Lichtheim 1973, 224.

²⁸ Simpson 2003, 303; Griffith 1898, 2, pl. 2.

exalt the height of the walls of royal funerary constructions. On his stela, Mery notes his efforts to build Senwosret I's mortuary temple, stating that "Its walls pierced the sky."²⁹ Several generations earlier, during the later 11th Dynasty, the poorly preserved stela of Abkau records his efforts building a large construction whose "walls reached the height of the sky/firmament!"³⁰ During the reign of Nebhepetre Mentuhotep II, Intef's (son of Myt) stela is one of the first to record repairs made on the walls of earlier monuments. Intef declares, "Its walls were old" in reference to the ka-chapel of Nakhty, before adding that "Then it was rebuilt, and its groundplan extended."³¹ The concern with refurbishing earlier monuments often appears in royal records, but here we see it applying even to a private funerary monument, albeit one of an esteemed noble who was perhaps revered as a kind of local saint. The Second Intermediate Period stela of Khonsuemwaset describes the construction of a structure whose walls were built to precise calculations.³² Such texts confirm the impression from the archaeological evidence that wall construction was indeed the object of a degree of planning. Walls are protective, sheltering both Egyptians and rivals of the king during times of war. At royal monuments, they are at times described as monumental to the point of being transgressive, piercing or at least reaching the firmament. They appear as emblems of protection and power, whose presence must be renewed in instances where they decay.

Yet there are occasions where this picture appears more complicated. Walls appear as a locus where danger is potentially harbored in PT 241 from the Pyramid Texts of Unas, where the king recites "Wall spit, brick vomit!" likely in reference to a poisonous snake.³³ This spell

²⁹ Lichtheim 1988, 85-88.

³⁰ Landgráfová and Navrátilová 2011, 88-91.

³¹ Landgráfová and Navrátilová 2011, 32-34.

³² Helck 1983, 41-42.

³³ Allen 2005, 18, 62 (note 14). In Sethe's numbering schema, this is PT 241.

highlights that for all their protective capacity, walls could also serve as homes for some of the most dangerous animals in the Egyptian world: scorpions and vipers, and articulates this in one of the most ancient and sacred corpora of Egyptian texts.³⁴ While this does not refer to an enclosure wall, per se, such sentiments might easily be extended to such walls. Decaying monumental walls, by virtue of their size and mass, frequently represent a danger to their neighbors. This is not to diminish the importance of the fact that the vast majority of references to walls, and particularly enclosure walls, frequently refer to their protective properties. Nevertheless, it does not stretch the imagination to conceive of walls as at times ominous, threatening, or even as a haven for dangerous creatures. For features so ubiquitous in Egyptian society as enclosure walls, we should be unsurprised by this multiplicity of meanings—indeed, many surely remain frustratingly beyond our grasp—nor should we be surprised by occasional conflicts between these meanings, given the frequency with which a kind of multivalent logic is deployed in Egyptian religious texts.

This kind of nuance is evident in the ways that enclosure walls appear throughout spells in the Pyramid Texts.³⁵ Walls and enclosures also figure prominently in the Coffin Texts, in largely analogous situations to those in the Pyramid Texts.³⁶ A comprehensive survey is beyond the scope of this work, but I hope to outline the basic contexts where enclosure walls seem to appear, and the situations when the acts of enclosing, encompassing, surrounding, and confining occur. Mainly because of the tendency to translate *hwt* as “enclosure,” enclosures appear

³⁴ At the Egyptian fortress at Uronarti island, where the author participated in field excavations during the winter of 2018-19, scorpions and even snakes sheltered beneath and between the mudbricks of the fortress, and walls were as much a danger as they were a protective influence or shelter against the elements

³⁵ A comprehensive accounting of the times when walls appear in the Pyramid Texts would be extremely difficult given the plethora of *Hwt* and *Hwt* compounds, but Allen provides a rough estimate in his dictionary in Allen 2005, 451-452. The various terms related to enclosure that appear are *jnb*, *jnbt*, *szt*, *mḏr*, and *swnw*.

³⁶ *szt*, or a “walled abode”, appears several times (van der Molen 2000, 438), as does *jnb* (van der Molen 2000, 40), and *hwt* is quite frequent (van der Molen 2000, 318-323).

extremely frequently throughout the various recorded incantations.³⁷ Most refer to physical locations, temples, or palaces, though others might refer to mythic structures in the *Duat* like the *ḥwt ḥtmwt* “Ender/Provider’s enclosure.”³⁸ The act of enclosing or containing is usually connected to the king’s power, either through isolating and neutralizing evil influences or escaping attempts to confine or bind him.³⁹ The pharaoh binds his enemies, transgresses their boundary markers, and breaks free of their enclosures, while in turn he contains and restrains his foes.⁴⁰ Evil spells or hexes might in turn be circulated back against the caster by the pharaoh, as in Coffin Text 16 by the avenging Horus against Seth.⁴¹ This is echoed in other religious texts like the Ramesseum Dramatic Papyrus, when the power of Horus circulates and returns the malevolent efforts of Seth.⁴²

More generally, a hieroglyphic ideogram for enclosure  (sign O6) regularly serves as a marker at the end of spells after the reign of Unas.⁴³ Moreno Garcia’s qualms about viewing these glyphs as representations in plan of enclosures notwithstanding,⁴⁴ it seems significant that a sign depicting a form of enclosure or at least a walled façade regularly appears as a coda to spells in the earliest compendium of religious texts produced in ancient Egypt. The enclosure sign essentially serves as a kind of symbolic wall dividing the content of distinct recitations within the Pyramid Texts. Whether this is a relic of scribal shorthand transposed into stone or a deliberate

³⁷ See, for example, Allen 2005.

³⁸ Allen 2005, 186 (Sethe’s PT 553).

³⁹ Ritner 1987, 66-82.

⁴⁰ This is true from the Narmer Palette (Petrie 1953. J25, K26) to the Pyramid Texts. See for example PT 180, the famous cannibal hymn (Eyre 2002).

⁴¹ De Buck 1935, 48-49; Ritner 1987, 79-80.

⁴² Sethe 1928, 223, 225 n.119e.

⁴³ Allen 2005, 3.

⁴⁴ Moreno Garcia 1998, 55-60.

insertion of a kind of architectural signifier as a visual element for anyone viewing or reciting the spells, its consistent usage hints at the prominence of walls as a metaphor in Egyptian society.

Enclosure walls figure less prominently in artistic depictions of Egyptian architecture than they do in funerary spells or rituals. They are most frequently visible in the determinatives of words for walls, enclosures, or in rare instances, anomalous writings of toponyms of fortresses like Elephantine.⁴⁵ Early representations of fortresses during the Old Kingdom are often in plan form, as in the siege scenes of Inti at Deshasheh or Kaemheset's tomb at Saqqara.⁴⁶ The enclosures on the Narmer Palette and Libyan Palette are also represented in a comparable stance.⁴⁷ This changes during the Middle Kingdom, when depicting the facades of crenellated walls and robust fortifications appears to be preferred.⁴⁸ Crucially, these later representations are generic, evocative of a kind of scene of daily life rather than representing specific battles or specific fortifications.⁴⁹ Monumental enclosure walls may also appear in representations of the facades of palaces, but these perhaps in reality depict the core of the building rather than an enclosure wall.⁵⁰ Paintings of temples prior to the New Kingdom are conspicuously rare, with hieroglyphic determinatives providing the most robust corpus of representations.⁵¹ While more pronounced in the realm of religious architecture, it is undoubtedly true that architectural images

⁴⁵ For example, in PT 665B from the Pyramid Texts of Merenre (Allen 2013).

⁴⁶ For Kaemheset's siege scene, see McFarlane 2003, pl. 48. See also Mourad 2011, 2011. For Inti's tomb, see Kanawati and McFarlane 1993, pl. 27.

⁴⁷ For the Libyan Palette, Cairo CG 14238, see images in Petrie 1953, Pl. G 17-18. For the Narmer Palette, see Petrie 1953, J25, K26.

⁴⁸ Compare the depictions of the Beni Hasan sieges (Newberry 1893, Pl. XIV, Newberry 1894 Pl. V, XV) with the enclosures depicted in Inti and Kaemheset's tombs.

⁴⁹ Bestock 2018, 256-259.

⁵⁰ Badawy 1948, 67-73.

⁵¹ Badawy 1990, 63-68. I was unable to find any graphic evidence discussed in Badawy 1966.

are more prominent in tomb paintings and wall reliefs from the New Kingdom than in any of the periods discussed in this dissertation.⁵²

Walls are mute: though they can be massive, they of course do not speak, and they are always imbued with meaning rather than innately meaningful.⁵³ In a sense, walls can serve as screens upon and through which a multitude of meanings might be projected. Just as the architects of walls brutally articulate power through their choice of what is included and excluded, so too can they be co-opted. Modern correlates of this phenomenon are readily identifiable in the murals of artists seeking to symbolically reclaim sections of the Berlin Wall or the US-Mexico border wall. Walls in ancient Egypt are rarely so well preserved that one can determine if they served as a locus for public artwork or statements of protest, but there are tantalizing hints that some walls were decorated, in some cases with figurative motifs. The walls of Uronarti and Shalfak seem to have been plastered with a substance incorporating a vibrant yellow ochre, and the large wall defining the eastern and part of the northern limits of the cemetery at HK6 in Hierakonpolis was decorated with figural and geometric motifs using red pigments, suggesting at least the potential for an elaborate design program.⁵⁴ Beautiful reliefs adorned the pylons and enclosure walls of New Kingdom temple walls, though comparable designs are not attested for the periods covered by this dissertation.⁵⁵ At this juncture, I am unaware of any Egyptian texts noting the defacement of such walls in antiquity or punishments

⁵² Note the relative abundance of source materials showing architectural designs from the New Kingdom compared to earlier periods in Badawy 1948, for virtually every kind of architectural feature.

⁵³ Brown 2010, 74.

⁵⁴ Friedman 2017, 264. See also Friedman 2008, 1185.

⁵⁵ There are nearly innumerable possibilities for citation for this feature, but the salutary publications of the Epigraphic Survey of the University of Chicago at Medinet Habu, Karnak, and Luxor illustrate the prevalence of these reliefs on later New Kingdom temples. For their earlier works at Medinet Habu and Karnak, see *The Epigraphic Survey 1930*, *The Epigraphic Survey 1932*, *The Epigraphic Survey 1934*, *The Epigraphic Survey 1936a*, *The Epigraphic Survey 1936b*; *The Epigraphic Survey 1940*, among many others.

for such offenders, but by analogy with modern walls it would be unsurprising if such acts occurred.

Regardless of whether they were decorated, the very presence of enclosure walls often ensured that they were the most public face of numerous state institutions, restricting access to the inner sanctums of temples or the interior of an administrative complex. Moreover, the form of walls likely conveyed various meanings simply by virtue of their visual appearance: for example, during the Middle Kingdom, serpentine walls might have denoted ongoing constructions, while the niched façade of Naqada III palaces was so impactful as to be incorporated into the *serekhs* bearing the royal titulary!⁵⁶ Many other visual cues were likely more subtle, to the point of being lost on modern audiences. Even the cleanliness of a wall or the condition of its plaster could communicate information about the dedication of those tasked with maintaining it. Indeed, Amenyseneb describes cleaning a temple at Abydos thoroughly, making special note of polishing “its walls on the inside and the outside.”⁵⁷

Walls in ancient Egypt, as in many polities, were a crucial part of delineating the sacred from the mundane. The introduction to this dissertation noted a quote from the Medievalist Jost Trier, in translation:

“In the beginning, there was the fence... The enclosure gave birth to the shrine by removing it from the ordinary, placing it under its own laws, and entrusting it to the divine.”⁵⁸

This certainly could be said for ancient Egypt, where important funerary superstructures enclosed by wooden palisades interwoven with reeds and plastered with mud formed some of the

⁵⁶ For serpentine walls, see Siegel 2016, 85-87. For an archaeologically attested example of the palace façade at an actual palace, see Hoffman 1971-72 and Weeks 1971-72. On the palace façade, see Kaiser in Helck, Otto, and Westendorf 1982 (LÄ IV) 646-647 and Badawy 1948, 67-73

⁵⁷ Helck 1983, 9, line 8.

⁵⁸ Trier 1943, 232.

earliest enclosures. The religious foundation at HK29A was demarcated by a similar fence.⁵⁹ With the invention of mudbrick, enclosure walls became integral parts of most temple complexes, even irregular provincial constructions like those at Medamud or Tell Ibrahim Awad.⁶⁰ Still others like the Satet temple at Early Dynastic Elephantine were protected by the natural walls of a cave formation and furnished with a walled forecourt.⁶¹ Indeed, the most sacred space in all Egyptian temples save those of the Amarna period was a dark, confined, almost claustrophobic shrine, the resting place of the god itself within a maze of corridors, courtyards, forecourts, halls, and monumental walls.⁶² Freestanding enclosure walls were not always necessary at temple foundations, but they materialized the border between sacred and profane space, protecting the divine from the chaotic outside world.⁶³ The importance of maintaining this space is perhaps best evidenced by the fact that enclosure walls were nearly always built at urban temple sites, where space was theoretically at a premium—it is most often at remote or unfinished temple sites like Qasr el-Sagha that enclosure walls were neglected.⁶⁴ The necessity of walling off the sacred from the quotidian had powerful political implications as well, as this technique was appropriated by the king to any number of secular ends: Wendy Brown notes how political sovereignty models itself after the sacred even in modern democracies; in ancient Egypt, where the pharaoh claimed a divine prerogative to rule absolutely as a result of his relationship to the gods, this connection would seem even more evident.⁶⁵

This theological dimension of power is evident in foundation rituals at important palaces or temples, and these rites involved several acts relevant to delineating the path of and

⁵⁹ Friedman 2009a, 91-103.

⁶⁰ For Tell Ibrahim Awad, see Eigner 2000. For Medamud, see Robichon and Varille 1940, 1-2 and color plan.

⁶¹ On the Satet Temple, see Dreyer 1986 in general, but especially 11-24 for the development of the complex.

⁶² Shafer 1997, 6.

⁶³ Shafer 1997, 1-5.

⁶⁴ For Qasr el-Sagha, see Arnold and Arnold 1979.

⁶⁵ Brown 2010, 70-71.

consecrating enclosure walls that limned the complex. Even more pragmatic rituals like the “stretching of the cord” to layout the building’s foundations or the laying of the initial cornerstones atop foundation deposits indicate a more abstract concern with delineating immutable, implicitly sacred boundaries.⁶⁶ By encircling the foundation, the king symbolically demarcates its boundaries, ritually purifies the site, and protects it from threatening external chaotic forces.⁶⁷ These rites are best attested in later periods far beyond the scope of this dissertation, notably at the Ptolemaic temple of Horus of Edfu.⁶⁸ Nonetheless, echoes of these rituals are evident in examples from the very beginning of a unified Egyptian state. The enclosures surrounding funerary monuments seem to have figured prominently in several important royal rituals, most notably the *phr ḥꜣ jnbw*, or “circumambulation of the walls.”⁶⁹ This, together with the *dbn ḥꜣst* “procession about the desert” and corresponding encircling rituals at *ḥb-sd* jubilees allowed the king to ritually delimit and encircle the realm.⁷⁰ The *ḥb-sd* jubilee was connected to renewing and reaffirming the power of a king who traditionally had sat the throne for thirty years, while the other two processions tentatively seem to be associated with a pharaoh’s coronation.⁷¹ These rituals highlight how important defining and protecting the territory of Egypt appears to have been in early conceptions of kingship. These ceremonies are known practically from the inception of Dynastic Egypt, and must have informed views of enclosure throughout the Pharaonic period.

⁶⁶ Belmonte et al. 2009.

⁶⁷ Ritner 1987, 72.

⁶⁸ Ritner 1987, 71.

⁶⁹ Gardiner 1903, 334-336; Ritner 1987, 72-73. See especially footnote 261 and associated sources.

⁷⁰ Ritner 1987, 72.

⁷¹ Jiménez Serrano 2002, 46, note 442 indicates that all of the mentions of this ceremony on the Palermo Stone coincide with the royal coronation.

Moreover, there are echoes of comparable ceremonies for private individuals. One Middle Kingdom text purporting to be a copy of a 3rd Dynasty original records a ritual where the exterior of a mastaba is circled four times.⁷² Rites conducted to protect an individual's house at the start of a new year are likely the origin of later encirclement rituals performed at Ptolemaic temples like that of Horus of Edfu.⁷³ Encirclement also seems to have played a role in protective rituals related to childbirth. In Papyrus Westcar, Rudjedet makes a circuit of the room as she hears divine music, prior to birthing the scions of the 5th Dynasty.⁷⁴ Magic wands decorated with apotropaic motifs were used to draw a protective circle around newborns to protect them from snakes, scorpions, and illness.⁷⁵

Notions of enclosure or at least circumnavigation were also enshrined in religious conceptions of the daily cycle between day and night, fundamentally theorized as the circuit of the sun god Re in his barque. Ritner notes that Re's path "both delineates the universe and establishes his sovereignty over it" in a divine counterpart to the pharaoh's circumambulation of the walls.⁷⁶ The connection of encirclement with power is quite obvious, as participation in this cosmic journey is the fundamental privilege extended first to the king in the Pyramid Texts, then other members of the Egyptian elite with the Coffin Texts and later the Book of the Dead.⁷⁷ The spells in these volumes seek to bend the universe to the whims of the deceased in ensuring they become one of the blessed dead, participating in the solar voyage encompassing the cosmos.⁷⁸ Walls do not figure prominently as metaphors during this journey, but barriers, or more accurately gates, appear as trials in the Book of Gates that must be overcome by the newly

⁷² Gardiner 1955.

⁷³ Ritner 1987, 72.

⁷⁴ Ritner 1987, 74-75.

⁷⁵ Roberson 2009, 436, Altenmüller 1965.

⁷⁶ Ritner 1987, 77.

⁷⁷ Ritner 1987, 77.

⁷⁸ Allen 2005, 5-12; Ritner 1987.

deceased, mirroring the sun's journey through the underworld.⁷⁹ It is also notable that the royal names of pharaohs were traditionally enshrined within the bounds of either a *serekh* symbol (a schematic rendering of a palace façade: ) or a cartouche (an oval with a line adjacent to one end , almost analogous to the *šn* ring: ). In a sense, the visual signatures of royal authority and power depict it as emanating from an enclosed, bounded, space.

More abstractly, even as the Egyptians did not conceive of walls as determining the edges of their world, Egyptian conceptions of the cosmos are invariably bounded. In Egyptian theology, the primeval hill, alternately described as Tatenen or the Benben stone, emerges out of the chaotic waters of *nun*.⁸⁰ Egypt itself is obviously very circumscribed geographically, with the Sahara to the west, the Eastern and Sinai Deserts to the East, the Mediterranean Sea to the north, and the cataracts of the Nile bounding the southern limits of the polity. Such stark distinctions are evident in the native Egyptian term for their country: *kmt*, “The Black Land,” in opposition to the red land of the desert.⁸¹ Boundaries, even those between fields, were marked by boundary stele that cited the gods as witnesses.⁸² Aesthetically, in addition to its representations of figures in profile and its absence of perspective, a crucial part of the stylized artwork of the ancient Egyptians is the segmentation of wall paintings into different scenes using strict registers.⁸³ Whether rooted in geography or divine sanction, the Egyptians inhabited a rigidly bordered world—one in which walls were an additional element that might help to materialize such boundaries.

⁷⁹ Hornung and Abt 2014.

⁸⁰ See the entries for *nun* (Grieshammer in Helck, Otto, and Westendorf 1982 (LÄ IV), 534-535) and Urhügel (Martin in Helck, Otto, and Westendorf 1986, 874-875 (LÄ VI) in the *Lexikon der Ägyptologie*.

⁸¹ Mertz 1978, 22-23; Shaw in Malek 1993, 13.

⁸² For one example, admittedly from the 18th Dynasty, see Parkinson 2008, 112-115, fig. 118-120.

⁸³ Robins 1997, 21.

Walls also seem to have held symbolic associations or usages in ancient Egypt that are even less readily accessible. The likely ritualized destruction of funerary enclosures for Early Dynastic kings and Senwosret III remain exceedingly difficult to interpret without textual evidence explaining the rites being performed.⁸⁴ Even with better attested ceremonies like the “circumambulation of the walls,” scholars have limited insight as to what constituted these rituals beyond the name of ceremony itself and inferences based on much later textual evidence.⁸⁵ A complete index of ancient Egyptian attitudes towards monumental enclosure walls would of course include the sentiments of all classes of Egyptian society, but Egyptian artwork and texts invariably privilege an elite perspective. The signs of “resistance” we see are instead in the form of minor alterations to existing walls, whether in their appropriation as backing walls, the creation of *ad hoc* doors or staircases to pass through them, and the swift modification of highly planned settlements.⁸⁶

Finally, enclosure walls were not static symbols manipulated by the state, and their meanings and importance changed over time. Indeed, the very materiality of walls changed from exclusively wattle and daub fencing surrounding important buildings to spare unadorned mudbrick and later even decorated stone constructions.⁸⁷ Accoutrements like buttresses, niched facades, defensive features, fieldstones, and painted reliefs were at times added. During the New

⁸⁴ See Bestock 2009, 60; Bestock 2008, 46-47; O’Connor 1989. Wegner 2007, 378-381 describes the process at Senwosret III’s mortuary enclosure.

⁸⁵ Jiménez Serrano 2002, 46, note 442 states that all of the mentions of this ceremony on the Palermo Stone coincide with the royal coronation. In general, Jiménez Serrano envisions a large role for this ceremony, noting that it plays a part in every major festival studied in his dissertation (Jiménez Serrano 2002, 99).

⁸⁶ For a discussion of this at area F/I at Tell el Dab’a, see Moeller 2016, 254-255. For Lahun, see Frey and Knudstad 2008, 44. Moeller also notes the use of enclosure walls as backing walls in Moeller 2016, 276. For the staircases at Lahun, see Frey and Knudstad 2008, 44, fig. 23. For the silos at Edfu, see Moeller 2016, 226-231, fig. 7.10.

⁸⁷ Compare, for example, the fencing surrounding the funerary enclosures at HK6 or at the central kom of Tell el-Farkha with the elaborate stone designs noted at Middle Kingdom inner stone enclosure walls at royal pyramid complexes. For Tell el-Farkha, see Chlodnicki and Geming 2012. For HK6, see the checklist noting enclosures surrounding tombs in Friedman 2009 and subsequent excavation reports. For inscribed or paneled stone decorations at Middle Kingdom pyramids, see Arnold 1988, 58-63 and Arnold 2002, 23-25.

Kingdom, towns were frequently left unwalled, and stone walls were often preferred for encompassing important temple foundations.⁸⁸ More comprehensive analyses of textual references to enclosure walls might perhaps shed light upon evolutions in attitudes towards walls or the notion of enclosure over time. What is abundantly clear, however, is that throughout the timeframe of this study, walls possessed a multiplicity of meanings that could be selectively employed depending on context. While the symbolic meaning of monumental enclosure walls is often difficult to interpret conclusively, one matter is beyond dispute: throughout the duration of this study, from the Predynastic Period through the end of the Second Intermediate Period, enclosure walls permeated the Egyptian urban landscape. Moreover, they remained a crucial part of Egyptian society throughout the Pharaonic period and even beyond, though their uses changed somewhat over time.

POLITICAL WALLS

The functional categories of enclosure walls from Chapter Two and their symbolic potency detailed in the preceding section highlight an important, unifying aspect of Pharaonic enclosure walls: they were inherently political structures, deeply tied to the expression and articulation of civic power in the ancient Egyptian urban environment. In her seminal volume on modern border walls, Wendy Brown astutely notes that “Walls are consummately functional, and walls are potent organizers of human psychic landscapes generative of cultural and political identities”, a statement that manages to explain the political appeal of walls throughout history, from Pharaonic Egypt to modern fencing along the US-Mexico border.⁸⁹ The second chapter of this dissertation detailed seven different functional categories of enclosure walls, while this

⁸⁸For the stone walls at Medinet Habu, see Hölscher’s discussion of the fortified nature of Ramesses III’s mortuary temple at Medinet Habu in Hölscher 1951, 1-11.

⁸⁹ Brown 2010, 74

section has discussed a host of nuanced symbolic associations, metaphors, and metonyms related to walls in Pharaonic Egypt. It is this capacity for walls to not only control the physical movement of people and goods but also to exert a powerful psychic appeal that made them such attractive architectural projects for the Pharaonic state.

Before exploring this facet of enclosure walls in greater depth, I wish first to tackle a more abstract theoretical conundrum: I have interpreted the vast majority of enclosure walls discussed in this dissertation as being imposed by authorities, whether in the form of local nomarchs, agents of the palace, or royal decree, upon other inhabitants nearby. This is not an insignificant theoretical concern, since no texts prior to the New Kingdom detail enclosure wall construction independent from other buildings like temples or palaces. Might not some Pharaonic period walls have been simply the result of local grassroots interests banding together to cordon off a local temple to protect it, or construct a town wall to provide defense during more turbulent times? Furthermore, what kinds of rules governed the presence or absence of enclosure walls surrounding private mortuary monuments? It is certainly plausible, even likely that private persons largely unaffiliated with the Pharaonic state were at times the primary movers inspiring enclosure wall construction. Potential examples readily spring to mind: town walls theoretically existed to defend and define a particular urban community, but did little to aid the Egyptian state with wealth extraction beyond protecting the human and material assets of the town (a not insignificant point, in fairness). Certainly, few individuals beyond the deceased and their immediate family benefited from sectioning off part of a necropolis.

However, the more important point is that walling in a public setting is always an exercise in border-making, and therefore an exercise in power.⁹⁰ Walls materialize borders in the

⁹⁰ Massey 1995, 67-69.

physical world, and borders are nearly always contested.⁹¹ Whether imposed by a royal decree or decided upon democratically by members of a community, enclosure walls divide the world into intra and extramural space. Who and what gets to be a member of the intramural community and internal space is not reflective of some absolute truth, but the result of negotiations within the broader social community—and because social space does not map neatly onto the physical world, any exercise in wall-making or border-making nearly always transgresses existing social relations.⁹² Particularly since monumental enclosure walls traversed, divided, and cordoned off what was previously public space, their construction must always be seen as a demonstration of power. One can draw parallels with arguments about zoning or the emergence of gated communities in contemporary American neighborhoods: regardless of whether governmental or private forces spur their construction, such border-making activities are often contentious, and the outcome ultimately depends on various parties negotiating and exercising the power available to them to achieve their civic goals. This outcome is necessarily imposed upon those parties who disagreed, and subsequently backed by the force of law. In ancient Egypt, where many classes of citizens had even fewer legal recourses to contest or affect such border-making, it is difficult to imagine the creation of a massive enclosure wall that was not, at least to a certain extent, imposed upon some element of the populace.

Furthermore, as noted in the previous chapter, wall construction was a massive undertaking—huge amounts of materials needed to be obtained and fabricated, large numbers of laborers needed to be first marshalled and subsequently allocated to various tasks, and a blueprint needed to be executed. Few forces entirely divorced from the Egyptian state, or at least a nomarch claiming local sovereignty, could accomplish such a feat. In rare occasions where an

⁹¹ Massey 1995, 68-69.

⁹² Massey 1995, 68.

immediate military threat loomed, it is plausible that a town wall might be constructed through the work of various grassroots elements, united by a sense of shared purpose—one such example might be the late Old Kingdom town walls at Edfu.⁹³ But this egalitarian logic seems unlikely to have applied to those city walls built during periods of relative peace, nor could it be applied to royal mortuary monuments, military fortifications, or the diverse walling projects built within an urban landscape. Walls built surrounding palaces, administrative complexes, or temples were, if not directly sanctioned by state authorities, the result of smaller organs of state imposing their will on a local level. Additionally, given the wealth of textual data noted throughout this dissertation that emphasizes the importance of control over manpower,⁹⁴ there is little reason to expect that Pharaonic authorities would not have attempted to build architectural elements to further extend and direct that control, as reflected by some of the walling projects at Heit el-Gurob.⁹⁵ Finally, as previously discussed, enclosure walls were not simply built, they needed to be maintained, and a wall's continuing existence and prominence in the local landscape could only happen with the implicit approval (or at least acquiescence) of the state and nearby inhabitants, or else it would be destroyed or rebuilt.

Walls demonstrated and indeed were consonant with the expression of civic power in a number of different ways. First and foremost, monumental enclosure walls protected the material and spiritual assets of communities, often both literally and metaphorically.⁹⁶ The categories of enclosure walls noted above often served a defensive function, preventing outside, extramural forces from penetrating an intramural sanctuary. These outside forces might be invading armies

⁹³ See the conclusions of Chapter Four of this dissertation for a more in-depth discussion of the walling projects at Edfu prior to the Second Intermediate Period.

⁹⁴ For this principle more generally, see Scott 2009, 64-97. For specific Egyptian examples relating to the *corvée*, see Hayes 1955, Simpson 1963, Simpson 1969, among others.

⁹⁵ For Heit el-Gurob, see Lehner and Tavares 2010, 213-214.

⁹⁶ Kemp et al. 2004, 284.

or raiders, other Egyptians or townspeople whose status precluded them from entering inside a divine temple, palace, or other administrative structure, or metaphysical spiritual dangers.

Regardless of who was being excluded, the very act of defining intramural space was a political one. During the timeframe of this dissertation, the defensive architecture surrounding fortresses or citadels was typically more robust than the enclosure walls surrounding temples or administrative buildings; however, during the New Kingdom, temple walls were fortified in a comparable manner to earlier military installations, and this pattern continued into the Third Intermediate Period as well.⁹⁷ The manifold reasons spurring this change are beyond the scope of the current work, but it does highlight how most of the walls featured within this dissertation were designed with the intent to protect various state, spiritual, and material resources, whether or not they were equipped with enclosure walls specially designed to thwart military assaults.

From a military perspective, Egyptian fortification walls were designed to defend against sustained assaults, and Egyptian architects eventually designed powerful features to augment a wall's defensive capabilities. All Egyptian fortresses took great pains to ensure access to water even in the event of a siege.⁹⁸ Massive barbicans protected two or three chamber gateways. Merlons and crenellations together with embrasures and bastions equipped with loopholes created firing platforms for defenders. Plaster made it harder for attackers to ascertain the height of the wall and disguised potential handholds for scaling.⁹⁹ Defensive ditches or in some cases a glacis helped vitiate the effectiveness of the battering ram, first known in representations as early

⁹⁷ Kemp et al. 2004, 271-276. For a specific example, see Hölscher's details about the fortified nature of Ramesses III's mortuary temple at Medinet Habu in Hölscher 1951, 1-11.

⁹⁸ Monnier 2010, 32-70; see also Keegan 1993, 140-141, who makes the distinction between strongholds and refuges on the basis of access to water and the ability to weather a prolonged siege.

⁹⁹ Williams 1999, 440-442.

as the Middle Kingdom.¹⁰⁰ Large percentages of the area within some Egyptian fortifications in Nubia were devoted to storage magazines or granaries, suggesting that a sizable reserve of grain far beyond the capacity of a single fortress's garrison could be used to feed besieged defenders for an extended period of time or serve as a launching point for offensive campaigns into enemy territory.¹⁰¹

Some walls at settlements appear to have been designed specifically to channel traffic within a settlement along certain paths. The more than 5 km long walls near the Nile's First Cataract (from Aswan to Konosso) and Semna gorge also seem to have been designed to funnel people and goods along official pathways at a more regional scale, while the walls at Heit el-Gurob directed most foot traffic towards the Royal Administrative Building even as they separated the barracks-like housing of the gallery complexes from the Eastern and Western towns.¹⁰² At Lahun, the west wall of Hotep-Senwosret effectively separated this larger settlement from Sekhem-Senwosret, though the latter was certainly built later and served primarily as housing for members of the mortuary cult of Senwosret II.¹⁰³ The very monumentality of large enclosure walls ensured that they cordoned off certain buildings and affected circulation within settlements even as people gradually appropriated parts of enclosures as backing walls for smaller residential or industrial constructions.

While a secondary feature, to be sure, freestanding walls or fences also would have served to protect settlements from encroaching wild animals and control domesticated ones.¹⁰⁴

Though often ignored in favor of more easily understandable or sensational imagery, walls

¹⁰⁰ Defensive ditches were an integral part of numerous Middle Kingdom fortresses, notably at Buhen (Emery et al. 1979, 20-42). For early representations of "battering rams", or at least poles being used to dislodge bricks, see Newberry 1893, Pl. XIV and Newberry 1894, Pl. V and XV.

¹⁰¹ Kemp 1986, 133-134.

¹⁰² Lehner and Tavares 2010, 213-214.

¹⁰³ Moeller 2017, 192-196, 203-205.

¹⁰⁴ Williams 1994, 279.

shown corralling herds can be viewed as a less overt sub-category of the “Master of Animals” motif, showcasing the capacity of Predynastic Egyptians to control, protect, and domesticate various herd animals.¹⁰⁵ Among the famous painted designs at Tomb 100 at Hierakonpolis is a circular feature with four goats or ibex tethered to its exterior. Two other enigmatic circular features with lines crossing their center have been interpreted as possible animal pens.¹⁰⁶ Though less formalized and robust than later mudbrick city walls, the use of barriers and pens to aid in efforts to domesticate, tame, and manage herds shows that simple walls were connected to one of the most powerful economic spheres of ancient Egyptian life almost from its inception.

These purposes highlight how control was an overriding concern of the architects of monumental enclosure walls in ancient Egypt: control over the physical and metaphysical resources within an urban area, control over the movement of peoples and animals, control over the circulation of goods and objects, and control over the local landscape. Enclosure walls were one method by which Egyptian urban planners sought to operationalize this kind of control, to varying degrees of effectiveness. The horizons of the Egyptian urban landscape were in many respects quite literally defined by the monumental enclosures that seem to have been a focus of the state from the Predynastic period through the end of Pharaonic civilization. Their prominence is also accentuated by the numerous different words for enclosures that the Egyptians eventually developed. In the pre-modern world where obtaining and deploying manpower was one of the foremost goals of many states, walls served as one way to exert that control by containing and channeling people in specific directions.

¹⁰⁵ See for example those in the famous Painted Tomb, HK 100: Green and Quibell 1902, Pl. LXXVI

¹⁰⁶ Green and Quibell 1902, Pl. LXXVI. For a later example, see also the animals penned in on the Narmer Macehead: AN1896-1908 E.3631. For a line drawing, see Millet 1990, fig. 2.

The preoccupation of Pharaonic Egypt with monitoring and controlling its populace is not only evident in architectural forms like the gallery complex of Heit el-Gurob, but also in literary tales and administrative documents. Sinuhe boasts of slipping past the sentinels of the “Walls of the Ruler” as he escaped into the Levant following the untimely death of Amenemhat I;¹⁰⁷ administrative decrees like the 6th Dynasty Coptos Decrees or the much later Nauri Decree of Seti I exempted certain temples from providing manpower for corvée service,¹⁰⁸ while the Reisner Papyri, Papyrus Brooklyn 35.1446, and a host of papyri from Lahun allowed Micòl di Teodoro to meticulously trace the operation of the corveé (and the penalties awaiting fugitives who fled or were derelict in their service) during the Late Middle Kingdom.¹⁰⁹ Walls were some of the architectural correlates of this effort to control the movement of people within and beyond the borders of Egypt. As Bruce Williams notes, the Second Cataract fortress system not only helped to prevent Nubian incursions, but it also served to curtail the emigration or flight of native Egyptian subjects.¹¹⁰ During the late 19th Dynasty, when the skilled artisans of Deir el-Medina launched the first strike in recorded history, they note the passing of “five walls of the necropolis” each time the workers headed east towards the riverbank to protest to authorities about their absence of payment.¹¹¹

I would be remiss if I did not note the numerous ancillary functions of enclosure walls as their uses were appropriated by townspeople and others for purposes completely unrelated to their original aims; such interventions were also political acts, as local citizens claimed, altered, or dismantled portions of monuments often erected at the behest of, and certainly maintained by,

¹⁰⁷ Lichtheim 1973, 224.

¹⁰⁸ For the Coptos Decrees, see Strudwick 2005, 105-115; for the Nauri Decree, see Griffith 1927, Edgerton 1947, and Gardiner 1952.

¹⁰⁹ Di Teodoro 2017, 149-156. For Papyrus Reisner I, see Simpson 1963; for Papyrus Reisner III, see Simpson 1969.

¹¹⁰ Bruce Williams describes it as a kind of “mudbrick curtain” acting to halt emigration. Williams 1999, 449.

¹¹¹ Edgerton 1951, 139. See also Frandsen 1989 for hypotheses regarding the location of these walls.

the local sovereign power. Once an enclosure wall was finished, the forces that ordered its construction also had to perpetuate it—both the physical entity of the wall itself, and the purpose to which it was set. Absent this maintenance, the wall might physically deteriorate, and private citizens could transgress its boundaries, and at times even build upon, around, beyond, or cut into the wall itself—as occurred via the eventual construction of large silos built against the First Intermediate Period town wall at Edfu, or the use of ladders and stairways to traverse the enclosure wall at Lahun by its inhabitants.¹¹² Thus, an enclosure wall built originally for defensive purposes might simultaneously serve as a backing wall for a new wing of a house; indeed, from the vantage point of the household so utilizing it, this might be its primary purpose. It is also worth noting that walls used for such a purpose could connote privacy rather than some of the more ominous elements of state control and oversight noted above. The redirection of enclosure walls towards the ends of local inhabitants is one of the primary factors that accounts for those instances where certain enclosure walls endured in settlements, a discussion that will be elaborated upon in the following chapter.

Unlike many architectural elements, enclosure walls have the potential to operate at multiple scales: some enclosures encompass discrete buildings or institutions within a site, others limn entire settlements, and rare examples aim to defend, direct, and funnel traffic across entire regions. While the Aswan-Konosso and Semna-Uronarti walls were so massive that they alone might be thought of as interventions on a regional scale, much smaller walls might also be part of a broader, regional wall-building program.¹¹³ The enclosure walls defending the Second Cataract

¹¹² On the almost immediate modification of planned settlements by their inhabitants, see Moeller 378-379, where the settlement site at F/I at Tell el Dab'a is specifically cited. Moeller also discusses the use of enclosure walls as backing walls in Moeller 2016, 276. For the staircases at Lahun, see Frey and Knustad 2008, 44, fig. 23. For the silos at Edfu, see Moeller 2016, 226-231, fig. 7.10.

¹¹³ For the Aswan-Konosso wall, see Jaritz 1987, Jaritz 1993, and von Pilgrim in von Pilgrim et al. 2011, 135-137. For the Semna-Uronarti wall, see Mills 1967-68, 206, and Zabkar and Zabkar 1982, 12-13.

fortresses can be investigated as an entity unto themselves at the site level, but they may also be profitably considered as components of a broader regional defense network—indeed, this is the most common interpretation of the chains of frontier fortresses along Egypt’s southern frontier and guarding the margins of the northeastern and western Nile Delta.¹¹⁴ Within a single settlement, walls can be analyzed individually, but also as constituents of a broader constellation of walling that informed the local urban landscape. They are the rare built features that might plausibly be said to have broader, sometimes even cumulative effects even in the absence of explicit administrative or institutional linkages. Thus, the independent situational contexts that led to the widespread walling of nome capitals during the late Old Kingdom furthered the creation of an atomized Upper Egypt, and this walled landscape in turn likely encouraged the decentralized conditions that further stimulated pervasive low-level local warfare during the First Intermediate Period.¹¹⁵

The political dimensions of walls have most frequently been addressed in studies of modern border walls. Nearly all of these works confine their enquiries to recent border walls, particularly those produced by the Israeli state to encompass occupied territories in Palestine and the US-Mexico Border wall.¹¹⁶ There are myriad reasons to limit such studies to these modern walls, many of which are eloquently formulated in Wendy Brown’s *Walled States, Waning Sovereignty*: globalization and the unprecedented reach of an interlinked, neo-liberal capitalist economy undoubtedly affect modern states in profoundly different ways than the forces with

¹¹⁴ For a non-exhaustive list of scholars considering the fortresses as chains of fortresses and not disconnected individual sites, see Kemp 1986, 133-134; Monnier 2010, 46-54; Williams 1999, 447. In fact, I am unaware of any scholar suggesting that each fortress might operate individually or disconnected from others, likely a result of the wealth of evidence highlighting interconnections between the fortresses themselves and ties to the central government.

¹¹⁵ Moeller in Kemp et al. 2004, 264.

¹¹⁶ For the US-Mexico border wall, see Andreas 2000. For the Israel-Palestinian Walls and barricades, see Weizman 2007. More general volumes on modern border walls include Brown 2010, Quénel 2012, Di Cintio 2013, and Gasparini 2017, among many others.

which ancient polities contended. Plainly, conceptions of national identities, notions of racism and xenophobia, and indeed even the state itself have changed significantly from the time of Pharaonic Egypt.¹¹⁷ Technological innovations allow the modern state an unprecedented capacity to aid, intrude upon, and monitor the lives of its citizens, and concepts of universal human rights linked to citizenship obviously have no analogue in ancient Egypt.¹¹⁸ Just as important, the historical contexts of monumental walls are always unique, contingent on a vast array of circumstances specific to their particular spatial and temporal environment. In the case of the modern border walls restricting immigration to western polities from the global South, Brown persuasively argues that the contradictions inherent to enclosure wall construction are especially visible when ostensibly liberal and democratic regimes have sought to erect them.¹¹⁹

Brown's case is helped by imperfect or sloppy attempts to historicize modern walling project's like the Iron Curtain or the restriction of access to the European Union. One such example by Max Haller highlights Hadrian's Wall, the Roman *limes* in Syria, Palestine, and Egypt, and the Great Wall of China in an effort to understand the genesis of modern walling efforts, focusing on the use of these walls to deter invading nomadic groups or tribes.¹²⁰ Haller states that walls were built in regions that lacked natural borders, prevented access to their interior from those states, tribes, and would-be emigrants beyond their limits, and tended to be built when empires were consolidating and no longer expanding.¹²¹ Haller also notes a "clear gap in living standards, wealth, and civilization between the territory of the empire and external

¹¹⁷ Brown 2010, 39, 80-105.

¹¹⁸ Scott 2009, xii, 324-325, makes a compelling case for the incredible capacity of the modern state to manage and control its citizens compared to earlier polities that existed prior to "distance demolishing technologies" like planes, helicopters, modern roads, and railways.

¹¹⁹ Brown skewers "walled democracies" in particular: Brown 2010, 101.

¹²⁰ Haller 2017.

¹²¹ Haller 2017, 99-101.

territories and countries,” and further argues that the economic sophistication of such empires allowed them to conquer and expand in the first place.¹²²

Haller’s analysis risks reifying the very imperial ideologies he attempts to study, and the Egyptian evidence provides useful counterarguments to all of his criteria. On the whole, the walls detailed in this dissertation’s appendix point towards walls being used to control and retain Egyptian subjects more often than they were employed with an eye towards defending against external, uncivilized “barbarians.”¹²³ Egypt has natural borders along all of its frontiers, yet regularly built walls and fortresses to control access at chokepoints and access to water sources, particularly during the 12th Dynasty and the New Kingdom.¹²⁴ Moreover, walls themselves did not always form the Egyptian state’s primary defensive mechanism, nor did campaigns against those beyond their borders: as the *Instructions for Merikare* state, founding new settlements, rather than defensive outposts or military action, could at times be viewed as the best method for defending against tribal raids or razzias.¹²⁵ Nor were walls symptomatic of imperial consolidation, as some of the most prolific periods of frontier fortress construction occurred during the reigns of Senwosret III and Ramesses II, two pharaohs who embodied the expansionistic Egyptian imperial ethos.¹²⁶ Rather, walls and fortresses were used to consolidate power for future campaigns to “broaden the borders of Egypt.”¹²⁷

Most importantly, Haller overlooks the fundamentally extractive nature of ancient states in his discussion of the permeability of ancient walls. Sinuhe’s harrowing escape past sentries at

¹²² Haller 2017, 101.

¹²³ Walls in settlements within Egypt proper as opposed to on the frontier account for the vast majority of walls detailed in this dissertation’s appendix.

¹²⁴ Morris 2005, 823-827.

¹²⁵ Helck 1977, 59-60; Simpson 2003 161-162. Admittedly, Khety also exhorts Merikare to fortify his borders.

¹²⁶ Senwosret III campaigned further into Nubia and expanded the boundaries of Egypt further to their most southerly extent until the 18th Dynasty. Ramesses II’s military exploits, and particularly his Kadesh campaign, are memorialized spectacularly at Karnak and innumerable other temples constructed during his reign.

¹²⁷ For the phrase “broadening the boundaries of Egypt”, see Galan 1995.

a border fortress suggests that Egyptian walls served as much to keep its subjects inside its borders as they did to prevent the trespassing of external forces. The idea that the Egyptians were more “civilized” than their Meshwesh, Libu, Nubian, or Asiatic counterparts is risible, though they were doubtlessly organized in a more centralized, bureaucratized, and predatory state, and in a region where the regular flooding of the Nile better inoculated them against famines or droughts.¹²⁸ In *The Art of Not Being Governed*, James Scott eloquently argues that the extraction of crop yields through taxation and manpower through corvée labor, impressment, and conscription were the preeminent concerns of the premodern state.¹²⁹ Thus, as Lattimore argues with the Great Wall of China,¹³⁰ or Johnson and later Chaichian have noted in their analyses of the defensive earthwork Vallum on the southern side of Hadrian’s Wall, such massive walls were also built with an eye towards those within their confines;¹³¹ in essence, they served just as much to keep fleeing peasants or tribesmen within the borders of the polity, so that their labor and crops could continue to be appropriated by the state. Similar theories have already been suggested regarding ancient Egypt: the importance of the corvée in ancient Egypt has already been detailed, and Bruce Williams has even described the Egyptian chain of fortresses in Nubia as akin to “a mudbrick curtain” keeping peasants within the boundaries of the Pharaonic state.¹³²

Nevertheless, many of the observations and conclusions reached by scholars analyzing the political dimensions of modern walls are also applicable to ancient Egyptian enclosure walls. One important feature of walls both ancient and modern is that they divide and separate, but all walls are at their “hardest” and most impermeable at the moment of completion and require

¹²⁸ Scott 2009, 32-36 and 335-337 highlights the biases of most histories toward settled, lowland societies.

¹²⁹ Scott 2009, 64-97.

¹³⁰ Lattimore 1937.

¹³¹ Johnson 2004, 58-59; Chaichian 2014, 36-37.

¹³² Williams 1999, 449.

constant maintenance in order to sustain an impervious border.¹³³ The very mudbricks they were built with required extensive upkeep in order to preserve such features, and archaeological evidence from sites throughout Egypt plainly shows that most walls were eventually allowed to deteriorate and collapse, necessitating further rebuilding and negotiations within social space as to who and what was encompassed by such walls.

Of the five types of borders identified by Gasparini that might be materialized by walls, four are certainly applicable to ancient societies like Egypt.¹³⁴ Certainly, the Pharaonic state attempted to direct relations between regions through “junction borders” (think perhaps, the Aswan-Konosso or Semna-Uronarti Walls) and possessed internal divisions represented by “administrative borders” that marked the boundaries of various nomes or even individual cities. Symbolic or mental borders that no longer existed would also have been extremely frequent; decaying town walls were not always entirely razed when new walls were constructed, and the Second Cataract fortresses in Nubia persisted during the New Kingdom largely as a relic of earlier border-making efforts subsumed within the larger, more expansive 18th Dynasty state.¹³⁵ The construction of frontier fortresses along the margins of the Western Delta, in Lower Nubia, and guarding the wells along roads through the Sinai are as close as Egypt comes to “barrier borders” intended to halt communication with the outside world, though it is likely better to argue that these only existed to control and direct existing relations rather than prevent all interaction.¹³⁶ Only “virtual borders”, which are softened borders between nations or entities

¹³³ Gasparini 2017, 6-7.

¹³⁴ Gasparini 2017, 47-50.

¹³⁵ Morris 2005, 111 conspicuously notes how New Kingdom Nubian fortresses lacked curtain walls or a glacis, unlike their earlier counterparts. Most of the New Kingdom renovations at Second Cataract fortresses were renewals of temple foundations.

¹³⁶ The *htm* fortresses like Tjaru, used to seal off the entrance to Egypt proper, spring to mind here: Morris 2005, 804-809.

within a supranational organization like the European Union or United Nations, are unknown in the ancient Egyptian world.¹³⁷

Many of the aspects of walling that Brown identifies are applicable to ancient walling projects as well. The enclosure walls surrounding temples, palaces, or cities surely evoked a sense of “sovereign awe” in Egyptian subjects just as they inspire astonishment among tourists and archaeologists today.¹³⁸ Just like modern walling projects, ancient Egyptian walls not only spectacularized power through their massive size and visual prominence, they (at least in theory) served an instrumental function in altering the local landscape according to the whims of those responsible for their construction. Barry Kemp highlights the importance of monumental architecture in the cultural identity of the Early Dynastic state, and the prominence of monumental enclosure walls in funerary architecture and surrounding palaces and temples shows how integral a role they played in limning these monuments.¹³⁹ Indeed, in the case of Early Dynastic funerary enclosures, the walls themselves *were* the monument!

Brown highlights that border wall construction often has had profound unintended consequences for modern states, frequently reproducing and amplifying the paranoia, racism, xenophobia, and fear amongst the intramural population whom they allegedly protect.¹⁴⁰ It is impossible to trace the effects of wall building at such high resolution in ancient polities, nor do I wish to equate the kind of ethnocentrism identifiable in ideologically charged Egyptian narratives with that of modern racism; however, certain enclosure wall constructions in Egypt seem to have traded upon the perception of danger rather than an imminent threat. The mid-12th Dynasty rebuilding of city walls at Edfu and Elephantine, during a period of uncommonly stable

¹³⁷ Gasparini 2017, 49.

¹³⁸ Brown 2010, 39-40, 103-105, 132.

¹³⁹ Kemp 2000, 99-110.

¹⁴⁰ Brown 2010, 41.

rule and when Egyptian power extended well beyond the Nile's Second Cataract, seem unlikely to have been the result of any direct threats to these large Upper Egyptian provincial centers.¹⁴¹ What they do seem to coincide with, however, is a renewed dedication on the part of Senwosret III to expand the southern boundaries of Egypt through a series of campaigns and the construction of a number of new fortresses defending Egypt's southern frontier hundreds of kilometers to the south.

Brown closes by noting that the psychic impulses that impel modern states to wall their borders compare with how "ancient temples housed gods in an unhorizoned and overwhelming landscape."¹⁴² In her psychoanalysis of the modern desire for walls, she draws upon Sigmund Freud's early attempts and Anna Freud's more detailed elaboration of a "Theory of Defense", arguing that walled borders provide the illusion of intact sovereignty in a chaotic and increasingly globalized world.¹⁴³ The Egyptian world was not one where sovereignty was necessarily waning, but one where it often struggled to assert itself given the existing technology. Aggrieved peasants could flee or in rare instances riot.¹⁴⁴ Even in an environment as circumscribed as Egypt, nomadic groups regularly trespassed into the Nile Valley and Delta, often simply avoiding frontier fortresses via desert trails as they encroached upon nominally Egyptian territory.¹⁴⁵ Against environmental catastrophes or epidemics, the Egyptian state was limited in its capacity to defend or protect its citizenry. It seems plausible that the desire for

¹⁴¹ For the Edfu walls, see Chapter Four from this volume. For the Middle Kingdom town wall at Elephantine, see von Pilgrim in Seidlmayer et al. 2016, 207-210, though he makes no suggestion that their purpose would be anything other than defensive.

¹⁴² Brown 2010, 133.

¹⁴³ Brown 2010, 123-131.

¹⁴⁴ Evidence of large-scale revolts are extremely rare in Egyptian sources, but the massive lists of fugitives from the *corvée* detailed in Papyrus Brooklyn 35.1446 suggest that flight was relatively common. This accords well with James Scott's notion that aggrieved peasant farmers could at times flee away from an extractive and coercive state that imposed excessively onerous burdens upon its subjects: Scott 2009, 24.

¹⁴⁵ The Libyan invasion from the reign of Merenptah followed an oasis route, eventually passing the Farafra oasis: Manassa 2003, 28.

security that Brown cites as spurring late modern wall construction may also have played a role in the decision to wall some towns and nearly all temples within Pharaonic society.¹⁴⁶ That said, Brown rightly notes the historically contingent natures of her arguments, and there is surprisingly meager evidence for the Egyptian state indulging in fantasies of dangerous aliens or its own impermeability.¹⁴⁷ For all the ethnocentrism and airs of superiority present in Egyptian texts with depictions of foreigners, there is also abundant evidence that those who adopted Egyptian customs could advance within Pharaonic society.¹⁴⁸ Nor do Egyptian idealizations of their mythic past evoke a fundamentally purer or innocent era that has since been corrupted by foreign influence in the manner of right wing partisans in modern western democracies advocating for border walls.¹⁴⁹

Egyptian walls were defining features of political and urban life during the Pharaonic period. They were ubiquitous, ranging in quality from cost-cutting efforts at renovation to stone walls bearing ornate reliefs surrounding royal pyramids. Some were designed to channel traffic along certain avenues within a settlement, while this was perhaps an unintended consequence of other foundations. The massive walls along Egypt's southern frontier helped regulate and control trade and the movement of individuals immigrating to and emigrating from the Egyptian state. Some Egyptian walls were among the most sophisticated defensive fortifications ever produced in the ancient world, while most city walls ignored conventional defensive structures and appear to have served as markers that at times quite literally defined the margins of urbanity, even as

¹⁴⁶ Brown 2010, 107-123.

¹⁴⁷ On the distinctiveness of modern walling, see Brown 2010, 39. For the various fantasies indulged by "walled democracies", see Brown 2010, 114-123.

¹⁴⁸ Gordon 2001; Smith 2003.

¹⁴⁹ Rather, the Egyptian past was idealized by virtue of its perceived normativity, antiquity, and mythic connections: see Kemp 2006, 61-69. Nonetheless, periods of "foreign" rule like the Second Intermediate Period were frowned upon, and a kind of nationalism served as a rallying cry for the late 17th and early 18th Dynasty pharaohs, as evidenced in the Kamose Stela: Habachi 1972.

many inhabitants of these enclaves would have labored in fields beyond the confines of such walls. Walls were the most visible boundary distinguishing sacred and profane space, and guarded numerous administrative buildings, physically separating the divine and the Pharaonic elite from much of the rest of Egyptian society. Enclosures were adopted as symbols of royal authority and served as metonyms for the city of Memphis and later, to an extent, all of Egypt. Such symbols were rendered more nuanced by the theologians and scribes who played with and altered their meanings through repeated usage in a host of different literary and religious texts, together with people deploying them in dialog every day. Walls doubtlessly were employed in any number of contexts and for any number of purposes not yet discovered by archaeologists or conveyed in extant papyri. However, one unifying aspect of all the myriad symbolic associations and multifaceted pragmatic functions of Egyptian walls is that all of these elements are intimately entwined with how power was imposed, articulated, enforced, resisted, co-opted, and channeled by political actors within Pharaonic society.

CHAPTER 7: THE AFTERLIFE OF AN ENCLOSURE WALL AND CONCLUSIONS

DIACHRONIC SURVEY OF EGYPTIAN ENCLOSURE WALLS FROM THE PREDYNASTIC TO THE SECOND INTERMEDIATE PERIOD

While previous chapters have touched upon the historical development of mudbrick architecture and how walls changed over time within distinct functional categories, this concluding section presents the occasion to take a wider view of ancient Egyptian approaches toward enclosure walls. From some of the earliest settlement contexts excavated within Egypt, substantial fences constructed using reeds, timber, and mud seem to have defined important buildings, and in the case of Tell el-Farkha, even certain sections of the settlement.¹ Some of the earliest complex polities in Egypt appear to have used such fencing in many of the same ways that their later Pharaonic counterparts did: to control and channel movement, and to demarcate and protect the most prestigious and important ritual spaces, storehouses, and administrative centers. The emergence of mudbrick as a building technology during the 4th millennium BCE radically altered the urban landscape and facilitated greater opportunities for walling.² Mudbricks were relatively easy to fabricate, and clay, sand, and alluvial silt were even more abundant and accessible than reeds or *acacia nilotica*. Just as importantly, mudbrick proved to be a more durable building material, though it must be emphasized that the large fences surrounding elite tombs at Hierakonpolis and dividing the settlement at Tell el-Farkha were quite substantial in their own right, and almost certainly would not have been viewed as ephemeral features by those that built them. Mudbrick, however, became the preeminent building material

¹ Chlodnicki and Gering 2012, 92.

² For the introduction of mudbrick as a building technology in Egypt, see Chlodnicki 2016.

in Egypt—a status it would hold in the region until the introduction of industrial concrete. In some cases, reed and wood fences were clearly replaced by mudbrick walls that simply followed the same trajectory as the earlier fences.³

Enclosure walls were increasingly prominent features of the Egyptian architectural landscape during the late Predynastic, Early Dynastic Period, and the Old Kingdom. The correlation of spectacular, awe-inspiring buildings with state power seems to have spurred a kind of increasing monumentality in Egyptian architecture, of which enclosure walls were but one aspect.⁴ First and Second Dynasty kings built massive funerary enclosures, some of which were decorated with dados in red paint or niched facades.⁵ Citadels and the earliest attested fortifications from Egypt, while likely present in earlier periods, are first attested during the First Dynasty.⁶ Elite mastabas were also occasionally cordoned off by small mudbrick enclosures, and the palace façade style of niching and buttressing became a hallmark of elite and royal architecture.⁷ As Egyptian architects began to play with aesthetic choices like decorative buttresses and painted plaster, so too did their technical acumen increase. Layers of reeds were used to help courses of mudbricks settle, and walls were typically built with a gently sloping exterior face.⁸

Massive enclosures also seem to have represented the first attempts to master stone architecture in ancient Egypt, most noticeably at sites like the Gisir el-Mudir.⁹ The culmination of

³ Chlodnicki and Geming 2012, 92.

⁴ Kemp 2006, 99-110.

⁵ For the Dado at Peribsen's enclosure, see Ayrton et al. 1904, 3.

⁶ Tell es-Sakan is one such example: de Miroschedji et al. 2001, de Miroschedji and Sadek 2000, de Miroschedji and Sadek 2001.

⁷ For the palace façade style, see Kaiser in Helck, Otto, and Westendorf 1982 (LÄ IV) 646-647; Arnold 1994, 186-187; Badawy 1948, 67-73. For Early Dynastic mastabas, a complete bibliography is beyond the scope of this project, but niched facades are evident in many of the tombs that Emery details in Emery 1938, Emery 1939, and Emery 1949.

⁸ This technique was certainly in evidence at the “fortress” of Khasekhemwy at Hierakonpolis: Friedman 2007, 316.

⁹ For the Gisir el-Mudir, see Matthieson et al. 1997.

these efforts was the beautiful Step Pyramid complex of Djoser, the first king of the Third Dynasty.¹⁰ The Third Dynasty is also the earliest attestation of the phrase *jnbw ḥd*, or “White Wall” being used as an epithet for Memphis, though it seems more likely that this refers to a plastered temple or citadel wall rather than a town wall or pyramid enclosure.¹¹ The use of stone walls was extremely restricted, as no enclosures aside from the innermost enclosure wall of royal pyramids were built in limestone during the Old Kingdom.¹² By the end of the Old Kingdom, all of the categories of walling identified in Chapter Two are archaeologically attested save the massive, multiple kilometers long freestanding walls that defined pathways on Egypt’s southern frontier during the Middle Kingdom. The semantic repertoire relating to walled constructions was already robust even at this early date. Of the many words associated with walled structures reviewed in Chapter Two, the majority were already in use during the Old Kingdom. Between the archaeological and textual evidence, it is clear that monumental enclosure walls played an important role in Old Kingdom Egyptian urban life.

As the power of the state waned during the late Old Kingdom, town walls proliferated throughout Upper Egypt during the 6th Dynasty and early First Intermediate Period.¹³ New installations were constructed at Edfu, Hierakonpolis, El Kab, and Abydos, and existing town walls were renovated at Elephantine.¹⁴ Beyond a landscape that was tailor-made for the localized raiding and war-making of the period, such walling projects dramatically expanded the intramural spaces of these settlements.¹⁵ Certainly, the walls themselves were defining aspects of

¹⁰ For an overview of the step pyramid, see Lehner 1997, 84-93. See also Lauer 1936a, Lauer 1936b, Lauer 1939, Firth et al. 1935, and Firth et al. 1936.

¹¹ Zibelius-Chen 1978, 39-42. Petrie 1901, pl. 23 (193); Garstang 1903, pl. 9 (5b), 28 (4).

¹² For a list of these stone enclosures, see footnote 69 from Chapter Two.

¹³ Moeller in Kemp et al. 2004, 261-265.

¹⁴ These sites have been noted in detail elsewhere in this dissertation, but Moeller in Kemp 2004, 261-265 covers the basic phenomenon here. For Abydos, see Kemp 1977, 186-189.

¹⁵ Moeller 2004, 264; for the phenomenon of the expansion of Upper Egyptian settlements during the First Intermediate Period, see Moeller 2016, 219-241 and Moeller and Marouard 2018.

these changing settlement patterns, helping to structure life in the neighborhoods they encompassed. At Edfu, there is evidence to suggest that most of the space within these walls was occupied, or at least part of the built environment of the settlement. Whether this reflects population nucleating as a result of uncertainty and violence or demographic growth more generally remains uncertain. Though massive in size, these town walls generally lack the defensive features seen in earlier and later Egyptian fortification walls. Skeletal remains suggests that the First Intermediate Period was indeed more violent than periods of relative stability that preceded and succeeded it.¹⁶ Yet other Upper Egyptian settlements like Dendara expanded significantly as well but neglected to build any kind of town walls.¹⁷ Regional variation seems to be the rule, and investigating First Intermediate Period enclosure walls (as well as their absence) helps inject much needed nuance into discussions of this period.

During the Middle Kingdom, the resurgence of the centralized state and a newfound emphasis on planned settlements animated many of the new forms of walling from this period. Planned communities at Lahun and Tell el Dab'a were enclosed by robust enclosure walls, materializing the limits of the urban environment.¹⁸ Other carefully organized sites, like Wah-sut at South Abydos, remained unwallled.¹⁹ The fortresses in Lower Nubia and textually attested on Egypt's northeastern border were heavily fortified, representing some of the most robust defensive architecture in the world during the second millennium BCE.²⁰ Transverse timbers helping to form an internal frame, reed layers, massive buttresses, the use of mudbrick together

¹⁶ Corinne Duhig's skeletal analysis notes a higher incidence of traumatic injuries during the First Intermediate Period compared to the periods immediately succeeding and preceding it: Duhig 2009, 64.

¹⁷ Moeller and Marouard 2018; Marouard 2017; Marouard 2016.

¹⁸ For the enclosure wall at Lahun, see Frey and Knudstad 2008, 32-35, 42-48, 52, 63-70, and Moeller 2017, 192-197; for the enclosure walls at the planned settlement of Tell el Dab'a area R/I, see Czerny 2010; for the enclosure walls surrounding the settlement at Tell el Dab'a area F/I planned settlement and its enclosure wall, see Czerny 1999, 19-20.

¹⁹ Wegner 1998; Wegner 2001.

²⁰ Monnier 2010.

with fieldstones, massive towers, defensive ditches or moats, and heavily defended gatehouses characterize the walls at these complexes. Walls like the Aswan-Konosso wall and the Semna-Uronarti walls helped channel foot traffic at crucial chokepoints near the Nile's cataracts.²¹ At Upper Egyptian sites like Edfu and Elephantine, massive new town walls were constructed, despite the apparent lack of an imminent military threat.²²

Elsewhere within Egypt, walls continued to be built around similar installations as before, even as architects elaborated upon existing construction techniques and visual styles. Stone walls were still only used for the inner walls defining pyramid complexes, but in at least one instance, such a wall was elaborately decorated with fine relief work.²³ The first stone temples were constructed, but the few temple enclosure walls known from this period were still completed in mudbrick.²⁴ Distinctive serpentine walls were used to enclose temporary construction sites.²⁵ The walls surrounding administrative complexes or palaces remained much the same, though some of the most carefully constructed mudbrick walls were completed during this period. The walls of certain administrative buildings at Nubian fortresses like Uronarti and those of the mortuary temple of Senwosret III at Abydos were all constructed with intervals of reed layers between brick courses at identical absolute heights despite minor variances in the foundation level of the buildings; thus these highly planned structures must have been carefully measured at the ground level and all of the walls built up at roughly the same time.²⁶ The bureaucratic, highly planned

²¹ For the Aswan-Konosso wall, see von Pilgrim in von Pilgrim et al. 2011, 135-137; Jaritz 1993; Jaritz 1987. For the Semna wall, see Mills 1967-68, 206.

²² For the Middle Kingdom town wall at Edfu, see Chapter Four of this dissertation. For the Middle Kingdom wall at Elephantine, see von Pilgrim in Seidlmayer et al. 2016, 207-210.

²³ This oft-cited example is the inner stone enclosure wall of Senwosret I at his pyramid complex at Lisht: Arnold 1988, 58-63.

²⁴ For example, that of Medamud: Nivet-Sambin 2008, 317.

²⁵ Siegel 2016.

²⁶ The Uronarti evidence was observed during my fieldwork at the fortress in January of 2019. For the mortuary temple of Senwosret III at Abydos, see Wegner 2007, 61-63.

ethos of the period is reflected not only in the evidence for careful construction techniques, but also in the meticulous records that outline the terrifying capacity of the state to conscript labor for many of these construction projects.²⁷

Few massive walling projects are known that definitively date to the Second Intermediate Period. The pyramid of Nubkheperre Intef was defined by a small mudbrick enclosure wall, and archaeologists have recently investigated large segments of fortified town walls from Tell el-Dab'a.²⁸ However, the absence of widescale exposures of Second Intermediate Period urban contexts limits the amount that can be said about walling strategies and techniques during this period. The New Kingdom ushered in a host of changes that impacted the placement and prevalence of walling projects. Temple walls were now at times completed in limestone or sandstone, while town walls essentially all but disappear.²⁹ The scope and character of these changes fall beyond the span of this dissertation, but remain ripe for further investigation. For the purposes of this project, it must be sufficient to say that walls continued to be an important and highly visible part of Egyptian urban life, as they would continue to be for the duration of Pharaonic civilization.³⁰ Future projects could gain much from expanding the periods covered by this dissertation and paying greater attention to regional differences within Egypt as to how monumental walls were conceived, perceived, appropriated as symbols, and experienced.

²⁷ This process is skillfully described in Di Teodoro 2018, 62-91. For the textual evidence, see Hayes 1955 and Quirke 1990 for Papyrus Brooklyn 35.1446. For *The Duties of the Vizier*, see van den Boorn 1988 and Eyre 2013. For Papyrus Reisner I, see Simpson 1963. For Papyrus Reisner III, see Simpson 1969. For Labor organization more generally, see Eyre 1987a and Eyre 1987b.

²⁸ For the wall enclosing Nubkheperre Intef's funerary monument at Dra Abu el-Naga, see Polz and Seiler 2003, 16-17. For the town walls at Avaris, see Forstner-Müller 2013.

²⁹ Spence and Kemp in Kemp et al. 2004, 270-276.

³⁰ Kemp et al. 2004 treats this subject generally, while Gascoigne in Kemp et al. 2004 highlights the importance of enclosure walls even beyond the Pharaonic period.

THE AFTERLIFE OF A MONUMENTAL ENCLOSURE WALL

With this kind of *longue durée* approach in mind, it is worth considering the fortunes of the many walls catalogued in this dissertation after their obsolescence. A recurring theme in this project has been that walls must be maintained to be effective barriers.³¹ Plaster cracks and erodes, mudbrick deteriorates, and walls crumble. A related feature of Egyptian enclosure walls concerns a notable aspect of their “afterlife”: the extent to which some walls defined the local urban landscape, sometimes long after the wall itself had fallen apart. Having addressed how such walls were built, their functions, and the symbolism with which they were imbued, it is now time to consider the final stage of the use-cycle of an enclosure wall. As long as they were maintained, walls were structuring elements of the broader urban fabric; but even once they had collapsed or been renovated, the memory of certain enclosure walls seems to have exerted a subtle pull as entirely new constructions accommodated or conformed to earlier boundaries (comparable to Gasparini’s “symbolic borders” noted in the previous chapter).³²

The endurance of boundaries after an enclosure wall became obsolete and was no longer in use was always socially mediated—most often walls were dismantled and the boundaries they once enforced entirely ignored. Towns often expanded and grew beyond existing enclosure walls, paying little care to earlier limits or neighborhoods.³³ Ambitious administrators rebuilt temple foundations, constructed mansions, and renovated administrative complexes.³⁴ However, walls that defined cemeteries and tombs within them appear to have been particularly durable.³⁵

³¹ Kemp 2000, 78.

³² Gasparini 2017, 47-50.

³³ For example, the urban expanse of Elephantine moved beyond the confines of the Old Kingdom town wall when the channel between the two islands silted up, forming a larger, unified settlement: von Pilgrim 2010, 257.

³⁴ This could also be undertaken by private individuals rather than royalty, as seems to be the case when the governor Intef, son of Myt, boasts of rebuilding the ka chapel of the noble Nakhty during the 11th Dynasty: Landgráfová and Navrátilová 2011, 32-34.

³⁵ See for example, wall B7 at Hierakonpolis (Friedman 2008, 1185; Friedman 2017, 264) and the Wall of the Crow at Heit el-Gurob (Lehner and Tavares 2010, 175-177).

The walls encompassing royal burial complexes and the rare examples where walls seem to have defined a necropolis more generally were more typically maintained for lengthy periods and rarely if ever overbuilt with domestic or administrative installations.³⁶ The imperatives of a ruler protecting and defining his tomb for eternity and those of his subjects, who to judge from nearly every urban agglomeration in Egypt preferred to separate cemeteries from the urban core of the settlement, more closely aligned. New tombs both within or adjacent to royal or private burials might transgress or subvert enclosure walls surrounding the original burial, but nonetheless, such walls were perhaps less contentious than those that helped to constrain and define the lived experience of large numbers of citizens. Alcock and Van Dyke argue that social memory was “integral to the construction of authority and identity” in prehistoric and historic societies.³⁷ Tracing the use patterns of monumental enclosure walls—which walls were renewed, which were obliterated, which simply decayed or were overbuilt—helps provide access to the kinds of material, inscribed memory practices noted by Rowlands, even when the meanings of these choices are not always conclusively recognizable.³⁸

At so-called “organic” settlements with long, continuous occupational histories, enclosure walls could structure an urban environment long after their own obsolescence. Edfu provides multiple excellent examples of this phenomenon. Walls that had long marked prominent boundaries might be renewed or augmented, as one can see with the town walls at Edfu that artificially defined the limits of the settlement from the late Old Kingdom and First Intermediate Period through at least the Late Period, and probably even into the Ptolemaic

³⁶ When these walls or boundaries were transgressed, it was often when all policing of the area collapsed, or a deliberate burial by future kings deliberately trying to associate themselves with earlier royalty, as happened with the 13th Dynasty King Aw-ib-re Hor, who elected to be buried near the pyramid complex of Amenemhat III at Dahshur (de Morgan 1895, 87-117).

³⁷ Van Dyke and Alcock 2003, 8.

³⁸ Rowlands 1993.

Period.³⁹ The paths of later enclosure walls largely replicate these earlier edifices, though they expand the walled space of the settlement slightly westward. When accretion walls were constructed, they were simply built up against earlier phases, while in later periods, new walls were built just beyond the old ones. Beyond reifying earlier boundaries, such practices might also have lent extra stability to the base of the new wall. The Late Period and Ptolemaic town walls seem to have been built atop the earlier Middle Kingdom in some places wall. Such truly massive foundations not only defined the spatial extent of the settlement, but were expensive and difficult to replace or renovate even relative to temple or citadel walls. As discussed in Chapter Five, the building of such walls likely required conscripting large numbers of workers from the surrounding population, and while these laborers likely had minimal opportunity to influence the path or design of such walls, the experience of building and then living with such town walls likely touched far more people than those walls built to channel or exclude ordinary citizens from entering temples, palaces, or administrative bureaus. At Edfu as well as at state planned settlements like Lahun, the initial settlement enclosure walls continued to define aspects of the urban landscape even as dynamics within the settlements changed. Silos were built into earlier, obsolete phases of the Edfu town walls, while three external staircases have been found at the north wall of Lahun, allowing access to granaries in the villas from the outside of the settlement.⁴⁰ Despite the numerous changes wrought by their inhabitants, even altering the architecture of the walls themselves, the boundaries they defined appear to have been largely respected—certainly, no later enclosure walls have been found dramatically extending the intramural space of these towns, nor is there extensive evidence of settlement in the immediate

³⁹ For the Edfu walls, see Chapter Four of this dissertation.

⁴⁰ For Edfu, see Moeller 2016, 226-231, fig. 7.10. For Lahun, see Frey and Knudstad, 44, fig. 23.

vicinity beyond these walls (though topographic restrictions may have played a role in this decision as well).

Alternatively, walls might be rebuilt or restored with entirely new functions within a settlement. At Edfu, the lines of enclosure walls surrounding a series of administrative buildings from the Old Kingdom were replicated when the edges of the Middle Kingdom columned hall were built. Walls that had been enduring features in the landscape might persist as backing walls for later houses, as seems to have occurred when Middle Kingdom occupants in Edfu's northwest corner appropriated elements of the Late Old Kingdom town walls. At sites like Elephantine or Tell el Dab'a, some zones that formed a kind of "temple quarter" likely retained their character as sacred places even as these temples were renovated and walls renewed or renovated.⁴¹ At the temple at Area R/I in Tell el Dab'a, the maze of walls confronting excavators was at times clarified when the later temple walls followed the trajectory of earlier walls bounding the planned settlement of the previous phase.⁴² The changing meaning of walls is also echoed in far more modern examples: the so-called "Peace Walls" bounding neighborhoods in Derry or Belfast in Northern Ireland have, in some instances, become a kind of unifying landmark in an urban landscape that has in some respects moved beyond the violence that spurred their creation.⁴³

In sum, at sites where the quotidian practices of a settlement's inhabitants had time to accommodate monumental walls, where a wall's presence was "negotiated" into the lived experience of the citizenry and maintained for many years after its initial imposition, walls were far more likely to endure or at least persist in different forms. Nevertheless, the Edfu walls are

⁴¹ For an overview of the temple district in Elephantine, see von Pilgrim 2010, 257-262. For Tell el Dab'a's Area A/II Bietak 1996, 36-48.

⁴² Czerny 2010, 69-73.

⁴³ Donnan and Jarman 2017.

something of an exception, and the preservation at the site could well mean that we are simply lacking evidence for large scale renovations that occurred elsewhere on the tell. The drive of rulers, nomarchs, and local grassroots interests to remake local urban landscapes should not be underestimated, as frequently the foundations of new constructions excavated many earlier strata. The capacity for mudbrick to be re-used, the ease of its fabrication, and the reach of the Egyptian state often meant that local leaders had extensive resources and a wide purview to effect their vision.

Intriguingly, while walls were frequently a marker and symbol of royal or state power, at royal capitals like Thebes we frequently see massive reorientations of streets, neighborhoods, and entirely new enclosure walls being constructed in relatively short order—as seems to have occurred in at least certain portions of the city during the 12th Dynasty, 13th Dynasty/Second Intermediate Period, and 18th Dynasty.⁴⁴ Renovations at Karnak temple during the New Kingdom were a regular occurrence, as each pharaoh sought to stamp one of Egypt's most prominent temples with his authority.⁴⁵ Presumably because Thebes was a seat of royal power, it was a landscape where the crown routinely exerted force to transform aspects of the urban fabric to its desired configuration. One might make similar arguments about the shifting location of the royal court at the Memphite capital zone during the height of the Old Kingdom, when workman's villages could essentially be made and unmade on the basis of a decision to shift the royal necropolis.⁴⁶ This is not to argue against “naturally” developing neighborhoods in these

⁴⁴ For the 12th Dynasty enclosure wall in East Karnak found by Lauffray, see Lauffray 1980, 44-52, fig. 16. For the 13th Dynasty and Second Intermediate Period enclosure wall underlying the 18th Dynasty “Treasury” in North Karnak, see Jacquet Gordon 2007, especially pp. 321-323, fig. 6-7 and Jacquet 2001, 21-28. Redford also mentions a 6 m wide enclosure wall in East Karnak that he compares with the town walls from Old Kingdom Elephantine that perhaps should be tentatively dated to the Middle Kingdom (Redford et al. 1991, 98; Redford 1984, 98). For New Kingdom renovations like the massive bastioned Thutmoside enclosure wall, see Lauffray 1980, 46.

⁴⁵ For a concise overview, see Sullivan 2010.

⁴⁶ Love 2005 elaborates upon the idea of a “capital zone.” See also the discussion in Moeller 2016, 158-161.

royal centers, only that these sites were perhaps more frequently the focus of royal largesse and large-scale renovations relative to more provincial settlements. And certainly, powerful nomarchs or even the state could and did radically remake the layout of provincial settlements as well. For one such example, we can turn to Elephantine, the southernmost settlement within the traditional boundaries of Pharaonic Egypt, where the earliest fortification at the site was a 50 x 50 m citadel seemingly built at the behest of the Early Dynastic state. In selecting the highest ground at the settlement, the location of this installation clearly obstructed access to the local Satet sanctuary.⁴⁷

ENCLOSURES IN ANCIENT EGYPT: IMAGINED, PERCEIVED, EXPERIENCED

Enclosure walls were built for a wide variety of purposes, many for reasons beyond security. Town walls defined the boundaries of a settlement, allowing for creation and materialization of borders between imagined communities like towns and neighborhoods. Walls served to channel traffic in specific directions on both a local and regional scale. They defined the sacred space of temples, and defined the limits of palaces or administrative structures. Scholars have a fairly consistent idea of what military fortifications in ancient Egypt looked like during the timeframe of this dissertation as a result of archaeological excavations at Egyptian fortifications in Nubia, defensive architecture at Elephantine, the north palace at Balat, and possibly Tell es-Sakan from the Early Dynastic and Old Kingdom periods; this data is supplemented by pictorial evidence from hieroglyphic writing, tomb paintings or reliefs, as well as early slate palettes.⁴⁸ That so many of the walls constructed during this period manifestly lack

⁴⁷ Moeller 2009-2010, 199.

⁴⁸ For an overview of fortification efforts in Nubia, see Monnier 2010. For Elephantine, see Ziermann 1993. For the fortress at Balat, see also Soukiassian et al. 2005, 473-474; Soukiassian et al. 2006, 401-403; Schaad in Soukiassian et al. 2007, 310-311; Soukiassian et al. 2011, 24-28. Laisney 2010, fig. 21, fig. 25-30, and fig. 40. For Tell es-Sakan, see de Miroschedji and Sadek 2000, de Miroschedji and Sadek 2001, and de Miroschedji et al. 2000. For hieroglyphs representing walls, fortifications, and façades, see Badawy 1948, 42-46, 54, 57-59, 60-64. For images of

the kinds of defensive features (defensive ditches, loopholes, a glacis, towers, etc.) attested at some of the earliest Egyptian fortifications suggests that factors beyond military considerations played a large role in the decision to construct an enclosure wall.

While largely implicit in the discussions of enclosure walls in previous chapters, Adam Smith's troika of imagination, experience, perception provide a method for interrogating the role of enclosure walls in ancient Egyptian landscapes.⁴⁹ How monumental enclosure walls were imagined is not always easy to discern, and indeed this is the only one of his three research foci with which he doesn't explicitly mention city or temenos walls.⁵⁰ Nonetheless, there are numerous avenues for understanding how monumental walls were imagined in ancient Egypt. In some cases, perhaps in the case of the Second Cataract fortresses in Lower Nubia, they may have been outlined and planned first according to the contours of the local topography, forming a kind of anchor point around which the intramural granaries, barracks, and other features were designed.⁵¹ Even at planned settlements without an explicit military purpose, setting the boundaries of the settlement often necessitated the mapping of an enclosure wall, as in the case of the planned settlements at Tell el Dab'a Area F/I and Ezbet Rushdi (Area R/I) or Lahun.⁵² Yet walls loomed large in the imaginations of many Egyptians who were not architects or tasked with urban planning. The robust symbolic repertoire associated with walls in literary and religious texts helps to articulate their importance in Egyptian thought. Famous walls at

fortifications on Early Dynastic Palettes, see Petrie 1953, G17-20, J25, K26 (The Libyan, Bull, and Narmer Palettes). Tomb reliefs and paintings from the Old Kingdom are perhaps less reliable since they don't necessarily depict Egyptian fortifications, but for the siege scene in Inti's tomb, see Kanawati and McFarlane 1993, pl. 27. For the scene from Kaemheset's tomb, see McFarlane 2003, pl. 48.

⁴⁹ Smith 2003, 10.

⁵⁰ Smith cites them when describing "Perception" and "Experience" of urban life in ancient Mesopotamia: Smith 2003, 210-211 and 216.

⁵¹ Recent excavations in which the author participated at Uronarti certainly support this conclusion.

⁵² For area F/I, see Czerny 1999, 19-20; for area R/I, see Czerny 2010, 69-73. For Lahun, see Moeller 2017, 192-194, 203-205 and Frey and Knudstad 2008, 32-35, 42-48, 52, 63-70.

Memphis gave the site one of its most well-known toponyms (“White Walls”) as well as that of its broader administrative district, while the name Egypt itself is derived from the walled enclosure of Ptah at Memphis.⁵³ Walls are among the only objects in Egyptian reliefs and tableaux to appear both in plan and in profile.⁵⁴ They occupied secondary but nonetheless important roles in corpora of spells and funerary liturgies like the Pyramid Texts and Coffin Texts. Imaginations of the Egyptian world, even those idealizing it or focusing on more metaphysical realms like the afterlife or the underworld, inevitably include walls in some form.

Returning again to Smith’s terminology, the immediate sensory perception of walls also played a crucial role in Egyptian society. Massive temenos, citadel, or town enclosure walls would often have been among the highest, most monumental constructions at a settlement. They dominated the skyline and signaled the power of the institutions housed within them, as well as the administrators who ordered their construction.⁵⁵ The right to build enclosure walls is often bound up in the relative autonomy of a settlement, and their construction can be “an assertion of political independence.”⁵⁶ Kemp notes that building walls was often a calculated gamble that could often result in more terrible retaliations following a lengthy siege or sustained resistance in the face of a victorious foe.⁵⁷ Some scholars have argued that New Kingdom Egypt pursued a deliberate de-castellation policy in the southern Levant because such installations made it more

⁵³ Zivie in Helck, Otto, and Westendorf 1982, 26-27. See also Zibelius 1978, 39-42.

⁵⁴ Compare the views of the enclosures in the Libyan Palette or Narmer Palette or the siege scenes from the tombs of Inti at Deshasheh or Kaemheset at Saqqara with Middle Kingdom siege scenes from Beni Hasan where the fortress is shown in profile. For the Libyan Palette, Cairo CG 14238, see images in Petrie 1953, Pl. G 17-18. For interpretations of the Libyan Palette, see Bestock 2018, 47-49 and Etienne 1999. For the Narmer Palette, CG 14716, see Petrie 1953, J25, K26. For recent interpretations, see Bestock 2018, 65-69; Luiselli 2011, and O’Connor 2011. For Inti’s siege scene, see Kanawati and McFarlane 1993, pl. 27. For Kaemheset’s siege scene, see McFarlane 2003, pl. 48. For the Beni Hasan scenes, see Newberry 1893, Pl. XIV, Newberry 1894 Pl. V, XV.

⁵⁵ Smith 2003, 210-211.

⁵⁶ Smith 2003, 211.

⁵⁷ Kemp in Kemp et al. 2004, 260.

difficult to control the Levantine city-states.⁵⁸ However, given the seeming absence of town walls encompassing entire settlements in Egypt proper during this period, it is worth considering that robust enclosure walls were only the prerogative of institutions directly tied to the central administration. This might include administrative buildings, palaces, royal mortuary monuments, temples, and military outposts that were part of larger institutional webs that nonetheless were at least in theory tied to the crown. Similarly, the construction of numerous settlement enclosure walls built in the late Old Kingdom surely reflect a period of insecurity, and a moment when individual nomes had a greater capacity to act in their own interests and against those of their neighbors.⁵⁹ The capacity of walls to help orient the viewer as to the nature of the installation within them also should not be underestimated. The enormous buttresses, massive towers, heavily defended gateways, and plastered facades of an Egyptian fortress render this kind of architecture recognizable even to modern viewers, to say nothing of Egyptian ones. Similarly, serpentine walls were used throughout the Middle Kingdom and even during the New Kingdom to encompass unfinished buildings or monuments.⁶⁰ Temple walls might be decorated or completed with massive pylons.⁶¹ Early Dynastic funerary enclosures were often finished with a niched façade that is often deemed “palace façade” style in architectural literature.⁶² All this is to say that there are myriad ways that the perception of walls impacted Egyptian society throughout the Pharaonic period, and certainly during the time frame discussed in this dissertation.

⁵⁸ Mazar 1990, 243. It should be noted, however, that recent research by Felix Höflmayer argues that the Egyptian campaigning in the Levant may well have been less widespread than previously assumed, with an earlier end to the Middle Bronze Age: Höflmayer 2019.

⁵⁹ Moeller in Kemp et al. 2004, 264-265.

⁶⁰ Siegel 2016.

⁶¹ For an early example of this phenomenon, see the proto-pylon at the temple at Medamud: Robichon and Varille 1940, 1-2 and color plan.

⁶² Kaiser in Helck, Otto, and Westendorf 1982 (LÄ IV) 646-647; Arnold 1994, 186-187.

Finally, enclosure walls were of course experienced in any number of different ways. They cordoned off access to prestigious or sacred buildings and defended frontier outposts. They helped to regulate the passage of people and goods, channeling them along certain paths. As Smith notes, in urban settings, town walls formed an interface between the countryside and the settlement.⁶³ In ancient Egypt, the ubiquity and prominence of enclosure walls meant that they were part of the lived experience of nearly every Egyptian who inhabited or even visited an urban setting. In an urban locale that had developed over hundreds of years with winding streets, cul-de-sacs, and less orthogonal layouts, the massive size of enclosure walls likely made them prominent landmarks that local denizens and unfamiliar travelers could use to navigate through the settlement.⁶⁴ They were a prominent example of a set of physical constraints, impositions constructed at the behest of authorities, that helped to structure daily life in ancient Egypt. As such, they could also be subverted. Enclosures served as backing walls for silos and houses. Persistent dumping of waste might lead to a buildup adjacent to an enclosure wall that eventually eclipsed the wall itself, or obviated the need for one in the first place. It is quite possible, even likely, that the acts that led many enclosure walls to collapse were not part of any underhanded scheme, but merely the cumulative result of individuals attempting to make use of their surroundings to the best of their abilities.

There are generally not hard rules for when enclosure walls were deemed necessary or superfluous to urban planning in ancient Egypt. Walls were not a prerequisite for urban environments, and large towns emerged beyond the confines of walls or absent any enclosure altogether. The vast majority of planned settlements were walled, from the dwellings built near

⁶³ Smith 2003, 216.

⁶⁴ For the logic of privacy that helped drive some of these “organic” settlements towards more irregular paths, see Schloen 2001, 111-112; Wheatley 1976, 364; Wirth 1992, 22.

the pyramid complex of Khentkawes in the 4th Dynasty through Middle Kingdom foundations at Lahun and areas F/I and R/I at Tell el Dab'a.⁶⁵ However, even during the height of state planned settlements, the town of Wah-sut appears to have been left unwalled.⁶⁶ Most Egyptian Upper Egyptian towns during the third millennium BCE eventually built some kind of settlement enclosure wall, but Dendara lacked a town wall as it expanded during the First Intermediate Period and early Middle Kingdom, periods of relative insecurity and frequent local warfare.⁶⁷ Fortifications were always walled by definition, but administrative complexes were not. No external enclosure wall defines the Middle Kingdom columned hall at Edfu, but one did respect the earlier limits of the potential *hwt* even after its abandonment during the late Old Kingdom.⁶⁸ Temples were typically walled, especially in urban settings—likely in an effort to demarcate sacred space.⁶⁹ Yet on occasion, more remote temples were left unwalled.⁷⁰ Enclosure walls were an important part of royal mortuary complexes, but as the last part to be completed, they were often left unfinished.⁷¹ Massive enclosure walls were a solution to the problem of insecurity, and a way for elites to impose their control over both Egyptian subjects and the local landscape. In sum, more than any defined set of criteria, there is clearly a kind of aesthetic and cultural preference for walled compounds, what Kemp describes as a “habit of the mind, a

⁶⁵ For Khentkawes, see Hassan 1943 and more recent discussions in Kemp 2006, 205-207, and Bussmann 2004, 27-29. For Area F/I at Tell el Dab'a, see Czerny 1999 for the Middle Kingdom planned settlement. For area R/I, see Bietak et al. 1998 for the upper levels and temple area, and Czerny 2010 for the earlier planned community.

⁶⁶ Wegner 1998; Wegner 2001.

⁶⁷ Moeller in Kemp et al. 2004; for Dendara, see Moeller and Marouard 2018; Marouard 2017; Marouard 2016.

⁶⁸ See Chapter Four of this dissertation, and Moeller forthcoming.

⁶⁹ Shafer in Shafer et al. 1997, 1-9.

⁷⁰ No distinct enclosure wall is mentioned at the temple of Qasr el-Sagha. Nevertheless, it is striking that even at remote sites like Thoth Hill, Gebel Zeit, or Mersa Gawasis, efforts seem to have been made to enclose the shrine area—indeed, the shrine itself is little more than a fieldstone enclosure at Gebel Zeit: Castel et. al. 1984-85. For a similar shrine at Mersa Gawasis, see Bard and Fattovich 2007, 41. For Thoth Hill, see Vörös 1998a, Vörös 1998b, and Vörös 1997.

⁷¹ This may account for the absence of enclosure walls related to Snefru's pyramids during the investigations detailed in Maragioglio and Rinaldi 1964, 26-27, (Meidum); Maragioglio and Rinaldi 1964, 74-75 (Bent Pyramid); Maragioglio and Rinaldi 1964, 132-133 (Red Pyramid at Dahshur).

behavioral path, which once developed is hard to break or lose.”⁷² The decision to construct a monumental enclosure wall often meant that huge amounts of materials and manpower were required, and would not have been undertaken lightly even in a society where walls were such a pervasive architectural form. Rather, site specific historical, social, political, and geographic contingencies likely informed the decision to create and maintain them.

The evidence detailed in this dissertation also demonstrates how enclosure walls have a role to play in broader debates about the role of urbanism and state power. The prevalence of enclosure walls has led some scholars to conclude that they were important parts of urban environments during the Pharaonic period, and have been a factor in determining what constitutes an “urban” settlement.⁷³ Enclosure walls help to demonstrate the expansion of urban enclaves at numerous Upper Egyptian sites during the First Intermediate Period, though of course it remains to be seen whether this was the result of refugees fleeing violence and settling in urban centers, more widespread insecurity leading to wall construction around existing extramural neighborhoods, population growth, or some combination of these factors.⁷⁴ They also mitigate in favor of the importance of individual site histories, as there is no evidence of First Intermediate Period enclosure wall construction at other large exposures of urban stratigraphy in Upper Egypt, most notably Dendara.⁷⁵ Given their sizes and the resources expended in order to create and maintain them, enclosure walls can also serve as coarse proxies for both state power and the intensity of feelings of insecurity: that is to say, wall construction is often linked both to the degree to which a local population fears an attack as well as the capacity of the local

⁷² Kemp et al. 2004, 284.

⁷³ Moeller cites enclosure walls as being key elements of national capitals, provincial capitals, fortresses, and state foundations of both urban and non-urban character: Moeller 2016, 16, 20, 22, 23.

⁷⁴ Moeller and Marouard 2018, 54-55; Moeller 2016, 244-246.

⁷⁵ For Dendara, see Moeller and Marouard 2018; Marouard 2017; Marouard 2016.

government or leader to coerce and conscript labor for the purpose of building an enclosure wall.⁷⁶

CONCLUSIONS

The final pages of this dissertation will be related to three intertwined questions relevant to any wider view of monumental enclosure walls in ancient Egypt: first, what cultural, geographic, and environmental factors specific to Egypt can help to explain the prominence of monumental enclosure walls from the Predynastic through the Second Intermediate Period—and more broadly, throughout the entire Pharaonic period? Second, what features and functions distinguish the Egyptian walling projects discussed in this project from those monumental walls of other ancient societies? Finally, to what extent are Pharaonic Egypt's enclosure walls reflective of a unique national tradition, or exemplars of a broader phenomenon?

Egyptian religious texts and literary tales highlight several theoretical justifications for the prominence of walls in Egyptian society. First and foremost, one might consider the conflict between *Ma'at* and *Isfet*, traditionally translated as order and chaos.⁷⁷ While recent scholarship problematizes the all-encompassing nature of this duality in Egyptian society as presented by Assman and others, the *Ma'at-Isfet* paradigm nevertheless remains one of many important constructs that Egyptians used to describe their reality, if not the singular structuring one.⁷⁸ The responsibility of those in power to perform *Ma'at*, to maintain the social and cosmic order, and perpetuate Egyptian civilization in the face of chaotic forces was a fundamental part of royal

⁷⁶ For monumentality as a proxy for power or authority, see Osborne 2014, 5, Rosenswig and Burger 2012, 4-5. For the ties of urban walling projects to insecurity, see Tracy 2000, 6-7, and Kemp in Kemp et al. 2004, 259-260, 284.

⁷⁷ For *Ma'at* generally, see especially Assman 1990, Assman 1989, Lichtheim 1992. For *Ma'at* and *Isfet*, see Assman 1990, 176, 200, 213, 224, 232.

⁷⁸ Jon Winnerman's presentation at the ARCE Annual Meeting in Alexandria, Virginia in April 2019, highlights the importance of adding nuance to Assman's arguments.

ideology.⁷⁹ It takes little imagination to recognize how walls could play a crucial role in limning the boundaries of royal or religious order. As the architectural guarantors of the community's and the crown's spiritual and material assets, it is not surprising that walls in at least some circumstances became enmeshed in ideas about protecting order from a threatening outer chaos. Scholars certainly have frequently viewed temple walls as protecting an internal order from external threats.⁸⁰ While this link is not always made explicitly in Egyptian texts, it is undeniable that ancient Egypt enclosure walls were nearly always established to cordon off temples or sacred landscapes from the mundane during both the timeframe covered by this dissertation and subsequent periods.⁸¹ Indeed, such walls are some of the few walls that were prohibited from being appropriated or overbuilt by private citizens for their own ends.

Ma'at was also a concept seemingly familiar to both elite officials and the lower classes of Egyptian society.⁸² This is not to argue that it was the determining or structuring element of spiritual life for any social group, so much as to say that the extant texts (which admittedly always privilege an elite perspective) routinely describe orderly social contact as maintaining *Ma'at*. The correlation of *Ma'at* with justice animates the speeches of the eponymous peasant in *The Eloquent Peasant*, figures prominently in *The Maxims of Ptahhotep*, and also recurs in tomb biographies from the Old Kingdom and Middle Kingdom.⁸³ At least in literary tales, it is an

⁷⁹ Assman 1990, 200-236 highlights the links between divine and cosmic forces and the political state, with the responsibility to perform *Ma'at* serving as a link between these realms.

⁸⁰ Shafer in Shafer et al. 1997, 1-9.

⁸¹ Shafer in Shafer et al. 1997, 1-9.

⁸² Assman 1990 certainly discusses *Ma'at* as a structuring element of Egyptian society. Tales like *The Eloquent Peasant* (Parkinson 1991; Parkinson 2012, 9) suggest however that it was a concept about which even the most marginal elements of the Egyptian population, in this case an itinerant trader selling various wares, were very familiar. The peasant's exceptionality should not mask that *Ma'at* was viewed as the core responsibility of the officials in the story.

⁸³ For the *Maxims of Ptahhotep*, see Zaba 1956. See also Lichtheim 1973, 61-80, and Simpson 2003, 129-151. For *The Eloquent Peasant*, see Parkinson 2012 and Parkinson 1991. Lichtheim 1992 discusses *Ma'at* in Middle Kingdom autobiographical texts.

element of the social order meaningful to both the most marginalized members of Pharaonic society, courtly nobility, and even the king himself. Moreover, even if understandings of the *Ma'at-Isfet* dynamic encompassing the duality of order and chaos did not extend beyond the Pharaonic elite, these officials were generally responsible for designing and sanctioning the existence of enclosure walls, though obviously, many, perhaps even most enclosure walls, would have lacked this kind of explicit symbolic association.

The association of spectacular architecture with political power, while hardly unique to ancient Egypt, was a hallmark of Predynastic Egyptian polities and certainly the Pharaonic state.⁸⁴ Indisputably, walls figured prominently in efforts by these early rulers to overawe their subjects at sites like Hierakonpolis, Tell el-Farkha, and Abydos.⁸⁵ Once again, the capacity for walls to be both highly functional and a potent symbol likely encouraged their use. The face of state power is visible not only in physical manifestations of monumental architecture like funerary enclosures, later enclosure walls surrounding pyramids or other royal tombs, and temple walls, but also in artistic representations. One of the most enduring symbols of royal authority was the *serekh*, depicting the pharaoh's name together with the niched façade characteristic of royal palatial and funerary architecture.⁸⁶ While walls were certainly not the only or even the most important element in these designs, they figure prominently as a signifier of royal or religious power. Even some representations of ideograms that determine the word for pyramids or sun temples sometimes include a feature that must be interpreted either as an uncharacteristically pronounced socle or an enclosure wall.⁸⁷

⁸⁴ Kemp 2006, 99-110.

⁸⁵ For Hierakonpolis area HK29A and HK29B, see Friedman 2009 and Hikade 2011. For the fort at Hierakonpolis, see Friedman 2007. For Tell el-Farkha, see Chlodnicki et al. 2012, Chlodnicki 2016. For the Early Dynastic Enclosures at Abydos, see Bestock 2008 and Bestock 2009.

⁸⁶ O'Brien highlights a variety of different overlapping symbolism implicit in the *serekh*, including the niched façade of a palace: O'Brien 1996, 135-136.

⁸⁷ For an example of this with the *mr* sign, see Gilbert 1935.

Egypt's extremely circumscribed geography also perhaps played a role in encouraging the development of enclosure wall systems. The inhabitants of Pharaonic Egypt lived in an extraordinarily bordered world, bounded by the Eastern and Western Deserts, the Mediterranean Sea to the north, and a series of cataracts further upstream, even as the Nile served as an artery allowing the rulers of the early Egyptian state to impose their authority upon their subjects more comprehensively than in many other premodern states.⁸⁸ Egyptian artistic renderings are not only notable for their lack of perspective and schematic profiles, but also the strict registers which bound the activities and movements of their subjects.⁸⁹ Moreover, theological texts and reliefs conceptualize these boundaries as necessary to maintaining any civilized order: the primeval hill emerges from the chaotic nothingness of the waters of *nun*.⁹⁰ Divinely sanctioned boundary stelae marked the limits of fields, and ideologically loaded border stelae were at times used to symbolically define the boundaries of the Egyptian state—at least metaphorically, if not necessarily in practice.⁹¹ In such a circumscribed geographic environment where an aesthetic inclination towards strict borders emerged in fields as diverse as artistic representation, religious theology, and agricultural practice, it follows a certain logic that monumental enclosure walls were often used to materialize symbolic, political, religious, and social borders—all the more so since all evidence points towards the Egyptian state being as extractive, domineering, and controlling as its technological and administrative capacities allowed.

Finally, as noted in the previous chapter, ritualized circumambulating, circuiting, and encompassing were developed in public, private, and mortuary religious rites throughout

⁸⁸ Both Carneiro 1970 and Bard and Carneiro 1989 highlight the unique geographic setting of Egypt, and how this circumscribed environment contributed to the processes of state formation.

⁸⁹ Robins 1997, 21.

⁹⁰ See the entries for *nun* (Grieshammer in Helck, Otto, and Westendorf 1982 (LÄ IV), 534-535) and Urhügel (Martin in Helck, Otto, and Westendorf 1986, 874-875 (LÄ VI) in the *Lexikon der Ägyptologie*.

⁹¹ For border stelae more generally, see Vogel 2011. For a tomb relief showing a border stela in a field, see Parkinson 2008, 112-115, fig. 118-120.

Egyptian history.⁹² Ritner perceptively draws parallels between rituals like the “circumambulation of the walls” and the daily circuit of the sun that formed the foundation of so much of Egyptian religious and intellectual life.⁹³ The association of this cosmic circuit with the king occurs at least as early as the Old Kingdom, as evidenced by the Pyramid Texts.⁹⁴ This connection of circuiting the known world by manifestations of Re also finds a counterpart, albeit an imperfect one, with the expansionist imperial ethos developed during the Middle Kingdom and further elaborated during the New Kingdom: just as the sun crossed the entirety of the known world, so too were pharaohs expected to traverse and expand the boundaries of Egyptian space, symbolically integrating the disparate and chaotic margins of the world into Egyptian control.⁹⁵ The association with the divine also emphasizes a kind of power inherent to circling or encompassing that unsurprisingly was transferred to royal rituals like the “circumambulation of the walls.”⁹⁶ Evidence for this power is attested not only in the Pyramid Texts in spells threatening a hostile circulation or encircling, but also in the surrounding and constraining of foreigners by military action led by the pharaoh.⁹⁷ Traces of these sentiments perhaps animate funerary rituals like those described in Papyrus Ramesseum E, a 13th Dynasty text that perhaps is derived from an early 3rd Dynasty original, where a mastaba is circuted four times.⁹⁸ Ritner also notes that Ptolemaic protection rituals involved the encirclement of the temple of Horus of Edfu with torches and the god’s sanctuary with sticks, and that these should be related to antecedents

⁹² Ritner 1987, 66-82.

⁹³ For the circumambulation of the walls, see Ritner 1987, 72, especially note 261. For the parallels with the circuit of the sun, see Ritner 1987, 77-79.

⁹⁴ Allen 2005, 8-9.

⁹⁵ Ritner 1987, 77.

⁹⁶ Gardiner 1903; Ritner 1987, 72-74.

⁹⁷ Ritner 1987, 80 cites PT 255 and PT 284. For much later examples of pharaohs trapping, hemming in, or pinioning enemies, see Peden 1994, 14-17, 28-29, 46-47 for references where Ramesses III accomplishes this against his enemies.

⁹⁸ Gardiner 1955.

from at least as early as the New Kingdom.⁹⁹ Such rituals very likely build upon ceremonies performed to ensure the protection of a house, in rites performed at the start of the new year.¹⁰⁰ Significantly, the above evidence demonstrates that such protective rituals were performed in association with private, divine, and royal mortuary architecture: not only do we see that the concept of enclosure was explicitly related to the built environment, but it was also apparently legible as a protective concept to every stratum of Egyptian society.

Egyptian walls appear to problematize a number of the conclusions reached by the edited volume *City Walls: The Urban Enceinte in Global Perspective*. Together with Kemp, Moeller, Spence, and Gascoigne's article, my hope is that this dissertation comprehensively refutes Tracy's view (which itself cites the military historian John Keegan) that "Ancient Egypt had no walled towns, apparently because the pharaohs 'relied upon a regional defense provided by powerful fortresses...'"¹⁰¹ Not only did the Egyptians have city walls, they were built for myriad reasons beyond defense—as Kemp and his colleagues noted years ago.¹⁰² Indeed, the walled towns of Egypt are notable for conspicuously lacking the defensive features attested at contemporary fortresses! The town walls at Edfu, El Kab, Abydos, Lahun, or Middle Kingdom Tell el Dab'a manifestly do not conform to Tracy's conclusion that "programs of wall building are calibrated to perceived dangers represented by the military technology of possible foes."¹⁰³ Enclosure walls are notable for highlighting a perception of insecurity, but do not necessarily confirm the reality of such assessments. While nearly all monumental walls in the premodern

⁹⁹ Ritner 1987, 73.

¹⁰⁰ Jankuhn 1972, 5-9.

¹⁰¹ Tracy 2000, 71-72; Keegan 1993, 142.

¹⁰² Kemp et al. 2004, 259-260.

¹⁰³ Tracy 2000, 7.

world were massive undertakings requiring huge amounts of labor for a lengthy period of time, the way this labor was organized is of course spatially and historically contingent.

Nevertheless, there are several salient commonalities between Egyptian walls and their counterparts in other societies, none more crucial than the connection between massive enclosure walls and royal power or sovereignty.¹⁰⁴ As noted in the previous chapter, the political dimension of walls was at least two-fold: they were instruments of control over a spatial landscape, while their massive size and simple functionality facilitated their appropriation as symbols or emblems. A recurring theme in the work of other scholars studying Ancient, Medieval, Renaissance, and Modern walls is that they could serve as powerful signifiers of both royal power and a kind of broader cosmic order. Sheila Blair highlights how the ancient Roman walls at Diyarbekir were a site where subsequent rulers in the Islamic period carved reliefs and inscriptions in order to legitimate their sovereignty.¹⁰⁵ Chinese cities were frequently depicted with perfectly rectangular outer walls with walled citadels within them as a nod towards a broader cosmic ideal.¹⁰⁶ In Iron Age France, scholars have emphasized that city walls often were elements that at times seem to have been the first features built at a new foundation, structuring the subsequent habitations around them.¹⁰⁷ Evidence of phasing at highly planned Egyptian sites like the fortress of Uronarti tentatively suggests that this may have been the case at certain Pharaonic foundations, as well.¹⁰⁸

Several features are relatively unique to Egyptian wall systems when compared to neighboring states. Functionally, Egyptian monumental wall systems distinguish themselves from the walling efforts of their contemporaries in Mesopotamia and the Levant through a

¹⁰⁴ Tracy 2000, 6. See also Brown 2010, generally, and especially discussions of the relationship of more recent enclosure walls to sovereignty on p. 25.

¹⁰⁵ Blair 2000.

¹⁰⁶ Steinhardt 2000.

¹⁰⁷ Garcia 2004, 154; Dietler 2010, 328.

¹⁰⁸ Laurel Bestock, personal communication.

marked preference for accretion walls. The massive breadth of such walls, sometimes up to eight meters, differentiates such walls from known examples from Early Bronze Age Mesopotamia, Nubia, or the Levant. This preference was relatively short-lived, however: far fewer examples of accretion walls are known after the First Intermediate Period. Indeed, by the Middle Kingdom, far more similarities are evident in the form and features of monumental walling projects in Egypt and the Middle Bronze Age Levant, though some differences persisted. Egyptian artisans rarely constructed earthen ramparts underlying the walls themselves, nor did the Egyptians typically make use of rammed earth (*terre pisé*) construction techniques.¹⁰⁹

The sloping form of Egyptian walls was perhaps initially born of necessity and concerns for the structural integrity of a wall, but saddle-backed coping stones known from the stone walls surrounding Old Kingdom and Middle Kingdom pyramids demonstrate that sloping walls were an aesthetic preference in many contexts.¹¹⁰ The earliest known monumental walling projects almost uniformly possessed gently sloping walls, but such designs continued long after more rectilinear walls were employed in Middle Kingdom fortification walls. The exquisite relief work on the stone enclosure wall at Senwosret I's pyramid complex at Lisht was carved into slabs of gently sloping limestone.¹¹¹ The elaborate niched façade of mastabas and palatial complexes is less frequently attested in Mesopotamia, nor am I aware of evidence for the kinds of funerary enclosures (and their ritual destruction) attested in Egypt. The rigid orthogonality of planned Egyptian settlements also finds few parallels in Early and Middle Bronze Age tell sites elsewhere in the Near East. For all their prominence, the Egyptians rarely named individual walling

¹⁰⁹ Compare the massive earthen ramparts detailed by Burke at Middle Bronze Age fortresses in the Levant: Burke 2004, Burke 2008.

¹¹⁰ All of the remnants of enclosure walls found at Giza and Abusir had a relatively similar rounded apex: see the appendix entries on these sites for further details.

¹¹¹ Arnold 1988, 58-63.

projects like their Mesopotamian counterparts did, with rare and notable exceptions like the “Walls of the Ruler” or the later “Ways of Horus”, though these appellations seem to reference chains of fortresses on the northeastern frontier.¹¹² Rather, such names were reserved for entire fortresses, palaces, villages, or settlements.

The differences between Egyptian walls and those constructed by other societies beg the question: is there anything specific to Pharaonic Egypt that accounts for the enduring appeal of enclosure walls for the wielders of power within Egyptian society? Certainly, walls could be effective barriers and affective symbols in ancient Egypt, though this does not distinguish Egyptian walling efforts from their neighbors in the ancient Near East, or even modern border walls. It is easy to highlight numerous ways in which walls were used for uniquely Egyptian purposes, or could be justified using specifically Egyptian constructs like the *Ma'at/Isfet* or Order/Chaos dichotomy. The use of accretion walls and the frequency with which walls came to define local boundaries, often for hundreds of years or even millennia, is notable and highly unusual. Yet such interpretations mask a fundamental congruency between monumental walls past and present: massive enclosure walls are always the work of people exploiting their power, operationalizing it to define, divide, and channel subjects through the creation of barriers demarcating intra and extramural space. The state or its representatives may not always have been the primary actors dictating the construction of walls, but because the physical walls must be maintained, the sovereign power in an urban landscape must always at least acquiesce to their presence—otherwise they would be destroyed, collapse into obsolescence, and would no longer map onto the symbolic boundaries they were initially meant to concretize. In this respect, the differences between Pharaonic Egypt’s walling practices and those of neighboring civilizations

¹¹² For this practice in Mesopotamia, see Richardson 2015, 265. See also Dalton 1983 for additional examples of this practice.

dissolve somewhat. The prevalence of enclosure walls, their myriad uses, and distinctive symbolism in Egyptian society might be anomalous and might in many instances reflect unique, culturally specific forms; however, in terms of the broader political phenomenon of enclosure walls, Egyptian walling practices reflect a difference of intensity or degree rather than in kind.

Ancient Egyptian enclosure walls warrant extensive study precisely because they offer particular insights into how power was articulated in an ancient state—an obviously more universal concern. We are of course limited by the lack of source material discussing how and why walls were built, as well as who ordered their construction, but the wealth of archaeological evidence detailed in Chapter Four and Appendix A show the results of monumental wall construction and the numerous ways that nearby inhabitants were affected by, adapted to, and resisted their presence. As highlighted in the previous chapter, the ways in which this power was articulated were not static, even among individual functional categories like “temple-enclosure walls.” Nor were the symbolic meanings of these enclosures permanent fixtures, as walls could be portrayed as both protective features and a potential locus of danger in corpora like the Pyramid Texts.

Monumental enclosure walls were by definition massive in size, but their symbolic footprint extended far beyond the physical edifice of the wall itself. Designing huge walls required skilled architects and complex negotiations of social space between all parties concerned, and building them required coordinating labor and logistics on an enormous scale matched only by the largest of expeditions, royal or divine monuments, and military campaigns. The symbolic potency of walls also meant that they were frequently incorporated into emblems of state power. The sum of these considerations allows a study of the development of monumental walls in ancient Egypt to offer a surprisingly extensive, nuanced perspective on the

operation and texture of political authority in urban landscapes in a variety of different arenas extending far beyond the realm of construction techniques or technical concerns. The edges of the resulting tapestry are often frayed and the absence of evidence means some patterns are doomed to remain threadbare, but the totality provides a new perspective on particular articulations of power in Pharaonic Egypt, with implications extending to many other premodern states.

APPENDIX A: SITES WITH MONUMENTAL ENCLOSURE

WALLS PRIOR TO THE NEW KINGDOM

ABU GHUROB

Site Description: Located just to the north of the 5th Dynasty royal necropolis at Abusir, the site of Abu Ghurob is best known for the remains of the sun temples of Userkaf and Niuserre.

Though other 5th Dynasty pharaohs certainly built sun temples of their own, they have not survived. The temple of Niuserre is the better preserved of the two, and was first investigated by von Bissing and Borchardt during the late 19th and early 20th century.¹ Herbert Ricke published the remains of Userkaf's temple.² The role of sun temples in the broader Egyptian economic and religious spheres remains a subject of scholarly inquiry, and recent investigations have emphasized the linkages between sun temples and Egyptian concepts of kingship during the 5th Dynasty.³ In many aspects, the layout of the two known sun temples finds significant parallels with 4th Dynasty Pyramid complexes: a gateway or gatehouse in the Nile Valley was connected to the main temple via an obliquely angled causeway. Both the sun temple monument and the lower gatehouse or temple in the Nile Valley were protected by enclosure walls.

Relevant Enclosure Walls: Niuserre's sun temple complex possessed several enclosure walls. A large enclosure surrounded the altar, magazines, chamber of seasons, and the monument itself; a causeway led from the entrance gateway to the main sanctuary; finally, a substantial wall that Borchardt terms a "city wall" encompassed the entrance to the gate building in the Nile Valley.⁴ At Userkaf's sun temple complex, Ricke notes the presence of enclosure walls surrounding both

¹ von Bissing and Borchardt 1905.

² Ricke 1965.

³ For example, Nuzzolo 2007.

⁴ Borchardt in von Bissing and Borchardt 1905, 18-19.

the lower temple and the sun temple, linked to one another by a causeway.⁵ A series of 1st Dynasty mastabas also had mudbrick enclosure walls just beyond their niched façades, but little specific details are available regarding these features, though they seem to be quite thin. In one preliminary report of the recently excavated Mastaba XVII, a “massive” enclosure wall is noted.⁶ Other nearby mastabas are depicted with enclosure walls on plans of the area, but because no further details are given, these mastabas are not discussed in the following section.⁷

Technical Details: Neither Borchard nor Ricke spend extensive time discussing the details of the enclosure walls bounding the sun temple complexes. The limestone “Stadtmauer” described by Borchardt was only partially excavated in a small stretch near its southern corner, but the wall could be traced for some 300 m on its southwestern side as a result of limestone blocks, chippings, and fragments from the blocks of the wall.⁸ Borchardt notes that the eastern ends of the northwestern and southeastern parts of the wall could be traced via fragments of limestone blocks as well.⁹ The exact width of this wall could not be determined precisely, but Borchardt suggests it must have been some 2 m thick. Borchardt determined that the wall appears to have been sloped, and clad in fine, white limestone on the basis of a casing stone recovered during his excavations.¹⁰ Much of the wall was buried by desert sand, and while Borchardt and his team uncovered the remains of brick walls within the enclosure, the cost of clearing meters of sand overburden and the threat of the nearby groundwater precluded further investigation.¹¹ The construction of the sun temple causeway and the revetment walls of the upper temple mound obscure this “town wall”, perhaps suggesting that it antedates the upper temple and the revetment

⁵ Ricke 1965, 4-5, 15, 19, 25-28, 31-34, 41-45.

⁶ Radwan 2000, 509.

⁷ Radwan 2000, 509.

⁸ von Bissing and Borchardt 1905, 7-8, 18-19, Blatt 2.

⁹ von Bissing and Borchardt 1905, 7-8.

¹⁰ von Bissing and Borchardt 1905, 18-19.

¹¹ von Bissing and Borchardt 1905, 8.

wall needed for the mound upon which it stood.¹² It seems likely that this wall surrounded a temple or administrative structure of some importance rather than a town, since it was completed in limestone rather than mudbrick. The wall could potentially have encompassed a later monument, as well. It very clearly is not an outer enclosure wall for the sun temple monument, since the northwestern and southeastern walls appear to be jogging eastward towards the Nile. The gatehouse in the Nile Valley was linked to the upper temple by an over 100 m long causeway, also completed in limestone.¹³

The enclosure walls of Niuserre's sun temple were also completed in limestone, and seem to have measured over 3.5 m thick, as Borchardt suggests that they were likely intended to be 7 cubits wide.¹⁴ On the eastern side of the upper temple, these walls formed the backing wall for corridors extending northward toward the slaughterhouse and magazines and southward toward the temple monument itself. Borchardt notes that any reliefs that decorated these walls have been lost. The main temple enclosure was entered through an upper gate near the center of the enclosure's eastern side. Recent investigations have highlighted possible additional entrances to the complex in the middle of the northern wall, perhaps related to the functioning of the magazines and slaughterhouse in this part of the complex.¹⁵ The main gateway on the eastern side was flanked by walls some 5.775 m thick. Foundation deposits were discovered below the northwestern corner of the complex. A single rounded coping stone from the enclosure wall was recovered. Borchardt suggests that the corridor should be restored with a roof, with the coping

¹² Von Bissing and Borchardt 1905, Blatt 2.

¹³ For the "Stadtmauer," see von Bissing and Borchardt 1905, 7-8, 17-18. For the causeway, see von Bissing and Borchardt 1905, 9-10, 24-26.

¹⁴ von Bissing and Borchardt 1905, 65.

¹⁵ Nuzzolo and Pirelli 2011.

stone surmounting a kind of rampart wall on the exterior side.¹⁶ This is plausible, perhaps even likely, but could not be confirmed on the basis of the surviving structures' remains.

The sun temple of Userkaf was excavated by a team led by Herbert Ricke over the course of three seasons from 1954 to 1957.¹⁷ The upper temple monument had at least four distinct building phases. Little remains of the earliest, original structure, but Ricke was able to identify much of the enclosure wall's northern side, as well as its northeastern corner and parts of its eastern and western walls. The northern enclosure wall had rounded corners, so curved that even the internal angle was rounded rather than rectilinear. The northern wall had an internal width of some 55.65 m, or 106 cubits. The wall itself varied in width between 2.50 m and 2.75 m, but on average was about 2.65 m thick, or 5 cubits. The wall itself was rarely preserved beyond its foundations save on its northern side, where in parts it stood up to 1.5 m high. It was completed using rough, undressed limestone slabs bonded to one another with Nile mud mortar. The entire southern section of the wall was robbed away, so its north-south length remains unknown.¹⁸

It seems likely that this occurred shortly after the original monument's construction, since the dimensions of the upper temple enclosure were altered somewhat during the second and third building phases of the project.¹⁹ The upper monument itself seems to have underwent extensive renovations, and a new southern wall was completed somewhat closer to the temple than in the first phase. The walls in the second phase of construction were often finished using mudbrick, and clearly postdate the renovations of the upper temple monument since granite and quartzite chips left over from this work were frequently found within the enclosure walls. It is likely that

¹⁶ von Bissing and Borchardt 1905, 26-32, Abb. 16, 18. The thickness of the walls near the upper gateway is detailed in von Bissing and Borchardt 1905, 28.

¹⁷ Ricke 1965, 48.

¹⁸ Ricke 1965, 4-5

¹⁹ Ricke 1965, 5-28.

all of the enclosure walls were plastered and whitewashed, thus masking their composite composition of limestone and mudbrick. During the third building phase, the eastern and western walls were seemingly dismantled in order to be extended. The western wall was moved some 8 m further to the west, while the eastern wall was rebuilt some 13 m to the east—a maneuver that would have involved dismantling and rebuilding the western terminus of the causeway. The later walls were roughly the same width as previous iterations, but there is significant variation between the different sides. In the north, the thickest parts of the wall are some 8.5-9 bricks thick (2.6-2.75 m), while the eastern enclosure at times is only 6-6.5 bricks thick (1.80-2 m).²⁰

The causeway walls were thinner, and the first phase was constructed using limestone blocks and mud mortar, just like the earliest phases of the upper temple. These walls were 1.60 m thick and originally stood some 2.60 m high. The causeway was anomalously wide, stretching 11 m between both its outer walls. Smaller walls divided the causeway into three parallel channels, with the central one measuring 6 m across and both outer tracks measuring 2.50 m. Later phases subsequently strengthened the southern wall of the causeway with additional brickwork on the interior and exterior side of the existing walls, but it proved impossible to definitively link these renovations with specific building phases of the upper temple. Figures included by Ricke suggest that 27-29 x 13 x 8 cm bricks were used in these accretion walls, which cut the width of the inner channel to 3.75 m. No further work was undertaken at the causeway following the third phase of construction at the upper monument, so this brickwork should probably be attributed to a timespan encompassing the second and third building phases.²¹

²⁰ Ricke doesn't mention this explicitly, but it is evident in his plans of the site: Ricke 1965, Abb. 10, 11, 18.

²¹ Ricke 1965, 31-35.

Little was preserved of the enclosure surrounding the lower temple, but much of the southwestern side of its enclosure side was visible. Its walls appear to have been connected to the lower walls of the causeway. In places on its southwestern side, it appears to have been preserved almost to its original height. This wall was completed using unworked limestone blocks and Nile mud. On its interior side, this wall was strengthened by a roughly three brick thick mudbrick wall along the entirety of its 57 m trajectory, until it met the lower walls of the northern wall of the causeway. This strengthening of the interior of the wall also turned and continued 8 m along the northern side of the causeway itself. Very little of the enclosure wall's northwestern or northeastern sides remained, and are likely now beneath the water table in this area.²²

ABU ROWASH

Site Description: Located about 8 km north of Giza, the site of Abu Rowash is known for the pyramid complex of Djedefre and a number of Early Dynastic and 4th Dynasty mastabas. The pyramid complex was excavated under the direction of Michel Valloggia over thirteen seasons from 1995-2007.²³ The Early Dynastic cemetery has been the subject of excavations first under Pierre Montet, and much more recently by Yann Tristant.²⁴ The 4th Dynasty mastabas were excavated under the direction of Michel Baud.²⁵

Relevant Enclosure Walls: Two large enclosure walls are attested at the pyramid complex of Djedefre: an outer enclosure wall, and an inner enclosure wall, both built using limestone blocks. Much of these walls were damaged, but enough remained of their foundations to trace their path

²² Ricke 1965, 41-45.

²³ Valloggia 2011, 9-21.

²⁴ Montet 1938; Tristant 2008a; Tristant 2008b; Tristant 2016.

²⁵ Baud 2003; Baud and Guerrier 2011.

surrounding the pyramid complex.²⁶ Private mastabas were occasionally surrounded by an enclosure wall, and several appear in Montet's photographs of his excavations.²⁷ In the case of many of these walls, their preservation is quite poor and little can be noted beyond their presence.²⁸ It is plausible that additional enclosure walls were also present, but are simply too poorly preserved to be identified.

Technical Details: Mastaba M01's enclosure wall is detailed in Montet's plans and has been reinvestigated by Tristant.²⁹ The enclosure wall has an anomalous rounded corner to the northwest, roughly 2.5 m in width and 3 m long.³⁰ Montet notes the presence of wooden paneling along the 60 cm thick enclosure wall, and suggests that the names and titles of the tomb owners might have been written on these features.³¹ In one unusual instance, mastaba M12 seemed to have had an external stone wall on at least its northern and eastern sides, measuring some 1.5 m wide and built using a double row of limestone blocks set vertically into the ground.³² A 1 m thick mudbrick wall also surrounded the southeastern corner of Mastaba M07.³³ An enclosure wall also surrounded Mastaba M01 and a series of subsidiary burials, and further enclosures were noted encompassing Mastaba M02 and M019.³⁴

At Djedefre's complex, the outer perimeter wall encloses an area of some 8 hectares, though its exact dimensions were unable to be determined.³⁵ Its foundations consist of rough, undressed fieldstones. Portions of the wall were identified on all four sides of the pyramid

²⁶ Valloggia 2011, 25-29, 33-38.

²⁷ Montet 1938, 17, Pl. 1, 2, and 5. These walls receive little to no comment from Montet.

²⁸ Tristant 2008a, 333-334.

²⁹ Tristant 2008b 138-139; Montet 1938, pl. II.

³⁰ Tristant 2008b, 138-139.

³¹ Tristant 2008b, 138-139; Montet 1938, 16-17.

³² Tristant 2016, 161, figs. 8-9.

³³ Tristant 2017, 468.

³⁴ Tristant 2008a, 333-334.

³⁵ Valloggia 2011, 25.

complex, but only the northwestern corner was identified and excavated. The form of the corners appears to have been somewhat rounded, rather than rigidly orthogonal. Generally, only the first course of foundation stones was preserved.³⁶ The northern and western sections of this wall were oriented parallel to the pyramid, while the eastern stretch of the wall follows the contours of the local cliff and the southern wall possesses a slightly different orientation.³⁷ The walls themselves measured roughly 2.60 m wide at their foundations. Four entrances were excavated: two on the northern side, one on the western wall, and a further entrance to the south. The gateways measured roughly 3.68 m wide (save for the one on the southern side, which measured 3.90 m), and the buttresses on either side of the doorway projected beyond the wall some 2.1 m into the interior of the enclosure.³⁸ One gateway was aligned with the axis of the entrance to the tomb within the pyramid, another was located in the western part of the northern wall, a further doorway was found on the northern part of the western wall, and a final doorway was excavated in the central part of the southern wall. It is unclear if there was a doorway on the eastern side, though the steeper cliffs to the southeast would mitigate against one in this location. The best preserved portion of the wall was to the northwest, but it never stood higher than 1.00 m.³⁹

The inner stone enclosure wall surrounded the pyramid itself, the pyramid temple on its eastern side, and finally a satellite pyramid near its southeastern corner.⁴⁰ It was rectangular in shape on three sides, but its eastern side was more irregular in order to accommodate the pyramid temple and various service buildings or priestly houses nearby. The initial phase of the wall was roughly 2.10 m thick, but this was soon widened.⁴¹ Two distinct accretion walls, each

³⁶ Valloggia 2011, 25, fig. 60-63.

³⁷ Valloggia 2011, 25-29.

³⁸ Valloggia 2011, 25-29.

³⁹ Valloggia 2011, 25-29.

⁴⁰ Valloggia 2011, 33-38.

⁴¹ Valloggia 2011, 34.

1.05 m wide, were completed against the exterior of the initial foundation, leading to a total width of some 4.20 m.⁴² The wall was built using rough limestone blocks, on average 30 x 20 x 20 cm. The entirety of the wall's trajectory could be traced, but it was only excavated in detail in small sections.⁴³

Several gateways were identified, all likely connected to the use and access of the pyramid temple and other adjoining buildings on the eastern side of the pyramid.⁴⁴ The initial 1.05 m wide gateway, Door A, was flanked by mudbrick (38 x 19 x 10 cm) installations built against the limestone. Notably, the only other instance where mudbrick seems to have been employed along the enclosure wall is just to the south, where a small renovation in mudbrick (38 x 19 x 10 cm) was discovered.⁴⁵ It is curious that in a wall otherwise completed in stone, borders of the gateway were finished in mudbrick and subsequently plastered. It was the only doorway on the eastern side of the pyramid temple, but it was subsequently blocked by limestone and later bricked up following the widening of the enclosure wall. Door B allowed access between the northern part of the pyramid enclosure and the pyramid temple. It was also initially only 1.05 m wide but was later broadened to a width of 1.575 m.⁴⁶ As with Door A, mudbrick was used along the border of the doorway itself. Door C was built in an identical manner, and was of a similar size as Door B.⁴⁷ Additional doorways were completed to ensure continued access to the cult buildings east of the pyramid as the enclosure wall was renovated and expanded.⁴⁸

⁴² Valloggia 2011, 34.

⁴³ Valloggia 2011, 35.

⁴⁴ Valloggia 2011, 36-38.

⁴⁵ Valloggia 2011, 36-37.

⁴⁶ Valloggia 2011, 36-38.

⁴⁷ Valloggia 2011, 36-37.

⁴⁸ Valloggia 2011, 37-38.

ABUSIR

Site Description: The geographic distinction between Abusir, Abu Ghurob, and Saqqara is based on modern rather than ancient topographic distinctions. During the Old Kingdom in particular, these sites were likely all conceived of as being part of the broader Memphite necropolis on the Nile's west bank, at the interface between the cultivated lands at the apex of the Nile Delta and the Western Desert. Abusir is roughly 30 km south of Cairo, just south of Abu Ghurob and north of Saqqara. The site served as the royal necropolis for the 5th Dynasty pharaohs. Five royal pyramids are known from the site, though those of Shepseskare and Raneferef were largely unfinished. The Czech Institute of Egyptology has been excavating at the site since the 1960s.⁴⁹

Relevant Enclosure Walls: As with all of the major necropolises in Egypt, a comprehensive accounting of every enclosure wall used to surround a mastaba is simply not feasible.

Unsurprisingly, the largest enclosure walls are those associated with the royal pyramids of Sahure, Neferirkare, and Niuserre.⁵⁰ The enclosure walls of the 5th Dynasty king's pyramids often serve as portions of the outer wall of the pyramid temple and a satellite pyramid, and linked up directly with the causeway linking the valley and pyramid temples. Causeways link the valley temples of Niuserre and Sahure's complexes with the pyramid temple.⁵¹ The decorated reliefs of Sahure's causeway have been the subject of extensive scholarly attention and renewed excavations at the start of the 21st century.⁵² It seems likely that Niuserre usurped the causeway

⁴⁹ Verner 1994 and Verner 2014 provides a general overview. See also Krejci 2010, 3-16 for a succinct history of research at the site.

⁵⁰ For Sahure, see Maragioglio and Rinaldi 1970, 74; for Neferirkare, see Maragioglio and Rinaldi 1970, 140. For Niuserre, see Maragioglio and Rinaldi 1977, 30-32, 48; Borchartd 1907, 96-99.

⁵¹ El Awady 2009, 107-109. For the archaeology of the Sahure causeway, see El Awady 2009, 121-128, and the remainder of the volume is devoted to analyzing the reliefs recovered from the causeway excavations.

⁵² El Awady 2009.

and valley temple of Neferirkare, simply redirecting it towards his own pyramid complex.⁵³ Remains of an enclosure wall surrounding the pyramid complex of Neferefre were also discovered over the course of its excavation under the direction of Miroslav Verner.⁵⁴ No such wall was found surrounding the unfinished pyramid at Abusir (generally thought to belong to Shepseskare), nor was there any evidence for a causeway, pyramid temple, or valley temple—likely a result of the complex’s incomplete state.⁵⁵ The pyramid of Khentkawes II was also surrounded by a large mudbrick enclosure, and while there is some evidence that her complex was originally intended to be encompassed by a stone enclosure surrounding Neferirkare’s complex.⁵⁶ Certain private tombs at Abusir seem to have possessed distinct enclosure walls, including the Mastaba of Princesses and the Mastaba of Nakhtsare.⁵⁷

Technical Details: The pyramid of Neferefre was surrounded by a 2.05 m (roughly 4 cubits) thick mudbrick wall.⁵⁸ Its interior face was perpendicular, but its exterior face sloped at a roughly 82-85 degree angle. The wall was completed using yellowish brown mudbricks, but its sides were plastered and whitewashed.⁵⁹ Changes in design to accommodate expansions in the vicinity of the pyramid temple almost certainly demanded that portions of this wall were dismantled in antiquity.⁶⁰ Krejci notes that the enclosure wall used smaller bricks relative to most of the surrounding structures, measuring some 26-28 x 13-14 x 7-8 cm. He suggests that the large amounts of sand, tafla, and limestone chips relative to clay, together with their inconsistent

⁵³ El Awady 2009, 107-109.

⁵⁴ Verner 2006, 66, Krejci in Verner 2006, 124, Table 1.6.6.

⁵⁵ Verner 1982, 75-77; Verner 2015, 169-170.

⁵⁶ Verner 1995, 160, 163, fig. 3.

⁵⁷ For Nakhtsare, see Krejci et al. 2008, 46-47. An enclosure wall appears in a plan of the Mastaba of the Princesses in Krejci 2009, 31, fig. 3.2.

⁵⁸ Verner 2006, 66.

⁵⁹ Verner 2006, 66.

⁶⁰ Verner 2006, 66.

bonding patterns suggest that this wall was completed quickly.⁶¹ Alternating headers and stretchers were used at times along the face of this construction, but it seems to have been more jumbled internally. In its southeastern corner, a limestone block was set as a corner stone, bonded to the wall itself using an admixture of clay, sand, and occupational debris.⁶² With the expansion of the temple area, it is clear that the original plans for the outer enclosure must have been modified; indeed, it is unclear if there would have been any temenos wall distinct from the outer walls of the expanded temple or the so-called House of the Knife added to the east.⁶³ Moreover, the renovations of the earliest pyramid temple itself often led to the construction of accretion walls on its exterior side—these should be viewed more as efforts to strengthen the outer wall of the temple proper rather than distinct enclosures.⁶⁴

The causeway of Sahure was originally excavated by Borchardt and later investigated by Zahi Hawass and subsequently Tarek el Awady.⁶⁵ Sahure's causeway extends some 235 m from his mortuary temple to the valley temple of the pyramid complex. The entire causeway was cased in fine Tura limestone, and the interior face was decorated with reliefs.⁶⁶ The causeway itself was completed atop a stepped embankment of rougher hewn limestone terraces, also cased with fine limestone. The inclination of the outer face of the causeway measured some 75 degrees, and Borchardt as well as Maragioglio and Rinaldi estimate a height of somewhere between 4.05-4.58 m.⁶⁷ In addition to reliefs, a kheker frieze decorated the top portion of the inner face, while a basalt dado roughly 1.04 m separated the reliefs from the base of the wall.

⁶¹ Krejci in Verner 2006, 124, Table 1.6.6.

⁶² Krejci in Verner 2006, 124, Table 1.6.6.

⁶³ Verner 2006, 100-106 discusses the various modifications of the pyramid complex. Particularly striking is the recurring decision to add to or rebuild massive mudbrick enclosure walls like that which surrounded the "Expanded Temple 3" phase.

⁶⁴ Verner 2006, 100-106, especially fig. 1.5.2.

⁶⁵ El Awady 2009, 121-128.

⁶⁶ El Awady 2009, 131, and see the same work more generally for information on the causeway's reliefs.

⁶⁷ Maragioglio and Rinaldi 1970, 78.

The passage enclosed by the causeway measured some 2.60 m wide, with a small ceramic drainage channel running down the center.⁶⁸ The width of the causeway is not stated, likely since much of the fine limestone outer casing for the walls has been robbed away.⁶⁹ Reliefs in the causeway dealt with themes like the triumph of order over chaos, images showing the king upholding *mꜣꜥt*, and the king receiving offerings from funerary domains, estates, and nomes. Newly discovered blocks show scenes depicting Sahure's royal fleet, military exercises, Sahure fishing and fowling, and funerary processions.⁷⁰

Sahure's enclosure wall was much more utilitarian in its construction: a rough hewn core of limestone cased with finer limestone blocks that measured roughly 3.15 m wide.⁷¹ It had a rounded coping at its top, and its internal and external faces sloped with a batter of roughly 82 degrees. Its height likely would have been around 8.35 m.⁷² The enclosure wall led up to the north and south sides of the temple on the eastern side of the pyramid complex, and remains of its foundations and lower courses have allowed archaeologists to clearly determine its trajectory on all sides of the pyramid save the west.⁷³ The northern and eastern walls of the satellite pyramid were only 2.63 m thick, and thus must have had a steeper slope and thinner coping than the main enclosure wall of the complex that enclosed the southern and western sides of the pyramid.⁷⁴ Like the pyramid complex enclosure wall, these two sides of the satellite pyramid's wall were completed with a rough stone core and finer limestone outer casing.⁷⁵

⁶⁸ El Awady 2009, 131-133.

⁶⁹ Given the dimensions listed by El Awady, it must have measured at least 3 m wide on either side, with a 2.60 m passageway between the side walls. El Awady 2009, 131-134.

⁷⁰ El Awady 2009, 135-231 details the newly discovered scenes, while 51-79 provide an overview of common thematic elements and motifs.

⁷¹ Maragioglio and Rinaldi 1970, 74.

⁷² Maragioglio and Rinaldi 1970, 74.

⁷³ Maragioglio and Rinaldi 1970, 74.

⁷⁴ Maragioglio and Rinaldi 1970, 74-76.

⁷⁵ Maragioglio and Rinaldi 1970, 74-76.

Neferirkare's pyramid is the largest at Abusir, but much of his complex seems to have been finished in haste.⁷⁶ Little is known about the enclosure wall surrounding Neferirkare's pyramid and mortuary temple, but Borchardt's limited text excavations and plans suggest it was roughly 2 m thick at its base.⁷⁷ Unlike most Old Kingdom pyramid enclosures, it was completed in mudbrick, using 40-42 x 18 x 12 cm bricks.⁷⁸ The southern portion of the wall stood about 37 m from the pyramid, while the eastern wall was about 25 m from the pyramid's base.⁷⁹ The wall was sloped on both sides, presumably imitating the stone constructions at other 4th and 5th Dynasty enclosures.⁸⁰ To the north of Neferirkare's mortuary temple, the mudbrick enclosure wall was only 4 m from the foot of the pyramid and only 1.3 m thick: this was likely the result of Niuserre building his pyramid complex nearby, necessitating the dismantlement of this section of the enclosure wall.⁸¹

Niuserre appears to have finished and redirected the causeway originally intended for Neferirkare's pyramid complex.⁸² It is plausible that Niuserre's actions situating his own pyramid so close to Neferirkare's and completing the causeway were an effort to legitimize his own claims to the throne, but Maragioglio and Rinaldi suggest it was because the ground further to the south was unsuitable and facilitated the appropriation of the existing causeway.⁸³ The causeway itself was very similar to Sahure's construction, though it is substantially longer—some 365 m in total. It was built atop an embankment consisting of two parallel walls of rougher local limestone set 3.80 m apart, into which drystone slabs were placed. The inner core of the

⁷⁶ Maragioglio and Rinaldi 1970, 112.

⁷⁷ Maragioglio and Rinaldi 1970, 140.

⁷⁸ Maragioglio and Rinaldi 1970, 140.

⁷⁹ Maragioglio and Rinaldi 1970, 140.

⁸⁰ Maragioglio and Rinaldi 1970, 140.

⁸¹ Maragioglio and Rinaldi 1970, 140.

⁸² El Awady 2009, 107-109; Borchardt 1907, 12-13, 42-49.

⁸³ Maragioglio and Rinaldi 1977, 8.

actual causeway walls above was local, yellow limestone that was subsequently encased with finer, more carefully hewn white limestone on either side. These side walls measured about 2.1 m thick at their base, leaving room for a roughly 2.65 m wide passage between them.⁸⁴ Small fragments of reliefs showing king as a lion and attacking Nubians, Asiatics, and Libyans have been reconstructed from the inner face of the causeway. Similar to Sahure's causeway, a basalt dado seems to have separated the fine relief work from the base of the wall.⁸⁵ The outer sides of the wall are inclined at a roughly 75°30' degree angle, while the inner face was vertical.⁸⁶

The enclosure wall of Niuserre's complex was somewhat anomalous, in that it is the only pyramid enclosure known to have robust pylons or bastions included at both the northern and southern corners of its eastern side.⁸⁷ The wall itself was comprised of a core of rougher, yellow limestone, and finished using slabs of Tura limestone on both the interior and exterior faces. The wall was 5 cubits thick at its base, or some 2.625 m.⁸⁸ The faces of both sides of the wall had a roughly 82 degree slope and culminated in a rounded "saddleback" coping stone, probably about 7.3 m high.⁸⁹ Maragioglio and Rinaldi suggest that the towers at the northeastern and southeastern corners were almost certainly substantially higher than the enclosure itself, while Borchardt estimates 8-10 m.⁹⁰ These towers were topped with a torus molding, built using an internal nucleus of rough limestone slabs faced with more carefully laid and dressed fine limestone.⁹¹ Oftentimes, mortar was very sparingly used in the internal core of the wall, but the masonry of the internal and external faces was more meticulously planned.⁹² It is uncertain what

⁸⁴ El Awady 2009, 107-109; Maragioglio and Rinaldi 1977, 34-36.

⁸⁵ El Awady 2009, 109.

⁸⁶ Maragioglio and Rinaldi 1977, 34.

⁸⁷ Maragioglio and Rinaldi 1977, 30-32, 48; Borchardt 1907, 96-99.

⁸⁸ Maragioglio and Rinaldi 1977, 30.

⁸⁹ Maragioglio and Rinaldi 1977, 30.

⁹⁰ Maragioglio and Rinaldi 1977, 30-33; Borchardt 1907, 98.

⁹¹ Maragioglio and Rinaldi 1977, 30.

⁹² Maragioglio and Rinaldi 1977, 30.

if any rooms were above these towers, or how one might reach the structures (Borchardt speculates that a staircase could have been present on the northern side and that the southern bastion could be reached from the roof of Niuserre's mortuary temple).⁹³ It is also uncertain these towers defined the northern and southern limits of the enclosure wall, but both Borchardt and Maragioglio and Rinaldi plan the enclosure wall as if these bastions project outwards at least meters beyond the track of the enclosure, and they seem to have been at least 10 m thick.⁹⁴ Remnants of a brick wall parallel to the course of the pyramid enclosure wall were discovered about 4 m in front of the eastern face of the enclosure wall, just to the north of the valley temple.⁹⁵ This wall was also about 2.625 cubits wide, and no more than 3-4 courses were preserved. It ended against the foundations of the pyramid temple to the south. The wall was plastered and whitewashed, and it is possible that it served as an early marker encompassing the area designated as part of Niuserre's pyramid complex. Rinaldi and Maragioglio suggest that this marked the boundary wall of the necropolis where relatives of the king were buried, and was subsequently destroyed in order to make room for the pyramid temple complex of Niuserre.⁹⁶

It seems likely that many of the smaller pyramids in this area would have had an enclosure wall but were not complete (as is the case with the Unfinished Pyramid, suggested to belong to Shepseskare), or simply have not been preserved. Cataloging all of these small pieces is not within the scope of this dissertation, but certain cases warrant comment—foremost among these, the 1.55 m thick mudbrick wall surrounding the pyramid complex of Queen Khentkawes II.⁹⁷ This wall was encountered near the southeast corner of the pyramid and formed the eastern

⁹³ Borchardt 1907, 97-98; see also Maragioglio and Rinaldi 1977, 30.

⁹⁴ Borchardt 1907, Blatt 28; Maragioglio and Rinaldi 1977, Tav. 4.

⁹⁵ Maragioglio and Rinaldi 1977, 32, 48.

⁹⁶ Maragioglio and Rinaldi 1977, 48.

⁹⁷ Verner 1995, 163.

wall for the magazines and temple outbuildings excavated under the direction of Miroslav Verner.⁹⁸ It likely had a height of almost 4.5 m. It was built with sloping faces, and abutted the thicker enclosure wall of Neferirkare on its northern side.⁹⁹ To the north of Khentkawes's mortuary temple, the wall jogs orthogonally to the west before resuming its northerly course until it meets the enclosure of Neferirkare.¹⁰⁰ On the southern side of the precinct, to the southeast of Khentkawes's pyramid, parts of a limestone enclosure wall were preserved. Remnants of the eastern side of this enclosure wall were also discovered, showing that it originally aligned with the eastern side of the base of Neferirkare's pyramid. This stone wall likely represents the original enclosure wall designed for this complex, though it was likely never completed, and was even dismantled and used to build the cult pyramid located to the southeast of Khentkawes's pyramid.¹⁰¹ This cult pyramid in turn was surrounded by a small mudbrick enclosure wall, but Verner cites evidence of individuals frequently walking near or even upon the face of the pyramid itself, suggesting that it was not an especially robust construction.¹⁰²

A comprehensive listing of the enclosure walls surrounding private tombs in the royal necropolis at Abusir is not possible. Most seem to have been completed in mudbrick, and in the case of the small enclosure surrounding Nakhtsare's tomb, perhaps only a single brick wide (approximately 30 cm).¹⁰³ The enclosure was built using brownish grey mudbricks, mixed with limestone chips and rubble. Enclosure walls are not preserved at every mastaba, and generally are not included on general plans of the mastabas within the Abusir necropolis.¹⁰⁴ In many cases, this is likely the consequence of erosion and later overbuilding, and not necessarily indicative of

⁹⁸ Verner 1995, 163.

⁹⁹ Verner 1995, 160.

¹⁰⁰ Verner 1995, 163.

¹⁰¹ Verner 1995, 160.

¹⁰² Verner 1995, 36.

¹⁰³ Krejci et al. 2008, 46-47, fig. 3.14.

¹⁰⁴ Krejci et al. 2008, 46-47.

their absence in the original construction. Nonetheless, I'm unaware of any examples found thus far that have featured massive enclosure walls over 1 m wide comparable to those known from certain Middle Kingdom mastabas at sites like Lisht.

ABYDOS

Site Description: Located 430 km south of Cairo, the site of Abydos is one of the oldest and most important archaeological sites in all of Egypt. During the Predynastic and Early Dynastic periods, Abydos was an important royal center, home to the tombs of the 1st Dynasty kings.¹⁰⁵ Remains of areas linked to the Old Kingdom temple and First Intermediate Period have also been identified and excavated.¹⁰⁶ By the Middle Kingdom, Abydos was a crucially important cultic center linked to the god Osiris.¹⁰⁷ Senwosret III's tomb and associated mortuary buildings were completed further to the south, and the town of Wahsut was founded to perpetuate the ruler's cult.¹⁰⁸ A series of tombs relating to kings from the Second Intermediate Period have been identified in the vicinity of Senwosret III's tomb and funerary enclosure, and the final royal pyramid, that of Ahmose, was completed in South Abydos as well.¹⁰⁹ Later 19th Dynasty kings like Seti I and Ramesses II founded large and ornate temples further to the north.¹¹⁰ The site maintained an important cultic role throughout the duration of the Pharaonic period.¹¹¹

Relevant Enclosure Walls: Excavations at Abydos and its immediate environs have revealed enclosure walls from settlement, funerary, and cultic contexts. At Kom es-Sultan, Barry Kemp

¹⁰⁵ On Abydos generally, see O'Connor 2009. For the Early Dynastic funerary enclosures, see Bestock 2009; Bestock 2008.

¹⁰⁶ Kemp 1977, 186-189; Petrie 1902, 9-10; Petrie 1903, 5-17; Adams 2005; Adams 2007.

¹⁰⁷ O'Connor 2009, 87-96.

¹⁰⁸ Wegner 2007. For Wah-sut, see Wegner 2001, Wegner 2004, and Wegner 1998.

¹⁰⁹ For Ahmose, see Harvey 1998. For the recent excavations of Second Intermediate Period royal tombs near the mortuary temple of Senwosret III, see Wegner 2015.

¹¹⁰ O'Connor 2009, 43-61, 117-118.

¹¹¹ O'Connor 2009, 121-135.

identified several fragments of the Old Kingdom settlement enclosure wall.¹¹² Subsequent excavations of settlement remains dating to the First Intermediate Period also revealed enclosure walls.¹¹³ Curiously, no enclosure wall is associated with the settlement of Wahsut, founded in the reign of Senwosret III. It is possible that agglutinated housing helped to bound the settlement, and numerous sealings suggest that the *ꜥrryt*, or gate house, of the mayoral estate played a crucial role in the administration of the settlement and the receipt of various goods.¹¹⁴ Nonetheless, no freestanding enclosure wall related to the settlement has been discovered.

Petrie's excavations revealed large walls that have been attributed to the Old Kingdom temple's enclosure wall or other buildings associated with the temple complex, and enclosure walls relating to urban expansions during the First Intermediate Period have also been uncovered by more recent investigations.¹¹⁵ Numerous enclosures related to funerary cults have been excavated at Abydos at the North Cemetery, ranging from the earliest 1st Dynasty funerary enclosures to the massive enclosure of Khasekhemwy, the Shunet el-Zebib.¹¹⁶ Far later and further to the south, the tomb enclosure associated with Senwosret III's mortuary foundation was discovered and excavated by Josef Wegner and his team from the University of Pennsylvania.¹¹⁷ Many smaller enclosures related to funerary structures of later kings have been revealed by excavations near Senwosret III's funerary enclosure.¹¹⁸

Construction Methods and Technical Details: The earliest known enclosure walls at Abydos belong to the funerary enclosures of 1st and 2nd Dynasty rulers.¹¹⁹ At least ten such enclosures

¹¹² Kemp 1977, 186-189.

¹¹³ Adams 2005, 71, 101-102, 278, 290, 459, 581-582, 588, fig. 4.1, 5.1

¹¹⁴ Wegner 2004, 88.

¹¹⁵ Petrie 1902, 9-10; Petrie 1903, 5-17; Adams 2005, 71, 101-102, 278, 290, 459, 581-582, 588, fig. 4.1, 5.1.

¹¹⁶ Bestock 2008b.

¹¹⁷ Wegner 2008, 365-381.

¹¹⁸ Wegner 2015; Cahill and Wegner 2015.

¹¹⁹ Bestock 2008; O'Connor 1989.

have been excavated at least in part: three are associated with King Aha, two with anonymous 1st Dynasty kings (the so-called Western Mastaba and the Donkey Enclosure), and a single enclosure is known for each of Djer, Djet, and Meretneith.¹²⁰ Because a funerary enclosure appears to have been an integral part of the funerary complex of a deceased monarch during the 1st Dynasty, it is likely that there are further enclosures linked to the tombs of other 1st Dynasty kings that remain undiscovered as a result of incomplete excavation or have been irretrievably lost due to erosion or poor preservation.¹²¹ During the 2nd Dynasty, both Peribsen and Khasekhemwy constructed funerary enclosures in the immediate vicinity of the earlier examples.¹²²

Though funerary enclosures evolved over the course of the Early Dynastic Period, there are several commonalities that pertain to nearly all of the discovered examples so far. All examples were defined by a thick, rectangular enclosure wall, and all of them seem to have been oriented southeast by northwest. Each example that has been excavated thus far has a niched façade on all four sides, often with more complex, deeper niching on the northeastern wall. An entrance to the funerary enclosures was located at the eastern corner of each complex, and a second entrance near the northern corner.¹²³ Peribsen's monument possessed an additional entrance along the southeastern while, while Khasekhemwy's funerary enclosure could be entered from all sides.¹²⁴ Many 1st Dynasty enclosures had an entrance on the northern side of the monument, but this was subsequently bricked up, and was perhaps connected with a single cultic or ceremonial activity within the monument. The interior space was largely open, save for

¹²⁰ Bestock 2008.

¹²¹ Bestock 2008, 56.

¹²² Bestock 2008, 56-58.

¹²³ Bestock 2008, 45-46. See also O'Connor 2009, 159-181.

¹²⁴ Bestock 2008, 56-58.

a single mud-brick building that served as a locus for cult offerings. This building was typically offset from the axes allowing passage into the funerary enclosure. Subsidiary graves were excavated associated with the 1st Dynasty enclosures, but the exterior of the eastern corner (near the entrance) was always left undisturbed, perhaps to allow ceremonial processions access to the complex. No subsidiary burials are known for the 2nd Dynasty enclosures. The 1st Dynasty funerary enclosures were often surrounded by a low bench on all four sides.

In their monumentality, their rectangular shape, and the niching that decorates their façades, the funerary enclosures resemble mastabas. Unlike mastabas, however, funerary enclosures were not superstructures of a tomb. Rather, they were a center for cult offerings, not interments. Funerary enclosures were integral parts of 1st Dynasty royal funerary monuments, but were distinct from the royal tomb itself.¹²⁵ No funerary enclosures have been connected with private individuals; they seem to have been an exclusively royal prerogative. Finally, with the notable exception of Khasekhemwy's monument, the walls of all previous funerary enclosures seem to have been deliberately destroyed save for the lowest courses of brickwork, the culmination of each monument's use.¹²⁶ Nonetheless, no funerary enclosures were built atop previous examples, so great care must have been taken to clear any windblown sand and complete these monuments in the vicinity of but not overlying earlier installations.¹²⁷ Laurel Bestock has suggested that by deliberately leaving several courses of brickwork at a uniform height, the intent was to inter rather than destroy the monument—the completion of its own life cycle.¹²⁸ Following the reign of Khasekhemwy, the royal necropolis shifted to the Memphite region, perhaps accounting for the survival of his enclosure. Indeed, the form of Djoser's

¹²⁵ Bestock 2008, 46-47.

¹²⁶ Bestock 2008, 46-47, 58.

¹²⁷ Bestock 2008, 45, fig. 3.

¹²⁸ Bestock 2008, 47.

pyramid complex at Saqqara, with its massive niched enclosure wall, likely integrated design elements and functions of earlier funerary enclosures into the broader landscape of his own revolutionary funerary monument.¹²⁹

Of the 1st Dynasty enclosures, the most extensively excavated examples are also the earliest: the three enclosures linked to Aha.¹³⁰ They are the smallest of the known funerary enclosures, and are of unequal size: the southeasternmost enclosure is more than double the size of the other two enclosures to the northwest, respectively. The larger enclosure measures 33 x 22 m. Its façade is niched with a simple pattern along its northwestern, northeastern, and southwestern walls, while a more complex niching configuration is visible along its southeastern side.¹³¹ There were two entrances along its northeastern wall, near the northern and eastern corners. The former was smaller and bricked up in antiquity. A low bench surrounded the entire complex, added after the plastering of the enclosure was completed.¹³² The northwestern corner of this enclosure was obscured by a modern Coptic cemetery, but the other corners of the complex were surrounded by circular installations without known parallels at later enclosures (though this may be an accident of preservation in some cases). These circular features were created by covering unshaped limestone rocks with mud, and their purpose is unknown.¹³³ This enclosure also supplies the clearest evidence for the deliberate destruction of such an installation. Piles of mudbrick debris were excavated both inside and outside of the complex, atop an intentional deposit of sand. Bestock notes that it is possible that such bricks may have been reused during the construction of later enclosures.¹³⁴ Five subsidiary burials have been identified

¹²⁹ O'Connor 2009, 195-198; O'Connor 2002; O'Connor 2003; Bestock 2008, 58.

¹³⁰ Bestock 2009.

¹³¹ Bestock 2008, 48-49.

¹³² Bestock 2008, 48-49.

¹³³ Bestock 2008, 48-49.

¹³⁴ Bestock 2009, 62-87.

surrounding the largest enclosure of Aha, while a sixth is almost certainly covered by the modern cemetery.¹³⁵

Like their larger counterpart to the southeast, the two smaller enclosures of Aha each possessed deeper, more elaborate niching on their northeastern side and an exterior bench added after the completion of the monument.¹³⁶ They also both possessed rounded bastions at the corners comprised of rough limestone blocks covered with mud, similar to the larger Aha enclosure and the “Donkey” enclosure to the south.¹³⁷ They were both entered through a doorway in the northeastern wall near the eastern corner. The northwestern small enclosure was 17 x 12 m in size, while the northeastern one was less well preserved and its length is not known. Its width measures 10.5 m, so somewhat smaller than its counterpart to the northwest. The wall and bench of the northeastern small enclosure measures 2.3 m thick, while those of the northwestern small enclosure were roughly 2.55-2.65 m including the exterior bench.¹³⁸ The northwestern wall was destroyed save for the lowest three courses of brickwork, measuring roughly 26 cm in height.¹³⁹ The wall tapered gently as it rose above the height of the bench.¹⁴⁰ Each of Aha’s three enclosures housed a three-room cult building. Three subsidiary burials have been excavated in association with each of the smaller enclosures linked to King Aha.¹⁴¹

Remnants of the “Donkey” Enclosure were excavated northwest of Djer’s enclosure and southeast of Aha’s three enclosures.¹⁴² It is partially obscured by a modern cemetery, but portions of its southwestern and northeastern walls have been excavated. The southeastern wall

¹³⁵ Bestock 2008, 49.

¹³⁶ Bestock 2009, 62-87.

¹³⁷ Bestock 2009, 66-73, 77-79, 86-87. See especially figs. 23, 42, 75.

¹³⁸ Bestock 2009, 66-68, 77-79.

¹³⁹ Bestock 2009, 66.

¹⁴⁰ Bestock 2009, 68.

¹⁴¹ Bestock 2009, 73-77, 80-86.

¹⁴² Bestock 2009, 86-87; Bestock 2008, 54-55.

measures 37 m long, and together with its exterior bench, it was 3.2 m thick.¹⁴³ A gateway was located on its eastern side, along the northeastern wall. This wall possessed deeper, more complex niching. The internal facing of its northwestern wall was also discovered, allowing for the length of the complex to be estimated at roughly 67 m.¹⁴⁴ Like Aha's enclosures, remnants of rounded bastions at its southern and eastern corners have been identified.¹⁴⁵ Ten bodies of donkeys buried in subsidiary graves exterior and parallel to the enclosure's southeastern wall lend the complex its name, since no inscribed grave goods allow for a more specific attribution.¹⁴⁶

Djer's enclosure was located immediately to the southeast of Aha's, and measured roughly 96.2 m x 53.8 m, with walls approximately 2.7-2.8 m thick.¹⁴⁷ These walls were surrounded by a low bench, roughly 45-52 cm wide, for a total width of some 3.25 m. As with Aha's funerary enclosures and the Donkey Enclosure, the bench was added after the plastering of the enclosure walls. Two gateways were located near the eastern and northern corners, but the northern doorway was blocked with bricks following its construction. 269 subsidiary graves surround Djer's funerary enclosure. Petrie describes a small complex comprised of concentric rectangular mudbrick walls that partially overlies the southwestern line of subsidiary burials, but it was partly destroyed before being planned.¹⁴⁸ Its dimensions and broader purpose are unknown, and no other parallel is known from other enclosures at Abydos's northern cemetery.

No funerary enclosure for Djet has been excavated, but its existence can be inferred on the basis of a rectangular arrangement of the 154 subsidiary graves containing inscribed material

¹⁴³ Bestock 2009, 86-87.

¹⁴⁴ Bestock 2009, 86-87.

¹⁴⁵ Bestock 2009, fig. 75.

¹⁴⁶ Bestock 2008, 54-55.

¹⁴⁷ Bestock 2008, 51-52; O'Connor 1989, 61-81.

¹⁴⁸ Petrie 1925, 4; O'Connor 1989, 71-73.

culture linked to this king. On the basis of the pattern of subsidiary burials, O'Connor estimates a size of roughly 90 x 47.5 m.¹⁴⁹

The remains of Meretneith's enclosure are located just to the southeast of Djef's enclosure.¹⁵⁰ A queen mother, Meretneith likely served as a queen regent for her son given the royal funerary honors accorded her at her tomb at Umm el-Qaab and the North Cemetery.¹⁵¹ The northwestern wall of her funerary enclosure was encountered by T.E. Peet during his excavations from 1911-1914.¹⁵² Its width is 1.80 m, with a 0.45 m bench added to its exterior. A mud floor was found both inside and outside the enclosure, but the internal floor was some 30 cm lower than the external one. Its precise dimensions are unknown, and it has not been re-excavated by the Penn-Yale-New York University Institute of Fine Arts mission, but it has been estimated to be roughly 66.5 x 25.5 m.¹⁵³ This funerary enclosure has been assigned to Meretneith on the basis of a single inscribed jar excavated by Petrie, but there is no reason to doubt this attribution.¹⁵⁴

A second enclosure associated with an unknown 1st Dynasty king was partially excavated by Petrie.¹⁵⁵ Petrie termed this feature the "Western Mastaba", but did not treat it extensively in publication.¹⁵⁶ Subsequent re-excavation has confirmed that it is a funerary enclosure, most similar in size to that of Meretneith. The eastern corner of the enclosure has been lost, but an entrance from the northern side was bricked up, analogous to other enclosures from the 1st Dynasty. A bench surrounded the walls, like all other 1st Dynasty enclosures. Between its

¹⁴⁹ Bestock 2008, 52-53.

¹⁵⁰ Bestock 2008, 53-54.

¹⁵¹ Bestock 2008, 53.

¹⁵² Peet 1914; Bestock 2008, 53.

¹⁵³ Bestock 2008, 53.

¹⁵⁴ Petrie 1925, 1.

¹⁵⁵ Bestock 2008, 55; Petrie 1925, 3.

¹⁵⁶ Petrie 1925, 3.

southwestern wall and the enclosure of Khasekhemwy, fourteen boat graves have been excavated, a feature entirely unique to this enclosure.¹⁵⁷ They have been linked to the “Western Mastaba” rather than Khasekhemwy after excavations in 2002 showed that these boat graves were contemporary with the former rather than the latter.¹⁵⁸ Comparable boat graves known from elite 1st Dynasty tombs at Helwan and Saqqara and the form of the “Western Mastaba” itself lend further support for a late 1st Dynasty date for both the boat graves and the funerary enclosure.¹⁵⁹

Just to the southwest of Djer’s enclosure and to the northwest of Khasekhemwy’s enclosure lies that of Peribsen, Khasekhemwy’s predecessor.¹⁶⁰ Termed the “Middle Fort” by Ayrton and his colleagues, this enclosure was attributed to Peribsen on the basis of a seal impression found near its eastern gateway.¹⁶¹ It measures 108 x 55 m, and lacks an additional perimeter wall. Its own walls measure only 1.5 m thick, and it was entered through a large gate in its eastern corner, a gateway in its northern corner, and a smaller entrance in the southwest. Like Khasekhemwy’s complex, Bestock notes that it possessed similarly elaborate niching along its northeastern while and a less ornate pattern on its other three sides.¹⁶² Ayrton notes a strip of red paint 22 inches above the ground level, approximately 4 inches wide. It is unclear if this was decorative, architectural or construction notes, or perhaps a marker for a kind of exterior “dado” analogous to the example known from the “fort” at Hierakonpolis.¹⁶³ It is unclear why Peribsen returned to Abydos for his tomb and mortuary complex.

¹⁵⁷ Bestock 2008, 55; O’Connor 1989, 59

¹⁵⁸ O’Connor 2009, 183-194.

¹⁵⁹ Bestock 2008, 55-56; for the boat burials, see O’Connor 1991.

¹⁶⁰ Bestock 2008, 45, 56-57, fig. 3, 9.

¹⁶¹ Ayrton et al. 1904, 2; for the sealing, see Ayrton et al. 1904, 4.

¹⁶² Bestock 2008, 56.

¹⁶³ Ayrton et al. 1904, 3. For the dado at the “fort” at Hierakonpolis, see Friedman 2007, 316.

Khasekhemwy's funerary enclosure is the largest and best-preserved example.¹⁶⁴ Known as the Shunet el-Zebib, its walls stand to a height of 11 m in some parts, likely close to their original height. They enclose a rectangular space, 126 x 65 m in size. The enclosure walls are roughly 5.5 m thick at their base, narrowing slightly towards the summit of the enclosure wall. The walls seem to slope gently inwards from both the internal and external limits of the base.¹⁶⁵ The complex was founded upon a layer of fine sand.¹⁶⁶ These walls were decorated with vertical niches and buttresses on all four sides.¹⁶⁷ The bricks appear to have been laid using a pattern of alternating headers and stretchers, but were occasionally set on edge to offset minor differences between bricks and ensure a level foundation for the succeeding course. The bricks themselves are light brown in color, and weathering patterns suggest the use of straw within their matrix.¹⁶⁸ Aeolian sand has preserved remnants of the white plaster finish at the base of the funerary enclosure. This white plaster application embellished a rougher coating of mud plaster that covered the bricks themselves. A smaller enclosure perimeter rings the main enclosure, but it too was massive by the standards of early Egyptian architecture: 2.6 m thick at its base. This wall was also coated with plaster, and its presence creates a 3.2 m passageway between the larger enclosure walls and the complex's perimeter walls.¹⁶⁹ This passageway between the interior and exterior enclosure walls of Khasekhemwy's monument narrows near its western corner, likely a result of the proximity of Peribsen's funerary enclosure. Bestock notes that this may suggest that Khasekhemwy's enclosure was originally planned without a perimeter wall.¹⁷⁰

¹⁶⁴ Bestock 2008, 57-58; Ayrton et al. 1904, 1-5.

¹⁶⁵ Bestock 2008, 57.

¹⁶⁶ Ayrton et al. 1904, 4.

¹⁶⁷ Bestock 2008, 57.

¹⁶⁸ The author was fortunate enough to have the opportunity to visit the monument in person and examine enclosure walls and brickwork of Khasekhemwy's enclosure.

¹⁶⁹ Bestock 2008, 57.

¹⁷⁰ Bestock 2008, 57.

The largest entrance to the interior of the enclosure was through a gateway in the monument's northern corner, along the northwestern wall of the funerary enclosure. A second large entrance was located along the northeastern wall, near the eastern corner of the monument. These entrances were created essentially through leaving spaces within the enclosure wall open, creating internal chambers within the thickness of the wall. These entrances follow a bent axis, meaning that the interior of the enclosure remains obscured to those proceeding through these gateways. Straighter, narrower entrances were located along the southeastern and southwestern walls.¹⁷¹ Excavations by Ayrton within the complex unearthed 2nd Dynasty pottery and sealings with the name of Khasekhemwy.¹⁷²

Remains of the Old Kingdom temple area and its associated enclosure walls were excavated at Kom es-Sultan by Petrie and have subsequently been reinterpreted by Barry Kemp, and later, David O'Connor.¹⁷³ Remnants of the Old Kingdom town walls were identified by Kemp, who tentatively plotted the course of these features, and O'Connor notes that some 6 hectares were encompassed within the enclosures of Kom es-Sultan.¹⁷⁴ During the Old Kingdom and First Intermediate Period, Kom es-Sultan housed the cultic and administrative centers of the site, and the main temple to Osiris likely located in this area even in much later periods. Indeed, O'Connor believes that it is possible that 30th Dynasty temple of Nectanebo may obscure remains of the earliest versions of the temple in this area of Abydos.¹⁷⁵ While most of Kom es-Sultan has been heavily damaged or denuded as a result of *sebbakh* digging together with Petrie's comprehensive excavations, general plans of the site have been successfully produced

¹⁷¹ Bestock 2008, 57-58.

¹⁷² Ayrton et al. 2004, 3.

¹⁷³ Kemp 1977, 186-189; O'Connor 2009, 85.

¹⁷⁴ Kemp 1977, 186-189; O'Connor 2009, 85.

¹⁷⁵ O'Connor 2009, 80-81.

and show several distinct enclosures.¹⁷⁶ Petrie's excavations provide only very limited information about these walls, and his plans are difficult to verify since he recorded only absolute elevation levels and paid no heed to stratigraphy. As a result of his excavations and *sebbakh* digging, the stratigraphic record of the temple area is extremely poor. Nonetheless, it is very plausible that some of the larger enclosure walls planned by Petrie within this temple area perhaps served as internal divisions, separating the Osiris-Khentiamentiu temple from other areas of the settlement. One enclosure seems to have surrounded the Osiris-Khentiamentiu temple complex and related outbuildings.¹⁷⁷ In the northwestern corner of this enclosure, several excavated cult buildings seem to have been Ka chapels, comparable to other examples known from the 6th Dynasty at Balat or Bubastis.¹⁷⁸ It seems likely that this enclosure wall extended to the east, encompassing parts of residential areas within the town itself. Installations in this corner of the enclosure possessed thick outer walls, but it is unclear if there were any free-standing enclosure walls related to these buildings.¹⁷⁹

During the course of excavations in 1991 led by Matthew D. Adams, remains of the Old Kingdom/First Intermediate Period enclosure wall were identified in a test trench further to the east, defined as Operation 10.¹⁸⁰ Plans show a very substantial wall, at least two and likely more than three meters wide, though Adams did not excavate the southwestern, internal face of the installation. A small open space seems to have been left outside the enclosure wall, and Adams postulates that this 2 m wide space likely served as a street to allow access to buildings on the exterior side of the enclosure.¹⁸¹ Adams suggests that a similar space existed on the internal side

¹⁷⁶ O'Connor 2009, 80-82, fig. 36; Kemp 1977, 187, fig. 1.

¹⁷⁷ O'Connor 2009, 80-82; Kemp 1977, 186-189.

¹⁷⁸ O'Connor 2009, 80-82, fig. 36. For Ka chapels at Balat, see Soukiassian et al. 2002. For the ka chapel of Pepi I at Bubastis, see Tietze 2008 and Habachi 1957.

¹⁷⁹ O'Connor 2009, 80-82.

¹⁸⁰ Adams 2005, 71, 101-102, 278, 459-460, 581-582, 585-586, fig. 4.1, 5.1.

¹⁸¹ Adams 2005, 459.

of the enclosure wall as well, though this has not been verified archaeologically. It is certainly plausible, however, given that it is difficult to explain how some of the houses Adams excavated further to the southeast could have been accessed in the absence of such a feature.¹⁸²

To the northeast of the temple area, Petrie excavated fragments of a large enclosure wall that he dated to the 6th Dynasty.¹⁸³ Further to the northwest, a thick enclosure wall (well over 3 m in breadth) surrounded a large building that has been dated to the Old Kingdom and exposed by *sebbakh* digging. The purpose of this building is unknown, and it has not been investigated extensively. O'Connor suggests that it served as an administrative center or storage complex for the town, rather than the temple.¹⁸⁴ In any case, it is clear that the urban area of Abydos was partitioned by multiple substantial enclosure walls, though it remains unknown how functionally different some of these enclosed spaces were in the absence of better preserved stratigraphy.

Nowadays, many of the enclosure walls attributed to Old Kingdom and Middle Kingdom levels have been damaged or are obscured by modern rubbish, and it is difficult to connect them to specific features or installations. However, this damaged state allows for a rare glimpse at the internal core of some of these walls. While many of the monumental walls at Kom es-Sultan are built using courses of alternating headers and stretchers, some walls appear to have been built using headers exclusively—at least for the internal portions of the wall. No wooden beams or reed matting seem to have been used to stabilize these structures, but some walls (Kemp identifies them as Old Kingdom house remains) occasionally used more unorthodox arrangements of bricks: a row of bricks laid in a herring-bone fashion is visible in section.¹⁸⁵ The

¹⁸² Adams 2005, 459.

¹⁸³ Petrie 1903, Pl. XLIX, LIII.

¹⁸⁴ O'Connor 2009, 85.

¹⁸⁵ The author had the opportunity to view Kom es-Sultan and walk around the various constructions at the site in December of 2017. For Kemp's profiles, see Kemp 1977, fig. 2.

broader contours of the settlement outlined by Barry Kemp in the 1970s appear largely correct, though the extensive damage to the archaeological material at Kom es-Sultan has hampered efforts to confirm or disprove his analysis.¹⁸⁶

Roughly 3 km east-southeast of Kom es-Sultan, settlement and mortuary foundations linked to the tomb of Senwosret III dominated the ancient landscape: specifically, his tomb and its enclosure, his mortuary temple, and the settlement of Wah-Sut.¹⁸⁷ As noted above, the town of Wah-Sut does not appear to have had a physical perimeter wall, but the mortuary temple of Senwosret III just to the local north possessed a robust enclosure wall.¹⁸⁸ Wegner's detailed excavations and publications of the complex have furnished a wealth of architectural details. The temple was located at the edge of the cultivation, aligned broadly with the axis of Senwosret III's tomb enclosure and burial 770 m further to the south (local west).¹⁸⁹ The core of the mortuary temple complex was the *Nfr-K3*, a royal cult building fashioned out of limestone. It was surrounded by various outbuildings, a pylon, and an enclosure wall constructed out of mudbrick. The totality of the temple complex measures 51 x 64 m, with the temple proper measuring 33.6 x 53.6 m.¹⁹⁰

On its eastern, western, and southern sides, the temple is bounded by a mudbrick enclosure wall.¹⁹¹ At its base, the wall measures 1.6 m in breadth, but it has a more significant inward batter (roughly 82 degrees) than any other wall within the temple complex.¹⁹² This sloped form has allowed Wegner to estimate the maximum height for the enclosure at 4.5 m, and likely something more like 2.5-3 m given parallels with other sloped enclosure walls known

¹⁸⁶ Kemp 1977, 186-189.

¹⁸⁷ Wegner 2007. For Wah-sut, see Wegner 1998, Wegner 2001, and Wegner 2004.

¹⁸⁸ Wegner 2007, 75-78.

¹⁸⁹ Wegner 2007, 19.

¹⁹⁰ Wegner 2007, 133-149.

¹⁹¹ Wegner 2007, 75-78.

¹⁹² Wegner 2007, 75.

from Middle Kingdom contexts—for example those of Nebhepetre Mentuhotep II temple at Deir el-Bahri or Senwosret I at Lisht.¹⁹³ By analogy with these examples, the enclosure wall likely had a rounded top. Highly uniform mudbricks were used throughout the temple complex, averaging 11.5 x 12 x 19-20 x 38-39 cm.¹⁹⁴ Their matrix consists of Nile alluvium and chaff, but almost no desert sand or river pebbles were present in their admixture. Smaller bricks (25 x 15 x 10 cm) produced using *tafl* rather than alluvial mud were used to repair the threshold of the southeast doorway through the enclosure wall, but were extremely rare and seem only to have been used for limited repairs in scattered locations of the temple complex. Walls throughout the temple were bonded at corners, though there is no uniform pattern to such bonding.¹⁹⁵ Limestone quoins (30 cm square in Randall-MacIver's plan) seem to have been used at corners to provide additional strength.¹⁹⁶ Generally, bricks were laid in a pattern of alternating headers and stretchers, though the arrangement of the bricks within the internal portions of the enclosure wall seems to have varied: sections and photos show a preponderance of headers within an outer casing of alternating headers and stretchers, or even bricks laid diagonally in places along the interior of the southern enclosure wall.¹⁹⁷ The eastern side of the enclosure wall was originally planned with a kind of casemate construction plan on its internal face, or as two parallel walls with small transverse walls connecting them. Wegner does not note such a feature specifically, but maintains it in some of his plans of the mortuary temple, though not in other schematic sections.¹⁹⁸

¹⁹³ Wegner 2007, 75. For the brick court wall at Deir el-Bahari, see Arnold 1979, 14-15. For Lisht, see Arnold 1988, 58-59.

¹⁹⁴ Wegner 2007, 61-63.

¹⁹⁵ Wegner 2007, 62.

¹⁹⁶ Wegner 2007, 63.

¹⁹⁷ Wegner 2007, 62, 75-8, pl. 14.

¹⁹⁸ Wegner 2007, 50, fig. 19, fig. 32-33; Randall-MacIver and Mace 1902, Pl. XX

The enclosure wall was bonded to the walls on the sides and front of the mortuary temple's pylon terrace.¹⁹⁹ Wegner notes that this suggests that the enclosure wall was planned and constructed in tandem with the pylon terrace and the causeway/ "axial approach" to the mortuary temple.²⁰⁰ Furthermore, a water channel system with limestone drains passed beneath the western enclosure wall (and a corresponding example was likely present on the eastern side), suggesting that this feature was also integrated into the design of the enclosure wall.²⁰¹ Reed matting was employed to help stabilize the walls at regular, identical heights throughout the entire temple complex. This is highly significant, since it demonstrates that the entire temple was planned and executed as a unified, single building project. The walls were thus built to a certain height, following which a reed bedding was applied to walls throughout the complex.²⁰² The internal and external sides of all walls in the temple were covered with a white gypsum plaster, particularly well preserved on the southern exterior face of the enclosure wall where it at times approaches 1 cm in thickness (likely a result of multiple coatings).²⁰³ Refuse from temple area seems to have frequently been discarded here, and the regular dumping of occupational debris soon covered and likely helped to protect the base of the wall from further wind damage.²⁰⁴ A street or ambulatory surrounded the length of the enclosure wall, perhaps interrupted at times by internal skeleton walls stretching across the pylon terrace.²⁰⁵

Senwosret III's enigmatic tomb enclosure was defined by a sloped enclosure wall some 2.5 m thick at its base.²⁰⁶ The enclosure is T-shaped, consisting of an upper enclosure that

¹⁹⁹ Wegner 2007, 75, 78.

²⁰⁰ Wegner 2007, 78.

²⁰¹ Wegner 2007, fig. 32-33.

²⁰² Wegner 2007, 62-63.

²⁰³ Wegner 2007, 63, fig. 14a-b.

²⁰⁴ Wegner 2007, 78.

²⁰⁵ Wegner 2007, 78-80.

²⁰⁶ Wegner 2007, 367.

measures 150 x 90 m and a lower enclosure that measures 48 x 106 m. The bricks are comparable to those found at Wah-Sut and the mortuary temple complex, measuring roughly 12 x 20 x 40 cm.²⁰⁷ The front wall of the lower enclosure is thinner, only 0.76 m wide, and seems to have been a later addition to the complex. It was built using smaller 8 x 16 x 30 cm bricks.²⁰⁸ Wegner estimates that the original height of the enclosure was roughly 4 m on the basis of a portion of the eastern wall of the lower enclosure which was conserved to some 3.5 m.²⁰⁹ The upper and lower enclosures were separated by a sinusoidal wall, and seem to have served distinct purposes. The upper enclosure was largely devoid of built structures, cleared in order to allow for the cutting of the tomb itself and contain the debitage removed during the excavation process. In contrast, the lower enclosure likely served as a staging ground for materials and personnel needed during tomb construction.²¹⁰

It is highly likely that the enclosure was dismantled in antiquity.²¹¹ Given the width and height of the enclosure wall, there is minimal evidence of decayed mudbrick that would have been expected following erosion, collapse, or if the wall had been razed and simply left on the ground. Even conservative estimates for the height of the enclosures leave over 4000 cubic meters of mudbrick wholly unaccounted for.²¹² It seems highly unlikely that the brick from the enclosure wall was simply robbed out, since other smaller enclosures and the dummy mastabas stand nearby.²¹³ Further, much of the lower enclosure was razed down to its lowest course, including all of the interior buildings. Wegner notes that there is evidence of “forceful physical

²⁰⁷ Wegner 2007, 367.

²⁰⁸ Wegner 2007, 367.

²⁰⁹ Wegner 2007, 367.

²¹⁰ Wegner 2007, 371-372, 377-378.

²¹¹ Wegner 2007, 378-381.

²¹² Wegner 2007, 378.

²¹³ Wegner 2007, 378.

removal of the brickwork” at the lower enclosure, in the form of smashed and scraped bricks.²¹⁴ It is plausible that this ritual destruction of all but the footprint of the enclosures was analogous to earlier activities at Early Dynastic enclosures at the site. The removal of the upper and lower enclosure and the suite of ceremonial buildings in lower enclosure would have erased most identifiable landmarks associated with the tomb of Senwosret III from the local landscape.

A number of enclosures have been excavated in the environs of Senwosret III’s tomb and funerary enclosure, relating to later tombs or enclosures. Many of these tombs are the subject of ongoing excavations and have only been published preliminarily.²¹⁵ Multiple royal burials from the Late Middle Kingdom/Second Intermediate Period have been identified in enclosures just to the northwest of Senwosret III’s funerary enclosure. The preliminary nature of these reports means that there is little to note about these enclosure walls beyond their presence. There are enclosures surrounding tombs S9 and S10, and free-standing walls seem to have defined space in the vicinity of the dummy mastabas to the northeast of Senwosret III’s funerary enclosure.²¹⁶ Further walls have been shown in plans, and an “outer enclosure wall” has been identified to the north of the Second Intermediate Period necropolis.²¹⁷ Such walls likely served to delineate space and pathways within the necropolis, to provide open and clear spaces to facilitate the excavation and construction of royal tombs, and to function as a physical barrier surrounding tombs or key ceremonial buildings.

²¹⁴ Wegner 2007, 378.

²¹⁵ Wegner 2015; Cahail and Wegner 2015.

²¹⁶ Wegner 2015, 69-70; Cahail and Wegner 2015, 124-137.

²¹⁷ Wegner 2015, 69, fig. 2.

AIN EL-GAZZAREEN

Site Description: First discovered in 1979, the site of Ain el-Gazzareen was the location of a sizable settlement during the Late Old Kingdom, just to the south of Amheida at the Dakhla Oasis.²¹⁸ Ceramic material suggests that Ain el-Gazzareen was occupied as early as the 5th or even possibly the 4th Dynasty, therefore perhaps even pre-dating the larger settlement at nearby Balat.²¹⁹ Much of the settlement seems to have been enclosed by a perimeter wall. A bakery complex has been identified on the basis of pottery, grindstones, and soil samples containing copious amounts of grains in parts of the main enclosure.²²⁰ A large channel with an exit cut into the bedrock underlying and extending beyond the main enclosure's northern wall passes through the central part of the site; it is unclear if this channel served as a cistern or drainage.²²¹ Sealings discovered at the site suggest it functioned as a desert outpost during the 5th and 6th Dynasties, possibly in tandem with Balat further to the east.²²²

Relevant Enclosure Walls: The site was surrounded by an enclosure wall and was expanded to include additional areas to both the east and the west. On the western side, semi-circular towers have been identified at the northwestern, southwestern, and southeastern corners as well as along the central part of the western wall, though not all of these seem to have been in use at the same time. Mills suggests that they likely served as lookout posts and were not indicative of robust defensive architecture.²²³ The enclosure walls are best preserved on the western and eastern extremes of the site; much of the southern wall has been lost, but enough portions remain to roughly trace its trajectory. The walls have been eroded and damaged significantly over time—

²¹⁸ Mills 2012.

²¹⁹ Pettman 2012, 198; compare with the 6th Dynasty foundation of the northern fortress at Balat: Soukiassian et al. 1990, 358.

²²⁰ Pettman 2012.

²²¹ Mills 2012.

²²² Mills and Kaper 2004, 128-129.

²²³ Mills 2012, 179-180.

frequently, only one or two courses remain.²²⁴ The remnants of the best-preserved tower on the western side of the wall were only preserved to a height of 0.75 m. This tower was roughly 3 m wide, running approximately 4.4 meters along the length of the wall.²²⁵ The original heights of both towers and walls can only be very roughly estimated based on their width. All of the preserved towers were roughly semicircular, and added to the outside of the existing perimeter walls, abutting but not bonded to the original construction.²²⁶ A single wall extending along a north-south orientation suggests that further areas to the north were perhaps protected by enclosure walls. Mills astutely notes several of the most pressing questions associated with late Old Kingdom enclosure walls: why were additional phases of walling frequently built abutting but not joined to existing enclosures, when simply repairing existing walls likely could have been accomplished? Further, did the walls serve a defensive purpose, or were they a symbolic way of marking the landscape? For the second query, Mills leans towards the latter, more symbolic reading of the wall's ultimate purpose, but does not rule out their use as a defensive architecture.²²⁷ A homogenous deposit of Sheikh Muftah Cultural Unit sherds was found in a layer between strata that contained Old Kingdom pottery, and Mills suggests on this basis that the site was either temporarily captured and occupied by a local group, or an indigenous eastern desert population perhaps lived with Egyptians at the site.²²⁸ Though the possibility remains that such wares were simply traded for and used by Egyptians at Ain el-Gazzareen deposited during a brief squatter occupation, a military conquest seems relatively unlikely given the absence of any

²²⁴ Mills 2012, 178-179.

²²⁵ Mills 2007, 2.

²²⁶ Mills 2007, fig. 3. Mills 2012, 179.

²²⁷ Mills 2012, 178.

²²⁸ Mills 2012, 180.

kind of destruction layer. Indeed, Mills doesn't mention burned bricks in descriptions of any towers or walls.

Technical Details and Construction Methods: Six phases of walling have been identified thus far along the western edge of the western expansion to the original central enclosure, but the complexity of the stratigraphy and phasing of the various enclosures suggests that further revisions or refinements will be made in the future. The plan produced by Mills and his team show at least four different phases of walling on the enclosure walls of the western enclosure alone.²²⁹ Such difficulties are compounded by the large size of the area under investigation, as it is often difficult or impossible to link the phasing of walls on the western or main enclosure to counterparts on the eastern side. First, the initial 85 x 50 m enclosure was constructed upon the local bedrock, with small rectangular buttresses identified at intervals both inside and outside the wall.²³⁰ During the second phase of wall construction, the western extension was completed, expanding the enclosed area of the settlement 27 m to the west. The enclosure walls of this expansion sit atop either bedrock or occupational debris attributed to local populations, what Mills terms the Sheikh Muftah Cultural Unit.²³¹ It is unclear when the eastern extension to the original enclosure was completed or how it relates to the western expansion of the settlement, but it was clearly a later addition than the initial central perimeter wall, since its walls do not align with those of the main enclosure: there is a small space between the original enclosure and eastern expansion's southern wall. Mills tentatively suggests that a tower at the southeastern corner of the eastern expansion should be associated with activities associated with the second phase identified at the western enclosure.²³² At some point during Mills' second phase, it seems

²²⁹ Mills 2012, 178-180.

²³⁰ Mills 2012, 179.

²³¹ Mills 2012, 179.

²³² Mills 2012, 179-180.

that a second enclosure wall was added to the western wall, creating a kind of “double” perimeter wall that abutted but was not joined to its predecessor.²³³ The addition of further enclosure walls along the northern side of the main enclosure and a second enclosure wall phase along the eastern side of the eastern enclosure cannot be definitively linked to phases along the western wall.²³⁴

The remainder of Mills’ phases were all identified only in the vicinity of the western expansion to the main settlement. During the third phase, Mills suggests that a tower was added near but not exactly at the center of the western enclosure wall of the western expansion, abutted by thin walls.²³⁵ The wall stretching north-south at the northwestern corner of the western enclosure appears to belong to the third phase of building in this part of the site, as well, and it is possible that there was a small tower barely preserved near this area.²³⁶ A fourth phase consisting only of a wall with conspicuous “yellow” bricks visible near the central tower along the western expansion’s westernmost wall.²³⁷ During the fifth phase, the central tower was overbuilt and a tower added at the southwestern corner; Mills notes that towers have been proved archaeologically at the northwestern and southeastern corners of the western enclosure, but cautions that they have not been linked to surrounding stratigraphy.²³⁸ A sixth phase has been identified only near the southwestern corner of the complex, where a mudbrick wall was doubled—it is plausible but not certain that there were two different towers at this part of the wall.²³⁹

²³³ Mills 2012, 178-180.

²³⁴ Mills 2012, 178-180.

²³⁵ Mills 2012, 179.

²³⁶ Mills 2012, 178-180.

²³⁷ Mills 2012, 179-180.

²³⁸ Mills 2012, 180.

²³⁹ Mills 2012, 178, 180.

In summary, identifying the phasing of enclosure walls at Ain el-Gazzareen is extremely difficult, and it seems likely that some of these conclusions may be refined or revised in the future—particularly if future excavations allow for the possibility of dating/sequencing some of the larger scale building activities at the site, like the eastern expansion. Due to the preliminary nature of these reports, Mills focuses on broader discussions of phasing in lieu of providing copious details about brick size or matrix composition. In any case, there are many parallels with walling from other roughly contemporaneous projects at other Egyptian sites. Analogues to the semicircular towers have been identified at Balat and Elephantine, while the doubling (or even tripling or quadrupling) of enclosure walls was a phenomenon attested at nearly every urban site with large mudbrick perimeter walls.²⁴⁰

ANIBA

Site Description: The site of Aniba, located in Lower Nubia, was an important fortified center during both the Middle Kingdom and the New Kingdom. The central part of the fortress was approximately 53 x 116 m, and was renovated substantially both shortly after its construction in the Middle Kingdom as well as during the New Kingdom. The fortress was excavated most extensively by Georg Steindorff over the during the late 1920s and early 1930s, and his published reports also endeavored to incorporate material from earlier campaigns led by Ernst von Siegel in 1912 and the Eckley Coxe University of Pennsylvania expedition of 1910.²⁴¹ Steindorff's reports focus more on nearby tombs, but he does treat the construction of the fortress at Aniba.²⁴² His reports represent some of the earliest comprehensive archaeological reports of

²⁴⁰ For Balat, see Soukiassian et al. 1990 and the plans developed by Laisney: Laisney 2010, fig. 16. For Elephantine, see Ziermann 1993, 27-60.

²⁴¹ Steindorff 1935; Steindorff 1937.

²⁴² For the nearby cemeteries, see Steindorff 1935; for the fortress, see Steindorff 1937, 1-20.

Nubian fortresses, but more recent reinvestigations understandably provide more accurate dating of the archaeological material.²⁴³ Given our knowledge of the patterns of fortress building at other Nubian sites, it seems highly unlikely that the major fortifications at Aniba were completed prior to the Middle Kingdom, and Steindorff provides no ceramic evidence that convincingly dates the fortress to the Old Kingdom. Indeed, his dating is based on parallels with Firth's dating of Ikkur to the 6th Dynasty, but this construction itself should likely be dated to the early Middle Kingdom (see Ikkur later in this section).²⁴⁴

Relevant Enclosure Walls: The enclosure walls of the Middle Kingdom fortress and their subsequent renovations are the most salient monumental and freestanding walls from Aniba.²⁴⁵ The core of the fortress was 53 x 116 m, but it was dramatically expanded to the west and northwest during the Middle Kingdom, and to the north and northeast during subsequent renovations (Steindorff's Phase III).²⁴⁶ The first renovation, which Steindorff plausibly dates to the reign of Sesostri I, strengthened and widened the original fortress area (Steindorff's Phase II).²⁴⁷ The next renovations of the fortress occurred shortly thereafter, as a large rectangular area to the southwest was incorporated within the intramural area of the fortress. Steindorff notes that this new area was 85 x 178.50 m in size in plans of the site, meaning that the walls of Aniba now enclosed over 15,172.5 square meters (Steindorff's Phase III) as well as the remnants of the earlier fortifications.²⁴⁸ Subsequent renovations strengthened walls at the site (Steindorff's Phase IV) and added what Steindorff termed a treasury (Phase V), though this is based solely on his interpretation of the layout of this phase rather than the presence of any sealings or inscriptions

²⁴³ Steindorff assigns one phase of the fortress to the Old Kingdom: Steindorff 1935, 2-6.

²⁴⁴ Steindorff 1937, 2; for Ikkur, see Firth 1912, 22.

²⁴⁵ Steindorff 1937, 2-14.

²⁴⁶ Steindorff 1937, 3-4. For the expansion, see Steindorff 1937, 6-7, 9-14.

²⁴⁷ Steindorff 1937, 6-9.

²⁴⁸ Steindorff 1937, Bl. 4. For a detailed analysis of the size of the expansions at the fortress, see Vogel 2004, 219-222.

that one might expect in the vicinity of such a building.²⁴⁹ Finally, during the New Kingdom, walls were expanded, connecting the harbor walls and original fortress walls, Steindorff's "Treasury", and Steindorff's Phase III expansion of the fortress. The total enclosed area of the fortress would have measured roughly 200 x 400 m.²⁵⁰

Technical Details: Steindorff provides detailed notes on Aniba's fortress walls and construction phases, and despite the early date of its publication, his Aniba reports make clear the strong parallels between building techniques at Aniba and other Lower Nubian fortresses that were excavated and published far more recently like Mirgissa or Buhen.²⁵¹ Heavily fortified gateways, corner towers, clear access to the river protected by spur walls, and remnants of protective ditches or moats were found at various parts of the site.²⁵² The initial fortress was founded upon a base of thick but not always even foundations. Steindorff suggests this building phase ended violently, as there is significance evidence that the earliest phase of the fortress was destroyed in a fire.²⁵³ During the fortress's second phase, it was protected by walls some 5.20 m thick with 10 x 10 m towers at each corner. The expansion of the fortress to the southwest was completed with similar niched and buttressed wall.²⁵⁴ Prior to the construction of the extension to the northeast, Steindorff's "treasury" building, serpentine walls were used to roughly surround the construction area. There is little to suggest that this hall was actually a treasury rather than an extension of the existing fortress.²⁵⁵

²⁴⁹ Steindorff 1937, 12-13 treats the strengthening of the fortress, while Steindorff 1937, 14-16 discusses the "treasury."

²⁵⁰ Steindorff 1937, 17-20.

²⁵¹ Steindorff 1937, 1-20. For Mirgissa, see Vercouter 1970 and Dunham 1967. For Buhen, see Emery et al. 1979.

²⁵² Steindorff 1937, Bl. 1-8 show the development of this fortress from its inception through the New Kingdom occupation of the site.

²⁵³ Steindorff 1937, 6.

²⁵⁴ Steindorff 1937, 6-8.

²⁵⁵ Steindorff 1937, 14-16; Vogel 2004, 221.

Unlike at many other sites, the strengthening of the enclosure walls at Aniba was often accomplished by adding new phases on the interior side of the existing walls, suggesting that there was ample room within the fortification.²⁵⁶ Despite the information in Steindorff's report regarding wall thicknesses and phasing, he does not describe the actual bricks used in the construction of the fortress at Aniba—by analogy with other Nubian fortresses like Buhen or Mirgissa, it seems likely that timber would have been used within the enclosure walls. Additionally, comparable defensive ditches and screening walls were used as exterior defenses.²⁵⁷

AREIKA

Site Description: The site of Areika is located in Lower Nubia in the region of Amada, and was likely founded during the early 12th Dynasty.²⁵⁸ Much of the material culture at the site is C-Group in character, and the site appears to have been occupied throughout the Second Intermediate Period. Indeed, the unique architectural techniques employed at the site suggest that it may well be more Nubian in character than Egyptian, though it is included within the study set of this dissertation for the sake of thoroughness. Originally excavated by David Randall-MacIver and C. Leonard Wooley in 1907, the ceramic assemblage and architectural reports of the site were subsequently reassessed by Josef Wegner.²⁵⁹ The site is somewhat fortress-like in character, and built on a terrace sloping towards the Nile, such that the eastern end of the site is substantially higher than its western counterpart. Wegner views the site as a possible *hnrt* fortress or fortlet.²⁶⁰

²⁵⁶ Steindorff 1937, 12-13.

²⁵⁷ For construction at Mirgissa, see Dunham 1967, 154-157.

²⁵⁸ Wegner 1995, 128.

²⁵⁹ Randall-MacIver and Wooley 1909; Wegner 1995.

²⁶⁰ Wegner 1995, 159-160.

The site consists of three main sections within a broader area that measures 2800 m².²⁶¹ Section A consists of a unit on the western edge of the site surrounded by the settlement's perimeter wall as well as an internal wall separating it from the rest of the site. It occupies the lowest lying area at Areika within the enclosure wall of the town. Section B had been heavily destroyed even at the time of Randall-MacIver and Wooley's excavations, and only a select few walls bordering the retaining wall separating it from Area A could be identified. Its northern side is also separated by the settlement's enclosure wall, and Area B was accessed via a gate on the southern side of the enclosure wall. This entrance appears to have been the main entrance to the site. The architecture further to the east was described as Section C. At the eastern, highest portion of the site, a building fashioned largely using mudbrick occupied some 300 square meters—the largest preserved structure at the site. Further to the west, a large retaining wall seems to have been completed. A series of circular or curvilinear walls abut this large retaining wall, and the enclosure wall of the settlement jogs northwards to accommodate these installations and the East Building. There was fire damage in parts of Section A and Section B, but it is unclear what was the cause for this damage.²⁶²

Relevant Enclosure Walls: Due to the denuded nature of the site and the terseness of Randall-MacIver and Wooley's notes, little can be said in great detail about any of the walls at the site. Nonetheless, it is apparent that Areika was surrounded by a perimeter wall and divided by retaining walls that followed the local topography. A single gateway to the site was identified on the southern side of the settlement enclosure wall.²⁶³

²⁶¹ Wegner 1995, 131.

²⁶² Wegner 1995, 131-134.

²⁶³ Wegner 1995, 131-135.

Technical Details: Areika is notable for the variety of architectural techniques employed at the site—many of which are otherwise unattested at Egyptian sites, perhaps highlighting the importance or even dominance of the C-Group presence at the site throughout much of its occupational history.²⁶⁴ Wegner notes that walls at the site were constructed using three distinct techniques: first, some walls were completed using mudbrick; second, others were constructed through the use of rubble set within a mud matrix; third, a few walls were built using stone slabs, either on their own or set parallel to one another with a fill of rubble in between them.²⁶⁵ This final technique is entirely unknown in Egyptian contexts and suggests that indigenous Nubians occupying the site likely made modifications to the existing architecture using more familiar building techniques.²⁶⁶

Wegner suggests that the first phase of construction at the site likely consisted of the perimeter walls and the so-called Eastern Building in Section C.²⁶⁷ The perimeter walls were completed using the second technique, where rubble or fieldstones were set within a mud matrix. In parts of Section C, such care was taken to complete these walls that they actually have a coursed appearance. In many cases, these walls were finished with a mud plaster, but this was rarely preserved. At its inception, the site seems to have been largely rectangular in plan and was subsequently modified according to the needs of its inhabitants.²⁶⁸ Published reports provide few hints as to the dimensions of the walls, though Wooley and Randall-MacIver do note that parts of the perimeter walls and domestic installations at the site were preserved to a height of at least 1.50 meters.²⁶⁹ The retaining wall separating Section A from Section B was some 0.35 m thick,

²⁶⁴ Wegner 1995, 134-142 notes the unusual architecture and wealth of C-Group ceramics. Liszka also briefly notes the presence of C-Group style architectural techniques at Areika: Liszka 2017, 35, 47, note 60.

²⁶⁵ Wegner 1995, 133.

²⁶⁶ Wegner 1995, 133, 137-138.

²⁶⁷ Wegner 1995, 134-135.

²⁶⁸ Wegner 1995, 135.

²⁶⁹ Randall MacIver and Wooley 1909, 6.

and constructed out of locally available rubble. The perimeter walls are generally far less thick than those at other Middle Kingdom fortresses, but Wegner suggests that building perimeter walls using fieldstones and locally available rubble would have obviated the need for thick enclosure walls.²⁷⁰ Just as significantly, there is little evidence that Areika was intended to be as massive a fortress of the same scale as Buhen or Mirgissa. Rather, its closest parallels can be found at other Egyptian fortresses that used drystone architecture in the Nubian hinterland. The fortress of Wadi el-Hudi and other satellite outposts are likely the best parallels for the initial Egyptian foundation at the site, while C-Group villages like Wadi es-Sebua provide convincing, albeit imperfect parallels for the later architectural modifications undertaken at the site.²⁷¹ As with many smaller Egyptian settlements known from the Nile Valley, the site is notable for the degree of control the architectural layout would have exerted over its inhabitants: there appears to have been only a single entrance to a site where internal movement would have been circumscribed and defined by a series of retaining walls and terraces.

ASKUT

Site Description: Askut was a roughly kite shaped fortress that was founded on an island bearing the same name.²⁷² The site was excavated by Alexander Badawy and a team from University of California.²⁷³ The shape of the fortress conforms somewhat to the local topography, and it was located immediately south of the Nile's Second Cataract. At its widest, the fort measures some 87 x 77 m.²⁷⁴ The capacity of the silos within the fortress was enormous, and disproportionately large compared to the granaries known from other fortress installations.

²⁷⁰ Wegner 1995, 137.

²⁷¹ Wegner 1995, 135-138; see also Liszka 2017.

²⁷² Badawy 1964, 47. See also Smith 1995.

²⁷³ Badawy 1964.

²⁷⁴ Badawy 1964, fig. 1; Vogel 2004, 246.

This has led some scholars to conclude that Askut served as a kind of storage center just beyond the cataract that could supply other fortresses further downstream in an emergency.²⁷⁵ The fortress was occupied until at least the 19th Dynasty.²⁷⁶

Relevant Enclosure Walls and Technical Details: The primary enclosure walls at the site are the fortress walls themselves.²⁷⁷ These were built using 32 x 15-16 x 8-9 cm mudbricks that were frequently impressed by five fingers sweeping along one side.²⁷⁸ Badawy notes that timber beams were inserted horizontally along the face of the girdle wall as well as transversely at regular intervals (45 cm) along the wall.²⁷⁹ These inserts extended between 60 to 150 cm into the enclosure walls. The walls themselves were thick, at times measuring some 6.8 m in breadth.²⁸⁰ Square buttresses project from the eastern and western sides of the wall. There were comparatively fewer outworks at Askut compared to other fortresses: there was no dry ditch, and no evidence of a curtain wall was recovered, though in certain locations the base of the fortress was protected by a stone glacis.²⁸¹ Square buttresses lined the eastern, northeastern, northwestern, and western walls at regular intervals, though those on the western side were somewhat larger. The fortress was entered through a large 21.5 m long, multi-chambered gateway on its eastern side, and a side door on the western side led to a water stairway.²⁸²

AYN ASIL/BALAT

Site Description: Discovered in 1971 by Ahmed Fakhry and excavated by the Institut Français d'Archéologie Orientale since 1978, the site of Ayn Asil/Balat at Dakhla Oasis was the site of

²⁷⁵ Kemp 1986, 134, Tables 1-2.

²⁷⁶ Smith 1995, 154-155 discusses aspects of Ramesside remains from the fortress.

²⁷⁷ Badawy 1964, 50.

²⁷⁸ Badawy 1964, 50.

²⁷⁹ Badawy 1964, 50.

²⁸⁰ Badawy 1964, 50.

²⁸¹ Badawy 1964, 50.

²⁸² Vogel 2004, 247.

successive governor's palaces during the late Old Kingdom.²⁸³ The exceptionally well-preserved architecture and material culture at the site provide insight into the character of a large urban site situated near Egypt's western frontier. Activity at the site was likely linked to organizing and overseeing trade through caravan routes that passed through Dakhla Oasis. The two most prominent architectural formations at the site are a fortified enclosure near the settlement's northern margins and a large enclosure just to the south that housed later phases of a governor's palace and funerary chapels.²⁸⁴ The fortress almost certainly served as a governor's residence as well, but for the purposes of clarity, I will refer to it as the "northern enclosure" or "northern fortress" to distinguish it from the unfortified compound further to the south.²⁸⁵ The nearby necropolis of Qila el-Dab'a is associated with the settlement at Balat, but few enclosures are known from this settlement.²⁸⁶ The northern enclosure was the first major construction at the site, during the reign of Pepi I at the beginning of the 6th Dynasty.²⁸⁷ Following its construction and several extensions to the northwest and south, the governor's palace just to the south was completed during the reign of Pepi II. This complex burned down near the end of the 6th Dynasty, but was subsequently reoccupied.²⁸⁸ Further activity at the site continued into the First

²⁸³ Jeuthe 2018.

²⁸⁴ Jeuthe 2018, 125.

²⁸⁵ Jeuthe 2018, 125-127.

²⁸⁶ Soukiassian et al. 1990, 347; for publications of burials from the cemeteries, see Soukiassian 2013, Castel et al. 2001, Castel and Pantalacci 2005, and Vallogia 1998.

²⁸⁷ The publication of the fortress area and enclosure walls is in preparation: Schaad (in preparation). Jeuthe 2012, 33 provides a plan of the excavations at the fortress area and palace complex, and Jeuthe 2012, 29 briefly summarizes the IFAO team's findings. Ziermann 1998 and Ziermann and Eder 2001 have postulated a much earlier date for the fortress and discussed its architecture, but did not have access to documentation from the excavation itself, and their findings are highly suspect—see Jeuthe 2012, 29 footnote 213. For the fortress at Balat, see also Soukiassian et al. 2005, 473-474; Soukiassian et al. 2006, 401-403; Schaad in Soukiassian et al. 2007, 310-311; Soukiassian et al. 2011, 24-28. Laisney 2010, fig. 21, fig. 25-30, and fig. 40 provides photos of the complex. Earlier excavations are detailed in Soukiassian et al. 1990.

²⁸⁸ Soukiassian et al. 2002, 9-12.

Intermediate Period, Middle Kingdom, and Second Intermediate Period, but no buildings on the same scale as the late Old Kingdom palace or fortified enclosure to the north were revealed.²⁸⁹

Relevant Enclosure Walls: Two large enclosures dominated the local landscape during the late Old Kingdom: the fortified northern enclosure, and the governor's palace to the south, which was designed not to render the northern fortress obsolete, but rather to augment and enlarge it.²⁹⁰ In addition to the perimeter walls and internal wall systems of these enclosures, additional enclosure walls or curtain walls were constructed beyond the borders of these walls.²⁹¹ The walls of the northern enclosure are especially notable, since they are among the most robust Egyptian fortifications known prior to 12th Dynasty fortresses in Lower Nubia. They enclose a roughly 171 x 171 m area, roughly 3.1 hectares in size.²⁹² Like later Nubian fortresses, the site appears to have had easy access to a local water source—in this case, a well within the northern fortress's enclosure walls.²⁹³ Unfortunately, the final publication of these ramparts and their associated curtain enclosures remains in preparation, but preliminary reports and plans furnish adequate details about these architectural features for the purposes of this dissertation.²⁹⁴ In addition to the phases of the ramparts of the northern fortress, excavations have revealed a curtain wall extended to the north of the fortress, and the outlines of a separate extension/enclosure to the northwest. Given the frontier nature of the site, and the presence of towers at semi-regular intervals along the southern side of the fortress, it is plausible that this

²⁸⁹ Jeuthe 2012; Marchand and Soukiassian 2010.

²⁹⁰ Jeuthe 2018, 127. Laisney 2010, fig. 16; Soukiassian et al. 2002, 14-18, figs. 2-6.

²⁹¹ These have unfortunately received little comment in publications, though it is hoped that Schaad (in preparation) will rectify this deficiency. Plans in Laisney 2010, fig. 13, 16 and Jeuthe 2018, fig. 1 illustrate their presence, however.

²⁹² Soukiassian et al. 1990, Soukiassian et al. 2006, 401-402, Schaad in Soukiassian et al. 2007, 310-311, Laisney 2010, 30-34, and see also the research module by Schaad at <http://traces.univ-tlse2.fr/accueil-traces/equipes-de-recherche/equipe-4-protocoles-mondes-anciens-cultures-et-societes/les-enceintes-d-ayn-asil-haute-egypte--55650.kjsp>.

²⁹³ Laisney 2010, fig. 16.

²⁹⁴ Jeuthe 2018, fig. 1.

installation is an early example of military architecture.²⁹⁵ Recent surveys and excavations have identified the presence of material culture characteristic of the Sheikh Muftah cultural group to the north of the fortress, and it is possible that relations were at times strained or even hostile between the Egyptians and indigenous groups native to Dakhla Oasis; however, the only towers that have been discovered are along the southern side of the fortress, and it is equally plausible that the fortress served to watch over and control activities of the Egyptian population at the site.²⁹⁶ The screening wall to the north of the fortress likely served in part to protect the area from the buildup of aeolian sand; huge deposits accumulated against both the curtain wall and the northern wall of the fortress.²⁹⁷ Enclosure walls also protected two installations to the south of the northern fortress; on the western side, a wall abutting the southwestern tower enclosed a space that would later house ka chapels of the local governors, and a thicker enclosure of unknown function was completed to the south of the entrance to the fortress.²⁹⁸

The governor's palace seems to have been planned to include an internal enclosure housing a palatial complex and associated out-buildings, and an external enclosure wall that expanded the intramural area of the complex.²⁹⁹ Several ka chapels and service rooms were found in its northwestern corner, but much of the rest of this area remains unexcavated.³⁰⁰ Comparable to other large urban exposures in Old Kingdom Egypt, the thick outer walls of buildings played a role in constricting space and channeling foot traffic within the complex. At Balat, such features are especially noticeable in several locations. Broadly speaking, with the

²⁹⁵ Soukiassian et al. 2006, 401-402; Schaad in Soukiassian et al. 2007, 310-311.

²⁹⁶ Jeuthe 2018, fig. 1.

²⁹⁷ Soukiassian et al. 2006, fig. 39; Schaad in Soukiassian et al. 2007, 311. Jeuthe 2018, 125 also notes the overburden of sand to the north.

²⁹⁸ Jeuthe 2018, fig. 1.

²⁹⁹ Jeuthe 2018, 127-134; Laisney 2016, fig. 16. Soukiassian et al. 2002, fig. 2.

³⁰⁰ Soukiassian et al. 2002. There was a further sanctuary dedicated to Medu-nefer further to the south. See also Soukiassian 2013.

exception of several narrow thoroughfares, many of the passageways within the palace area appear to be winding or mazelike, occasionally opening onto large open courtyards.

Additionally, an enclosure wall branches off west-southwest from the northwestern corner of the governor's palace.³⁰¹ It is unclear whether this was part of an additional complex or was serving to channel external traffic to specific entrances into the complex. All of the enclosures at Ayn Asil/Balat were constructed using mudbrick.

Construction Methods and Technical Details: The enclosure wall of the northern fortress measured roughly 1.8 m thick, and was constructed using mudbricks.³⁰² Along the southern part of its western side and the eastern part of its southern side, a second phase seems to have been added, nearly doubling the width of the wall to roughly 3.3 m.³⁰³ The southern side of the fortress has been the most extensively excavated, and four hemispherical towers were constructed along the exterior of the wall.³⁰⁴ The tower in the southwestern corner of the complex appears to have been the most robust, and at least three distinct phases of walling are visible in photographs and plans of the installation. It had an internal diameter of 4 m, and was conserved to a height 2.60 m.³⁰⁵ At least one gateway was found in the southern wall, just to the west of the wall's midpoint. It was framed by two towers and the enclosure wall thickened to a width of 2.75 m on its western side and 2.40 m to the east of the doorway.³⁰⁶ Plans of the site depict a thin screening wall near the southeastern corner of the northern enclosure, and this was likely part of a smaller defensive wall that protected the lowest parts of the main enclosure wall.³⁰⁷ No towers have been identified along the western, northern, or eastern walls. The

³⁰¹ Jeuthe 2018, fig. 1; Laisney 2010, fig. 16.

³⁰² Soukiassian et al. 1990, 350-351.

³⁰³ Soukiassian et al. 1990, 350-351.

³⁰⁴ Jeuthe 2018, 125; Laisney 2010, fig. 16, 30; see also Soukiassian et al. 1990, 350-351.

³⁰⁵ Laisney 2010, fig. 30; Soukiassian et al. 1990, 350.

³⁰⁶ Soukiassian et al. 1990, 350.

³⁰⁷ Laisney 2010, fig. 16.

trajectory of these walls has been traced through clearing the windblown sand and deeper sondages along the northern perimeter wall—three of the four corners have been excavated and planned.³⁰⁸ Despite their massive size, the enclosure walls at Balat typically did not possess a foundation trench. The northern enclosure was built on natural sand, and wooden beams embedded within the construction helped to stabilize the structure.³⁰⁹ Within the complex, 15 m north of the gate, the southwestern corner of a building with 2.20 m thick walls was identified, but its function remains unknown. Parts of buildings in the southwestern corner of the site were burned.³¹⁰

To the north of the fortress, a screening wall extended more than 160 m along a roughly east-west orientation. This wall almost certainly served to protect the fortress from the build-up of windblown sand, which accumulated and eventually buried the outer curtain wall in spite of its 2.65 m height.³¹¹ This curtain wall was 0.83 m at its base, and the build-up of sand served to preserve the wall to the full extent of its original height, allowing a rare glimpse at the uppermost parts of an Old Kingdom enclosure wall.³¹² The upper part of the wall was slightly narrower and indented relative to the base. Images of the internal face of the wall suggest that it was built using stretchers with courses of headers every three to five courses.³¹³ In two rows along the wall, there were openings (roughly 15-20 cm wide) approximately 80 cm apart, presumably used either to aid with ventilation or to accommodate wooden beams that helped to stabilize the

³⁰⁸ Jeuthe 2018, fig. 1.

³⁰⁹ While Schaad has not published the enclosures, information is available online at <http://traces.univ-tlse2.fr/accueil-traces/equipes-de-recherche/equipe-4-protohistoire-mondes-anciens-cultures-et-societes/les-enceintes-d-ayn-asil-haute-egypte--55650.kjsp>.

³¹⁰ Soukiassian et al. 1990, 351.

³¹¹ Soukiassian et al. 2006, 401-402.

³¹² Soukiassian et al. 2006, 401-402.

³¹³ Laisney 2010, fig. 28.

structure.³¹⁴ At the top of the wall, a course of bricks were laid vertically (as “shiners”), providing a final course of bricks laid at a slight incline.³¹⁵ It seems unlikely that the top of this wall was ever patrolled; rather it seems to have simply been a curtain wall added to shelter the fortress from the prevailing northern winds and aeolian sand. The modern inhabitants of Dakhla frequently build walls on the northern side of wells to serve a comparable purpose.³¹⁶ The southward expansion of the walled complexes at Balat likely took into account these local climactic factors and used existing constructions as de facto windbreaks—sand accumulated to a height of some 6 m in some of the northern parts of the site, while hardly any accrued on the threshold of the fortress’s southern side.³¹⁷

Excavations have clarified the stratigraphic relationship between the northern screen wall and the thicker enclosure wall of the northwestern extension, a 110 x 85 m walled space to the northwest of the fortress. Despite the near identical alignment of the northern wall of the northwestern extension, this enclosure is clearly posterior to the northern curtain wall since the northwestern extension is built atop the screening wall in some parts. Pottery recovered from both areas suggests a 6th Dynasty date.³¹⁸

Two separate extensions enclosed a roughly rectangular area measuring roughly 45 m N/S x 110 m E/W south of the entrance to the fortress.³¹⁹ First, due south of the entrance to the fortress, there is a thick (well over 2 m in breadth) mudbrick enclosure wall that likely served as

³¹⁴ Soukiassian et al. 2006, 401-402. See also Schaad’s discussion of the use of wood to stabilize the walls: <https://traces.univ-tlse2.fr/accueil-traces/equipes-de-recherche/equipe-4-protohistoire-mondes-anciens-cultures-et-societes/les-enceintes-d-ayn-asil-haute-egypte--55650.kjsp>

³¹⁵ Laisney 2010, fig. 28.

³¹⁶ Soukiassian et al. 2006, 402.

³¹⁷ Laisney 2010, 35. See also Schaad in Soukiassian et al. 2007, 310-311, which notes that the northern fortress’s enclosure was preserved to a height of 6.10 m, a second phase was built against its side after a fair amount of time, and eventually the entire height of the wall was covered with sand as a result of the prevailing winds in the region.

³¹⁸ Soukiassian et al. 2006, 401-402.

³¹⁹ Soukiassian et al. 2002, 9.

a kind of projection in front of the southern gateway of the fortress, enclosing an area of 40 m N/S x 55 m E/W.³²⁰ The nature of the interior of this enclosure is unknown. In a second expansion just to the west, a thinner enclosure wall (1.60 m in width) surrounded a roughly 38 m N/S x 55 m E/W area.³²¹ The southeastern corner of this enclosure has been excavated, and it has been traced northward to the point where it abuts the southwestern tower of the northern fortress. This eastern wall of the southern extension later formed the backing wall of Sanctuary 4, one of the many ka chapels of the governors of Balat.³²² These extensions were not constructed upon virgin soil, but rather represent the southward progression of larger palatial or administrative complexes, displacing inhabitants of the Egyptian village at the site.³²³ The western wall of the enclosure that housed numerous other ka chapels and the governor's palace compound abutted this earlier enclosure wall at its southeastern corner.³²⁴

Unlike the northern fortress, the enclosure walls of the southern palatial complex were not embellished with any bastions or towers, nor have any screening walls been excavated.³²⁵ Completed during the reign of Pepi II, it was clearly a planned complex that consisted of an interior enclosure (200-210 m N/S x 63-68 m E/W) and an outer enclosure (216-242 m N/S x 100 m E/W) that were very likely completed within the same building phase.³²⁶ The interior enclosure wall measured roughly 1.60-1.75 m in width, while the exterior enclosure wall was approximately 2.50 m thick.³²⁷ The interior enclosure contained the principal buildings within the complex: the residences of the governors in the north, associated magazines, and a large

³²⁰ See the plans in Jeuthe 2018, fig. 1, and Soukiassian et al. 2002, fig. 2.

³²¹ Soukiassian et al. 1990, 352.

³²² Soukiassian et al. 2002, 85-88.

³²³ Soukiassian et al. 1990, 352.

³²⁴ Soukiassian et al. 1990, 352.

³²⁵ Note the plan in Jeuthe 2018, fig. 2.

³²⁶ Jeuthe et al. 2013, 204.

³²⁷ Jeuthe et al. 2013, 204.

courtyard to the southeast.³²⁸ The sanctuary of Medu-nefer was completed within this part of the complex.³²⁹ In the southeastern corner of the interior enclosure wall, was a separate “southeastern enclosure” of uncertain function—it contains two rows roughly 40 rooms, oriented around a central courtyard.³³⁰ The architecture in some places resembles small domestic units, but some seem not to have been used during the initial phase of occupation of the palace complex, so its function remains uncertain.³³¹ In the southwestern sector of the palace were smaller domestic units that have been interpreted as service rooms and workshops, and in a later phase of occupation, domestic installations and bakeries.³³² Very little of the outer enclosure has been excavated, but a series of ka chapels dedicated to governors of the region together with service rooms and residences (presumably of individuals attached to their cult) were revealed in the northwest.³³³ It is unclear what caused the massive conflagration that damaged much of the southern governor’s palace, but it was subsequently reoccupied with only minor alterations to the existing floorplan, and was not abandoned during the First Intermediate Period. Indeed, during this timeframe, huge accumulations of occupational debris were deposited, and the inner enclosure seems to have been overbuilt.³³⁴ The enclosure walls of the southern governor’s palace complex have two known entrances: one leading to the northwest to the governor’s ka-chapels, and one from the south.³³⁵

The A 3.25 m thick enclosure wall extends west southwest from the governor’s palace compound, passing just south of the potters’ workshop.³³⁶ It postdates the construction of the

³²⁸ Jeuthe 2018.

³²⁹ Soukiassian et al. 2002, 57-84.

³³⁰ Jeuthe 2018, 134-135, fig. 7.

³³¹ Jeuthe 2018, 134.

³³² Jeuthe 2018, 127-138, fig. 2, fig. 7.

³³³ Soukiassian et al. 2002, 37-56.

³³⁴ Jeuthe 2018, 134-136.

³³⁵ Jeuthe 2018, fig. 2, 7.

³³⁶ Jeuthe et al. 2013, 204.

palace, but likely should be dated to the reign of Pepi II as well. The function of this wall is unknown, but it effectively bounded the western entrance to the palace complex from the south.³³⁷ It is plausible that this wall perhaps served as a windbreak comparable to the screen wall north of the fortress, though the northwestern extension of the fortress would have blocked some of the wind from the north. Few buildings seem to have been constructed within this space, and it seems to have formed a large open space.³³⁸

BUHEN

Site Description: Located in Lower Nubia, several miles north of the Nile's Second cataract, the site of Buhen was an important Egyptian outpost during the Old Kingdom, Middle Kingdom, and New Kingdom. Buhen is among the most comprehensively published of the Middle Kingdom fortresses, and was notable for its excellent preservation prior to its submersion following the construction of the Aswan High Dam.³³⁹ The site appears to have been first settled extensively by the Egyptians during the 4th Dynasty, and several phases of architecture dating to the 4th and 5th Dynasties were identified by Walter Emery and his team during excavations in a long season from 1961-62 and a shorter season in 1963-64.³⁴⁰ The town's strategic location just downstream from the Second Cataract likely recommended it as an excellent spot to control the Nile in this region, exploit local resources, and stage military or economic expeditions. Old Kingdom Buhen seems to have been occupied until at least the reign of Niuserre, but not beyond the 5th Dynasty.³⁴¹ The town covered roughly 1.24 hectares, and was defined along its western side by a perimeter wall that appears to have been continuous but was only partially preserved. Its

³³⁷ Jeuthe et al. 2013, 204.

³³⁸ Jeuthe et al. 2013, 204.

³³⁹ Emery et al. 1979, 3-4. See also Emery et al. 1979; Randall-MacIver and Wooley 1911.

³⁴⁰ O'Connor 2014, 1-4 provides an introduction to the Old Kingdom town site, while O'Connor 2014, 5-17 details the different excavation seasons in this area of the site.

³⁴¹ O'Connor 2014, 34.

northern limits remain unclear, and much of the ancient remains were damaged by high Nile floods. Of the excavated remains, only a few residential units were identified—O'Connor notes that much of the site seems to have been devoted to storage, industrial, or possibly administrative activities.³⁴²

During the Middle Kingdom, Senwosret I commemorated a royal action at the site during two stelae erected during his fifth regnal year, demonstrating that work at the fortress was ongoing or possibly even completed at this time.³⁴³ The fortress was the subject of excavations during the 1909-1910 University of Pennsylvania's expedition, and far more extensively from 1957-1964 under the direction of Walter Emery's mission sponsored by the Egypt Exploration Society.³⁴⁴ Emery's unexpected passing in 1971 meant that the extensive excavations he directed at the fortress of Buhen were published posthumously by H.S. Smith and A. Millard, while the publication of the Old Kingdom town site was completed by David O'Connor.³⁴⁵ During the Second Intermediate Period, Buhen and many of the other Lower Nubian forts continued to be occupied, but appear to have been controlled by the Kingdom of Kush. Major military campaigns by Kamose and Ahmose returned the fortresses to Egyptian control.³⁴⁶ With the extension of the frontier further to the south, and the extensive efforts to subjugate Lower Nubia, Buhen's role changed somewhat from a frontier fortress and staging ground for military campaigns to an administrative center focused on maintaining local control as well as directing and regulating trade in the region.³⁴⁷

³⁴² O'Connor 2014, 17.

³⁴³ Smith 1976, 61-65.

³⁴⁴ Emery et al. 1979; Smith 1976; Randall-MacIver and Wooley, 1911.

³⁴⁵ Emery et al. 1979; O'Connor 2014.

³⁴⁶ Morris 2005, 78-83.

³⁴⁷ Morris 2005, 78-83, 101-106. See Morris 2005, 197, for its continuing importance as a result of its strategic location.

Relevant Enclosure Walls: Two separate sites have substantial enclosure walls: an Old Kingdom town site possessed an enclosure wall, while some 250 m to the southwest, the Middle Kingdom fortress was deservedly renowned for its sophisticated defensive fortifications.³⁴⁸ While the town site had additional retaining walls that were used to help support certain terraces within the urban enclave, there are few additional monumental walls besides the remnants of the town enclosure.³⁴⁹ At the fortress, there was an outer enclosure wall and inner citadel wall.³⁵⁰ Emery's meticulous and comprehensive excavations revealed various architectural phases of these walls.³⁵¹ The fortress continued to be occupied during the Second Intermediate Period but was subsequently retaken during the early 18th Dynasty. The fortress continued to be occupied throughout the New Kingdom and its defenses were renovated slightly, but not with the same eye towards defensive architecture.³⁵²

Technical Details: The town wall of Old Kingdom Buhen is very poorly preserved.³⁵³ Portions of the wall along its northwestern and southwestern side were excavated, but large stretches of these walls had eroded. In most places, not even the foundations of the wall could be recovered. There was almost certainly a town wall along the northeastern side, since it would seem unnecessary to carefully define the southwestern and northwestern sides of the settlement while ignoring the final non-riverine side of the settlement. O'Connor and Emery do not note any traces of a town wall along the riverbank, but the inhabitants of Old Kingdom Buhen did construct a series of rough stone retaining walls to support terraces that helped to flatten out the local topography's decline towards the riverbank. Such terraces may also have helped reduce the

³⁴⁸ For the fortress, see Emery et al. 1979; for the Old Kingdom townsite, see O'Connor 2014.

³⁴⁹ O'Connor 2014, 245-268.

³⁵⁰ Emery et al. 1979, 5-8, 21-42 details the fortifications at the Middle Kingdom fortress.

³⁵¹ Emery et al. 1979, 5.

³⁵² Morris 2005, 101-106 notes that many aspects of defensive architecture were paved over, and some of the refurbishments seem to have been cosmetic.

³⁵³ O'Connor 2014, 12-17. For the remains of the walls that were excavated, see O'Connor 2014, 245-268.

damage from erosion caused by flooding. O'Connor notes, however, that a large area between the riverbank and the terraces was left unexcavated, and it remains possible that a town wall on the southeastern side might have crossed through this area.³⁵⁴

O'Connor suggests that the town wall most likely consisted of a dry-stone foundation with a casemate mudbrick wall constructed atop rough fieldstones.³⁵⁵ The wall was founded upon loose desert soil, so the additional support from a stone foundation was likely necessary. In places, this foundation was sunk into existing stratigraphy and remnants of a foundation trench are visible.³⁵⁶ In other locations, it seems to have been set atop the existing topography with minimal trenching.³⁵⁷ It is possible that the builders of the wall used the foundation trench as a levelling mechanism, or that they simply cut into the existing strata only in places where they deemed to the ground to be particularly irregular or unstable.³⁵⁸ Remnants of the foundations suggest that this wall continued for roughly 180 m along the southwestern and northwestern limits of the settlement. The foundations were generally roughly 2-2.1 m thick, though for small distances they were narrower or broadener. Near the only known entrance to the site, they approached 2.50 m in breadth, and small amounts of mud plaster were noted covering the fieldstones.³⁵⁹ No traces of any wall were recovered on the site's northeastern side.³⁶⁰

It cannot be overstated how minimal the evidence is for a brick wall atop these foundations. Emery, O'Connor, and Mills record a small amount of brickwork near the entrance to the site recorded along the northwestern town wall.³⁶¹ These remains were severely denuded,

³⁵⁴ O'Connor 2014, 16-17. For a plan of the site showing retaining walls see Plate 1.

³⁵⁵ O'Connor 2014, 258-259, 264-265.

³⁵⁶ O'Connor 2014, 247-252.

³⁵⁷ O'Connor 2014, 251-252.

³⁵⁸ O'Connor 2014, 251-252.

³⁵⁹ O'Connor 2014, 252-256, 265.

³⁶⁰ O'Connor 2014, 17.

³⁶¹ O'Connor 2014, 257-258.

but Emery depicts a row of headers lying atop an initial course of stretchers for some 8 m.³⁶² Bricks are recorded by O'Connor as being 25 x 12 x 6 cm.³⁶³ However, both Mills and O'Connor record a kind of casemate construction, where at least two small casemates were constructed and rubble, broken bricks, and ash were deposited within each as fill.³⁶⁴ By necessity, O'Connor extrapolates the entirety of his reconstruction of the wall from roughly 4 m of brickwork, where only a single course remained. If O'Connor's reconstruction is accurate, such casemates would be among the earliest instances where such a feature was used in the context of a town wall.³⁶⁵ Certainly, they would have saved significant amounts of labor otherwise spent carefully laying bricks. However, it remains possible that such a feature was only present near the entrance to the town or that the wall was built somewhat irregularly. It seems likely that there was a mudbrick component to the wall since the stone foundations were only roughly 90-95 cm high, and there was little evidence of collapsed or fallen stone as one would expect in a situation where higher stone walls had collapsed or were robbed out for reuse—though O'Connor and Mills do note some instances where erosion perhaps caused part of the wall to collapse.³⁶⁶

There are few specifically defensive features associated with the town wall. It seems likely that the entrance was flanked on its interior side by two large features that O'Connor suggests were towers.³⁶⁷ No buttresses were identified, and the 1.45 m thick wall, though substantial, was far thinner than the roughly contemporary town walls from sites like Edfu or Elephantine.³⁶⁸ O'Connor suggests that the wall became broader as “it approached the crest of

³⁶² O'Connor 2014, 257-258, plate 13.

³⁶³ O'Connor 2014, 258.

³⁶⁴ O'Connor 2014, 258-259.

³⁶⁵ Rudimentary casemates were used when constructing the outer walls of the fortress at Elephantine, but not for the walls of the Old Kingdom town.

³⁶⁶ O'Connor 2014, 264. For possible instances of collapse or erosion, see O'Connor 2014, 261.

³⁶⁷ O'Connor 2014, 265.

³⁶⁸ O'Connor 2014, 265.

the desert plateau”, allowing for the presence of a tower. Rough stone constructions strengthened the junction between the southwest and northwestern sides of the wall. O’Connor reconstructs the wall with a height of some 5.50-6 m, though this would give the wall a greater wall height to width ratio than nearly all of the Nubian fortresses.³⁶⁹ Also mitigating against a specifically defensive function is the fact that there are some indications that parts of the wall fell into disuse or were even removed altogether: O’Connor notes a patch of charcoal (7-8 cm deep) that extends above the remains of the town wall.³⁷⁰ Even were this stretch of occupational debris an anomaly or a mistake, it is clear that the stone foundations themselves were entirely removed in numerous parts of the site.³⁷¹ In one area where erosion seems to have damaged the wall, the resulting aeolian sand and occupational debris that covered the collapse also included a red polished bowl that suggests that this occurred during the Old Kingdom, since it is unlikely that an entire bowl was deposited by wind alone.³⁷²

In addition to the town wall, remnants of fieldstone retaining walls were also excavated along the town’s southeastern margins. These drystone revetments likely served to mitigate damage from erosion and even out some of the steep decline towards the river into flatter, more stable surfaces. These should not be seen as standalone walls, however, and their role appears to have been almost entirely structural.³⁷³

The Middle Kingdom fortress at Buhen was one of the most extensively excavated of the Nubian fortresses, and an exemplar of Egyptian military architecture.³⁷⁴ Two enclosure walls are of particular note: the inner and outer fortress walls. Emery and his team were able to identify

³⁶⁹ O’Connor 2014, 264-265.

³⁷⁰ O’Connor 2014, 255.

³⁷¹ O’Connor 2014, 255.

³⁷² O’Connor 2014, 261. O’Connor allows for the possibility that the erosion may have occurred later, infilling the area and depositing the ceramic from a nearby occupational layer.

³⁷³ O’Connor 2014, 265-267.

³⁷⁴ Emery et al. 1979, 3-4.

multiple phases of construction for both the inner citadel wall as well as Buhen's outer curtain wall.³⁷⁵ The massive ramparts of the fortress were also protected by a series of outworks including defensive ditches and fire steps below the walls themselves.³⁷⁶ The first phase of outer fortifications consisted of a large curtain wall initially equipped with semicircular towers at regular intervals.³⁷⁷ During a second phase, a multichambered barbican was constructed at the western gateway, a defensive ditch and screening walls were added just beyond the fortifications, rectangular buttresses were added along the entirety of the wall, massive towers were completed at each corner, and spur walls were added to better defend access to the river.³⁷⁸ The outer wall was built 4 m thick in its initial phase, and its rounded bastions projected some 6.5 m from the wall with roughly 2.15 m thick walls.³⁷⁹ It is possible it was intended as a temporary construction or was simply rushed, since these walls were completed as casemates with a rubble core inside a brick casing.³⁸⁰ The entrances to the bastions was likely restricted by a door, since door sockets and a step were recovered near their doorways.³⁸¹ The initial perimeter wall of the outer enclosure measured 712 m, and did not connect to the inner fortress on its eastern, riverine side.³⁸²

The second phase of the outer constructions was even more robust. The wall ranged from 5 to 5.5 m thick, with projecting square buttresses every 2.75 m.³⁸³ Five larger towers were visible along the western wall, with the largest platforms located at the northwestern and

³⁷⁵ Emery et al. 1979, 21-42.

³⁷⁶ Emery et al. 1979, 27-33.

³⁷⁷ Emery et al. 1979, 5, pl. 2.

³⁷⁸ Emery et al. 1979, 21-26, pl. 3.

³⁷⁹ Emery et al. 1979, 5.

³⁸⁰ Emery et al. 1979, 5.

³⁸¹ Emery et al. 1979, 5.

³⁸² Emery et al. 1979, 5.

³⁸³ Emery et al. 1979, 5.

southwestern corners.³⁸⁴ The outer walls had been partially described and planned by the Pennsylvania expedition to the site in 1909-10, but they were severely damaged even at that early date.³⁸⁵ Only in the southeastern corner were any remains preserved significantly above the foundations, to a height of some 1.15 m. Emery notes that the base of the walls was built with a batter, perhaps unsurprising given the mass of bricks employed in their construction.³⁸⁶ The exterior of the wall was protected by a fire step, a 6 m wide and 3 m deep ditch with a second screening wall on its outer edge, and finally a glacis.³⁸⁷ This ditch was sometimes flooded by the Nile or seepage from ground water, as a drain leading to the Nile was installed at its northeastern edge.³⁸⁸ The barbican measured 47 m long by 30 wide, and was constructed with an initial square chamber followed by a longer rectangular one. The entrance was paved with stone, and the causeway leading up to the gate was carved out of the rock.³⁸⁹ Smaller gateways were suggested by Emery at sites where brick edifices were constructed upon rock platforms, but these were at times too denuded to definitively locate an entrance passage.³⁹⁰

The inner fortifications were similarly sophisticated. Measuring on average some 5 m thick and preserved to a height of some 11 m, this enclosure measured roughly 138 x 150 m.³⁹¹ Spur walls protected access to the riverside and Buhen's quays, and ended in small rectangular towers.³⁹² Buttresses or towers were present roughly every 5 m. These installations were later joined to the portions of outer fortifications that were extended along the fort's eastern side.³⁹³

³⁸⁴ Emery et al. 1979, 5.

³⁸⁵ Randall-MacIver and Wooley 1911, 119-124, plans E and plan G.

³⁸⁶ Emery et al. 1979, 5.

³⁸⁷ Emery et al. 1979, 5.

³⁸⁸ Emery et al. 1979, 5.

³⁸⁹ Emery et al. 1979, 5-6.

³⁹⁰ Emery et al. 1979, 6.

³⁹¹ Emery et al. 1979, 6.

³⁹² Emery et al. 1979, 6.

³⁹³ Emery et al. 1979, 6.

On each salient save for its eastern, riverine side, the fortress walls were defended by lower ramparts equipped with a firestep, loopholes, a dry ditch, scarp, and counterscarp.³⁹⁴ A drainage conduit was later completed, allowing for any seepage collecting in the ditch to drain to the ditch beyond the outer fortifications—Smith notes that the spur wall between the ditch and the Nile must already have been in existence, and the builders did not wish to undermine this edifice with the construction of a drain leading directly to the Nile. The ditch protecting the fortress was 7.1 m wide and 3.1 m deep.³⁹⁵ Both the rock and brick facings of the ditch were plastered with gypsum repeatedly. Smith and Emery suggest that this was to better see attacking enemies in the ditch, but I suspect the plaster perhaps more importantly served to structurally strengthen the facing and mask any handholds or loose bricks or stones.³⁹⁶

Three gateways were identified at Buhen's inner fortifications. The west gate was the most strongly fortified, and was not aligned in an axial fashion with the outer fortification's western barbican.³⁹⁷ A wooden drawbridge spanned the defensive ditch, and large double doors protected the gateway. Evidence of significant fire damage was identified in the vicinity of this gate, though it remains a matter of debate whether this occurred at the end of the Middle Kingdom, or perhaps more likely, at the end of the 17th Dynasty or early 18th Dynasty.³⁹⁸ Two riverside gates, some 42 m apart along the eastern wall of the fort, led to quays on the river bank.³⁹⁹ A small postern entrance, termed the "Water Gate" by Smith and Emery, gave river access as well beneath the corridor or the northern riverside gate. This would have allowed for

³⁹⁴ Emery et al. 1979, 6-7.

³⁹⁵ Emery et al. 1979, 6-7.

³⁹⁶ Emery et al. 1979, 6.

³⁹⁷ Emery et al. 1979, 7.

³⁹⁸ Morris 2005, 102; Emery et al. 1979, 3, 92 argues for a Kerman conquest; Smith 1995, 112 convincingly suggests that the destruction layer should be attributed to Kamose's sack of the fortress.

³⁹⁹ Emery et al. 1979, 7.

access to water by the garrison, even if the outer defenses were breached.⁴⁰⁰ As Smith and Emery note, the defense of the fortress was predicated on control of the Nile: the defenses on the eastern side are far less robust, and the gateways on this side of the fort are less robust.⁴⁰¹ Stone paved terraces and a rough stone revetment served as retaining walls along the eastern side of the fortress, helping to mitigate the effects of erosion along the banks of the Nile.⁴⁰²

Emery and Smith state that most bricks were 37 x 18 x 12 cm, but note that later New Kingdom renovations were completed with 33 x 18 x 12 cm bricks.⁴⁰³ Very little sand or gravel was identified within the brick matrix, which consisted of Nile mud together with chopped straw.⁴⁰⁴ The bonding pattern identified by Emery and Smith was one of four courses of headers followed by one course of stretchers, but the plates included in the volume suggest that the facing of the wall consisted of alternating courses of headers and stretchers, while a mass of headers predominated in the interior of the wall.⁴⁰⁵ Nonetheless, such bricklaying patterns were not uniform, and minor inconsistencies can be identified in plates depicting the walls of the fortress. Wooden beams were laid across the width of the wall every six courses or so, typically laid atop a layer of reed or halfa matting.⁴⁰⁶ As at Mirgissa, air vents were occasionally left between bricks, perhaps to speed the drying process and provide some minor ventilation within the fortress.⁴⁰⁷ The buttresses were not bonded to the fortifications themselves, but small inset panels were left for them.⁴⁰⁸ At the towers of the Middle Kingdom fortress, a wooden pole was

⁴⁰⁰ Emery et al. 1979, 7.

⁴⁰¹ Emery et al. 1979, 7.

⁴⁰² Emery et al. 1979, 7.

⁴⁰³ Emery et al. 1979, 39-41.

⁴⁰⁴ Emery et al. 1979, 39.

⁴⁰⁵ Emery et al. 1979, 39, pl. 83. The images on pl. 83 show the exterior faces of walls with alternating courses of headers and stretchers, with headers predominating in the interior of the wall.

⁴⁰⁶ Emery et al. 1979, 39.

⁴⁰⁷ Emery et al. 1979, 40.

⁴⁰⁸ Emery et al. 1979, 40.

laid every six courses.⁴⁰⁹ During the initial phase of the fortress, when semicircular towers were hastily completed, additional mortar was used and stretchers appear more frequently in order to achieve the desired curvature of the installation.⁴¹⁰ The foundations of the fortifications were uniformly completed upon sand or local bedrock, in the case of the barbican.⁴¹¹ Disregarding the first phase of the outer enclosure, Emery and Smith conclude that at least 13,318,057 bricks would have been necessary to complete the fortifications at Buhen, noting that this is likely an underestimate.⁴¹²

BUBASTIS

Site Description: Bubastis, or Tell Basta, is located in the southeastern suburbs of modern day Zagazig. The site was especially prominent during the Third Intermediate Period, when it was an important royal center during the 22nd and 23rd Dynasties.⁴¹³ Major temple foundations from this period have been excavated, perhaps most notably the festival hall of Osiris.⁴¹⁴ The site was a center for the cult of Bastet, and often referred to in texts as *pr B3stt*.⁴¹⁵ Burials dating to the Middle Kingdom and Second Intermediate Period have also been identified.⁴¹⁶ Additionally, remains of a Middle Kingdom palace continue to be investigated.⁴¹⁷ Finally, the remains of a Ka Chapel of Pepi I are some of the earliest archaeological remains from the site, though another chapel perhaps of Teti I seems to have been located nearby.⁴¹⁸

⁴⁰⁹ Emery et al. 1979, 40.

⁴¹⁰ Emery et al. 1979, 40.

⁴¹¹ Emery et al. 1979, 40, 21, fig. 2. Emery and Smith also note that the slope of the site meant that the eastern fortifications had no foundations.

⁴¹² Emery et al. 1979, 41.

⁴¹³ Habachi 1957, 1-14 provides a good if dated overview. See also Tietze in Redford 2001, 208-209.

⁴¹⁴ Naville 1892 details the original fieldwork at this complex.

⁴¹⁵ Gauthier 1925-31, volume II, 75; Habachi in Helck and Otto 1975, 873-874.

⁴¹⁶ Farid 1964, 86, fig. 1.

⁴¹⁷ Bietak and Lange-Athinodorou 2014; Van Siclen 1996.

⁴¹⁸ Tietze 2008; Habachi 1957, 11-43.

Relevant Enclosure Walls: Within the timeframe of this study, the only well documented enclosure wall is that of Pepi I's Ka Chapel.⁴¹⁹ Farid notes the presence of a 3 m thick enclosure wall surrounding a Middle Kingdom cemetery (the so-called governors' cemetery, or "cemetery E"), but it is impossible to discern brick size or pattern from published plans or plates.⁴²⁰ Its presence is nonetheless significant, and an interesting example of a cemetery or necropolis area enclosed by an outer wall.⁴²¹ The cemetery C, or "eastern cemetery" was defined on its northern and western sides by an enclosure that still stands in its northwestern corner, but it has not been the subject of extensive investigation.⁴²² The Middle Kingdom palace had somewhat thicker outer walls, but no free standing enclosure is discernible in plans of the structure published thus far.⁴²³ This building appears to have combined ceremonial, administrative, and residential functions for a local mayor or governor.⁴²⁴ A limestone threshold, fragments of a jamb, and a lintel inscribed with the cartouches of Amenemhat III were excavated at the site, suggesting a late 12th Dynasty date for the residence.⁴²⁵ The palace possessed thick outer walls, but Van Siclen does not detail their breadth, and while these walls may have enclosed certain courtyards or administrative sectors, there is no evidence that they were not an integral part of the structure of the palace itself.⁴²⁶

Technical Details: The enclosure wall of Pepi I's sanctuary at Bubastis was preserved on its western, southern, and northern sides, but the eastern side has been almost entirely lost save for a

⁴¹⁹ Tietze 2008; Habachi 1957, 11-43. See also Lange 2006 for additional context regarding Old Kingdom royal ka chapels.

⁴²⁰ Farid 1964, 86, fig. 1. See also Lange-Athinodorou 2015, figs. 1-2.

⁴²¹ Farid 1964, 86, fig. 1.

⁴²² Bakr and Lange 2017, 33.

⁴²³ Bietak and Lange-Athinodorou 2014; Lange-Athinodorou 2015, fig. 1.

⁴²⁴ Bietak and Lange-Athinodorou 2014; Van Siclen 1996.

⁴²⁵ Farid 1964, 94

⁴²⁶ Van Siclen 1996, especially fig. 1

few small sections that allowed for Habachi to determine its path.⁴²⁷ A gateway on the southern side of the complex was excavated.⁴²⁸ The enclosure measures roughly 87.50 x 64 m, and the outer walls appear to have been almost 5 m thick: Tietze notes that the south wall's width was some 4.78 m, it was 4.90 m wide to the north.⁴²⁹ On the western side, the breadth of the wall varied somewhat, but was at least 4.20 m. These inconsistencies may be a consequence of alterations and later overbuilding inside the enclosure area near the western wall.⁴³⁰ Habachi describes the bricks as being 36 x 18 x 9 cm, laid in alternate courses of headers and stretchers.⁴³¹ A thick, 10 cm coating of mud plaster was added to both the interior and exterior faces of the wall.⁴³² A limestone gateway allowed for entrance to the south, two lintels and portions of the door jambs were found. The lintel was inscribed for King Pepi I and is decorated with a relief depicting the king together with the goddess Bastet.⁴³³ The entrance was narrow, only 0.85 m wide and 2.04 m high. The walls of the gatehouse seem to have been built using two courses of seven blocks, and the entrance was paved with stone blocks as well.⁴³⁴ Habachi notes that the top and inward-facing sides of the limestone blocks were undressed, suggesting that the limestone gateway was built into the enclosure wall.⁴³⁵ The outer side of the enclosure wall was sloped, at a ratio of 1:10 cm.⁴³⁶

⁴²⁷ Habachi 1957, 11-18, map 2.

⁴²⁸ Habachi 1957, 14-18.

⁴²⁹ Habachi 1957, 13; Tietze 2008, 167-169, Tab. 1.

⁴³⁰ Tietze 2008, 169.

⁴³¹ Habachi 1957, 13.

⁴³² Habachi 1957, 13. This is so anomalously thick that one wonders if mud from winter rains perhaps affected the calculation.

⁴³³ Habachi 1957, 14-18; Tietze 2008, 169-171.

⁴³⁴ Habachi 1957, 14.

⁴³⁵ Habachi 1957, 14.

⁴³⁶ Tietze 2008, 171.

BUTO

Site Description: Buto is located in the northwestern Nile Delta about 40 km south of the Mediterranean Sea. Predynastic ceramics were first noticed among the much later Late Period and Greco-Roman remains by W.M.F. Petrie during a visit to the site in 1886.⁴³⁷ Since the 1980s, the DAIK has carried out excavations of some of the earlier preserved occupational strata. Remains from a Predynastic and Early Dynastic occupations have been revealed by teams led by Von der Way, Faltings, and Hartung.⁴³⁸ Settlement mounds to the north and south of the site were occupied as early as the first half of the 4th millennium BCE, with a greatly expanded settlement in the northern portion of the site during the Early Dynastic. It is a rare example of early urbanism in ancient Egypt, and one of the few Delta sites with preserved settlement remains.⁴³⁹ An extensive area has been excavated on this northern mound in the vicinity of a larger palatial complex first described as the “Labyrinth building” by Von der Way due to the multitude of complex walls found in this part of the site.⁴⁴⁰

Relevant Enclosure Walls: The most prominent enclosure wall known from Buto is the perimeter wall surrounding the Early Dynastic palatial estate and its associated buildings. This enclosure wall should be dated to the late 1st or early 2nd Dynasty, as it is part of the building phase from the Naqada IIIC3-Naqada IIIC4.⁴⁴¹ It is important to note that this wall was not necessarily free standing, but certainly defined the limits of the sanctuaries, magazines, workshops, and ceremonial areas within the complex.⁴⁴² Its walls were thicker than the inner

⁴³⁷ Petrie 1888, 93; Petrie 1905, 36-38.

⁴³⁸ Hartung et al. 2016; Hartung et al. 2012; Hartung 2009; Hartung et al. 2007; Von der Way 1997; for an extensive list of excavation reports from the DAIK’s work at the site, see Hartung 2016, 1, note 1.

⁴³⁹ Hartung 2018, 101-103.

⁴⁴⁰ Hartung 2018, 103.

⁴⁴¹ Hartung 2018; Hartung 2016; Hartung 2012.

⁴⁴² Hartung 2018, fig. 4; for an earlier plan emphasizing the multiplicity of structures in the complex, see Hartung 2005, 73, fig. 6.

walls save perhaps those of the magazines and storage areas near the north eastern corner of the unit.⁴⁴³ Recent excavations have revealed a potentially administrative building in even earlier 1st Dynasty, Naqada IIIC1-Naqada IIIC2 strata.⁴⁴⁴ Some of these walls are certainly substantially thicker than others, but more excavation is required to determine whether these were a distinct enclosure wall or simply the thicker outer walls of a building or series of buildings. There is also evidence that some of these constructions were built upon similar if not quite identical trajectories of earlier walls in the area, highlighting the durability of certain large walls even with very early 1st Dynasty communities.⁴⁴⁵ The ongoing work and publication of this complex do not allow for a detailed description of these walls at present writing.

Technical Details: Understandably, comprehending the activities occurring within these rooms has taken priority over following the pathway of the enclosure walls and describing the details of their construction. Nonetheless, various excavations, and particularly the recent investigations led by Ulrich Hartung offer plenty of important information regarding the early enclosure walls at Buto.⁴⁴⁶ The limits of the Early Dynastic building complex are unknown in every direction save the south, and the entirety of the complex must have been at least 54 x 47.5-52 m if not even larger.⁴⁴⁷ One entrance to the complex near the northwestern corner of the building was decorated with niched façade paneling. Hartnung suggests that this may be an interior entrance to the palace complex, and that a thus far undiscovered enclosure and main entrance may well exist some distance beyond the excavated area.⁴⁴⁸ It was a narrow entrance, measuring only 1.10 m wide. The western walls near this entrance were roughly five bricks wide, or about 1.5 m, before

⁴⁴³ Hartung et al. 2016, Abb. 20.

⁴⁴⁴ Hartung et al. 2016, 83-85.

⁴⁴⁵ Hartung et al. 2016, Abb. 20.

⁴⁴⁶ Hartung et al. 2016, 85-88.

⁴⁴⁷ Hartnung et al. 2012, 93.

⁴⁴⁸ Hartnung et al. 2016, 85-86.

an extension was added along the exterior side to facilitate the decorated paneling of its façade with plaster.⁴⁴⁹ This accretion wall was only a single brick wide. The bricks were typically laid as headers in the internal parts of the wall, and likely with alternating headers and stretchers along both the interior and exterior faces.⁴⁵⁰ Possible remnants of decorative plasters are located just to the north of the aforementioned entrance.⁴⁵¹ Accumulations of lime plaster were discovered at the foot of the wall, likely washed down from the face of the wall as the result of winter rains. This suggests that at least the external face of the wall was plastered and whitewashed.⁴⁵² Portions of this wall have been discovered in excavation areas E0, E18, and E16.⁴⁵³ It is plausible that this outer wall or further extensions to the east are present in E3, E6, E9, and E10.⁴⁵⁴

DAHSHUR

Site Description: The site of Dahshur is one of the larger necropolises in Egypt, and the site of royal pyramids constructed during the 4th, 12th, and likely 13th Dynasties. It is located about 27 km southwest of modern Cairo, and 21 km south of Giza, on the west bank of the Nile. Private tombs of elite officials associated with such kings have been discovered near and in some cases within the outer enclosure wall of the pyramid complexes.⁴⁵⁵ The pyramids and many of the mastabas in the nearby necropolis were excavated by de Morgan during the 1890s and have subsequently been reinvestigated by teams under the auspices of the Metropolitan Museum of

⁴⁴⁹ Hartung et al. 2016, 85-88.

⁴⁵⁰ This must remain speculative, since only the lowest course of the outer wall was preserved. Nonetheless, it is noteworthy that only the bricks on the inner and outer faces of the wall were laid as stretchers while the rest of the wall consisted of bricks laid as headers: Hartung et al. 2016, Abb. 21-22.

⁴⁵¹ Hartung et al. 2016, 86.

⁴⁵² Hartung et al. 2016, 86, Abb. 21-22.

⁴⁵³ Hartung et al. 2016, Abb. 20.

⁴⁵⁴ Hartung et al. 2016, Abb. 20.

⁴⁵⁵ In some cases the enclosure must have deliberately included them: see the 3rd Dynasty mastabas within the enclosure of Amenemhat II in de Morgan 1903, Pl. II.

Art, the Egyptian Antiquities Service, and the German Archaeological Institute in Cairo.⁴⁵⁶ As with other sites like Giza, Saqqara, and Abusir, a comprehensive evaluation of all of the enclosure walls known from these sites is a monumental task, so this section focuses only on the most salient, well preserved examples from royal and private tomb complexes.

Relevant Enclosure Walls: The enclosure walls surrounding the various pyramids and causeways at Dahshur are not equally well preserved. Limited information is known about the enclosure walls surrounding the two pyramids commonly attributed to Snefru at the site, the Bent Pyramid and the Red Pyramid, though investigations led by Nicole Alexanian have contributed much to understanding of the causeway of the former.⁴⁵⁷ Recent excavations have shed significantly more light upon the enclosures surrounding the pyramids of Amenemhat II, Senwosret III, and Amenemhat III.⁴⁵⁸ Private tombs in the Dahshur necropolis were also encountered by de Morgan, some being shaft tombs while others were much larger and possessed enclosure walls of their own—specifically those of Mastaba XVII and Mastaba XVIII.⁴⁵⁹ The Middle Kingdom mastaba fields have not been entirely excavated and work continues both re-excavating and retracing the somewhat cursory, unscientific efforts of de Morgan as well as investigating newly discovered burials.⁴⁶⁰

Technical Details: The earliest pyramid constructed at Dahshur was the Bent Pyramid, attributed to Snefru following the completion of the Meidum pyramid.⁴⁶¹ The pyramid's unusual construction, particularly the abrupt decrease in the angle of the pyramid's slope part way up the

⁴⁵⁶ For some of these studies, see de Morgan 1903; Stadelmann 1983; Stadelmann et al. 1993; Arnold 1987; Arnold 2002; Alexanian et al. 2015.

⁴⁵⁷ Alexanian et al. 2012. For the Red Pyramid, see Stadelmann 1983 and Stadelmann et al. 1993. For the Bent Pyramid, see Petrie 1892, Petrie et al. 1910, and Maragioglio and Rinaldi 1964.

⁴⁵⁸ For Amenemhat II, see Alexanian et al. 2015, 57. For Senwosret III, see Arnold 2002. For Amenemhat III, see Arnold 1987.

⁴⁵⁹ de Morgan 1895, 31-34, fig. 18.

⁴⁶⁰ For recent publications, see Arnold 1996, Arnold 2002, and Arnold 2008.

⁴⁶¹ Maragioglio and Rinaldi 1964, 54-58.

construct, have inspired intense scholarly debate.⁴⁶² Originally intended as a stepped construction, modifications were made in order to render the upper part of the pyramid more structurally stable and convert it from its original stepped design into a true pyramid.⁴⁶³ Unfortunately, only minimal information regarding its enclosure walls has been recorded. Maragioglio and Rinaldi note that the pyramid's enclosure wall was roughly 4 cubits (2.10 m) thick, but at the time of their investigation in the 1960s, only the foundations and large deposits of limestone chips remained.⁴⁶⁴ The foundations were some 1.56 m deep in places, and the wall enclosed a square area 298.60 m to a side, with at least one entrance to the northeast.⁴⁶⁵ The wall seems to have been largely robbed away, and Fakhry notes that the enclosure wall's height may well have exceeded that of the causeway given that it was somewhat thicker at its base.⁴⁶⁶ The enclosure possessed a beveled top, and its sides were sloping. Local limestone was used for the foundation courses, but finer Tura limestone was used for all higher courses.⁴⁶⁷ Fakhry mentions two entrances: a larger entrance on its northern side near the causeway, and a smaller entrance on its eastern side that is otherwise not described.⁴⁶⁸ However, the preservation of this wall was so poor that it is possible that additional entrances to the complex were simply missed. This enclosure jogged southwards briefly to form the perimeter walls surrounding the subsidiary pyramid completed due south of the Bent Pyramid itself.

The causeway of the Bent Pyramid is among the earliest of such installations known from Egypt, and stretches a total of some 704 m. It begins by extending in an east-west orientation until it reaches the valley temple, when it angles southwest towards the Bent Pyramid. The

⁴⁶² Nuzzolo 2015.

⁴⁶³ Fakhry 1959; Nuzzolo 2015; see also Lehner 1997, 102-104.

⁴⁶⁴ Maragioglio and Rinaldi 1964, 74.

⁴⁶⁵ Maragioglio and Rinaldi 1964, 74.

⁴⁶⁶ Fakhry 1959, 39.

⁴⁶⁷ Fakhry 1959, 39.

⁴⁶⁸ Fakhry 1959, 39.

upper causeway was built using limestone, deliberately left unroofed, and possessed sloping walls that were topped with a saddle-backed coping stone that would become the norm at most pyramid enclosure walls.⁴⁶⁹ Recent excavations by the German Archaeological Institute in Cairo have significantly clarified numerous aspects of the lower portions of the causeway. These walls were completed in mudbrick, measured roughly 1.885-1.90 m thick, enclosing a passageway some 2.35 m thick. These walls were later strengthened to a width of some 2.60 m.⁴⁷⁰ Surprisingly, there is evidence that during the 6th Dynasty, the lower causeway was subsequently roofed with a kind of mudbrick vault, though this was a later addition that occurred only after a renovation phase that further strengthened and heightened the walls defining the lower causeway. At least four distinct phases of plastering could be distinguished, suggesting that the causeway was maintained and renewed several times.⁴⁷¹ The lower causeway ends in a large area that Alexanian and her team have identified as a harbor basin.⁴⁷²

The design of the Bent Pyramid complex is quite unconventional—few pyramids are entered from the north, and it is unusual that the valley temple is located in the middle rather than the western terminus of the causeway. The valley temple itself was surrounded by a mudbrick enclosure wall with entrances in its eastern, southern, and western sides, but the northern side was too denuded for Fakhry and his team to identify its path, let alone any entrances.⁴⁷³ It is likely that this wall was razed in antiquity to allow room for additional brick buildings in the northern part of the complex. Fakhry's plan suggests that this wall was roughly 2 m wide, and located about 12.50 m from the eastern and western sides of the temple, and 17.50

⁴⁶⁹ Fakhry 1959, 36.

⁴⁷⁰ Alexanian et al. 2012, 10-14.

⁴⁷¹ Alexanian et al. 2012, 12-14.

⁴⁷² Alexanian et al. 2012, 14.

⁴⁷³ Fakhry also mentions a limestone wall surrounding the complex, but this likely refers to the outer wall of the temple proper. The temenos wall is described as being of mudbrick. Fakhry 1961, 1-2.

m from the temple forecourt on its southern side. These walls were subsequently heightened and strengthened in the Middle Kingdom.⁴⁷⁴

Recent investigations by the German Archaeological Institute have greatly amended our understanding of the valley temple complex.⁴⁷⁵ The stone temple was completed atop the dismantled remains of a large mudbrick structure with a slightly different orientation.

Excavations confirmed that the floor of the brick building was lower, and thus older, than that of the temple.⁴⁷⁶ Arnold interprets this feature as a kind of ceremonial garden and royal rest house, where the king might stop as part of royal rituals, jubilees, or ceremonies. It was certainly only used during Snefru's lifetime, and prior to the shift in inclination of the Bent Pyramid and beginning of the Red Pyramid.⁴⁷⁷ A 5 m thick enclosure wall surrounded the 80.5 x 55.8 m complex. Only the compacted earth of the enclosure wall's foundations remains, save in the southwest corner where some brickwork is preserved. Arnold makes no mention of the size of the bricks, but presumably they were comparable to the 28 x 14 cm ones that comprised the brick building within the enclosure.⁴⁷⁸ The mass of these walls spurs Arnold to compare the enclosure with the ceremonial enclosures of Early Dynastic kings at Abydos, the Ka Chapel of Pepi I at Bubastis, and "fort" at Hierakonpolis, suggesting that they define a kind of sacred, ceremonial space around some kind of royal activity at Dahshur.⁴⁷⁹

The Red Pyramid possesses a gentler slope than Snefru's previous attempts at pyramid construction, inclining at approximately 43°22', with a base length of approximately 220 m.⁴⁸⁰

Rainer Stadelmann's work at the site has allowed for a basic plan of the mortuary temple, but no

⁴⁷⁴ Maragioglio and Rinaldi 1964, 88-90, 120-122; Fakhry 1961, 1-2, fig. 1.

⁴⁷⁵ Arnold 2018.

⁴⁷⁶ Arnold 2018, 114.

⁴⁷⁷ Arnold 2018, 118-122.

⁴⁷⁸ Arnold 2018, 115.

⁴⁷⁹ Arnold 2018, 120-122.

⁴⁸⁰ These figures are disputed: see Maragioglio and Rinaldi 1964, 126-128.

trace of a causeway remains, and the temenos wall has yet to be excavated extensively.⁴⁸¹

Maragioglio and Rinaldi noted “a slight and long protuberance” south of the pyramid on which there are traces of white limestone, but further investigation is clearly necessary.⁴⁸² Stadelmann’s work didn’t reveal any trace of a stone temenos wall, but instead found a 2.10 m thick mudbrick wall on all four sides of the pyramid complex.⁴⁸³ At the northeastern corner of the pyramid complex Stadelmann excavated a roughly 28 x 15 m long building, whose northern and eastern walls seem to belong to the pyramid’s enclosure. The angle of the wall suggests that the enclosure wall was not always the same distance from the base of the pyramid—it was roughly 26 m from the pyramid on its eastern side, 19 m on its western side, and 15-16 m away on its northern side. Its southern pathway is unknown, but Stadelmann suggests it was built at a similar distance from the pyramid as the northern side.⁴⁸⁴ Only traces of the foundations of this wall remained, but plans show that these walls were built using an internal core of headers, and it is likely that a series of alternating headers and stretchers formed the internal and external faces of the wall.⁴⁸⁵ This wall was built in different sections, and at least in parts was reinforced by a 0.52 m (1 cubit) thick limestone cladding. The construction of the wall primarily in mudbrick would seem to indicate it was somewhat rushed, and completed after the construction of the other elements of the pyramid complex in order to avoid hindering the transport of goods and the movement of laborers.⁴⁸⁶ Stadelmann’s excavations also revealed a limestone placed within the wall at an east-west orientation, which he identifies as measuring stone given its placement in the middle of the eastern side of the wall and along the axis of the pyramid temple.⁴⁸⁷ The plastered

⁴⁸¹ Stadelmann 1983; Stadelmann et al. 1993.

⁴⁸² Maragioglio and Rinaldi 1964, 132.

⁴⁸³ Stadelmann 1983, 226-228; Stadelmann et al. 1993, Abb. 3.

⁴⁸⁴ Stadelmann 1983, 226-228.

⁴⁸⁵ Stadelmann 1983, 227, Abb. 1.

⁴⁸⁶ Stadelmann 1983, 226.

⁴⁸⁷ Stadelmann et al. 1993, 261.

and whitewashed outer wall of the pyramid temple was somewhat thinner, only 1.05-1.10 m, and also comprised of mudbricks.⁴⁸⁸ One final instance of an enclosure wall was found associated with a worker's complex some 250 m to the southeast of the pyramid. The southern wall of this complex was thicker than the other walls and extended beyond this particular building, suggesting it may have played a role enclosing a larger area or curtaining off the pyramid complex from the private necropolis further to the southwest. It was roughly 5 bricks wide, thus very comparable in size to the pyramid enclosure wall itself.⁴⁸⁹

Amenmhat II's pyramid is one of the least well known of all of the 12th Dynasty pharaohs. De Morgan's excavations in 1894-95 focused more on retrieving treasures than accurately mapping the architecture of this structure.⁴⁹⁰ Its proximity to the cultivation perhaps made it an easier target for robbing away its limestone casing blocks than other pyramids, and the dimensions of the pyramid itself are uncertain. Nicole Alexanian and her team resumed work at the complex in 2009-2010 in an effort to improve de Morgan's plan.⁴⁹¹ Both the southwestern and northwestern corners of the enclosure wall were excavated, as were portions of the northern and southern enclosure walls. The western wall stretches some 95.50 m north-south (de Morgan estimated the enclosure was approximately 225 x 100 m). The enclosure seems to have been built using mudbrick, though the presence of white stone chips near the corner suggest that limestone cornerstones may have been employed.⁴⁹² De Morgan's plans suggest that the pyramid had a broad, uncovered causeway, though this has not been excavated extensively.⁴⁹³ Most intriguingly, de Morgan describes two large massifs or bastions on the eastern side of the

⁴⁸⁸ Stadelmann et al. 1993, 261.

⁴⁸⁹ Stadelmann et al. 1993, 263-267.

⁴⁹⁰ de Morgan 1903.

⁴⁹¹ Alexanian et al. 2015, 57.

⁴⁹² Alexanian et al. 2015, 57, Pl. VIII; de Morgan 1903, 38.

⁴⁹³ de Morgan 1903, pl. I-II.

pyramid complex, near where the causeway meets the pyramid enclosure wall. These were in a very damaged state at the time of his excavation, but he notes that they were built using both brick and large limestone blocks joined to one another with wooden dovetails.⁴⁹⁴ Additional brick walls that might be enclosures are visible to the north of the pyramid complex, but little information is provided regarding them beyond de Morgan's schematic plan of the area.⁴⁹⁵

The architecture of the pyramid of Senwosret III is among the most extensively cataloged and published of the royal pyramids known from Dahshur. Dieter Arnold's work at the site has provided a much-needed reevaluation of the architectural material following de Morgan's initial excavations in 1895.⁴⁹⁶ The pyramid is surrounded by multiple enclosures: an original limestone inner enclosure wall, an initial outer enclosure wall, and a second, expanded enclosure wall extending further to the north and south. The original brick outer enclosure wall was built using mudbricks upon a brick foundation, encompassing an area of approximately 191.5-192.6 x 199.6 m, leading Arnold to guess that it was originally intended to be 365 x 381 cubits (191.625 x 200.925 m).⁴⁹⁷ It was only preserved to the foundations, whose dimensions seemed to be about 4.2 m thick, while the actual wall was roughly 4 cubits wide (2.10 m). The wall possessed a simple niched façade, with projections approximately 1.575 m deep and 2.10 m long, and was whitewashed and plastered.⁴⁹⁸ Projections at the corners of the wall were likely larger in order to allow them to rest comfortably against the enclosure wall without separating near the top as it sloped inward. Arnold estimates a width of at least 6 cubits (3.15 m) for the buttresses at the corners, though these projections were insufficiently preserved to confirm such a hypothesis.

⁴⁹⁴ de Morgan 1903, 38.

⁴⁹⁵ de Morgan 1903, Pl. II.

⁴⁹⁶ Arnold 2002.

⁴⁹⁷ Arnold 2002, 19.

⁴⁹⁸ Arnold 2002, 20

Both the projections and the wall itself were built with a slight batter, roughly 84-85°, and Arnold estimates that the wall must have been about 6.3 m high. Unusually, the buttresses were decorated with long vertical grooves.⁴⁹⁹ The entirety of the wall was plastered and whitewashed, at times concealing discrepancies in the brickwork. The sloped outer face of wall and its buttresses, together with the large, not terribly standardized brick size (10.5-13 x 19-22 x 39-43 cm) laid in courses of alternating headers and stretchers caused various irregularities in the construction.⁵⁰⁰ The original 2.5 m gateway leading into the complex was defined by a now lost limestone sill near the southeastern corner of the eastern wall, suggesting that a stone installation was built into the paneled brick walls. Following the expansion of the enclosure further to the south, a gateway was cut in the south wall near its eastern wall to allow passage from the pyramid court into this new extension.⁵⁰¹

The outer brick enclosure wall was substantially expanded during a second construction phase, leading to the construction of a narrow northern courtyard and a larger extension to the south of the pyramid to accommodate the so-called Statue Palace and South Temple.⁵⁰² It is unclear what the function of the 20.10 m northern extension was, but the 78.80 m southern expansion led to a fairly significant reorientation of the complex towards a more North-South axis. It seems likely that the new wall was built according to the specifications of the earlier outer enclosure: that is to say, it was constructed using mudbrick, was approximately 2.10 m wide, and likely possessed buttresses of similar dimensions. In some cases, however, accommodating the earlier construction would have resulted in slight deviations from these measurements. Arnold states that the southeastern corner was strengthened or repaired at a still

⁴⁹⁹ Arnold 2002, 20.

⁵⁰⁰ Arnold 2002, 19-20.

⁵⁰¹ Arnold 2002, 22-23.

⁵⁰² Arnold 2002, 89-92.

later date, though the reasons for such a renovation remain unknown.⁵⁰³ Excavations along the southern wall revealed a limestone drain, while the southwestern corner of the enclosure wall possessed a sophisticated series of limestone cornerstone slabs. A lower limestone slab supported a pillar which was subsequently locked in place by limestone capstone above. Remains of whitewashed plaster suggest that the decoration of the new outer enclosure wall was identical to that of the previous phase.⁵⁰⁴

A further large wall divided the southern extension into the southwest court to the west and the area of the south temple to the southeast. This wall was 2.08 m thick, whitewashed on both sides, but not paneled or recessed.⁵⁰⁵ A further wall stretched from the western end of the south temple's south wall to the new southern limit of the outer enclosure wall, further subdividing this area. It measured some 2.10 m thick.⁵⁰⁶ The southern extension and the south temple were reached via a causeway that entered just north of the southeastern corner of the eastern wall. An exit near the northeastern corner of the temple allowed for access into the pyramid court via a continuation of the causeway. The causeway stretched at an oblique angle for some 250 m, and consisted of three lanes. The outer two lanes were left unroofed, defined by the walls at the edges of the causeway, while the central lane would have been roofed.⁵⁰⁷ Not unlike other causeways known from the Old and Middle Kingdoms,⁵⁰⁸ an underpass allowed for the pedestrian traffic to cross from either side without walking all the way around the causeway. The central channel within the causeway was completed in stone, flanked by 3.75 m thick brick

⁵⁰³ Arnold 2002, 89-92.

⁵⁰⁴ Arnold 2002, 90-91.

⁵⁰⁵ Arnold 2002, 105.

⁵⁰⁶ Arnold 2002, 105.

⁵⁰⁷ Arnold 2002, 92-96.

⁵⁰⁸ Similar structures are known from under the causeways for Khafre, Khentkawes, and Amenemhat III: Arnold 2002, 95.

walls on either side. Due to the state of preservation of the causeway, the width of the center lane remains unknown.⁵⁰⁹

The inner stone enclosure wall was built roughly 13.125 m from the northern and southern bases of the pyramid, 13.65 m from its western side, and 16.275 m away from its eastern side in order to accommodate the pyramid temple. Arnold notes that only the brick sub-foundations of the wall remain *in situ*, and suggest the foundations of the wall must have been about 5 cubits (2.625 m) thick.⁵¹⁰ From many fragments recovered on all sides of the pyramid complex, Arnold deduced that the inner enclosure wall possessed a niched façade comparable to the outer walls, albeit at roughly half the scale.⁵¹¹ The projections and the wall itself had a batter of roughly 83°, and were decorated with vertical grooves and small sunken squares that Arnold describes as a “window” pattern.⁵¹² These decorative squares seem likely to be skeumorphs of wooden beams set transversally in a wall, or perhaps putlogs used to support exterior scaffolding, and are known from Early Dynastic brick architecture.⁵¹³ The projections were some 1.12 m wide, 87.5 cm deep, and the width between such buttresses was 1.35 m. The wall itself was 1.45 m wide, and like the projections, was scored with decorative vertical grooves. The top of the wall sloped outwards and possessed a curved coping, and Arnold estimates a height of roughly 2.625 m.⁵¹⁴

The pyramid complex of Amenemhat III possessed several notable enclosure walls: an outer brick enclosure, an inner stone enclosure, a causeway, and additional walls that curtained off a series of houses to the east of the causeway. The outer enclosure wall encompassed a

⁵⁰⁹ Arnold 2002, 92.

⁵¹⁰ Arnold 2002, 23-25.

⁵¹¹ Arnold 2002, 23.

⁵¹² Arnold 2002, 23-24.

⁵¹³ Arnold 2002, 23-24.

⁵¹⁴ Arnold 2002, 24.

roughly 186.9 x 189 m space (356 x 360 cubits). It was roughly 2.625 m wide (5 cubits) and whitewashed and plastered.⁵¹⁵ Its mudbrick foundation platform extended some way beyond the wall. They formed a western border for the of the brick buildings north of the causeway. The outer walls of these buildings were somewhat thinner, and less robust than the enclosure wall's thick walls and foundation platform. This wall is rarely preserved beyond its foundations, but in rare sections where multiple courses remain and were planned, it seems that it was constructed using headers as the inner core of the wall with alternating courses of headers and stretchers along its interior and exterior faces.⁵¹⁶

The inner enclosure wall was so damaged that it was not discovered until relatively late in Arnold's excavations at the site.⁵¹⁷ This enclosure wall was decorated with a niched façade, not unlike many of his 12th Dynasty predecessors. However, unlike most inner pyramid enclosure walls, it was completed in mudbrick plastered white rather than limestone.⁵¹⁸ This was likely because the structural failings of the pyramid had already become apparent, and construction of Amenemhat III's new royal tomb at Hawara was already being planned. In a hurry to finish the enclosure wall quickly, it was completed in whitewashed and plastered mudbrick rather than more costly stone. The bricks were laid as headers in the center of the wall, with alternating courses of headers and stretchers along its interior and outer borders.⁵¹⁹ It is likely that part of the wall had already been started in stone: a fragment of limestone slab marked with vertical grooves characteristic of inner enclosure walls at earlier 12th Dynasty pyramid sites was discovered near the northeastern corner of the pyramid, and an additional block was found

⁵¹⁵ Arnold 1987, 64-66.

⁵¹⁶ Arnold 1987, 64-66.

⁵¹⁷ Arnold 1987, 66.

⁵¹⁸ Arnold 1987, 66

⁵¹⁹ Arnold 1987, 66-67.

on the eastern side as well.⁵²⁰ These blocks suggest the stone wall would have been designed with a roughly 84° slope. At its maximum breadth, measured at one of the protrusions/buttresses, the wall measured roughly 5 cubits (2.625 m thick). These walls were decorated with grooves some 12-20 cm deep. The buttresses projected some 80-81 cm from the wall, suggesting that the thickness of the wall itself was about 1.81-82, or about 3.5 cubits. Because the wall was only visible above its foundations in small stretches, and at times these were not even preserved, it is difficult to determine its exact dimensions or the number of niches and buttresses included in its design. The height of the wall is unknown, though Arnold estimates 5.25 m, or 10 cubits.⁵²¹

Finally, despite the fact that it was not ultimately the burial place of Amenemhat III, the king's red granite sarcophagus within the burial chamber is notable since its lower edge mimics the niched façade of Djoser's step pyramid complex.⁵²² The number of doors etched in the sides of the granite correspond exactly with the number of false doors at Djoser's monument at Saqqara, and a larger "door" was even placed near the southeastern corner, conforming roughly to the orientation of the Djoser complex and most mastabas.⁵²³ The upper part of the sarcophagus is decorated with an imitation of a shrine, not unlike the *pr-nw* or *pr-wr* type. Finally, a set of eyes are set on the northern part of the eastern side, not unlike other sarcophagi from this time period.⁵²⁴

The final publication of the mastabas re-excavated by the Metropolitan Museum of Art team is eagerly awaited, as Arnold notes the presence of enclosure walls surrounding some of the

⁵²⁰ Arnold 1987, 67.

⁵²¹ Arnold estimates the total numbers of these features on the basis of his reconstruction of the wall and the size of the pyramid temple. Arnold 1987, 67-68.

⁵²² Arnold 1987, 32-34. The sarcophagus of Weret II also possessed paneled decorations reminiscent of the niched façade of an enclosure wall or mastaba. Arnold 2002, 80, fig. 25. Earlier parallels might even include the now lost sarcophagus of Menkaure.

⁵²³ Arnold 1987, 32-34.

⁵²⁴ Arnold 1987, 32. See also the further list of niched sarcophagi in Arnold 1987, 35.

larger edifices.⁵²⁵ De Morgan's publication notes an enclosure wall surrounding Mastaba 17, and de Morgan's plans show that he believed this enclosure to extend around the much eroded Mastaba 18 as well, separated by a shared dividing wall.⁵²⁶ Preliminary publications of Old Kingdom mastabas excavated in South Dahshur and very likely associated with Snefru's Bent Pyramid make no mention of enclosure walls surrounding these mastabas, but this does not preclude their presence.⁵²⁷ In sum, perhaps it is best to state that the private tombs at Dahshur warrant further archaeological investigation, but it is clear from the existing evidence that enclosure walls in some cases surrounded some of the larger tombs.

DARA

Site Description: The site of Dara is located 10 km west of the village of Manfalut, near Assiut in Middle Egypt. It is best known for the mastaba (or possible pyramid remains) generally attributed to Khui, a minor pharaoh of the 8th Dynasty. First discovered and excavated by Ahmed Kamal, it was later the subject of three seasons of excavation under the direction of Raymond Weill from 1946-1948.⁵²⁸ The monument has been heavily damaged, and the form of its superstructure remains uncertain.

Relevant Enclosure Walls and Technical Details: First identified as a mastaba by Kemal, others have argued that its form is actually a pyramid given its massive size.⁵²⁹ Monnier suggests that it might in fact simply be a massive mastaba given the presence of so much debris on its side.⁵³⁰ In any case, the dimensions of the structure are striking, particularly given the absence of

⁵²⁵ Arnold 1996.

⁵²⁶ de Morgan 1895, 31-34, fig. 18; rediscovered and discussed in Arnold 1996.

⁵²⁷ El-Ghandour and Alexanian 2005.

⁵²⁸ Weill 1958; Kamal 1912. See also Vercoutter 1952, though he does not discuss Khui's tomb, nor does he describe mastabas with additional enclosure walls

⁵²⁹ Kamal 1912, 128; Weill 1958; Lehner 1997, 164.

⁵³⁰ Monnier 2010, 42-45.

massive monumental architecture elsewhere during the First Intermediate Period. Khui's tomb is roughly 146 x 136 m in size, with the enclosure measuring some 20 m thick and likely up to 13 m tall. The monument's glacis lends it a massive 35 m breadth from the interior of the enclosure wall to the base of the slope in some places.⁵³¹ The glacis was irregularly built, however, so this figure isn't constant. A series of further walls were discovered beyond the southwest corner of the enclosure, perhaps indicative of additional phases of expansion.⁵³² This anomalous and unusual feature suggests that the existing plans are perhaps incomplete, unless these walls are serving simply to retain the sand and earth in the glacis. Unfortunately, the pattern of the brickwork is not described, but some plates seem to show courses of alternating headers and stretchers. Other features found nearby also possessed enclosure walls. The so-called "edifice P", or mastaba of Idi, possessed an enclosure wall that measured 3.80-3.90 m thick, with vertical faces on both its interior and exterior side. It seemed broadly comparable to the more massive pyramid of Khui. Weill describes this enclosure wall's western side as 45 m long, its northern side as 45 meters long, its eastern side as 46.50 m long, and its southern side as 50 m long. The ground slopes gently downwards from the base of the wall.⁵³³

DEIR EL-BAHARI

Site Description: Best known for the later mortuary temple of Hatshepsut, the site of Deir el-Bahari is located on Luxor's west bank, near the northern edge of the Theban necropolis.⁵³⁴ In addition to Hatshepsut's remarkable architectural achievement, numerous other pharaohs built at the site. Thutmose III added a temple, and the site was part of the broader cemetery of the Third

⁵³¹ Weill 1958, 34-41; Monnier 2010, 42-45. Pl. I, II, XXX, XXXI.

⁵³² Weill 1958, 38-41, Pl. II, XXX.

⁵³³ Weill 1958, 93-97, pl. LXIII, LXIV, Tony-Révillon in Weill 1958, 99-111, Pillet in Weill 1958, 113-114.

⁵³⁴ For an overview of the site, see Arnold in Helck and Otto 1975, 1006-1025.

Intermediate Period and Late Period population at Thebes.⁵³⁵ Prior to the 18th Dynasty, the most notable construction at the site was the complex of Nebhepetre Mentuhotep II, itself a notable departure from earlier monumental projects.⁵³⁶ Its pillared courtyards draw on local architectural traditions like *saff*-tombs. Gardens flank the entrance to the sanctuary. Within the temple courtyard, there were further constructions, among them the enigmatic Bab el-Hosan—possibly a cenotaph or unfinished tomb—and a further mudbrick building of unknown function just to the north. Dieter Arnold’s reinvestigation of the site allowed for the clarification of Winlock’s earlier fieldwork at the site.⁵³⁷

Relevant Enclosure Walls: While the back of the sanctuary and Mentuhotep II’s tomb were excavated into the nearby cliffs, the temple complex itself was largely constructed just in front of them. These buildings were delineated by a complex series of walls. The primary enclosure wall was completed using limestone, but a series of brick or fieldstone walls were also employed at various points.⁵³⁸ In some cases, only the foundation trenches of walls remain.⁵³⁹ The main enclosure wall was finished in limestone, and defines a large, nearly rectangular space in front of the temple.⁵⁴⁰ Further stone walls linked to the main enclosure create a kind of trapezoidal courtyard to the north of Mentuhotep II’s temple (Arnold’s Northern Triangular Court).⁵⁴¹ Brick walls demarcated a much larger area including and beyond the area enclosed by the stone enclosure wall.⁵⁴² Dry-stone walls were also employed at the site: in addition to revetment walls

⁵³⁵ For the temple of Thutmose III, see Lipinska 1977 and Lipinska 1984. For excavations in the wider landscape nearby, see Winlock 1942.

⁵³⁶ Arnold 1979; Arnold 1974.

⁵³⁷ Winlock 1942; Arnold 1979; Arnold 1974.

⁵³⁸ Arnold 1979, 8-18.

⁵³⁹ For example, at the “Shield-Shaped Court Wall”: Arnold 1979, 14.

⁵⁴⁰ Arnold 1979, 10-11, pl. 38.

⁵⁴¹ Arnold 1979, 18. The South Triangular Court had similar limestone walls: Arnold 1979, 16-17.

⁵⁴² Arnold 1979, 15-16, pl. 38. There was also a fieldstone “Shield-Shaped Court Wall” that extended beyond the existing stone walls: Arnold 1979, 14-15.

against the cliffs, a lengthy rough stone wall seems to have been constructed to restrict access to the building site.⁵⁴³ Numerous other enclosure walls, or at least walls defining the forecourt of a tomb complex, have been noted at Deir el-Bahari or at nearby *saff* tombs in the Assasif, but these are broadly comparable to the examples at Mentuhotep II's complex, albeit on a much smaller scale.⁵⁴⁴

Technical Details: The foundation of the stone walls of the temple enclosure were completed using “purplish” sandstone slabs comparable to the sandstone used throughout the temple itself.⁵⁴⁵ A small 1 cm deep bed was cut into these foundation slabs and coated with a thick layer of *tafl* mortar. The wall itself was constructed in courses of 26.5-28 cm high limestone blocks. The wall was 10 courses high (and surmounted by a rounded copestone, presumably), and preserved to a height of 3.145 m on the north side of the court. The wall would likely have been somewhat taller (perhaps 3.4-3.7 m in total) if Arnold's restoration of a rounded top is correct.⁵⁴⁶ The stone wall was sloped on both its internal and external faces. The foundations of the wall were roughly 3 m thick, but the distance between the internal and external face at the base is 2.15 m.⁵⁴⁷ At the gateway, the wall seems to have been about 1 m thicker, perhaps creating an early example of a pylon.⁵⁴⁸ The limestone enclosure wall also had four postern gates: two on its western side, and one each in its northern and southern wall.⁵⁴⁹ Arnold also notes that a series of unusual rectangular chisel marks were incised into the foundation slabs at the southern end of the east wall, but the function of these cuts remains unknown.⁵⁵⁰ Possibly wooden cramps or dowels

⁵⁴³ Arnold 1979, 8-9.

⁵⁴⁴ For one such example, see Arnold's publication of the tomb of Intef: Arnold 1971, 11-12, Tafel 1.

⁵⁴⁵ Arnold 1979, 10.

⁵⁴⁶ Arnold 1979, 10.

⁵⁴⁷ Arnold 1979, 10.

⁵⁴⁸ Arnold 1979, 10.

⁵⁴⁹ Arnold 1979, 11-14.

⁵⁵⁰ Arnold 1979, 11, pl. 6d.

together with mortar could have helped anchor the wall, but it is unclear why so many would have been necessary or why such a technique was not employed elsewhere at the site. Arnold describes a further stone wall which he describes as the “Shield-Shaped Court Wall” which extended eastward from the northwestern and southwestern corners of the temple platform.⁵⁵¹ Only small fragments of this wall are preserved, but foundation trenches on the southern side indicate that this wall followed the local topography rather than making sharply defined corners.⁵⁵² The foundation trench was 3.6-3.9 m wide and cut some 0.3-0.5 m deep into the local *tafl*. To the north of the temple, the stone wall made a right angle to join the existing temple enclosure wall, creating a trapezoidal courtyard. Beyond this courtyard, the wall was completed in brick.⁵⁵³ The sandstone used for this wall was distinct from the temple enclosure wall and its foundation slabs.⁵⁵⁴

2.57-2.70 meters beyond the stone walls of the temple, a second brick enclosure wall encompassed the area.⁵⁵⁵ This brick wall seemingly had comparable dimensions to the stone enclosure. Arnold describes it as about 2.15 m thick, 3.15 m tall, and built in 29 courses of brickwork.⁵⁵⁶ In places overlain by the terraces of Hatshepsut’s temple, up to 27 of these courses have been preserved. The brick patterns employed are alternating headers and stretchers, with a foundation course of stretchers. The bricks are described as almost black in color, devoid of straw temper or stone inclusions, and varying from 34-41 x 17.5-18.5 x 7.5-10 cm in size.⁵⁵⁷ The outer faces of the walls were covered with *muna*-mud and a coating of white lime plaster. The

⁵⁵¹ Arnold 1979, 14-15.

⁵⁵² Arnold 1979, 14.

⁵⁵³ Arnold 1979, 14-15, pl. 38.

⁵⁵⁴ Arnold 1979, 15.

⁵⁵⁵ Arnold 1979, 15-16.

⁵⁵⁶ Arnold 1979, 15.

⁵⁵⁷ Arnold 1979, 15-16.

bottom of the wall projects outwards in a kind of foot that was likely covered by the courtyard, and perhaps in imitation of the stone construction.⁵⁵⁸

A smaller brick parapet wall was also noted about 3.55-3.75 m beyond the main brick enclosure.⁵⁵⁹ This wall was only 10 courses high, and 1.05 m wide. It was built in a comparable fashion of alternating headers and stretchers, though the foundation course was laid as headers for this smaller wall. The bricks near the causeway are somewhat smaller, but most of the bricks on the eastern side of the court were completed using bricks similar to the those of the main enclosure wall. The bricks of the northern parapet wall were anomalous, and built with significant amounts of white *tafl*.⁵⁶⁰

Beyond the eastern enclosure walls of the brick and stone enclosure walls was an older wall built from desert boulders. The trajectory of this wall was slanted relative to the later enclosures at the site, even if it still ran roughly north-south across the bay in the cliffs at Deir el-Bahari. The core of the wall was filled with smaller rocks, *tafl*, and rock chips. Arnold deduces that the wall was originally at least 299 m long, but interrupted in its southern part for some 45 m.⁵⁶¹ Remnants of a limestone causeway and brick parapet walls beyond it were also noted by Winlock and his expedition. The causeway leading to the temple complex was completed in limestone with a brick paving. Many of these bricks were scored with marks, either finger holes, lines, or in rare cases, hieroglyphic signs.⁵⁶² The bricks employed used some of the locally available *tafl*, changing from brown to white *tafl* as the wall descended toward the valley. The bricks employed were roughly 30-32 x 15-17 x 7-8 cm.⁵⁶³

⁵⁵⁸ Arnold 1979, 16.

⁵⁵⁹ Arnold 1979, 16, fig. 8.

⁵⁶⁰ Arnold 1979, 16.

⁵⁶¹ Arnold 1979, 8-9.

⁵⁶² Arnold 1979, 5-7.

⁵⁶³ Arnold 1979, 6.

DEIR EL-BALLAS

Site Description: Deir el-Ballas is located about 20 km south of Dendara on the west bank of the Nile, near the modern day village of Deir el-Gharbi. The site is most known for the remains of a late Second Intermediate and early New Kingdom palace complex and associated urban remains.⁵⁶⁴ These palaces are also notable for being some of the earliest instances of casemate platforms being used as the foundations for an Egyptian palatial complex outside of Tell el Dab'a. Urban dwellings and administrative excavations were also identified at the site, which was excavated by George Reisner and the University of California as part of the Phoebe A. Hearst Expedition at the very beginning of the 20th century and was reinvestigated in the 1980s under the direction of Peter Lacovara.⁵⁶⁵ Unfortunately, significant damage from erosion means that the ground plans of the buildings above the casemate platforms have been largely lost.

Relevant Enclosure Walls and Technical Details: Lacovara mentions two substantial enclosure walls at the site: the principal North Palace enclosure wall measuring roughly 150 by at least 300 m, and a smaller 60 x 60 m enclosure to the northwest.⁵⁶⁶ There was also a second structure built upon casemate platforms, termed the South Palace, that in actuality was more likely an observation post or rest house.⁵⁶⁷ Very little information about these enclosure walls has been recorded. The eastern end of the larger North Palace enclosure has never been traced since it is obscured by the modern day cultivation, and modern roads have greatly damaged the palace and its environs since its excavation in the early 1900s.⁵⁶⁸ The casemates themselves were comprised of brick walls surrounding long chambers filled with rubble.⁵⁶⁹ Remnants of a

⁵⁶⁴ Lacovara 1990, 1; Lacovara 1993.

⁵⁶⁵ Lacovara 1990, 1.

⁵⁶⁶ Lacovara 1993, 13-17, fig. 2.

⁵⁶⁷ Lacovara 1993, 23-25.

⁵⁶⁸ Lacovara 1993, 13-14.

⁵⁶⁹ Lacovara 1993, 14-16.

mudbrick pavement at the top suggest that this served as a kind of floor or base for the structures above the 5 m high platform.⁵⁷⁰ Remnants of relief scenes with armed men carrying axes hint at the connections between warfare and kingship, and may have been a motif “guarding” the entrance to the palace.⁵⁷¹

The enclosure wall surrounding the complex was rather shoddily constructed. In one area, it simply integrated a stone outcropping where it aligned with the face of the wall. Sections cut through the wall show that it was whitewashed (and presumably plastered) and just beyond the wall was a mudbrick pavement or floor. The interior of the wall on the western side was a rubble core, supported by thin mudbrick walls on either side.⁵⁷² Field notes indicate that this wall was not especially tall, as the original excavators with the Hearst Expedition suggest a height of only 1.7 m, though this may actually be a record of how high the wall was preserved at the time of their work.⁵⁷³ The smaller enclosure to the west had a thick layer of animal manure inside it, suggesting that it perhaps served as a corral.⁵⁷⁴ The breadth of this latter enclosure wall is unclear. The constructions in this part of Deir el-Ballas used very large, 54 x 27 x 18 cm bricks, so even a wall only two bricks wide would have been substantial.⁵⁷⁵ The enigmatic South Palace was only partially excavated, and may have served as a kind of rest stop or outpost on higher ground.⁵⁷⁶ There is no mention of a separate enclosure wall, but the complex may have served a somewhat defensive purpose. Representations on plans suggest a brick laying pattern of alternating headers and stretchers.⁵⁷⁷ Strikingly, for a time period when the Theban polity of

⁵⁷⁰ Lacovara 1993, 14.

⁵⁷¹ Lacovara 1993, 15-16.

⁵⁷² Lacovara 1993, 16-17.

⁵⁷³ Lacovara 1993, 16.

⁵⁷⁴ Lacovara 1993, 17

⁵⁷⁵ Lacovara 1993, 14.

⁵⁷⁶ Lacovara 1993, 23-25.

⁵⁷⁷ Lacovara 1993, 23-25, fig. 19.

Upper Egypt was attempting to expand its borders and confront the Hyksos dynasty to the north, the enclosure walls themselves seem rather flimsy and of limited defensive utility. Instead, the massive platforms upon which the palatial apartments and administrative buildings rested likely were sturdier and more imposing than the enclosure wall itself. The presence of brick paving on its exterior side also highlights the oft overlooked external features of such walls. The function of this feature is not known, perhaps part of a paving to reduce erosion, aspects of an extramural building or collection of structures, or far less likely, an element of a defensive feature like a paved ditch or glacis.

DRA ABU EL-NAGA

Site Description: The northernmost section of the Theban necropolis on the West Bank of the Nile, Dra Abu el-Naga was the royal cemetery for much of the 17th Dynasty. The cemetery was extensively looted prior to much modern archaeological work at the site, but nonetheless, the work of Daniel Polz and his team revealed a previously unrecorded royal pyramid of Nubkheperre Intef.⁵⁷⁸ Members of the late Second Intermediate Period and New Kingdom elite were also buried nearby, largely in rock-cut tombs.⁵⁷⁹

Relevant Enclosure Walls and Technical Details: Because nearly all of the royal and private tombs at Dra Abu el-Naga were excavated from the living rock and only a few superstructures have survived, very few enclosure walls have been identified. While chapels and walled forecourts are occasionally attested (K91.3, K91.9, K91.10, K91.13, K91.19, K91.22, K91.23, K91.24), few free-standing enclosure walls have been preserved.⁵⁸⁰ One such rare example is the

⁵⁷⁸ Polz and Seiler 2003.

⁵⁷⁹ Polz et al. 2003; Polz et al. 2012; Polz 1995; Polz 1993; Polz et al. 1992.

⁵⁸⁰ Polz 1995, 209, Abb. 1.

enclosure wall that surrounded three sides of the pyramid of Nubkheperre Intef.⁵⁸¹ This wall was partially preserved on its southern and western sides, but was identified on the northern side of the pyramid only by the discolored rubble that must have been underlying the original wall. No wall on the eastern side obscured the approach to the pyramid itself. The relative absence of enclosures can in large part be explained by the uneven, rocky topography of the area: indeed, on the western side, the enclosure wall of Nubkheperre Intef is actually interrupted by a rocky outcropping.⁵⁸² The wall was whitewashed and plastered on both its internal and external sides, a particularly interesting feature given that the western exterior façade would have been invisible to any visitors and in many cases was obscured from view by rock bluffs. The wall is nowhere preserved to its original height, but traces of mudbrick and plaster are visible on nearby rocks at a height of some 1.00-1.10 m.⁵⁸³ It was constructed using alternating headers and stretchers and was 1.5 bricks wide (roughly 50 cm).⁵⁸⁴

DENDARA

Site Description: Located about 55 km north of Luxor and a little under 5 km southeast of the modern city of Qena, Dendara was the capital of the 6th Upper Egyptian nome.⁵⁸⁵ It was occupied as early as the Naqada II, and seems to have been occupied throughout the Early Dynastic, Old Kingdom, First Intermediate Period, and Middle Kingdom.⁵⁸⁶ The settlement expanded eastward over the course of the third millennium BCE, and burials in the site's nearby necropolis can be dated to many of these periods.⁵⁸⁷ While strata from contexts dating to the

⁵⁸¹ Polz and Seiler 2003, 14-18.

⁵⁸² Polz and Seiler 2003, Abb. 5.

⁵⁸³ Polz and Seiler 2003, 16.

⁵⁸⁴ Polz and Seiler 2003, Abb. 5.

⁵⁸⁵ Daumas in Helck and Otto 1975, 1060-1063.

⁵⁸⁶ Moeller and Marouard 2018; Marouard and Moeller 2017; Marouard 2016; Marouard 2017; Fischer 1968; Zignani 2001; Tristant 2016-2018.

⁵⁸⁷ Tristant 2016-2018.

New Kingdom have not been definitively identified, New Kingdom pottery and blocks are present at the site, and extensive renovations to the temple area occurred during the Late Period.⁵⁸⁸ The most famous monument at the site is the Hathor temple complex, initiated during the late Ptolemaic period and modified well into the Roman period.⁵⁸⁹ Numerous enclosure walls were constructed surrounding the temple area—in addition to three earlier walls detailed below, the 25th Dynasty King claims to have renovated and rebuilt the temple's enclosure wall, and Nectanebo I was likely responsible for the construction of the massive undulating temenos walls that surround the site today.⁵⁹⁰ The western and northern sides of these walls were subsequently renovated during the reign of Tiberius, in order to allow space for a new mammisi near the northern entrance of the site.⁵⁹¹

Relevant Enclosure Walls: Only three enclosure wall systems seem to date to the timeframe studied by this dissertation: an Old Kingdom wall making a corner just southeast of the Greco-Roman Hathor temple, and overlying this foundation and extending over a much longer stretch oriented north-south, a large Middle Kingdom wall.⁵⁹² Finally, a Middle Kingdom temenos wall underlies the foundations of the Hathor Temple and crosses just in front of the Isis sanctuary. This latter wall was cut by a modern trench cut to allow for electrical lines to power lights along the exterior of the temple.⁵⁹³ Recent excavations have confirmed Pierre Zignani's hypothesis that this wall dates to the 12th Dynasty and that the segments east of the entrance to the Isis temple and beneath the Hathor temple foundations should be considered part of the same wall.⁵⁹⁴

⁵⁸⁸ Marouard 2016.

⁵⁸⁹ Zignani 2010.

⁵⁹⁰ Zignani 2001, 429-431, fig. 26-28; Marouard 2016, fig. 5.

⁵⁹¹ Aimé-Giron 1926.

⁵⁹² This was first identified by Zignani and Laisney: Zignani 2001, 429-430, fig. 26-28.

⁵⁹³ Zignani 2001, fig. 28.

⁵⁹⁴ Zignani 2001, 429-430.

Unfortunately, later constructions and *sebbakh* digging have greatly damaged much of the surrounding stratigraphy near all of these walls, so it is difficult to determine what these massive walls surrounded with any certainty. Given the religious function of later structures in this area and by analogy with other contemporary constructions in Upper Egypt, it is plausible that the wall underlying the Hathor Temple foundations was a temenos wall, and the second Middle Kingdom enclosure wall just to the east surrounded a larger temple complex. There are remains of an enclosure wall on the western side of the later Hathor temple, but no finds conclusively date this wall to the Middle Kingdom—there is no preserved stratigraphy adjacent to that structure, and differences in bricklaying patterns and other technical details weaken the probability that the walls to the west were part of the same building project as the Middle Kingdom walls to the east of the Hathor temple. However, these walls follow a similar north-south trajectory and also lack the curving foundation beds of the Late Period and Greco-Roman enclosure walls at Dendara, and their foundation date remains uncertain.

The Middle Kingdom wall east of the Hathor temple seems to extend beyond the Old Kingdom wall, likely to include Middle Kingdom foundations in the vicinity of the area where Greco-Roman Isis temple would be built, just south of the main Hathor sanctuary. Given the activity of early Middle Kingdom pharaohs like Nebhepetre Montuhotep II in the area west of the later Hathor temple, it would be surprising if there was not a related enclosure wall to the west of the sanctuary.⁵⁹⁵ An Old Kingdom enclosure wall dating to the early 4th Dynasty was discovered underlying the some of the more southern remains of the Middle Kingdom wall. It follows a different orientation than the later Middle Kingdom wall, seemingly making a corner in this area of the site.⁵⁹⁶

⁵⁹⁵ Bussmann 2010, 83-84, 120, 178-182 Abb. 2.30-2.31

⁵⁹⁶ Marouard 2017, 172-173, fig. 12.

The different enclosure walls at Dendara in many ways reflect the evolving urban environment at the site. Prior to the construction of the early 4th Dynasty enclosure wall, the area immediately adjacent to the wall served as place where pigs were raised. Following the erection of this initial wall (which should perhaps be viewed as the temenos wall of the earliest Hathor sanctuary), the character of the associated stratigraphy leaning against the wall changed. Large numbers of beer jars and bread molds were found in strata leaning against the wall. Jar stoppers and clay sealings, some showing cylinder seal imprints, have been excavated and attest to the administrative character of the area during this time.⁵⁹⁷ The town seems to have grown first to the north, and then expanded to the east during the First Intermediate Period and early Middle Kingdom. The Middle Kingdom wall east of the Hathor temple follows the contours of the tell, and the higher height of its foundations further to the north perhaps reflects a denser urban environment in this part of the site. Together with the temenos wall constructed near the Isis temple and beneath the foundations of the Hathor temple, the Middle Kingdom constructions seem to have separated, or at least defined, a larger portion of the site as settlement expanded towards the east.

Technical Details and Construction Methods:⁵⁹⁸ The early 4th Dynasty enclosure wall is clearly distinguishable from later enclosure walls at the site. Its bricks are very small, only 25 x 12 x 6 cm, and their matrix makes more liberal use of straw and sand than either Middle Kingdom wall at the site. The bricks are a light brown color, and the bricklaying pattern is generally one of alternating headers and stretchers, with a row of headers serving as the first course. The bricks within the internal part of the wall do not always adhere to the same pattern

⁵⁹⁷ Marouard 2016, 46, fig. 12.

⁵⁹⁸ I had the opportunity to participate in the 2015 and 2016 field seasons at Dendara, and was able to confirm much of the information in this section through my own research.

and at times are somewhat jumbled in places, though this may in part be the result of attempts to make a corner in this section of the wall. No foundation trench has been identified in association with this wall but it seems probable that there was one, given the breadth of the enclosure. Because only a portion of this wall has been preserved, it is unclear if it tapered towards the top akin to late Old Kingdom enclosure walls identified at other sites, or was roughly straight in form.

The foundations of the Middle Kingdom enclosure wall east of the Hathor temple were situated upon the remains of the corner of the Old Kingdom enclosure wall. The Middle Kingdom wall extended both north and south of this earlier structure, and seems to have been founded along the contours of the existing tell site, rising as it progressed northward. Wind and water damage have caused the wall to taper somewhat as it gets higher, but there is no evidence that this wall was sloped in antiquity. The bricks used in this installation are far larger, some 35 x 17-18 x 10 cm, a deeper brown color than the brownish-grey bricks of the Old Kingdom enclosure, with a much siltier brick matrix that occasionally included small sherds. Every 7-8 courses, a bed of reed matting was laid down to stabilize the structure. The bricks were laid in a pattern of alternating headers and stretchers with the lowest course composed of headers. This wall's large foundation trench was discovered just east of the wall in particularly well-preserved strata leaning against and cut by the Middle Kingdom enclosure. Fragments of wavy lined ware and marl vessels with ring bases recovered from the debris deposited in the foundation trench serve as a *terminus post quem* for the wall itself, demonstrating that it must have been founded no earlier than the 12th Dynasty. The trench itself was filled with mudbrick demolition, reddish brown occupational debris, and sherds, and was probably necessary to ensure a firm foundation for a wall that was not founded upon level ground; indeed, the wall seems to have been founded

upon existing settlement remains. The remains of this Middle Kingdom wall served as a base for renovations and refurbishment during the Late Period, when a “wavy” wall, built in segments with alternating convex and concave foundation beds, was constructed upon and integrated into the remnants of the Middle Kingdom installation.

Little can be said about the temenos wall found beneath the foundations of the Hathor temple and just east of the Isis temple. It has been interpreted as an enclosure surrounding a Middle Kingdom sanctuary on the basis of its location near later examples. It has been damaged extensively from later construction activity and modern trenching in an effort to attach electrical fixtures in the vicinity of the Hathor temple. The bricks are similar in size, color, and soil matrix to the Middle Kingdom enclosure further to the east. The western and northern boundaries are entirely unknown. No foundation trench has been identified relating to this wall, though its size suggests that one would almost certainly have been present, but nearby strata suggest that the wall itself should be dated to the Middle Kingdom. The builders of this wall did not employ reed matting like the Middle Kingdom wall just to the east, and the bricks were laid in patterns of alternating headers and stretchers.

ELEPHANTINE

Site Description: Elephantine marked the southern boundary of Upper Egypt during the Pharaonic period, and was originally a pair of islands in the Nile near modern day Aswan. The depression between the western and eastern islands was filled in by the end of the First Intermediate Period, creating a single large island. Elephantine’s strategic location near the Nile’s First Cataract marked it as an important strategic location, and it was the site of state investment from the mid-First Dynasty onwards.⁵⁹⁹ The preserved strata from the Old Kingdom,

⁵⁹⁹ Seidlmayer 1996a.

First Intermediate Period, and Middle Kingdom offer an unparalleled glimpse at the urban development of an admittedly anomalous settlement. Owing in part to its commanding position at such a geographic chokepoint at the traditional southern border of Egypt, the site was occupied throughout the Pharaonic period and beyond. Despite state investment in large administrative buildings from the 1st Dynasty onwards, much of the town developed “organically”—that is to say, the residential areas were not orthogonally planned, and do not seem to have been conceived as part of a uniform layout.⁶⁰⁰ Excavations under the auspices of the German Archaeological Institute in Cairo in collaboration with the Swiss Archaeological Institute in Cairo commenced in 1969 and continue to the present day.

The geography of Elephantine’s environs meant that space to settle was very circumscribed relative to settlements founded in the floodplain. The highest parts of the eastern island were the first to be settled, and settlement gradually expanded to the north and to the south.⁶⁰¹ Prominent features on the eastern island include one of the earliest temples known from all of Egypt, dedicated to Satet, the Early Dynastic fortress, the Middle Kingdom shrine to Hekaib, a governor turned local saint, and still later, the remains of the local temple to Khnum. A governor’s residence from the First Intermediate Period and Early Middle Kingdom was identified along the southern half of the island, and deep vertical exposures in areas between temples and modern construction allow for a detailed understanding of the chronology of certain parts of the settlement.⁶⁰² Residential dwellings from the Old and Middle Kingdom have also been extensively excavated further to the west. The contours of the settlement were defined by thick town walls during the Old and Middle Kingdom, though extramural settlements frequently

⁶⁰⁰ von Pilgrim 1996; Moeller 2016, 315

⁶⁰¹ Ziermann 1993, 132; Moeller 2016, 164.

⁶⁰² von Pilgrim 2006, 403-406.

expanded beyond these walls where they were not already approaching the floodplain.⁶⁰³ The settlement was initially concentrated on the eastern island, and no residential neighborhoods have been excavated on the western island. Nevertheless, an administrative complex from the 2nd or 3rd Dynasty was founded on the western island, and a step pyramid dating to the late 3rd to early 4th Dynasty was also constructed just to the south of this complex.⁶⁰⁴

Relevant Enclosure Walls: Elephantine has several sets of free-standing, monumental walls that define the local landscape. The earliest enclosure at the site seems to be the Early Dynastic fortress, which is among the most extensively excavated areas of the site.⁶⁰⁵ Multiple phases of the Old Kingdom town walls have been identified adjacent to the fortress, further to the north, and to the southwest and southeast; these walls are among the best studied town enclosure walls in all of Egypt.⁶⁰⁶ New walls encompassed the town during the late Middle Kingdom, extending over a broader area as a result of the depression separating the western and eastern islands being infilled.⁶⁰⁷ Tracing the path of these walls has been the subject of recent excavations. While not an enclosure wall, per se, the thick outer walls of the “governor’s residence”, in use from the 6th Dynasty through early Middle Kingdom also warrant brief comment, as do the walls surrounding the Middle Kingdom iteration of the Satet temple.⁶⁰⁸ Finally, a massive, 7 km long wall stretched from Aswan to Konosso, and served to safeguard the land route around the First Cataract. This wall was likely founded during the 12th Dynasty.⁶⁰⁹

⁶⁰³ Extramural remains have been identified at the southwestern margins of the eastern island—see for example Klammt and Heitz in G. Dreyer et al. 2002, 138, Abb. 2. Ziermann 1993, 136-138 summarizes some of the expansions beyond the town walls during the Old Kingdom.

⁶⁰⁴ For the administrative complex, see Seidlmayer 1996b. For the pyramid, see Seidlmayer 1996a 119-124, and Papazian 2012, 51-54.

⁶⁰⁵ Ziermann 1993, 27-60.

⁶⁰⁶ Ziermann 1993.

⁶⁰⁷ von Pilgrim in Raue et al. 2011 ; von Pilgrim in Seidlmayer et al. 2016.

⁶⁰⁸ For the governor’s residence, see von Pilgrim 2006, 403-411; Moeller 2016, 220-226. For the Satet temple, see Kaiser et al. 1997, 121-126; Dreyer 1986.

⁶⁰⁹ Jaritz 1987; Jaritz 1983; von Pilgrim in von Pilgrim et al. 2011, 135-137.

It remains unclear how the various walls at Elephantine can be correlated with contemporary and later textual sources describing the site as a *mnnw*-fortress during the Middle Kingdom and New Kingdom. Stela BM 852, which details the possible construction of a gateway (or simply the construction or refurbishment of fortifications at the settlement) and the marshalling of troops at Elephantine prior to a military campaign, terms the settlement as a *mnnw*, and the *Ramesseide Onomasticon* lists Elephantine together with other Middle Kingdom fortresses in Lower Nubia.⁶¹⁰ It is unsurprising that a border settlement would have played a role as a base for operations further to the south, but the Middle Kingdom town walls at Elephantine are decidedly less robust and sophisticated than at other Middle Kingdom fortresses further to the south, and no town wall is known from the New Kingdom. This suggests that the *mnnw* designation perhaps refers to an administrative rather than architectural element of the settlement.⁶¹¹ Traditionally, the toponym *snmt*, which follows Elephantine on the *Ramesseide onomasticon*, has been associated with the island of Biggeh despite the absence of any Middle Kingdom architecture; however, Jaritz has argued that should be identified with the massive 7 km Aswan-Konosso wall to the southeast of Elephantine, and von Pilgrim has suggested that *snmt* should be identified with a specific installation on the east bank of the Nile.⁶¹²

Construction Methods and Technical Details: The Early Dynastic fortress is one of the most extensively excavated locations at Elephantine—particularly near the fortress’s northwestern and southeastern corners. The fortress appears to be roughly 51 x 51 m in size (roughly 100 x 100 cubits), though the dimensions of its northern side could not be confirmed.⁶¹³ Its shape seems

⁶¹⁰ For Stela BM 852, see Wells 1994, 343-345. For the *Ramesseide Onomasticon*’s discussion of fortresses, see Gardiner 1916 and Gardiner 1947 9-11.

⁶¹¹ Morris 2005, 809-814 ;

⁶¹² von Pilgrim 2010, 267-269 ; Jaritz 1993, 114-119

⁶¹³ Ziermann 1993, 32.

roughly that of a quadrilateral, though the northwestern corner was somewhat rounded rather than sharply angled. The complex seems to have been entered from the south through a structure likely associated with a gateway.⁶¹⁴ The placement of the fortress obstructed access to the local Satet temple in an early instance of state or official constructions imposing upon and radically altering the urban landscape.⁶¹⁵ Interestingly, the architecture excavated within the interior of the complex is largely indistinguishable from the buildings excavated outside the settlement, with smaller rooms containing evidence of domestic activity surrounding larger courtyards, all of which were demarcated by thin walls. None of the extant architecture suggests that the interior of the fortress was orthogonally planned, and the surviving installations suggest a more haphazard, organic development. Many of the structures inside the complex were built directly against the fortress's perimeter wall.⁶¹⁶

Nonetheless, the size of the walls, the presence of large towers, and the organization and planning necessary to realize such a construction suggest that the Early Dynastic fortress likely served a military or administrative function. The thickness of the outer walls show that the fortress was built on an altogether different scale than the extramural domestic foundations and intramural installations.⁶¹⁷ Three towers have been excavated along the fortress's outer walls, but it is likely that they were many more located at fairly regular intervals along outer walls. Along its western wall, towers A and B have a semi-circular form and were roughly 4 m in width, while the remnants of Tower F at the fort's southeastern corner are somewhat smaller (3.60 m) and slightly more polygonal in form.⁶¹⁸ It seems most probable that the fortress was entered through

⁶¹⁴ Ziermann 1993, 29-30.

⁶¹⁵ Moeller 2009-2010, 199.

⁶¹⁶ Ziermann 1993, 30; Kaiser et al. 1993, 137, Abb. 1.

⁶¹⁷ Ziermann 1993, 132-133.

⁶¹⁸ Ziermann 1993, 29, Abb. 19, Abb. 20.

a gateway somewhere along its southern side; it is possible that a further gateway was located along its northern wall to facilitate access to this area of the site as the settlement expanded. Unfortunately, neither of these gateways could be confirmed archaeologically, though remnants of a small tower have been noted in the vicinity of the proposed gateway.⁶¹⁹ The eastern side of the fortress appears to have been built close to a steeper part of the riverbank, limiting the capacity for extensive extramural renovations or alterations.⁶²⁰

Before the town wall was completed, the perimeter wall of the fortress was comprised of at least three distinct phases of walling; the later phases lean against the exterior of the earlier enclosure wall, or in some cases, reinforce the internal side of the wall. These three phases were all visible in each area where the fortress's outer walls were excavated.⁶²¹ No foundation trenches were revealed during excavation, and Ziermann suggests that the fortress was built upon an extensively levelled foundation at the height of the highest granite bedrock in the area of the fortress. Ziermann believes that settlement debris and alluvial soil were subsequently used to fill any pits or depressions and create a level base for construction; the levelled area likely extended beyond the area of the fortress, as only the later renovations near the northwestern corner of the fortress had foundation trenches.⁶²² There is a 0.30 m difference between the foundation levels on the western side of the fortress, but the southeastern corner of the fortress was founded roughly 2.00 m lower than a section in the middle of the southern wall roughly 25 m away. A mudbrick platform seems to lie adjacent to the wall at the southeast corner; there is no evidence to suggest that this feature underlies the wall itself or was part of levelling operations, but if it

⁶¹⁹ Ziermann in Kaiser et al. 1997, 127-137; Ziermann 2003, Abb. 44 and Abb. 45.

⁶²⁰ Ziermann 1993, Abb. 9.

⁶²¹ Ziermann 1993, Abb. 9.

⁶²² Ziermann 1993, 129. See Ziermann's footnote 551, in particular.

was, the difference in foundation level would be reduced to roughly 1 meter.⁶²³ Nonetheless, this difference is fairly sizeable, and it is possible that while the dimensions of this fortress were carefully planned, the ground beneath it was only partially levelled. Indeed, it would be surprising if levelling efforts near the fortress's southeastern corner were off by so drastic a margin, and here it seems most likely that it was directly upon the existing natural landscape and settlement remains.

The first phase of the fortress wall was comprised of two parallel walls connected by small transverse walls that were no wider than the length of a single brick. Near the fortress's northwestern corner, the outer of these two walls was roughly 0.90-1.00 m, separated by a distance of roughly 0.90-1.10 m, with a thinner inner wall that measured roughly 0.36-0.45 m. A similar construction system and comparable dimensions were revealed along the southern ramparts of the fortress, but the inner wall on the eastern side was much thicker—approximately 1.30 m in breadth.⁶²⁴ Ziermann notes that these walls were founded in part upon the local granite bedrock, but others stood atop earlier settlement remains.⁶²⁵ The internal and external faces of the outer wall were built using alternating headers and stretchers, but headers predominant within the interior of the wall. The parallel walls created a series of internal chambers between the two walls whose function remains somewhat unclear. It does not appear that this space was filled in immediately, as a passageway between a 5 m long chamber located just south of the building's northwestern corner and the interior of the fort was excavated.⁶²⁶ These chambers were not simply for storage, as there is occasional evidence of ash and occupational debris in some rooms,

⁶²³ For the levelling of terrain in preparation for constructing the fortress, see Ziermann 1993, 129-130. For the section drawings and description of the southeastern corner of the fortress, see Ziermann 1993, 47-50, Abb. 18,

⁶²⁴ Ziermann 1993, 39, Abb. 15-16.

⁶²⁵ Ziermann 1993, 133.

⁶²⁶ Ziermann 1993, 42-43.

though these could have been deposited later. Ziermann suggests that the presence of fireplaces and settlement debris suggest that they may have been workspaces or living rooms for occupants of the fortress.⁶²⁷ In any case, it is likely that rubbish and debris eventually accumulated within these rooms and they became part of a single, very large outer wall of the fortress. Counting these chambers, the breadth of the fortress enclosure wall during the first phase was roughly 2.40 m, save for on the east side, where the thicker inner wall expanded it to roughly 3.70 m.⁶²⁸ The general outlines of the towers were also completed this initial phase and subsequently strengthened; the diameter of tower A approached 4.10 m.⁶²⁹ Construction techniques throughout the first phase of walling are largely similar throughout the fortress, but a thick mudbrick platform was identified near the base of the southeastern corner—perhaps to ensure stability and structural integrity given the slope of the ground in this area.⁶³⁰

A subsequent renovation strengthened the fortress's outer wall shortly after the completion of the initial enclosure wall.⁶³¹ This renovation was a fairly minor addition—it was only two bricks wide (roughly 0.50 m) and was built 20-30 cm beyond the original outer wall of the fortress. In some locations, small transverse walls one half of a brick wide (roughly 0.12 m) spanned the gap between the two walls. This gap was quickly filled with rubble and occupational debris, and allowed for the walls to be strengthened to a greater width while reducing the need to manufacture additional mudbricks. This phase of walling expanded the wall by roughly 80 cm, to approximately 3.20 m, save for on the eastern side of the fortress where it is unclear if a second phase was added beyond the outer wall of the first phase.⁶³²

⁶²⁷ Ziermann 1993, 133.

⁶²⁸ Ziermann 1993, 39, 47.

⁶²⁹ Ziermann 1993, 39

⁶³⁰ Ziermann 1993, Abb. 18.

⁶³¹ Ziermann 1993, 44-46.

⁶³² Ziermann 1993, 47-52.

A third phase of walling was added outside the exterior wall, leaning directly against the preceding renovation. It measured 0.80 m thick along the northern side of the fortress, 0.90 m along its western flank, and 0.70-0.80 m along the southern side of the fortress. The addition of these walls meant that the outer walls of the fortress were now up to 4.70 m in breadth.⁶³³ On the fort's eastern side, the wall was strengthened by thickening of the inner wall from the fort's initial construction. These walls (Ziermann's Wall 135 and Wall 138) expanded into the chambers between the parallel walls and possibly even into the interior of the fortress itself (Wall 306).⁶³⁴ Remnants of a building on the exterior of the south side might belong to a gate complex; in any case, two parallel walls spanned every 2.50 m by transverse walls formed the outer walls of this "gatehouse" installation.⁶³⁵

Even after the construction of the town wall, various renovations were completed near the southeastern corner of the fortress. Some of these renovations were perhaps intended to strengthen Tower F, but others appear to have extended some distance along the southern wall of the fort. A first renovation, labelled Wall 87a and Wall 87aa by Ziermann, thickened the southern wall and Tower F, respectively. This wall was approximately 0.90-1.00 m thick, and was founded roughly 20-30 cm away from the previous renovation of the southern wall. This distance was spanned by small transverse "walls."⁶³⁶ This latest renovation was easily distinguishable from previous phases throughout the fortress since it was marked by small buttresses on its exterior side. Only three buttresses were preserved, approximately 1.40 m apart, and the easternmost example near Tower F was largely destroyed. The buttresses themselves were 1 m wide and projected roughly 1 m from the edge of the enclosure wall, completely

⁶³³ Ziermann 1993, 52-54.

⁶³⁴ Ziermann 1993, 55-57.

⁶³⁵ Ziermann 1993, 58

⁶³⁶ Ziermann 1993, 72-76.

plastered, and built with sloped sides.⁶³⁷ Plans and photos suggest that they were not bonded to the walls themselves, but rather, completed independently.⁶³⁸ During subsequent years, the interior of the eastern wall was strengthened by a series of small walls (Wall 306 and Wall 107b), often only two bricks (roughly 55 cm) wide. The southern and eastern sides of the fortress were dramatically reinforced a final time by Wall 92. This 1.15 m wide wall was built directly against the projecting buttresses of the previous phase on the south, and atop a visible construction layer that even preserved the footprints of the presumable builders of the wall. It was plastered on its exterior side, and constructed using alternating headers and stretchers on its outer faces while the interior core was largely comprised of headers. The exterior face of Wall 92 was coated with mud plaster, so it was likely in use for at least some time before Wall 118 was added to strengthen the corner of Tower F. The pattern of alternating headers and stretchers enclosing an interior built using a preponderance of headers was once again maintained.⁶³⁹ In sum, the total breadth of the walls along the fortresses southern flank reached 6.70 m, while those on its eastern side were at least 6.00 m. Efforts to repair, expand, or renovate the fortress's walls seem to have halted at some point during the 2nd Dynasty.⁶⁴⁰

All of the bricks used to construct the various phases at the Early Dynastic fortress and the town enclosure walls are remarkably similar in size, ranging from 24-27 x 10-13 x 6-8 cm.⁶⁴¹ Ziermann notes that there were substantial differences between the texture and hardness of the bricks in various parts of the wall.⁶⁴² No specific fabrication areas have been identified, but it seems highly likely that all of the bricks were produced nearby using alluvial soil and locally

⁶³⁷ Ziermann 1993, 76.

⁶³⁸ Ziermann 1993, Abb. 28, Tafel 16f, Tafel 17a-d

⁶³⁹ Ziermann 1993, 92-94, Abb. 37

⁶⁴⁰ Ziermann 1993, 137, 140.

⁶⁴¹ Ziermann 1993, 142.

⁶⁴² Ziermann 1993, 131.

available sand. Mortar was applied between various bricks, and was easily distinguishable due to its color.⁶⁴³ Generally speaking, the bricks used in later phases are very slightly larger than earlier examples, but there is significant variation within and between these enclosure walls.⁶⁴⁴ Given that many of these walling phases seem to have been renovations developed to specifically address structural problems, it is very likely that intact bricks from damaged portions of earlier walls were occasionally reused in later phases. The walls were coated with a simple mud plaster.⁶⁴⁵

No later than the beginning of the 2nd Dynasty, the settlement on Elephantine's eastern island was ringed with a formidable enclosure wall. Over the course of numerous renovations throughout the Old Kingdom, this perimeter wall eventually attained a total thickness of up to 8.00 m.⁶⁴⁶ The massive width of the town walls was a function of their continued rebuilding and renovation over much of the 2nd Dynasty; while certain expansions seem to have been added over the years to extend the intramural space available at the site, the area encompassed by the town enclosure walls remained constant until the end of the Old Kingdom. Much like the outer walls of the Early Dynastic fortress, the later phases of the town wall at Elephantine lean on the existing phases and their exterior faces incline slightly inward.⁶⁴⁷ There are also several comparable construction techniques that are readily identifiable and similar to those employed at the earlier fortress—for example, the various phases of the town enclosure walls also frequently used systems of parallel walls connected by smaller transverse walls and subsequently filled with alluvial soil, and semi-circular towers were occasionally added to provide additional defense on

⁶⁴³ Ziermann 1993, 131.

⁶⁴⁴ Ziermann 1993, 142.

⁶⁴⁵ Ziermann 1993, 131.

⁶⁴⁶ Ziermann 1993, 67. See in particular footnote 291, which summarizes the maximum breadth of the enclosure walls in each area of the fortress and along the town walls.

⁶⁴⁷ See the section drawings in Ziermann 1993, Abb. 27, Abb. 29, and Abb. 35, for example.

the northern side of the town wall, particularly in the area just west of the northwest corner of the Early Dynastic fortress.

Yet important differences distinguish the town walls from the earlier fortress. First, the enclosure walls of the fortress were regularly planned and orthogonal, while the contours of the local geography seem to have determined the course of the town walls.⁶⁴⁸ In addition to serving as a defensive element, these walls also would have helped to protect the interior of the settlement from catastrophically high Nile floods. Moreover, the construction of the fortress was clearly conceived of and executed as a single coherent project, while substantial differences exist between sections of the town wall in different parts of the site—even those that seemingly belong to the same phase of construction. Most notably, the town walls along the eastern side of the island curve and bend according to the local geography, while those parts of the walls excavated along the western and southwestern side of the site turn at right angles.⁶⁴⁹ Ziermann suggests that the orthogonality of the wall was a result of the relative elevation of this area, since the trajectory of the wall was less constrained by the dangers presented by the Nile's annual inundation.⁶⁵⁰ To a large extent, these differences are attributable to the differences in scale between the two projects: the town wall increased the intramural area nearly eightfold, covering an area that was roughly 200 m long by 100 m wide, or roughly 2 hectares, while the comparatively smaller fortress was only 51 x 51 m in size.⁶⁵¹ Furthermore, the fortress was a focal point of administrative and military activity, the largest known building complex at Elephantine during the Early Dynastic period, while the town walls served only to protect the

⁶⁴⁸ Ziermann 1993, 62, Abb. 24, and Abb. 25.

⁶⁴⁹ Ziermann 1993, 61,63, Abb. 25.

⁶⁵⁰ Ziermann 1993, 63.

⁶⁵¹ Ziermann 1993, 61.

settlement; it is unsurprising that greater care seems to have been taken to plan the fortress's layout and ensure the relative uniformity of its architectural features.

The first town walls at Elephantine were constructed at some point between the mid-1st and early 2nd Dynasty. The earliest preserved section is only visible near the southeastern edge of the island and are the earliest enclosure walls known from the settlement excepting those related to the Early Dynastic fortress.⁶⁵² Unfortunately, these walls were unable to be dated to a specific time period based on the poor state of preservation of strata leaning against them, nor can they be directly linked to the phasing of the fortress further to the north given the lengthy distance between these foundations. These initial walls survive only in small parts, but take the familiar form of agglutinating wall phases familiar from the phasing at the fortress. In total, the walls measure at least 2.00 m wide, built almost entirely using headers. The earliest, innermost wall (Wall 216b) was thinner, roughly two bricks thick (roughly 55-60 cm), and founded directly upon bedrock.⁶⁵³ Its trajectory seems to have been dictated by the local topography. It bends and curves towards the northeast, in stark contrast to the more regular, generally orthogonally planned layout of the fortress. This inner wall was built almost primarily using headers, though stretchers are interspersed irregularly throughout the construction. It was bordered by a series of wall phases added just beyond its external face (Walls 233a, b, c and c'). It is likely that several of these phases were built in quick succession or even as part of the same renovation project, and it is plausible that Wall 233c and Wall 233c' are actually part of the same phase. Traces of mud plaster were also noted on the outer face of wall 233a, likely to help protect the mudbricks from erosion. In any case, they are built with an internal core of headers but appear to have been cased

⁶⁵² Ziermann 1993, 58-60.

⁶⁵³ Ziermann 1993, 58-60.

using alternating headers and stretchers in many places.⁶⁵⁴ All of the walls in this area used similarly sized bricks, roughly 26-26 x 10-13 x 6-7 cm in size.⁶⁵⁵

The later town walls built during the late 1st to early 2nd Dynasty overlie parts of these earlier walls, and can be more easily correlated to other preserved sections of settlement enclosure walls near the southern, western, eastern, and northwestern margins of the site primarily on the basis of comparable architecture, but occasionally supported by ceramic material from layers leaning against the walls. The path of the town walls extended west from the northwestern corner of the Early Dynastic fortress, and loosely followed the edge of Elephantine's eastern island. These walls encompassed much of the available settlement area on the southern half the island. Ziermann suggests that the wall likely abutted the southern gatehouse of the fortress; however, this part of the site has been lost and such a connection cannot be definitively confirmed.⁶⁵⁶ These town walls have been excavated in five distinct areas along its trajectory: a wide exposure to the west of the Early Dynastic citadel and north of the Satet Temple,⁶⁵⁷ a stretch along the western side of the island termed the "Southwest Gate",⁶⁵⁸ a stretch further to the south described as "South Hill",⁶⁵⁹ a lengthy stretch along the southeastern margins of the settlement,⁶⁶⁰ and a final section just south of the fortress on the eastern side of the island.⁶⁶¹ The settlement enclosure walls frequently follow a contour line at roughly 96 m above sea level, suggesting that this was altitude just beyond which Nile floods reached during the inundation season.⁶⁶² At "South Hill" and the "Southwest Gate", it deviates from this path,

⁶⁵⁴ Ziermann 1993, 58-60, Abb. 21, Tafel 21a-d.

⁶⁵⁵ Ziermann 1993, 142.

⁶⁵⁶ Ziermann 1993, 65.

⁶⁵⁷ Ziermann 1993, 67-72, 90-91, 109-114, 121-127.

⁶⁵⁸ Dreyer in Kaiser et al. 1980, 264-268; Ziermann 1993, 89, 99, 128.

⁶⁵⁹ Ziermann 1993, 85-87, 97, 128

⁶⁶⁰ Ziermann 1993, 77-85, 94-96, 114-118, 127-128.

⁶⁶¹ Ziermann 1993, 72-77, 92-94, 113-114, 125-127.

⁶⁶² Ziermann 1993, 61, Abb. 24 and Abb. 25.

perhaps in part to accommodate the steeper slope near these locations and the remnants of the earlier settlement in this part of the site.⁶⁶³

The town walls west of the fortress and north of the Satet Temple appear to have been the most overtly fortified at the site. After multiple phases of renovations, these walls reached a thickness of up to 6.70 m.⁶⁶⁴ The initial town wall in this part of the site was first constructed as double walls, roughly 50 cm apart and spanned by smaller, one brick wide transversal walls. Comparable to all the other parts of the town wall built using this “parallel walls technique”, the compartments formed by the transverse walls were filled in with the locally available Nile silt. Few sherds were excavated within this fill.⁶⁶⁵ The total thickness of the double wall was initially 1.80-1.85 m, and it was built using alternating headers and stretchers along its internal and external faces, with an internal core of headers. The interior side of the double walls was clearly plastered.⁶⁶⁶

Additional walls both inside and outside of the double walls provided further reinforcement, expanding the breadth of the wall to 3.50-3.80 m. Both the interior and exterior of the wall were decorated with buttresses with sloping sides, added beyond a thick layer of wall plaster.⁶⁶⁷ These buttresses were not always of uniform size, but typically ranged from 1.35-1.50 m wide. Ziermann estimates that they occurred fairly regularly, roughly every 2.40-2.70 m along the interior side of the wall, and every 1.70 m along the outside of the wall.⁶⁶⁸ Later renovations during the 2nd Dynasty overbuilt these earlier foundations, completely covering the earlier buttresses. The construction techniques employed in these later walls was largely the same as

⁶⁶³ Ziermann 1993, 61-63, Abb. 25.

⁶⁶⁴ Ziermann 1993, 67-69, footnote 291.

⁶⁶⁵ Ziermann 1993, 68-69.

⁶⁶⁶ Ziermann 1993, 68-69.

⁶⁶⁷ Ziermann 1993, 71.

⁶⁶⁸ Ziermann 1993, 71-72.

earlier examples, but expanded the width of the enclosure wall to 6.70 in certain places northwest of the fortress. They were built directly against the earlier phases of the town wall in this area, creating a solid mass of brickwork save for the interiors of the various towers, which were artificially filled with Nile silt. As with counterparts elsewhere at the site, the exterior face of these enclosure walls appear to slope very slightly inwards.⁶⁶⁹

A unique feature of the town wall in this part of the site was a series of semi-circular towers. Tower A, at the northwestern corner of the Early Dynastic fortress, was initially widened and renovated, but was eventually rendered obsolete by the continued reinforcement of the enclosure wall. It was replaced by a slightly smaller tower just to the northwest, Tower D. A final tower was excavated further to the west, Tower C. Tower C was roughly 3.90 m in diameter, while Tower D was roughly 3.50 in breadth and projected some 3 m from the enclosure wall.⁶⁷⁰ While buttresses were no longer visible on the outer or inner faces of the walls, a single 1.45 m wide example did extend outwards from Tower D.⁶⁷¹ While other parts of the town walls possessed platforms or rectangular observation posts, no other towers protrude outwards from the enclosure wall. Indeed, the rectangular, sloped buttresses or pilasters noted above were not revealed along any other stretches of the settlement town walls.

Only one gateway within the town wall has been identified archaeologically, but it is likely that there were several other entrances along the eastern and western sides of the island. The area around the single excavated gateway, “Southwest Gate,” was fairly extensively excavated during the first decades of work at Elephantine.⁶⁷² Unlike in most other areas of the site, the creation of the town wall in this area as well as near South Hill had to negotiate a

⁶⁶⁹ Ziermann 1993, 90-92, Abb. 27.

⁶⁷⁰ Ziermann 1993, 68-71, 91, Abb. 26, Abb. 36.

⁶⁷¹ Ziermann 1993, 91, Abb. 36.

⁶⁷² Dreyer in Kaiser et al. 1980, 264-268.

pathway through existing settlement remains, though these were constructions of an altogether much smaller scale than the enclosure wall. The architecture of the enclosure walls near the gate and South Hill are easily distinguishable from the town walls excavated further to the south and east of the island. First, they were built using straight wall segments rather than gently curving to accommodate the local topography. In addition to being more rectilinear, these walls were not constructed using double walls connected by transverse wall segments at regular intervals. Instead, thinner, irregular spaces are occasionally visible between the walls, spanned by very small cross-walls.⁶⁷³ These spaces seem to be the result of new walls being founded close to but not directly adjacent to preceding phases of construction rather than the kind of unified, coherent “parallel wall” design seen at the Early Dynastic fortress, and the town enclosure walls north of the Satet temple and along the eastern side of the island.

The gateway itself was roughly 1.40-1.50 m wide, and defined on its sides by sandstone blocks. Certain blocks were inscribed with what Dreyer describes as archaic sign groups, possibly denoting the phyle or group of workers that guarded the door or quarried the stone blocks.⁶⁷⁴ Dreyer identifies at least five building phases, with the initial width of the town wall measuring roughly 2.00 m, and gradually being reinforced along its inner side until it reached a breadth of roughly 5.80 m.⁶⁷⁵ It is noteworthy that no external fortifications or towers were built immediately adjacent to the gateway at its foundation, though some were added later.⁶⁷⁶ As at other walls at Elephantine, a casing of alternating headers and stretchers surrounds an interior core of bricks laid almost exclusively as headers.⁶⁷⁷ The gateway likely served as a link to the

⁶⁷³ Seen in a plan view in Ziermann 1993, Abb. 34 and Dreyer in Kaiser et al. 1980, 265, Abb. 6.

⁶⁷⁴ Dreyer in Kaiser et al. 1980, 266.

⁶⁷⁵ Dreyer in Kaiser et al. 1980, 264-268.

⁶⁷⁶ During a visit to the site, Cornelius von Pilgrim suggested that a reinforcement of the gateway and what appeared to be two U-Shaped towers on either flank should be dated to a late Old Kingdom renovation.

⁶⁷⁷ Dreyer in Kaiser et al. 1980, 265, Abb. 6.

river for parts of the southwestern settlement; it is likely that there were others further to the north and possibly the south as well.⁶⁷⁸

Further to the south, at South Hill, the enclosure walls eventually reached a thickness of at least 4.40 m. The initial phase of this wall was a double wall connected by smaller transverse walls, but these spaces were much longer and thinner than in other parts of the site. They were filled with collapsed mudbrick, Nile silt sediments, and contained few sherds.⁶⁷⁹ Remnants of a tower or platform were discovered in association with the town wall in this part of the site. Though only parts are preserved, it likely covered an area of 5 x 5.50 m. Because its bricks are bonded to those of the enclosure wall in upper courses, it seems likely that it was conceived in tandem with the town wall.⁶⁸⁰ The walls were built with alternating headers and stretchers, and in some instances, bricks were set aslant for parts of a single course.⁶⁸¹

Further to the southeast, a much longer stretch of the wall was investigated. The wall is visible for roughly 70 m along the eastern side of the island, with smaller stretches visible to the south as well.⁶⁸² The basic architecture of the walls is comparable to those north of the Satet temple: an initial double wall spanned by cross walls that was subsequently widened dramatically through later renovations. Unlike the Old Kingdom town wall further to the west, these walls were not built in straight segments, but rather curve and bend somewhat according to the local topography. For certain stretches, the width of these walls reaches some 8 m, the widest of any enclosure walls known at Elephantine.⁶⁸³

⁶⁷⁸ Ziermann 1993, 63-64.

⁶⁷⁹ Ziermann 1993, 85-87.

⁶⁸⁰ Ziermann 1993, 85.

⁶⁸¹ Ziermann 1993, 87

⁶⁸² Ziermann 1993, 77, Abb. 25.

⁶⁸³ The gradual reinforcement of the wall is detailed in Ziermann 1993, 77-79, 83-85, 127-128.

Two likely related features distinguish the walls in this part of the site from other locations where the 2nd Dynasty town walls were revealed: a staircase leading up to the top of the walls, and nearby, a building or platform adjacent to the wall itself.⁶⁸⁴ It is not entirely clear what purpose this construction served, but it seems likely that it served as some kind of observation post. The staircase is the largest such example from the Early Dynastic Period at Elephantine; it was essentially built into the wall itself, ascending in a spiral to the top of the ramparts and providing access to the top of the front building or tower just to the northeast. The walls of the staircase were clearly plastered. Though initially the breadth of the double walls was only 2.30 m wide, with a roughly 50 cm space separating the 0.80 m thick inner wall from the roughly 1.00 m wide outer wall, transverse walls spanned the distance between them at roughly 1.40 m intervals.⁶⁸⁵ The presence of the platform/front building widened the wall to a breadth of 6.50 m, but subsequent renovations later in the 2nd Dynasty further broadened this area of the wall to 8.00 m thick.⁶⁸⁶ Further renovations along the interior side of the double walls eventually widened even the thinnest parts of the town wall to at least 4.00 m.⁶⁸⁷

Further to the northeast, just south of the fortress and to the east of the eastern part of the city, another double wall supported by transverse walls was revealed. These walls should clearly be linked to the parallel walls found along the southeastern fringes of the settlement: their dimensions are virtually identical (0.80 m thick outer wall, 1.05 m thick inner wall).⁶⁸⁸ The distance between these double walls was roughly 45 cm. A third, 1.3 m wide wall was later added approximately 60-70 cm beyond the exterior of the double wall. It was similarly

⁶⁸⁴ Ziermann 1993, 77-81.

⁶⁸⁵ Ziermann 1993, 81, Abb. 31.

⁶⁸⁶ Ziermann 1993, 83-84, 114-118.

⁶⁸⁷ Ziermann 1993, 83.

⁶⁸⁸ Ziermann 1993, 92—the dimensions are of Wall 151a and Wall 152a.

connected by small cross walls that, comparable to all other examples at Elephantine, were not finished with plaster. The total thickness of the wall in this area was roughly 4.20 m.⁶⁸⁹ It is likely that these walls extended to the northwest, eventually meeting the “gatehouse” constructed to the south of the fortress. However, Ziermann believes it is doubtful that the same gatehouse controlled passage into both the fortress and the town walls, and postulates that a separate gate within the town walls must have existed nearby.⁶⁹⁰

The town walls were further expanded later in the 2nd Dynasty to include the extramural settlement to the north of the fortress—a development that seems to roughly coincide with the abandonment of the fortress. This walling extension stretched 60 m to the north, to the tip of the eastern island.⁶⁹¹ Extramural foundations had long existed in this area, but now were formally incorporated within the enclosure walls of the settlement. Once again, a double wall spanned by small transverse walls formed the initial phase of enclosure walls in this part of Elephantine. The exterior wall was thicker, measuring some 1.20 m in breadth, and was separated by a roughly 0.30 m distance from the thinner, 80 cm wide inner wall. Subsequent phases of walling later added a third, 1.25 m wide wall to the inside of the existing town walls to the north of the fortress.⁶⁹² The total width of the walling system in this part of the site approached 4.00 m by the end of the Old Kingdom.⁶⁹³

Scattered renovations were made to the town walls during the later 2nd Dynasty and later in the Old Kingdom. A 1.2-1.3 m thick, curving wall was added along the inside of the town enclosure near the location of the staircase and front-building along the eastern side of the

⁶⁸⁹ Ziermann 1993, 92, Abb. 37.

⁶⁹⁰ Ziermann 1993, 65.

⁶⁹¹ Ziermann 1993, 100-101, 107-109, 118-121, Abb. 41, Abb. 42.

⁶⁹² The initial parallel wall is described in Ziermann 1993, 107, 109-110. The subsequent phase is noted in Ziermann 1993, 118-120.

⁶⁹³ Ziermann 1993, 118.

wall.⁶⁹⁴ Further to the north, a 3.1-3.25 m wide wall changed the course of the earlier town enclosure; rather than bending westward towards the fortress's gatehouse, it now angled to the northeast, more assiduously following the contours of the island's local topography towards the southeastern corner of the Early Dynastic fortress. This wall was built almost entirely using headers, but occasionally bricks were set aslant or on edge to maintain a level foundation.⁶⁹⁵ It seems likely that this change of direction was preceded by the abandonment of the fortress. Later, a 1.50 m wall was completed against the inner face of this earlier wall.⁶⁹⁶ Minor reparations were undertaken throughout the Old Kingdom, but evidence of these renovations is scant. This is likely because later construction efforts excavated deep into the existing architecture in order to expose and perhaps partially raze earlier, obsolete town walls to create a level foundation for future town planning efforts.⁶⁹⁷ Only limited information about the enclosure walls at Elephantine in the First Intermediate Period is known. Ziermann and Haeny suggest that three large, agglutinated phases of walling founded just to the west of the town walls near the Satet temple should be dated to the First Intermediate Period.⁶⁹⁸ The phases of this wall lean on one another and therefore do not seem to have been spanned by any kind of transverse walls.

Though they used bricks that were similar in size to the Early Dynastic fortress (ranging from 24-28 x 10-14 x 6-9 cm, they were often about 1 cm longer, wider, and thicker than the bricks measured from the fortress), the later town enclosure walls used several construction techniques that were not evidenced in the earlier phases of the fortress.⁶⁹⁹ Unworked wooden

⁶⁹⁴ Ziermann 1993, 114, Abb. 49.

⁶⁹⁵ Ziermann 1993, 113, Abb. 47.

⁶⁹⁶ Ziermann 1993, 125.

⁶⁹⁷ Raue in Dreyer et al. 2008, 68-78. Raue dates this to the 5th Dynasty.

⁶⁹⁸ Haeny in Kaiser et al. 1974, 85-86, Ziermann 2003, 128 ad Abb. 49. Haeny refers to them as a single wall, Wall B.

⁶⁹⁹ Ziermann 1993, 142

beams were placed crosswise in parts of the town wall extension to the northeast and east of the town and in the town enclosure walls near the fortress, while reed matting was used to help bricks settle and mitigate the effects of broken bricks.⁷⁰⁰ At the town walls east of the city, such reed mats occurred roughly every 40 cm, while the last renovation of the settlement enclosure walls along the southeastern edge of the site had similar reed beds every 50 cm.⁷⁰¹ The town walls were also the only enclosure walls that used a more whitish, perhaps gypsum based plaster, though this was found only in select instances. Simple mud plaster was applied more frequently and very liberally: in the town wall to the east of the settlement, it reached a thickness of up to 2.5 cm.⁷⁰²

During the Middle Kingdom and Second Intermediate Period, new town walls were constructed to incorporate these areas within the confines of an enclosure wall. Excavations under the direction of Cornelius von Pilgrim have exposed two principal building phases of this wall along the northeastern margins of the city, and portions of the wall have been investigated in the southwestern part of the city as well.⁷⁰³ In both locations, potsherds from preserved stratigraphy linked the construction of this wall to the late Middle Kingdom—specifically the reign of Senwosret III.⁷⁰⁴ This dating is further corroborated by the re-orientation of houses in the northeastern part of the settlement to accommodate the wall's presence; this shift can be conclusively dated to the late 12th Dynasty, and likely the reign of Senwosret III. It is likely that these town walls had become obsolete by the early 18th Dynasty, as the preserved architecture from strata near the walls from this period suggests that the neighborhood returned to the original

⁷⁰⁰ Ziermann 1993, 131, Tafel 16a, 18b, and 18d.

⁷⁰¹ Ziermann 1993, 131, Abb. 47.

⁷⁰² Ziermann 1993, 131.

⁷⁰³ Details of these investigations are present in von Pilgrim in Raue et al. 2011, 198-201, and von Pilgrim in Seidlmayer et al. 2016, 207-210.

⁷⁰⁴ von Pilgrim in Raue et al. 2011, 198-201 ; von Pilgrim in Seidlmayer et al. 2016, 209.

orientation it maintained prior to the construction of the settlement enclosure wall.⁷⁰⁵ Both walls were built using similar bricklaying patterns with alternating headers and stretchers on the interior and exterior faces, and headers predominating in the walls internal core.⁷⁰⁶ The construction of the wall forced the renovation or reduction in size of houses that had already been constructed across its path.⁷⁰⁷ Von Pilgrim suggests that the renewal of the town wall in the late 12th Dynasty, when Egypt already had an active military presence as far south as the Second Cataract, should be viewed in tandem with the expansion of settlement into Syene on the Nile's east bank. The town enclosure, together with the Aswan-Konosso wall, helped to fortify and guard the passage through the First Cataract.⁷⁰⁸

The location of the Middle Kingdom and Second Intermediate Period town walls at the very margins of Elephantine rendered them vulnerable to high Nile floods and the moisture of the surrounding soil.⁷⁰⁹ Indeed, Nile silt layers were visible only 1.50 m beyond and 1 m below the northeastern part of the late 12th Dynasty enclosure wall. The lowermost bricks of the wall were damaged, softened and eroded as a result of the moisture of the surrounding strata. The original 3.20 m wide town wall was subsequently repaired with a sloping wall to reinforce its outer face, preserved at times to a width of 80 cm.⁷¹⁰ This renovation appears to have been completed in the late 12th Dynasty on the basis of sherds associated with the excavation of this wall and surrounding strata. To protect the outer edges of the wall, a 60 cm deep trench was excavated to a distance of 2 m beyond the wall. The extensive use of potsherds to fill this trench was likely intentional—an effort to improve drainage in the vicinity of the base of the wall.⁷¹¹

⁷⁰⁵ von Pilgrim in Seidlmayer et al. 2016, 210.

⁷⁰⁶ von Pilgrim in Seidlmayer et al. 2016, Abb. 9.

⁷⁰⁷ von Pilgrim in Seidlmayer et al. 2016, 209-210.

⁷⁰⁸ von Pilgrim in Seidlmayer et al. 2016, 209-210.

⁷⁰⁹ von Pilgrim in Seidlmayer et al. 2016, 207-208.

⁷¹⁰ von Pilgrim in Seidlmayer et al. 2016, 207.

⁷¹¹ von Pilgrim in Seidlmayer et al. 2016, 208.

Unfortunately, such renovations and building activity on the interior, settlement-side of the wall, appear to have destroyed any trace of a foundation trench. Indeed, the foundation of this wall was somewhat uneven, as it followed the local topography and was built atop existing settlement remains. Perhaps as a result of problems from bricks within the wall “settling”, many courses do not appear to have been perfectly horizontal, and indeed incline upwards towards the wall’s interior.⁷¹² A later wall was constructed directly above the earlier, 12th Dynasty wall. It was slightly thinner, only 3 m in breadth. Ceramic finds associated with the wall suggest a 17th Dynasty date.⁷¹³ It follows the trajectory of its predecessor and shares many of the same construction techniques. Founded upon the uneven top of its predecessor, structural problems eventually developed. Shear cracks are visible in images of the wall, and perhaps spurred a reparation effort on the exterior face of the wall that added at least 50 cm to its width.⁷¹⁴

Several administrative or cultic buildings within the confines of the settlement enclosure wall also had sizable perimeter walls, though these were often not free-standing enclosure walls. In particular, the outer walls of the governor’s palace of the Old Kingdom, First Intermediate Period and early Middle Kingdom, the Heqaib sanctuary during the Middle Kingdom, and the temenos walls of the Middle Kingdom Satet temple were fairly substantial. In all of these cases, the outermost walls of these buildings were at least one meter thick, but only the Heqaib sanctuary was both well preserved and excavated extensively—and it was not an enclosure wall, but rather the outer walls of a sanctuary.⁷¹⁵ The width of the outer wall of the governor’s palace was roughly 1 m thick, and the main entrance was defined by a stone threshold. Only its northwestern wall has been preserved, and it likely surrounded a building that was at least 600

⁷¹² von Pilgrim in Seidlmayer et al. 2016, 207-208.

⁷¹³ von Pilgrim in Seidlmayer et al. 2016, 208-209.

⁷¹⁴ von Pilgrim in Seidlmayer et al. 2016, 208.

⁷¹⁵ von Pilgrim 2006, 412-417.

m². Other large walls surrounded administrative installations nearby, including a bakery and food production center just to the southeast. These walls were robust, and clearly defined important buildings, but it is difficult to determine whether they were free-standing enclosure walls on the basis of the extant evidence.⁷¹⁶ The Satet temple was progressively enlarged over time. It began as a small sanctuary between granite boulders and was over the course of time renovated. After the abandonment of the fortress, a large wall that has been interpreted as a temple enclosure wall traveled northwest-southeast to the north of the Satet temple. The temple itself was surrounded with new enclosure walls also during the 6th Dynasty.⁷¹⁷ A related walling system seems to have delimited both the temple area itself as well as the approach to the sanctuary, and it is possible that the area in the vicinity of the Satet temple and the long abandoned Early Dynastic fortress housed multiple temples. By the reign of Senwosret I, the temple sanctuary was a rectilinear limestone construction.⁷¹⁸ It was extensively renovated during the 11th and 12th Dynasties, and surrounded by a thick mudbrick temenos wall.⁷¹⁹ Unfortunately, few specifics regarding this enclosure have been published, though its southern side appears to have been over 5 m wide, and likely served as a temple pylon. The walls tapered to roughly 3.10 m wide at the Satet temple's northern side. It appears to have been built using alternating headers and stretchers on its interior and exterior faces, with headers predominating within the internal sections of the wall.⁷²⁰

The Aswan-Konosso wall is one of the few examples of massive wall constructions that extended for kilometers, often defending chokepoints along the Nile. A comparable but slightly smaller example is known from Uronarti, but the 12th Dynasty walls stretching along the east

⁷¹⁶ For the governor's residence, see von Pilgrim 2006, 403-411; Moeller 2016, 220-226.

⁷¹⁷ Bommas in Kaiser et al. 1997, 138-144, Abb. 13.

⁷¹⁸ Kaiser in Kaiser et al. 1987, 84-88 ; Kaiser in Kaiser et al. 1988, 152-157.

⁷¹⁹ Kaiser in Kaiser et al. 1993, 145-152.

⁷²⁰ Dreyer in Kaiser et al. 1987, 78-84. Plans of this installation are provided in Dreyer in Kaiser et al. 1987, 79, Abb. 1, and 81, Abb. 2. Note its breadth on the plan in von Pilgrim in Kaiser et al. 1997, 153, Abb. 18, and the thickness of its southern side in von Pilgrim 2010, Abb. 1, and von Pilgrim 2006, Abb. 1.

bank of the Nile from modern day Aswan to Konosso are among the largest and longest free-standing walls that Pharaonic Egyptian civilization ever produced. Though noted by early European travelers to the region, the map was first planned topographically during the Napoleonic expedition to Egypt.⁷²¹ This early map shows that the wall travelled south from Aswan/Syene before jogging to the southeast, looping around the mountain known as Tell Asmar and resuming its track towards Konosso. The northernmost 3.5 km of the wall had already disappeared beneath the expansions of the modern city of Aswan. The southern 1.7 km of the wall has been lost, destroyed by the waters of the first Aswan Reservoir. Much of the remaining wall has been quarried for bricks or stones or damaged by relatively recent construction. Indeed, substantial parts of the standing ruins have been employed as the enclosure wall of modern military camps!⁷²² Over the course of three short campaigns in February and December of 1986 and December of 1987, Horst Jaritz led an investigation of the remains of the wall stretching from Aswan to Konosso with the aim of dating the monument and better understanding its construction.⁷²³

Modern excavations near the northern limits of the preserved remains of the wall revealed parts of it in cross section. The remains of the road to the west that it presumably guarded was also visible in section. The wall itself was set into a shallow foundation trench, and had gently sloping sides (at approximately an 82 degree angle).⁷²⁴ In locations where the soil was sandier, the wall was founded upon a base of granite blocks.⁷²⁵ The wall was constructed using casemates, which were themselves covered by an outer wall of mudbrick. This outer wall

⁷²¹ Pococke 1743, 120; Lancret 1821, 4-7,

⁷²² Jaritz 1987, 69.

⁷²³ Jaritz 1987, 69; Jaritz 1993, 107

⁷²⁴ Jaritz 1987, 69-70.

⁷²⁵ Jaritz 1993, 111

measured roughly 1.60-1.80 m wide on either side of the casemates, which were approximately 1.60-1.75 m in breadth. The maximum width of the wall was roughly 5.25 m at its base, but in other relatively short stretches further to the south (site 6, for example) it thins to some 3.75 m or less. In these sections, the wall was built using solid brick masonry, without any casemates. The casemates were packed with granite rubble collected in the vicinity of the construction, and are among the earliest attestations of this type of construction technique in Egypt. Transverse walls roughly 0.60-0.65 m wide (roughly 1.5 bricks) defined the space of the individual casemates.⁷²⁶ The wall is nowhere preserved to a height greater than 5 m, but could perhaps have reached 10 m in antiquity.⁷²⁷

The bricks at the site are fairly uniform in size, roughly 9-10 x 18 x 36 cm.⁷²⁸ The outer casing of the wall was built using alternating courses of stretchers and headers, but the interior was comprised primarily of headers. Occasionally, bricks set at an oblique angle were used to accommodate the sloping outer sides of the walls. Jaritz suggests that the silt needed to make the bricks themselves was likely excavated and subsequently collected just to the east of the wall.⁷²⁹ The bricks themselves have fine granite inclusions, likely from the surrounding rubble that was presumably introduced to the brick admixture during the fabrication process. Many bricks, though not all, were marked with two or three finger "grooves" impressed into their upper surface.⁷³⁰ These marks presumably marked their production by different work groups. At site VIII, reed matting was used every six to ten courses (though Borchardt notes that in locations that are now inaccessible, such bedding was visible every ten or eleven courses).⁷³¹ At site VI,

⁷²⁶ Jaritz 1987, 69-70; Jaritz 1993, 111.

⁷²⁷ Jaritz 1987, 71.

⁷²⁸ Jaritz 1987, 70.

⁷²⁹ Jaritz 1987, 70.

⁷³⁰ Jaritz 1993, 110-111.

⁷³¹ Jaritz 1993, 113; Borchardt 1923, 23.

the wall recesses to a width of only 3 m for a stretch on its western side, and a glacis of mudbrick was identified to the east of the wall. The purpose of this feature is unclear.⁷³² The outer face of the wall was covered with a mud plaster coating to help protect the exterior of the wall from erosion.⁷³³

The curving path of the wall as it bends past the location where the stela of Hepu was found did not necessitate any special construction features—the casemate system seems to have been maintained, and there are no buttresses or towers in evidence here or elsewhere along the wall. The wall seems to have been constructed in a series of straight sections that Jaritz’s plans suggest were not bonded to one another at their bases.⁷³⁴ That multiple sections were being built at the same time and construction was not meticulously coordinated is unsurprising given the scale of the wall itself and its rather prosaic purpose as a defense of the portage road or passageway to the west. This path was essentially an open space of variable width between the river and the wall to the east.⁷³⁵

Recent salvage excavations have re-evaluated the phasing of the wall. Cornelius von Pilgrim and his team determined that the wall was completely rebuilt, with the older wall constructed using “greyish mudbricks” often marked with the aforementioned imprints, and bonded with a “yellowish mortar consisting of desert marl”.⁷³⁶ While these grey mudbricks were occasionally reused in the later phase, most of the bricks in the rebuilt wall are sandier and more yellow in color. The rebuilt wall maintained the same internal casemate structure, and von

⁷³² Jaritz 1987, 70.

⁷³³ Jaritz 1993, 111, pl. 25b.

⁷³⁴ Jaritz 1993, 110-111, fig. 3.

⁷³⁵ Jaritz 1993, 111.

⁷³⁶ von Pilgrim in von Pilgrim et al. 2011, 135-136.

Pilgrim postulates that damaged older bricks may have been used in the mortar of the new wall.⁷³⁷

While the portage road was used in some capacity up until modern times, dating the construction of the wall has proven difficult, and numerous explanations have been proposed.⁷³⁸ The current working assumption is that the Aswan-Konosso wall should be dated to the Third Intermediate Period, largely based on architectural parallels with town wall B at Elephantine.⁷³⁹ A mid to late 12th Dynasty date for the foundation of the wall's first phase remains a possibility, however. First, inclusions of mid-12th Dynasty pottery were found in the material of the grey bricks of the first wall, providing a *terminus post quem* for the initial wall's construction. The prevalence of ceramic material from this period contrasts sharply with the relative absence of sherds linked to the Roman period, and there is no reason to think that the initial phase of the wall or its later rebuild should be dated to these periods. In contrast, the surface scatter of sherds near the watchtower identified at Tell Asmar success an early Roman date, and comparable wares are noticeably absent near the wall itself. Second, bricks with similar finger imprints are known from bricks used in the Middle Kingdom city wall at Elephantine.⁷⁴⁰ Third, the 5 km long wall in the vicinity of Uronarti, the closest parallel to the Aswan-Konosso wall, seems likely to date to the early Middle Kingdom as well. Jaritz also suggests that the positioning of the stela erected on behalf of Hepu in the third year of Senwosret II was such that the ancient portage road must have been in use for the stela to have been read; the stela commemorating Hepu's inspection tour of Wawat was installed at roughly the mid-point between Aswan and Konosso.⁷⁴¹

⁷³⁷ von Pilgrim in von Pilgrim et al. 2011, 136.

⁷³⁸ The prospective dating of the monument by various scholars is summed up in Jaritz 1987, 73-74; more generally, see also Jaritz 1993, 113-114.

⁷³⁹ von Pilgrim in von Pilgrim et al. 2011, 136-137.

⁷⁴⁰ Jaritz 1993, 113.

⁷⁴¹ Jaritz 1993, 114.

This is plausible if not entirely convincing, if only because it is not certain that passers-by on the portage road were the intended audience of such a stela. Von Pilgrim's investigation of the scant, thin remains of strata leaning against the western side of the wall and beneath the construction layer associated with the wall's first phase has confirmed that the initial foundation of the wall cannot be earlier than the mid-12th Dynasty.⁷⁴²

EL KAB

Site Summary: The Upper Egyptian site of El Kab, located some 80 km south of Luxor, has both a lengthy history of occupation and multiple sets of enclosure walls—the Great Walls of El Kab, dated by C¹⁴ readings of wooden beams within the wall to 500-130 BCE, the virtually contemporaneous Temple Enclosure Wall, and a much earlier set of Double Walls dated to the Old Kingdom and First Intermediate Period.⁷⁴³ Located on the east bank of the Nile in the third nome of Upper Egypt, the settlement at El Kab eventually eclipsed the early dynastic power center at Hierakonpolis. Though rarely thought of as a frontier town, recent work in the tomb of Sobeknakht has highlighted how even settlements as far north as El Kab were threatened by marauding Nubians during the Second Intermediate Period. Indeed, Sobeknakht states that “the enclosure wall of Nekheb was destroyed” before its inhabitants rallied to fight off the Kushite invaders.⁷⁴⁴

Relevant Enclosure Walls: Given the parameters of this dissertation, only the evidence from the so-called Double Walls will be considered extensively here. The Double Walls are visible across a 290 m stretch between the southwestern wall of the Great Walls and the northwestern wall of

⁷⁴² von Pilgrim in von Pilgrim et al. 2011, 136.

⁷⁴³ For clarity, I will use the nomenclature first adopted by Clarke and later Hendrickx et al. to delineate these constructions: the Double Walls, Temple Enclosure Walls, and the Great Walls of El Kab. Clarke 1921, 56; Hendrickx et al. 2010, 145-46.

⁷⁴⁴ Davies 2003, 52-53.

the Temple Enclosure. The Double Walls were first noted in the writings of Anton Von Prokosch and later, maps from the Lepsius expedition to the region.⁷⁴⁵ However, it was not until 1921 that the Double Walls received a more substantial treatment by Somers Clarke, who identified them as perimeter walls of the ancient settlement.⁷⁴⁶ Although he viewed their extant remains as roughly a quarter of a circular town enclosure wall, Hendrickx and his team have raised valid concerns about such a layout, suggesting instead a more irregular but polygonal enclosed space.⁷⁴⁷ No actual buildings within the Double Walls were ever planned, but the form of the walls together with descriptions of the walled area by archaeologists and travelers alike strongly suggests that its identification as a town site is correct, as many noted the presence of domestic installations and occupational debris.⁷⁴⁸

Technical Details and Construction Methods: C¹⁴ dating of charcoal found within and between mudbricks from the inner wall of the Double Walls suggest that this edifice dates to the late Old Kingdom, as two samples provided nearly identical readings. A similar sample from the outer wall suggested a slightly later Old Kingdom date, while a second sample suggested that at least parts of the outer walls may date to the First Intermediate Period or early Middle Kingdom.⁷⁴⁹ There is no evidence for any bastions or towers along these walls, but a small projection is visible on Depuydt's plan of the outer wall, roughly 55 m north of where the Temple Enclosure Walls cut the Double Walls.⁷⁵⁰ The Double Walls are the most poorly preserved of the known wall systems at El Kab, but extant remains are substantial enough to allow for rough estimates of their general trajectory. The Double Walls are cut in the north by the

⁷⁴⁵ Hendrickx et al. 2010, 162; Von Prokosch 1829, 246.

⁷⁴⁶ Clarke 1921.

⁷⁴⁷ Hendrickx et al. 2010, 163. Occupational debris is mentioned by Sayce and Clark in a description of their excavations in Sayce and Clark 1905, 262-64, 271-72.

⁷⁴⁸ For more on this point, see Hendrickx et al. 2010, 162-63.

⁷⁴⁹ Hendrickx et al. 2010, 145-46.

⁷⁵⁰ Depuydt 1989, 1/1000 scale map of El Kab.

Temple Enclosure Wall and in the east by the Great Wall. The surviving sections of the inner wall can be described as two line segments joined at a roughly 135 degree angle, and the remains of the outer wall follow a similar path, but are less well preserved further to the west. This suggests a polygonal rather than a rounded wall, contrary to Somers Clarke's original assumptions.

Brick sizes appear to vary substantially throughout the walls. Clarke suggests a rough estimate of 35 x 13 x 6 cm, while Capart noted examples that were 34-35 x 18-19 x 19-11 cm, and Jean Stiénon suggested that the bricks of the outer wall were of a different size than those of the inner wall.⁷⁵¹ Hendrickx and his team analyzed a single brick from the inner wall that was substantially smaller, some 24 x 18 x 8 cm.⁷⁵² These rather substantial differences support Clarke's initial appraisal that there are "considerable variations (in size), besides which it is evident that in many places the walls have been broken and patched."⁷⁵³ All sources uniformly describe the brick matrix of the Double Walls as being sandy, relatively lacking in straw, and of fairly low quality when compared to the bricks of the later enclosure walls at the site.⁷⁵⁴

The outer wall is preserved to a height of 2.5 m, and the inner wall to a height of 3 m, and Clarke suggests that the inner wall was likely the taller of the two in antiquity—though it is unclear what motivated this conclusion. The thickness of the inner and outer walls varies; Clarke records rough estimates of 2.44 m for the inner wall, 2.74 m for the outer wall, and 4.88 m for the distance between the two constructions.⁷⁵⁵ Although shoddy construction materials and poor

⁷⁵¹ Hendrickx et al. 2010, 160-161.

⁷⁵² Clarke gives a figure of 35 x 13 x 6 cm while Capart suggests 34 x 18 x 10/ 35 x 19 x 11 cm. A fallen brick from the outer wall used by Hendrickx et al. measured 24 x 18 x 8 cm. Clarke 1921, 59; for Capart's figure from an unpublished fieldbook, see Hendrickx et al. 2010, 160, footnote 31. The figure for the fallen brick they analyzed is derived from the table from Hendrickx et al. 2010, 166.

⁷⁵³ Clarke 1921, 59.

⁷⁵⁴ Newton in Hendrickx et. al. 164-166; Clarke 1921, 59.

⁷⁵⁵ Clarke 1921, 59.

preservation account for some of the complications in establishing a standard width for the inner and outer walls, another source of difficulty is likely derived from their sloping rather than straight sides. Additionally, Clarke notes that “houses long since decayed” were built up against the inner wall. Clarke was often unable to distinguish where the bricks of such intrusive structures ended and the wall proper began due to the poor state of preservation.⁷⁵⁶ Further complicating analysis of these walls is the patchwork nature of their construction. Both the outer and inner wall seem to have been built in multiple phases, in a series of sloping vertical layers—very similar to other settlement enclosure walls known from late Old Kingdom constructions in Upper Egypt.⁷⁵⁷ At least three phases of the inner wall are clearly visible in photos of the Double Walls taken in 1966, but there are no plans specifically mapping the phases of the outer or inner walls.⁷⁵⁸

How the two Late Old Kingdom walls relate to one another is unclear. Clarke identifies the inner and outer walls as contemporaneous and part of the same initial construction project.⁷⁵⁹ The architect Jan Stiénon contends that the size of the bricks between the two walls was different, and thought that connecting walls existed between the two; however, no evidence for such connecting walls or even uniform brick sizes in either of the walls has been unearthed.⁷⁶⁰ Hendrickx suggests that the area between the inner and outer walls was filled in with rubble, and that the Double Walls were actually designed as casing walls of a single perimeter wall that measured over 10 m thick and was nearly as tall as the much later 11 m tall Temple Enclosure.⁷⁶¹

⁷⁵⁶ Clarke 1921, 59.

⁷⁵⁷ For the quality of the bricks at El Kab, see Clarke 1921, 59-60 and Hendrickx et al. 2010, 162-164. For sloped walls, see Moeller in Kemp et al. 2004, 263.

⁷⁵⁸ Hendrickx et al., 161, fig. 15 and fig. 16.

⁷⁵⁹ Clarke 1921, 59-62.

⁷⁶⁰ From an unpublished field notebook cited in Hendrickx et al. 2010, 161-162 and footnote 33.

⁷⁶¹ Clarke 1921, 59-62; Hendrickx et al. 2010, 162.

This matches certain 19th century eyewitness accounts from local Egyptians and European travelers to the site, but several aspects of the Double Walls construction do not accord well with this thesis.⁷⁶² First, the inner wall has a pronounced slope inward toward the town and away from the outer wall, an unusual construction choice for a massive casing wall, especially one that might have approached the height of the much later Great Wall. Second, C¹⁴ dating suggests that at least one rebuilding effort took place on the outer wall, and this would have been a markedly more difficult endeavor if the Double Walls were retaining walls of a massive, rammed-earth wall—a construction technique that is not well attested in Egypt at this time. Third, the fill that Clarke found between the two walls consisted of “pottery of all dates and had been turned over many times.”⁷⁶³ This suggests that the fill was actually a dumping ground used by *sebbakhin*, and descriptions from visiting travelers of a single wall can thus be understood as having failed to account for this fill. Alternatively, the outer wall itself may still have been covered by later town ruins.

In any case, later buildings eventually eclipsed the Late Old Kingdom Double Walls, and doubtless the city wall must have been rebuilt as a result. It is possible if unlikely that a single massive wall with fill in between the original Double Walls may have been the culmination of multiple rebuilding programs at the El Kab town site, perhaps once structures directly abutting the inner wall emerged or after growing occupation layers caused the actual height of the tell to rise. However, given the evidence against such a hypothesis, it seems more likely that the Double Walls were constructed as two separate walls, with the outer wall likely being somewhat later in date and designed to complement the inner wall either in an effort to provide greater

⁷⁶² Clarke 1921, 59.

⁷⁶³ Clarke 1921, 59.

security, or even to serve as the site's main perimeter wall after the inner wall began to deteriorate or was infringed upon by domestic installations.

FARAS

Site Description: Located on the west bank of the Nile across the river from the fortress at Serra East, the site of Faras also possessed a Middle Kingdom fortress.⁷⁶⁴ In addition to possibly earlier settlement remains, the site was reoccupied during the New Kingdom.⁷⁶⁵ It is perhaps most famous for later Meroitic, early Christian, and Medieval remains at the site, including a large cathedral that was the subject of excavations by a Polish team led by Kazimierz Michalowski between 1961-1964, during the broader UNESCO salvage campaign in Nubia during this time.⁷⁶⁶ The Middle Kingdom fortress was investigated by F.L. Griffith while he visited Faras and its environs over two excavation seasons in the winters of 1910-11 and 1911-12.⁷⁶⁷ Griffith was able to date the installation on the basis of architectural parallels, significant similarities between the pottery found within the fort and examples he knew from Ikkur and Kubban, and over 100 scaraboid seal impressions whose simple hieroglyphic motifs likely mark them as from the 12th Dynasty.⁷⁶⁸

Relevant Enclosure Walls: Within the time frame of this dissertation, the only enclosure walls of note are the Middle Kingdom fortress walls and a single outer fortification wall beyond the fortress itself.⁷⁶⁹ Griffith appears to describe the orientation of the fort at Faras based on local position relative to the nearby bend in the Nile rather than in reference to magnetic north.⁷⁷⁰

Thus, the outer works beyond Griffith's "western" wall of the Middle Kingdom fortress were in

⁷⁶⁴ Griffith 1921, 80-83, pl. I.

⁷⁶⁵ Griffith 1921, 83-97.

⁷⁶⁶ Michalowski 1966.

⁷⁶⁷ Griffith 1921, 1.

⁷⁶⁸ Griffith 1921, 81

⁷⁶⁹ Griffith 1921, 80-81.

⁷⁷⁰ Griffith 1921, 80-81.

all likelihood following a more NE-SW track. For the purposes of clarity, this dissertation will refer to these walls using the same terminology as Griffith.

Technical Details: Technical details about the walls of the Middle Kingdom fortress are unfortunately barely recorded in Griffith's publication of the site. Due to the importance of the post-Pharaonic ruins and perhaps also as a result of the fortress's poor condition of preservation, as noted by Griffith, the Middle Kingdom remains at Faras were not reinvestigated during the UNESCO salvage campaign during the late 1950s and early to mid-1960s.⁷⁷¹ The fortress at Faras is small compared to many of its counterparts in Nubia, measuring only 70 x 80 meters in size.⁷⁷² In most parts of the site, only one course of brickwork remained, but this was enough to allow Griffith to reconstruct the general plan of the fortress. The walls were some 3.3 meters thick and Griffith records the placement of rectangular bastions along the fortress's western wall.⁷⁷³

Outside the main wall of the fortress at its locally western side, there was a narrow wall that was roughly 55 cm thick. On its southern side, it had been lost to erosion, but to the north, this wall also possessed rectilinear bastions.⁷⁷⁴ It was connected to the main enclosure wall of the fortress by a serpentine wall on its northern side. Griffith suggests that this serpentine wall may be serving as a retaining wall holding up a sand platform from which the outer wall could be defended.⁷⁷⁵ No comparable screening walls existed along the northern or southern sides of the fortress.

⁷⁷¹ Griffith 1921, 80-81.

⁷⁷² Griffith 1921, 80.

⁷⁷³ Griffith 1921, 80, pl. I.

⁷⁷⁴ Griffith 1921, 81, pl. I.

⁷⁷⁵ Griffith 1921, 81.

GIZA

Site Description: Arguably one of the most famous archaeological sites in the world, Giza is undoubtedly best known for the 4th Dynasty pyramids of Khufu, Khafre, and Menkaure, and the Great Sphinx. However, excavations have revealed a suite of additional archaeological features worthy of comment. In addition to the pyramids and the remnants of their valley and pyramid temples, large mastaba fields extend east and west of Khufu's pyramid and east of Khafre's pyramid.⁷⁷⁶ Beyond funerary monuments, the site supported a host of urban enclaves dedicated to building and/or supporting these larger installations. The pyramid of Queen Khentkawes and its associated state-planned priestly community are located just north of the Muslim cemetery.⁷⁷⁷ Menkaure's valley temple was converted into homes for the individuals who later serviced his cult.⁷⁷⁸ Workmen's galleries have been discovered west of Khafre's pyramid, and were surrounded by an enclosure wall.⁷⁷⁹ The large workmen's barracks, associated administrative buildings, and related urban enclaves at the nearby site of Heit el-Gurob (roughly 400 m south of the Sphinx) will be treated in a separate entry given the extensive excavation and research conducted related to the site's enclosure walls and internal wall systems.⁷⁸⁰

Relevant Enclosure Walls: Numerous enclosure walls have been excavated at these various installations on the Giza plateau. The pyramids of Khufu, Khafre, and Menkaure were all surrounded by enclosure walls.⁷⁸¹ Causeways linked the valley and pyramid temples of each of

⁷⁷⁶ Reisner 1942; Junker 1929-1955; Hassan 1932-1960.

⁷⁷⁷ Hassan 1943, 1-62; Lehner et al. 2009; Lehner et al. 2011; see also the series of reports in Lehner 2011, 15-92.

⁷⁷⁸ Lehner 2015.

⁷⁷⁹ Conard and Lehner 2001.

⁷⁸⁰ For a discussion of walls and social control at Heit el-Gurob, see Lehner and Tavares 2010.

⁷⁸¹ For Khufu, see Maragioglio and Rinaldi 1965, 64-66; Hawass in Petrie 1990, 105-106, Lehner and Hawass 2017, 165-166; for Khafre, see Maragioglio and Rinaldi 1966, 72-74, 94-96; Lehner and Hawass 2017, 201-202; Petrie 1990, 33-34; Hawass 1990, 119-120. For Menkaure, see Maragioglio and Rinaldi 1967, 62-64, 78; Petrie 1990, 38.

these kings, though Khufu's valley temple was too denuded to be planned extensively.⁷⁸² The valley temple of Khafre was also encompassed by an enclosure wall.⁷⁸³ A series of galleries to the west of the Khafre pyramid complex were also walled in.⁷⁸⁴ In the case of Khafre and Menkaure's pyramids, an outer enclosure or peribolos wall encompassed the pyramid complexes.⁷⁸⁵ These outer enclosure walls of Menkaure's and Khafre's pyramids actually met along their northern side, and it is plausible that the series of pyramid enclosures, causeways, and temple walls effectively controlled access to and from the western cemetery from its east and south.⁷⁸⁶

Technical Details: Khufu's pyramid was surrounded by a roughly 3 m wide limestone enclosure wall that would have stood some 8 m in antiquity.⁷⁸⁷ Only two pieces from the wall remain today: a coping stone from a corner piece where the eastern enclosure wall joined with the back of the pyramid temple, and a second piece near the northwestern corner of the pyramid.⁷⁸⁸ This wall was built upon limestone pavement slabs. The rounded top of the enclosure wall is comparable to other examples known from pyramid enclosure walls. This temenos wall was located some 10 m from the base of the pyramid to the south and west, and 10.20 m from the its eastern and northern sides.⁷⁸⁹ Hawass notes that the bed of the wall is visible in the natural bedrock on the wall's eastern side, and its foundations measure 3.15-3.60 m wide.⁷⁹⁰ The

⁷⁸² For Khufu, see Maragioglio and Rinaldi 1965, 68 and El Awady 2009, 94-100. For Khafre, see Maragioglio and Rinaldi 1966, 74-76 and El Awady 2009, 102-103. For Menkaure, see Maragioglio and Rinaldi 1967, 64-66 and El Awady 2009, 103-105.

⁷⁸³ Maragioglio and Rinaldi 1966, Pl. 14.

⁷⁸⁴ Conard and Lehner 2001, 28-30.

⁷⁸⁵ For Khafre, see Maragioglio and Rinaldi 1966, 94-96 and Petrie 1990, 33-34; for Menkaure, see Maragioglio and Rinaldi 1967, 78 and Petrie 1990, 38.

⁷⁸⁶ Note the plan of the plateau depicted in Lehner and Hawass 2017, 10.

⁷⁸⁷ Lehner and Hawass 2017, 165-166, fig. 8.26

⁷⁸⁸ Lehner and Hawass 2017, 165-166, fig. 8.26

⁷⁸⁹ Hawass in Petrie 1990, 105-106, Maragioglio and Rinaldi 1965, 66.

⁷⁹⁰ Hawass in Petrie 1990, 105-106. Maragioglio and Rinaldi 1965, 64.

remains and track of the wall are more easily visible on the northern and eastern sides of the complex. Earlier explorers like Vyse and Petrie certainly encountered the stone pavement of the pyramid complex, but do not discuss the dimensions or trajectory of the Great Pyramid's enclosure wall extensively.⁷⁹¹ Maragioglio and Rinaldi recorded a second, outer enclosure wall that was located 8-14 m beyond the inner enclosure, with walls measuring 2.50 m across on its southern side, and 3.50-2.70 m in breadth on its western side.⁷⁹² Its northern side was so denuded that no estimate of its thickness could be made, and no remains were found to the east. The wall was built in sections, fashioned using rubble, and plastered with mud. These walls were also constructed at a slight incline.⁷⁹³

The causeway leading from the valley temple to Khufu's pyramid stretched some 825 m at an angle some 14 degrees north of due east.⁷⁹⁴ A few carved pieces have been found near the pyramid temple, suggesting that it was inscribed with reliefs.⁷⁹⁵ It rises significantly in order to match the floor levels of these respective temples, some 45 m over the course of its trajectory. Herodotus suggests that the causeway alone took 10 years to complete.⁷⁹⁶ Remnants of the basalt pavement of Khufu's valley temple were identified in 1990, but little can be said in the way of a specific floorplan.⁷⁹⁷ At the southern margins of the area where these paving stones were uncovered, portions of a thick mudbrick wall were discovered. Lehner and Hawass suggest this wall could possibly have been as wide as 8 m, but notes that its southern face was not definitively determined.⁷⁹⁸ A series of large stone walls were also discovered as a result of

⁷⁹¹ Vyse 1840; Petrie 1990.

⁷⁹² Maragioglio and Rinaldi 1965, 66.

⁷⁹³ Maragioglio and Rinaldi 1965, 64-66, Pl. 1.

⁷⁹⁴ Lehner and Hawass 2017, 185-186; Maragioglio and Rinaldi 1965, 68; El Awady 2009, 94-100

⁷⁹⁵ El Awady 2009, 98-100.

⁷⁹⁶ Strassler 2007, 172-74; Herodotus *The Histories* Book II, paragraph 124.

⁷⁹⁷ Lehner and Hawass 2017, 186-187.

⁷⁹⁸ Lehner and Hawass 2017, 187.

construction work in the area: the so-called Zaghoul Street Wall measured 4 m wide at its limestone foundations, and tapered to 3.5 m wide at the level of the first course of basalt slabs that formed its first course. Hawass suggests that these walls might delineate the location of a massive dredged harbor complex.⁷⁹⁹

Khafre's pyramid was also surrounded by an inner enclosure wall roughly 10.10 m from the base of the pyramid on its eastern side. No part of the enclosure wall still stands today, but Maragioglio and Rinaldi record dimensions comparable to that of Khufu's inner temenos wall: 3.25-3.60 m wide at its base, tapering to a rounded top at a height of some 8 m, with a rough slope of 1/7, or 81.5 degrees.⁸⁰⁰ The bedding for the enclosure wall was cut into the bedrock, and the foundations of the wall itself were completed in limestone. Traces of a thin layer of pink mortar were visible on the foundations of the wall itself. Rounded coping stones comparable to the curved top of Khufu's pyramid wall were also found strewn along the southern and western sides of the pyramid.⁸⁰¹ The courtyard sloped gently downwards as it extended away from the pyramid, allowing excess rainwater to more easily be channeled out of the complex. As at Khufu's complex, it is clear that this inner enclosure formed the back wall for the pyramid temple.⁸⁰²

The outer enclosure wall of Khafre was most extensively described and planned by Petrie, though unfortunately, few details were recorded.⁸⁰³ Petrie describes an outer "peribolos" wall on the northern, southern, and western sides of the pyramid complex. In contrast to descriptions of the inner pyramid enclosure walls, Petrie emphasizes the irregular and composite

⁷⁹⁹ Hawass 1997. There also remains the possibility that these walls encompassed a settlement associated with Khufu's pyramid complex: Lehner and Hawass 2017, 187.

⁸⁰⁰ Maragioglio and Rinaldi 1966, 72-74; for additional information, see Lehner and Hawass 2017, 201-202; Petrie 1990, 33-34; Hawass in Petrie 1990, 119-120.

⁸⁰¹ Maragioglio and Rinaldi 1966, 72.

⁸⁰² Maragioglio and Rinaldi 1966, 72.

⁸⁰³ Petrie 1990, 33-34; Hawass in Petrie 1990, 119-120.

nature of the outer enclosure wall. The northern side of the wall is described as having a wide foundation of undressed, crudely carved limestone blocks.⁸⁰⁴ In some cases, these apparently preserved construction marks and numbers.⁸⁰⁵ The thickness of this wall varied from 7.60 to 8.75 m thick on its northern side. Petrie estimates an original height of over 20 feet. The southern face of this wall was apparently in even poorer condition, and in many places consisted of “a vast heap of chips” that were held in place by rough stone retaining walls plastered with mud. The western side of this peribolos wall was much narrower, only 70 inches wide at its maximum height. This wall was completed using limestone fieldstones, but apparently the face of this wall was quite smooth.⁸⁰⁶ This wall was only 6-8 feet high, and defines the eastern edge of the galleries to the west of the Khafre pyramid complex. Petrie’s description of this wall appears broadly consistent with the more detailed notes made by Conrad and Lehner regarding the western enclosure wall of the galleries in this location.⁸⁰⁷ The southern enclosure wall was preserved for some 500 feet at the time of Petrie’s excavations.⁸⁰⁸ This wall was well made but perhaps unfinished at the time of Khafre’s death, for it was merged with the northern wall of the outer enclosure of Menkaure’s pyramid complex by means of an elbow. It measured 3.33 m wide at its base.⁸⁰⁹ Maragioglio and Rinaldi note that the northern and southern walls, 128 and 131 m from the pyramid’s base, respectively, were likely designed to be equidistant from the pyramid. Similarly, the western and eastern walls were likely completed such that they were each equidistant from the terracing excavation of the pyramid complex.⁸¹⁰

⁸⁰⁴ Petrie 1990, 33.

⁸⁰⁵ Petrie 1990, 33. Maragioglio and Rinaldi 1966, 94-96, also detail this wall.

⁸⁰⁶ Petrie 1990, 33-34; Maragioglio and Rinaldi 1966, 94-96

⁸⁰⁷ Petrie 1990, 33-34; Conrad and Lehner 2001, 28-30, 58-60.

⁸⁰⁸ Petrie 1990, 34.

⁸⁰⁹ Maragioglio and Rinaldi 1966, 96.

⁸¹⁰ Maragioglio and Rinaldi 1966, 94-96.

Khafre's causeway runs for 494.6 m between pyramid and valley temples.⁸¹¹ Both faces of the causeway walls were encased in high quality Tura limestone. No evidence of decoration survives, though it remains possible the causeway had some kind of decorative program.⁸¹² The inner face of the walls is vertical, while the exterior face was sloped. Its foundation is 20 m wide, and comprised of locally quarried limestone slabs and the natural bedrock. It angles eastward towards the valley temple at an angle of 14.5 degrees south of due east, roughly following the slope of the Giza plateau. Small gaps in the roofing would have allowed some light into the installation.⁸¹³

Remnants of an enclosure wall are also visible surrounding parts of Khafre's valley temple, projecting to the south of the temple and connecting to the rear, western wall of the temple.⁸¹⁴ An inner wall, 2.65 m in breadth on its western side and 2.25 m wide on its southern side, was completed in mudbrick. It seems likely that these were later additions, for Maragioglio and Rinaldi's plan indicates they were completed largely in mudbrick, but at times limestone or granite blocks were found in the walls. A later mudbrick wall was added further to the south, further expanding the complex.⁸¹⁵ Whether these walls turned northward and encompassed the valley temple and sphinx temple as well is unclear.

The galleries west of Khafre's pyramid complex were encompassed by walls measuring roughly 450 x 80 m.⁸¹⁶ First excavated and planned by by Petrie, modern roads now obscure much of the northern and eastern enclosure walls of the complex.⁸¹⁷ The western wall of the enclosure was some 2.5 m thick at its base and stood to a height of 3.0-3.6 m. Both the interior

⁸¹¹ El Awady 2009, 102-103; Maragioglio and Rinaldi 1966, 74-76.

⁸¹² El Awady 2009, 102-103.

⁸¹³ Lehner and Hawass 2017, 205.

⁸¹⁴ Maragioglio and Rinaldi 1966, Pl. 14.

⁸¹⁵ Maragioglio and Rinaldi 1966, Pl. 14.

⁸¹⁶ Conard and Lehner 2001, 23.

⁸¹⁷ Petrie 1883, 101-103.

and exterior sides of the wall were sloped at roughly 78 degrees, and the wall tapered to a thickness of 1.2 m at the top. The walls were built using limestone fieldstones joined with alluvial mud mortar. A thick layer of mud plaster coated the walls, while a thinner, lighter layer of marl, *tafla* plaster forms the outermost covering of the wall. The enclosure was founded upon a bed of limestone chips above the natural reddish, sandy soil above the local bedrock.⁸¹⁸ It seems likely that these galleries operated during the reign of Khafre and likely during the reign of Menkaure.⁸¹⁹ No gateways have been identified, but it is highly likely that there were points of access to the Khafre and Menkaure pyramid complexes.

In contrast to the pyramids of Khufu and Khafre, Menkaure's pyramid was surrounded by a mudbrick rather than limestone enclosure.⁸²⁰ Located roughly 10 m from the base of the pyramid, many scholars have suggested that Shepseskaf must have finished this structure, similar to his efforts at Menkaure's valley temple.⁸²¹ Reisner discovered a 2.62 m thick section of the eastern wall. Photographs suggest that it was plastered and whitewashed, and sloped on both its internal and external face.⁸²² Similar to Khufu and Khafre's pyramids, an outer enclosure built using rough stone blocks, rubble, and limestone chips. The dimensions of this wall are roughly 350-400 m north south by 400-500 m east west.⁸²³ The wall is somewhat irregular in form, as its southern side runs at an angle south of due east, then angles sharply northeast in order to encompass an industrial settlement located nearby, the subject of Saleh's excavations in the early 1970s.⁸²⁴ The wall was completed using stone chips, rubble, and fieldstones linked by mud mortar. The northern wall joined with the southern wall of Khafre's outer complex by means of

⁸¹⁸ Conard and Lehner 2001, 28-30.

⁸¹⁹ Conard and Lehner 2001, 58-60.

⁸²⁰ Maragioglio and Rinaldi 1967, 62-64.

⁸²¹ Maragioglio and Rinaldi 1967, 62-64.

⁸²² Maragioglio and Rinaldi 1967, 62-64.

⁸²³ Maragioglio and Rinaldi 1967, 78, pl. 4; Petrie 1990, 38.

⁸²⁴ Saleh 1974.

an elbow, and was oriented roughly parallel to Menkaure's pyramid.⁸²⁵ Its western wall was markedly thinner. To the west of the outer enclosure of Menkaure's pyramid complex was a further 159.4 x 243.8 m rectangular installation that appears comparable to the galleries excavated to the west of Khafre's pyramid, but its purpose remains unknown.⁸²⁶

Menkaure's causeway foundations measure some 13 m wide, and was at least partially completed in limestone, but finished in parts in mudbrick.⁸²⁷ Where preserved near the pyramid temple, the walls appear to have been 2.5-2.6 m thick. The distance between the valley and pyramid temples of Menkaure's pyramid complex is some 608 m, and it is possible that the sections of the causeway never linked up, or were finished in now denuded mudbrick.

Menkaure's causeway jogged southward, running along the southern side of his valley temple.⁸²⁸

Two substantial enclosure walls have been identified surrounding the monument of Queen Khentkawes and encircling the L-shaped settlement associated with her funerary complex.⁸²⁹ Located only about 1.6 m from the casing of Khentkawes's tomb superstructure, a roughly 2.75 m thick enclosure wall surrounded the complex. Lehner and his team recorded a width of 2.05 m along its northern side.⁸³⁰ The southern side of the wall is now completely lost, but Hassan records a total length of 61 m, and notes a small gap, perhaps to accommodate the boat pit in this location. The corners of the enclosure were all rounded, with the exception of the southeastern corner which was rectilinear.⁸³¹ A small space separated Khentkawes's monument from the town to the east, and allowed for access to the chapel. Hassan does not provide different dimensions for the width of the enclosure walls bounding the houses within the

⁸²⁵ Maragioglio and Rinaldi 1967, pl. 4.

⁸²⁶ Maragioglio and Rinaldi 1967, 78.

⁸²⁷ El Awady 2009, 103-105; Maragioglio and Rinaldi 1967, 64-66.

⁸²⁸ El Awady 2009, 103-105.

⁸²⁹ Hassan 1943, 32.

⁸³⁰ Hassan 1943, 32; Lehner and Hawass 2017, 305.

⁸³¹ Hassan 1943, 32.

mortuary complex of Khentkawes: Lehner's Northern, Eastern, Western, and Southern Enclosure Walls of the Khenkawes Town.⁸³² The work of Lehner's expedition is ongoing and has already furnished important datums regarding the enclosure walls. The mudbrick town walls appear to have been part of the first phase of construction in the area, suggesting that the unusual L-shaped layout of the town was planned from the start.⁸³³

HEIT EL-GUROB

Site Summary: The remnants of a massive urban site associated with housing and provisioning the workers who labored constructing the pyramids at Giza are located roughly 400 m south of the Sphinx.⁸³⁴ Covering at least 7 hectares, modern construction, agricultural fields, and a soccer field have encroached upon the ancient remains. The massive "Wall of the Crow", or *Heit el-Gurob* in Arabic, bounds the site to the north and has lent it its name.⁸³⁵ Heit el-Gurob has been the subject of ongoing excavations since 1988, and the systematic, thoroughly modern excavation of the site has yielded extraordinary information about an Old Kingdom urban site.⁸³⁶ Most of the surface architecture at the site dates primarily to the 4th Dynasty, from the reigns of Khafre and Menkaure, but excavations have revealed earlier 4th Dynasty walls and buildings that appear to have adhered to a different architectural layout.⁸³⁷ Broadly speaking, the site can be divided into three distinct areas. Just south of the Wall of the Crow and in the central part of the site, Lehner and his team excavated a series of galleries that served as a barracks for laborers,

⁸³² For the Khentkawes town, Lehner et al. 2009, 9-46 provides an overview of recent work at the complex. See also the ongoing work published in Lehner 2011.

⁸³³ Jones 2011, 21.

⁸³⁴ Lehner and Tavares 2010; Lehner and Wetterstrom 2007; Lehner 2002.

⁸³⁵ Lehner and Tavares 2010, 176-178.

⁸³⁶ The numerous publications make a comprehensive bibliography impossible, but see the Giza Occasional Papers series and annual reports from the ancient Egypt Research Associates, and Lehner 2002, Lehner and Tavares 2010, and Lehner 2016 for information about Heit el-Gurob.

⁸³⁷ Lehner and Tavares 2010, 214.

together with associated enclosed compounds and administrative buildings.⁸³⁸ To the southwest of these installations was the Western Town, which appears to have housed a number of the administrators responsible for overseeing the site.⁸³⁹ Many smaller domiciles and residential areas were excavated to the east of the gallery complexes, in the Eastern Town.⁸⁴⁰

Relevant Enclosure Walls: Mark Lehner's and Ana Tavares's analysis of the interrelationship between enclosure walls, streets, and their associated stratigraphy is among the most in-depth studies of monumental walling projects and how they impacted the local urban environment ever undertaken at an Egyptian site, and the breadth and detail of their study can only be summarized here.⁸⁴¹ Many of these walls were rebuilt or reoriented over time, but at least seven systems of walling at Heit el-Gurob warrant comment here. For the purpose of clarity, I will use the same names they use to designate walls and various areas of the site.

First, the massive 10 m wide by 10 m tall Wall of the Crown formed the northern boundary of the site.⁸⁴² Second, a large enclosure wall surrounded the Gallery complexes and effectively separated them from the Western Town, the Royal Administrative Building, and though it is much less well preserved to the east, almost certainly the Eastern Town as well.⁸⁴³ Third, the Eastern Boundary Wall appears linked to or perhaps equal to the eastern end of the Enclosure Wall, which has been heavily eroded as a result of high Nile floods.⁸⁴⁴ The Eastern Boundary Wall, discovered further north, perhaps represents a different phase or more robust

⁸³⁸ Lehner 2002, 35-41; Lehner 2007, 185-234 details the excavation of one of the gallery complexes; see also Lehner and Tavares 2010, 171.

⁸³⁹ Lehner and Hawass 2017, 381-384.

⁸⁴⁰ Lehner and Hawass 2017, 380-381; Moeller 2016, 136-137; Lehner and Tavares 2010, 210-211, 214-215. This latter publication also highlights how the eastern boundaries of the Eastern Town have not been determined, and it likely extended beneath the modern city, though this had been known since 2002: Lehner and Tavares 2010, 213.

⁸⁴¹ Lehner and Tavares 2010.

⁸⁴² Lehner and Tavares 2010, 176-178.

⁸⁴³ Lehner and Tavares 2010, 182-184.

⁸⁴⁴ Lehner and Tavares 2010, 184-187.

continuation of the sporadic remnants of fieldstone oriented north-south along the eastern edge of the gallery complex.⁸⁴⁵ Fourth, a large and thick perimeter wall defined the spatial limits of the Royal Administrative Building.⁸⁴⁶ Fifth, to the west of the Gallery Complex enclosure wall, the perimeter wall of the Western Compound and another monumental wall funneled traffic through what Lehner and Tavares term “The Chute”, a passageway tracking south from the gate in the Wall of the Crow before angling southwest toward the Gallery Complex Main Street.⁸⁴⁷ Sixth and more generally, the thick outer walls of the galleries, the Eastern Compound, and the “enclosures” west of the Royal Administrative Building also played a crucial role in guiding foot traffic and delimiting space within Heit el-Gurob.⁸⁴⁸ Finally, some areas, like Standing Wall Island at the extreme southern edge of Heit el-Gurob, appear to have served as a corral for farm animals and the dwelling place of the official charged with managing such herds rather than defining space and patterns of access for large numbers of individuals at the site.⁸⁴⁹ Lehner and Tavares emphasize the monumental character of many of these enclosures and their important role funneling and filtering traffic through Heit el-Gurob. Nonetheless, they also note that such efforts to meticulously manage the local populace “may be a sign of control’s imminent absence, not its presence.”⁸⁵⁰ Indeed, any gestures towards permanent occupation at the site were largely in vain—the Wall of the Crow was left unfinished, and the entire gallery complex abandoned by the end of the reign of Menkaure when the royal necropolis shifted away from the Giza plateau.⁸⁵¹

⁸⁴⁵ Lehner and Tavares 2010, 184, 187.

⁸⁴⁶ The walled pathways funneling traffic near the Royal Administrative Building are detailed in Lehner and Tavares 2010, 202-206.

⁸⁴⁷ Lehner and Tavares 2010, 178-182.

⁸⁴⁸ Lehner and Tavares 2010, 187-206.

⁸⁴⁹ Redding 2011.

⁸⁵⁰ Lehner and Tavares 2010, 214.

⁸⁵¹ Lehner and Tavares 2010, 214.

Technical Details and Construction Method: The massive Wall of the Crow stretches roughly 200 m along the southern edge of the Central Wadi that passes just north of the Gebel el-Qibli.⁸⁵² The western edge of the wall is obscured by a modern cemetery, but earlier maps suggest that the wall was not finished and never entirely closed off passage from the wadi. The Wall of the Crow measures roughly 10 m wide at its base by 10 m tall, though it inclines slightly inwards as it rises. The wall was constructed using massive limestone blocks quarried locally, and possessed a 2.60 m wide and 7 m high gate.⁸⁵³ The ground upon which the Wall of the Crow was built sloped slightly downwards from south to north. The Wall of the Crow clearly postdates the gallery complex, since plaster from the western face of the western wall of Gallery Set I extends beneath the Wall of the Crow, which was built up against this feature. A surprisingly modest foundation trench was cut for this massive wall, cutting through roughly 14 cm of alluvial mud, and equipped with a thin paving of desert marl clay.⁸⁵⁴ To the north of the Wall of the Crow was a levelled terrace of limestone chips, slightly lower in elevation than the settlement itself. Intriguingly, in strata that predated the construction of the Wall of the Crow, major differences were present between layers on the north and south sides of the wall. To the north, the builders of the Wall of the Crow cut through a “Lower Rubble Layer” with few artifacts, while on the southern side, 14 cm of dense alluvial mud rested atop a *tafla* paving.⁸⁵⁵ Lehner and Tavares believe that the dramatic difference between the archaeological layers north and south of the Wall of the Crow indicate that it “must have reinforced a pre-existing barrier to access” to an earlier phase of the workmen’s settlement at Heit el-Gurob.⁸⁵⁶ The Wall of the Crow was never

⁸⁵² Lehner and Tavares 2010, 176.

⁸⁵³ Lehner and Tavares 2010, 176.

⁸⁵⁴ Lehner and Tavares 2010, 176-177.

⁸⁵⁵ Lehner and Tavares 2010, 177-178.

⁸⁵⁶ Lehner and Tavares 2010, 178.

finished, as attested by the remnants of a construction ramp termed the Mason's Mound, along the wall's northern side, and a bank of construction remains left by laborers on the wall's southern side.⁸⁵⁷

Though less massive than the Wall of the Crow, the 2 m thick fieldstone enclosure wall that bounded the Gallery Complex along its western and southern sides was impressive in its own right.⁸⁵⁸ Beginning 70 meters west of the eastern end of the Wall of the Crow, it travels north-south past the West Gate of the Gallery complex. The Enclosure Wall angles eastward to separate the gallery complex from the Western Town. Just inside its internal face, a parallel, thinner (0.50-0.60 m) wall was added along this bend approximately 1.4 m from the original fieldstone wall.⁸⁵⁹ The gap between these two walls was likely filled in with stony fill, broadening the width of the Enclosure Wall in this section of the site to 4 m until the Enclosure Wall reached RAB street—the main thoroughfare of the site that connected the Eastern and Western Towns and passed directly north of the Royal Administrative Building complex.⁸⁶⁰ The narrower internal wall rejoins the main field stone wall just after this bend, making the Enclosure Wall approximately 2 m in width once again.⁸⁶¹ The wall once again continues almost due eastward until it jogs north and then east again to accommodate a passageway past the outer walls of the Royal Administrative Building. Beyond this, the far eastern edge of the enclosure wall was lost as a result of erosion through wind and repeated exposure to water, likely from high Nile floods or flash flooding.⁸⁶²

⁸⁵⁷ Lehner and Tavares 2010, 178.

⁸⁵⁸ Lehner and Tavares 2010, 182.

⁸⁵⁹ Lehner and Tavares 2010, 182-184.

⁸⁶⁰ Lehner and Tavares 2010, 184.

⁸⁶¹ Lehner and Tavares 2010, 184.

⁸⁶² Lehner and Tavares 2010, 185.

Deeper trenches near the Enclosure Wall have revealed earlier fieldstone constructions, some of which had a slightly different orientation, and complicated understanding of the phasing of the Enclosure Wall itself. A trench along the Enclosure Wall roughly 10 m south of the West Gate into the Gallery Complex exposed over 1 m of the wall and showed that it was completed in two phases: a lower stage of white limestone fragments in a grey mud matrix, and an upper phase of “yellowish” limestone pieces in a mud matrix.⁸⁶³ Lehner and Tavares emphasize that these features were probably part of the same building event, but a stratum leaning against the wall perfectly aligns with the junction between these walls, leaving open the possibility that the upper part of yellow limestone fragments in a mud matrix might have been added after the surface of the site had risen.⁸⁶⁴ Nearby, roughly 2 m west of the Enclosure Wall, an earlier fieldstone wall was discovered somewhat lower than the bottom of the later Enclosure Wall. This wall was 1.45 m wide and 0.5 m high, and seems to perhaps reflect an earlier, more westerly version of West Gate, given the discovery of a complementary wall that lines up with this wall further to the south after 1.8 m.⁸⁶⁵ Lehner and Tavares suggest that this feature likely represents an earlier enclosure wall and perhaps the western entry point to the Gallery Complex during an earlier phase of occupation.⁸⁶⁶

Given the efforts to separate the Gallery Complex from the Royal Administrative Building and Western Town, it would be surprising if the Enclosure Wall did not turn northward to separate the complex from the Eastern Town.⁸⁶⁷ One large boundary wall has been discovered separating the eastern part of the Gallery Complex from the Eastern Town, but it is smaller

⁸⁶³ Lehner and Tavares 2010, 182.

⁸⁶⁴ Lehner and Tavares 2010, 182.

⁸⁶⁵ Lehner and Tavares 2010, 183.

⁸⁶⁶ Lehner and Tavares 2010, 183.

⁸⁶⁷ Lehner and Tavares 2010, 185.

(roughly 1.4 m wide) and constructed out of mudbrick rather than fieldstone.⁸⁶⁸ This wall (designated in reports as wall 7392) extends north-south at least 18 m and blocked the path of Main Street in the Gallery Complex.⁸⁶⁹ Indications further to the south suggest that this wall may have been founded upon at least one course of limestone fieldstones, but this is not absolutely certain.⁸⁷⁰ In any case, a slightly later, badly eroded limestone wall (designated in preliminary reports as wall 25904) roughly aligns with the mudbrick wall further to the north, though this wall of crushed limestone is slightly thinner.⁸⁷¹ Both walls align roughly with the eastern edge of the Royal Administrative Building, and Lehner and Tavares suggest that the limestone wall was likely a later phase built atop the ruins of an earlier mudbrick foundation.⁸⁷² Given the extremely poor preservation of this wall, it is unsurprising that it appears to have been lost entirely further to the north. A better preserved limestone wall (labelled 25914) runs parallel to wall 25904 and 7392 and may have formed either an extreme outer boundary of the Gallery Complex, or more probably, a small narrow corridor just to the east of the Eastern Boundary Wall (wall 7392).⁸⁷³

A fourth major wall system at Heit el-Gurob defined the perimeter of the Royal Administrative Building.⁸⁷⁴ This building had numerous phases, and produced huge amounts of material culture: over 48,000 diagnostic pot sherds, 12,500 chipped stone tools, 100 pigment specimens, 1000 objects, and nearly 700 clay sealings.⁸⁷⁵ These sealings, the sunken court with large grain silos within the complex, and the clay tokens discovered during excavation attest to

⁸⁶⁸ Lehner and Tavares 2010, 184-187.

⁸⁶⁹ Lehner and Tavares 2010, 185-187.

⁸⁷⁰ Lehner and Tavares 2010, 186.

⁸⁷¹ Lehner and Tavares 2010, 186-187.

⁸⁷² Lehner and Tavares 2010, 186-187.

⁸⁷³ Lehner and Tavares 2010, 187-188.

⁸⁷⁴ Lehner 2002, 59-60; Lehner et al. 2006, 43-45.

⁸⁷⁵ Murray 2011, 153.

the administrative character of this building, particularly in phases of occupation which correspond to the use of the Royal Administrative Building. Earlier structures were present in this area, but were demolished to make room for this building, which appears to have been associated with provisioning the site as well as storing grain and other commodities.⁸⁷⁶ Much of the southern part of the complex is obscured by the Abu Hol Sports Club and soccer field. Geophysical surveys suggest that the main entrance to the complex was on the south, and perhaps three quarters of the complex is beneath the modern soccer field. To the west were a series of enclosures that Lehner and Tavares describe as likely “functional extensions” of the Royal Administration Building, while to the East, the Royal Administrative Building is bordered by the Eastern Town.⁸⁷⁷

The Royal Administrative Building is bounded by a 2 m thick enclosure wall comprised of broken limestone.⁸⁷⁸ Together with the Enclosure Wall surrounding the Gallery Complex, this wall formed a narrow corridor that has been termed RAB Street. Excavations near the northwest corner of the enclosure surrounding the Royal Administrative Building reveal that an earlier mudbrick wall was embedded within the rough fieldstones of the enclosure wall. The later fieldstone wall was built against the eastern face and then covered the top of its mudbrick predecessor.⁸⁷⁹ Thus, likely similar to the Eastern Boundary Wall, an earlier mudbrick enclosure wall was replaced by a fieldstone one. Excavations in 2005 proved that the fieldstone enclosure of the Royal Administrative Building preceded the fieldstone Enclosure Wall that surrounded the

⁸⁷⁶ Lehner et al. 2009, 59-61.

⁸⁷⁷ Lehner and Tavares 2010, 171.

⁸⁷⁸ Lehner 2002, 59-60.

⁸⁷⁹ Lehner et al. 2006, 45.

Gallery Complex, but during later phases of occupation at Heit el-Gurob they were both in use, providing substantial barriers to both the north and south of RAB street.⁸⁸⁰

A fifth instance of large, free-standing walls at Heit el-Gurob can be found east of the Gallery Complex.⁸⁸¹ Two parallel fieldstone walls, ranging from 1.2-1.6 m thick at their respective tops, create a 2.6 m wide corridor that likely led from the gate in the Wall of the Crow to a more open area just in front of the West Gate of the Gallery Complex, though this has not yet been proven by excavations. These walls have not been extensively excavated, and only the tops of the walls comprising the chute have been traced. However, it appears that the more northeastern wall might have served as a kind of southern boundary or perimeter wall for the Western Compound, located just west of the Gallery Complex's Enclosure Wall.⁸⁸²

More generally, large enclosures were revealed in numerous places within the Heit el-Gurob settlement. A series of five compounds (termed E1-E5) were located west of the Royal Administrative Building, ranging from 10.20 to 11.5 m in width. These enclosures housed magazines and bakeries, and were separated by thick field-stone walls.⁸⁸³ Other compounds throughout the site were often demarcated by substantial walls, even if they were not free-standing enclosure walls per se: for example, the fieldstone walls bounding the Western Compound and Eastern Compound, the walls defining the trapezoidal building and Guardhouse opposite the "bend" in the Gallery Complex wall, and even the 1.57 m thick outer walls of the galleries themselves, formed imposing barriers that helped to define the internal roadways within Heit el-Gurob.⁸⁸⁴ One of the more intriguing features of walling at Heit el-Gurob was the usage

⁸⁸⁰ Lehner and Tavares 2010, 184.

⁸⁸¹ Lehner and Tavares 2010, 181-182.

⁸⁸² Lehner and Tavares 2010, 181-182.

⁸⁸³ Lehner 2004, 72-73; Lehner et al. 2009a, 28-31.

⁸⁸⁴ Lehner and Tavares 2010, fig. 1. On the thickness of the gallery walls, see Lehner 2002, 41.

of fieldstone walls to strengthen or in tandem with mudbrick enclosures. Outside of desert sites, such prominent use of stone architecture is rare outside of a cultic or funerary setting.

One final enclosure at Heit el-Gurob warrants discussion here: the over 1 m thick fieldstone enclosure at Standing Wall Island at the southern edge of the site.⁸⁸⁵ This perimeter wall enclosed a large open space (35 x 25 m, but likely extending further beneath a nearby soccer field) that was interpreted as a corral for cattle.⁸⁸⁶ This accords well with faunal analyses from the site that emphasize the copious amounts of cattle and ovicaprids that needed to be slaughtered daily in order to feed the inhabitants of the town. Recent excavations revealed two stone enclosures in the northern part of the complex.⁸⁸⁷ The eastern enclosure was clearly domestic in character, and appears to have been the dwelling of a high official, probably one connected with managing meat production within the town. The western enclosure has not been excavated extensively enough to determine if a slaughterhouse was located here, but large flint knives comparable to examples from Old Kingdom tomb scenes have been discovered within the complex.⁸⁸⁸ The Standing Wall Island complex appears to have been an urban estate that was tied to management and slaughtering of animals to provision officials and laborers at Heit el-Gurob; in order to perform these functions, it necessitated a substantial enclosure wall on par with some of the other large fieldstone enclosures found surrounding “official” or “state” buildings further to the north.⁸⁸⁹

⁸⁸⁵ Redding 2011.

⁸⁸⁶ Redding 2011, 2.

⁸⁸⁷ Redding 2011, 2.

⁸⁸⁸ Redding 2011, 5.

⁸⁸⁹ Redding 2011.

HIERAKONPOLIS

Site Summary: The site of Hierakonpolis/Kom el-Ahmar, ancient Nekhen, was one of the most powerful Upper Egyptian settlements during the 4th millennium BCE, closely linked to the emergence of Egyptian kingship and the process of state formation. It continued to be an important regional center throughout the Pharaonic period. Located just over 65 km south of Luxor on the Nile's west bank, the site is famed for the discovery of the "Main Deposit" within its temple, a hoard that contained some of the most remarkable and well-known pieces of Egyptian art, including the Narmer Palette and the Scorpion Mace Head.⁸⁹⁰ The preservation of remains related to the Predynastic and Early Dynastic period together with the extensive fieldwork conducted at and around the settlement has made Hierakonpolis a seminal site for discussions of early urbanism and state formation.⁸⁹¹ The Predynastic settlement and cemeteries are scattered at a series of localities throughout the low desert and nearby wadi formation, while the Pharaonic period settlement is located closer to the floodplain at Kom el-Gemuwia.⁸⁹²

Relevant Enclosure Walls: There are many prominent enclosure walls that have been identified at Hierakonpolis, in at least six distinct localities at the site. The earliest enclosures seem to have been simple palisade walls, archaeologically visible only through the impressions left by their postholes. Examples of such enclosures have been identified surrounding certain elite tombs and surrounding the ceremonial complexes at HK29A and HK29B.⁸⁹³ These fences likely date to the Naqada II period, and in some cases thin mudbrick walls seem to have replaced the earlier wooden fences.⁸⁹⁴ At least one sizable brick wall has been identified associated with an

⁸⁹⁰ Quibell and Green 1902, 26-33. See also Quibell and Green 1900 for plates of the spectacular finds from the cache. For a catalogue of some of the items found at the main deposit, see Adams 1974.

⁸⁹¹ Hoffman et al. 1986.

⁸⁹² Moeller 2016, 81-103; see also Hoffman et al. 1986.

⁸⁹³ For HK29A, see Friedman 2009a. For HK29B, see Hikade 2011.

⁸⁹⁴ Friedman 2009a, 79.

enigmatic installation in squares C10 and C11 at locality HK11C, a part of the Predynastic settlement in the low desert.⁸⁹⁵ Together with examples of wooden palisades that surrounded elite tombs in HK6 and the enclosure discovered in Michael Hoffman's trench at the settlement site of Kom el-Gemuwia, these are some of the earliest enclosures ever discovered in Egypt.⁸⁹⁶ Remnants of the town enclosure wall have been excavated, as has a large gateway decorated with niches and buttresses in a palace-façade style familiar from Early Dynastic mastabas and funerary enclosures.⁸⁹⁷ Finally, a monumental ceremonial enclosure was constructed during the reign of Khasekhemwy beyond the floodplain, to the south of the settlement at Kom el-Gemuwia.⁸⁹⁸ This installation is known as "the fort" by modern excavators (and is referred to by this name in this volume) due to its impressive size, but there is no evidence to suggest it ever served in a military capacity.⁸⁹⁹

Construction Methods and Technical Details: Some of the earliest mudbrick walls at Hierakonpolis (and all of Egypt) have been excavated at the Predynastic settlement site in the low desert. Specifically, ongoing excavations at locality HK11C have revealed both mudbrick walls surrounding a food production complex and mud and fieldstone walls surrounding a larger enigmatic structure in squares C10-C11, further to the south.⁹⁰⁰ These walls do not rival the scale of the remains found in the cemetery (HK6) or the ceremonial area (HK29A, HK29B, HK25), and in the case of the "food factory" at HK11C, squares C3-C4, these walls are not even enclosure walls. Nonetheless, their existence in association with material culture dating to the

⁸⁹⁵ Baba and Friedman 2016, 194-202.

⁸⁹⁶ For lists of fences surrounding mortuary temples, Friedman 2017, 274-275. For an earlier, less complete list of the fences at the HK6 site, see Friedman 2009, 7. For the wall discovered by Hoffman, see Hoffman 1986, 6, Hoffman et al. 1987, 6, and Hoffman 1989.

⁸⁹⁷ For the niched enclosure, see Weeks 1971-72, and for a recent analysis of this complex, see Friedman and Bussmann 2018. For the town enclosure walls, see Fairservis 1971-72, 15-17 and Fairservis 1986, 3-5.

⁸⁹⁸ On the "fort" of Khasekhemwy, see Friedman 2007.

⁸⁹⁹ Kemp 1963.

⁹⁰⁰ Baba and Friedman 2016, 194-202.

Naqada IIB suggests that these are some of the earliest mudbrick walls known from all of Egypt, and the significant differences in their construction even relative to the walls known from the ceremonial complex warrant a cursory description.⁹⁰¹ The walls surrounding the food production and processing complex surround a series of hearths. Three walls are rectilinear, but the southeastern wall bends outwards in a convex fashion. Plans show that the bricks were mainly laid as stretchers, but the internal portions of the wall varied.⁹⁰² The dimensions of the bricks are quite varied, but generally range from 25-30 cm x 15 x 7-8 cm.⁹⁰³ It is clear that no molds were used to better standardize brick size.⁹⁰⁴ Radiocarbon dating of plant material from charred wood from this wall suggest a date of the Naqada IIC or somewhat later.⁹⁰⁵ The walls at HK11C, squares 10-11 seem to have formed a much larger complex. C¹⁴ dating of charred plant stems from the base of the wall suggest an earlier date than the food production building, roughly corresponding to the Naqada IIB-C period.⁹⁰⁶ The wall has been excavated for at least 25 m along a southwest-northeast trajectory, before it turns a corner and extends at least 10 m to the northwest. The terminus of the wall has not been determined, and a stone wall/construction abutting the mudbrick one has been unearthed near the southwestern margins of the excavations progress.⁹⁰⁷ Its bricks are slightly smaller, roughly 23-27 x 15 x 7 cm, and the wall ranges in width from 40-60cm set within a shallow foundation trench.⁹⁰⁸ The wall was formed by a core of mudbrick, to which clay, sherds, and fieldstones were cemented by a thick mud coating. The bricks and stones appear to have been placed at the same time.⁹⁰⁹ The interior of the complex

⁹⁰¹ For this dating and its implications, see Baba and Friedman 2016, 202-203.

⁹⁰² Baba and Friedman 2016, 199-202, fig. 15.

⁹⁰³ Baba and Friedman 2016, 199.

⁹⁰⁴ Baba and Friedman 2016, 199.

⁹⁰⁵ Baba and Friedman 2016, 202.

⁹⁰⁶ Baba and Friedman 2016, 197.

⁹⁰⁷ Baba and Friedman 2016, 194-198, 202, fig. 12.

⁹⁰⁸ Baba and Friedman 2016, 196.

⁹⁰⁹ Baba 2010, 20; Baba 2011, 20-21; Baba 2014, 22-25.

was covered with an enormous amount of ash and charcoal, though faunal, lithics, and sherds have also been recovered.⁹¹⁰ Baba and Friedman suggest the area was reused as a dump for ash and debris from production centers nearby, and that the area may originally have been used as a storage area or animal pen, though additional excavation is necessary to confirm such a hypothesis.⁹¹¹

A large, 45 m long and 44 cm deep wall trench has been excavated to the north of the court at the ceremonial complex at locality HK29A.⁹¹² Two large postholes flanked a gap that likely served as a gateway from the ceremonial courtyard into a complex further to the north, and refuse pits were located just beyond its northern face.⁹¹³ The fence itself appears to have been either a large façade or a robust temenos wall built using wood and large reed stems in its earliest phase, and replaced by bricks during a later phase of activity at the complex.⁹¹⁴ Friedman hypothesizes that it served as an enclosure wall given the presence of “ritual refuse” comprised of faunal remains and ceramic material deposited within the wall trench after a new mudbrick wall was constructed just beyond the southern face of the wall trench. This mudbrick wall followed roughly the same trajectory, and was at least 1.2 m wide.⁹¹⁵ Plans show only limited amounts of the brickwork, but it seems both headers and stretchers were present, though Friedman notes in particular the long lines of headers. Towards the northeast, it may have covered the wall trench itself in places. It appears that the wall predates the re-plastering of the courtyard, given that the plaster runs up to the wall itself.⁹¹⁶ Friedman suggests that this enclosure was possibly associated with a complex further to the north than the ceremonial

⁹¹⁰ Baba 2011, 23.

⁹¹¹ Baba and Friedman 2016, 197.

⁹¹² Friedman 2009, 93.

⁹¹³ Friedman 2009, 91-93.

⁹¹⁴ Friedman 2009, 94.

⁹¹⁵ Friedman 2009, 94-95, 102.

⁹¹⁶ Friedman 2009, 94-95.

courtyard, but further investigation is necessary to confirm this, and the orientation of the complex remains somewhat unclear.⁹¹⁷ Within the courtyard, and further to the west, imprints of mudbricks suggest the presence of a wall at least 8 courses thick that perhaps replaced an earlier fence built using wood and reeds. The imprints of the now lost bricks suggest they were 26 x 13 cm, and laid almost exclusively as headers. It remains unclear what function this wall had. Ceramic material embedded in the plaster floor of the courtyard suggests a Naqada IID2-Naqaada IIIA date for these renovations.⁹¹⁸ Friedman questions whether the adoption of mudbricks was motivated more by its material qualities, aesthetic superiority, or durability, or rather because of the depletion of nearby wood resources as they were used in earlier settlement or mortuary monuments at Hierakonpolis.⁹¹⁹

Roughly 40 m north of the ceremonial center at HK29A, locality HK29B appears to have been a complementary part of a larger monumental complex that encompassed the two sites, as well as nearby HK25.⁹²⁰ HK29B is aligned with HK29A, and is distinguished by a wall trench marked with postholes that extends over 40 m along a northwest-southeast orientation.⁹²¹ This palisade trench can be divided into two sections—both follow a northwest-southeast trajectory, but the southern section of the trench is roughly 1 m further to the southeast than its northern counterpart. The southern part of the palisade trench contained some 32 postholes, and seems to terminate in an especially large posthole just adjacent to the northern portion of the palisade trench. The southern section was more denuded, and it is likely that the fence continued further to the southeast. The smaller postholes in this part of the palisade trench measured roughly 40

⁹¹⁷ Friedman 2009, 102-103.

⁹¹⁸ Friedman 2009, 94-95.

⁹¹⁹ Friedman 2009, 102.

⁹²⁰ Hikade 2011; Friedman 2009, 101-102.

⁹²¹ Friedman 2009, 80, fig. 1; Hikade 2011, 84-93.

cm in diameter and 40-50 cm deep, though further south, some were found only 20-30 cm deep in the soil. The northern stretch of the palisade trench had 23 postholes, measuring roughly 30-40 cm in diameter and excavated to a depth of up to 40 cm into the floor of the trench. The trench itself was cut into the local Nile silt formation in steps, unlike the larger postholes found further to the east, which were cut directly into the strata below.⁹²²

Two phases of occupation have been identified at HK29B, and these phases have been linked to activities further to the south at the ceremonial court at locality HK29A and the elite cemetery at HK6 given the presence of comparable lithics and ceramics.⁹²³ Much of the ceramic assemblage at HK29B dates to the Naqada IID, but there is ample material that dates to the Naqada IIB-IIC as well, which would correspond neatly with phases of activity identified at both HK29A and the elite cemetery at HK6.⁹²⁴ Hikade speculates that the older phase of occupation at HK29B corresponds to the massive postholes located just east of the palisade fence.⁹²⁵ This fence formed the principal construction attributed to a later, younger phase (likely Naqada IID).⁹²⁶ Together with HK29A and the columned hall structure at HK25, these features formed a monumental ceremonial complex.⁹²⁷

At the elite cemetery at locality HK6, a substantial wall first revealed in square B7 defines its eastern and at least part of its northern side.⁹²⁸ This wall, known as wall B7, appears to have been more substantial than the fences enclosing individual tombs. Over seven years of excavations, Friedman and her team traced this wall for over 72 m along its path before reaching a

⁹²² Hikade 2011, 84-93.

⁹²³ Hikade 2011, 96-105.

⁹²⁴ Hikade 2011, 102, 105.

⁹²⁵ Hikade 2011, 90-93, 105.

⁹²⁶ Hikade 2011, 105.

⁹²⁷ Hikade 2011, 105.

⁹²⁸ Friedman 2008, 1183-1186; Friedman 2017, 264, fig. 1.

corner as the wall angled northwest.⁹²⁹ Dated to the Naqada IIA-Naqada IIB period, the wall was formed by “two irregular rows of closely spaced posts 6-12 cm in diameter with a thick packing of a coarse white plaster still surrounding those that were better preserved.”⁹³⁰ A finer plaster coating was subsequently applied—it is visible in fragments on and near the wall, occasionally even adhering to remnants of the coarser plaster.⁹³¹ Figural and geometric designs decorated this finer coating of plaster, and red pigments were also excavated nearby, suggesting an elaborate design program that perhaps communicated scenes or narratives familiar from Naqada I-II ceramics on a larger, more monumental scale.⁹³² Fragments of four funerary masks have also recently been found in the vicinity of Wall B7, though it remains unclear why they were deposited so close to the wall.⁹³³ The wooden posts in Wall B7 are likely to be *acacia nilotica*, supplemented by wattle comprised of *ceruana pratensis* and other locally available flora—comparable materials have been identified following botanical studies of soil samples retrieved from funerary enclosures elsewhere in HK6.⁹³⁴ Because of the perishable nature of these materials, the trajectory of Wall B7 was often identified by following the trajectory of the imprint of its foundations and foundation trench.⁹³⁵

Smaller wood and reed fencing surrounded numerous elite tombs and formed the walls of pillared structures (possibly funerary chapels) at the cemetery in HK6.⁹³⁶ A comprehensive overview of these enclosures is not possible at this juncture, but it is clear that this network of fences would have been one of the most visible architectural features of the elite cemetery. As

⁹²⁹ Friedman 2013; Friedman 2017, fig. 1.

⁹³⁰ Friedman 2008, 1185.

⁹³¹ Friedman 2008, 1185.

⁹³² Friedman 2008, 1184-1185, fig. 14.

⁹³³ Friedman 2014, 120-122, fig. 1.

⁹³⁴ Fahmy et al. 2008, 177-178.

⁹³⁵ Friedman 2008, 1185.

⁹³⁶ For a table noting the fencing surrounding parts of these complexes, see Friedman 2017, 274-275. For an earlier partial list of the fences at the site, see Friedman 2009, 7.

noted above, floral samples indicate that these fences were frequently built using local acacia and the *ceruana pratensis* for wattle.⁹³⁷ They appear to have been constructed using the same basic methodology as larger fences built at the ceremonial complex in HK29A and HK29B. In some cases, the fencing posts seem to have been set into a foundation trench filled with a white ashy material that perhaps served as an insecticide.⁹³⁸ The enclosures within the cemetery broadly correspond to the same periods where such fencing was present elsewhere on the site—primarily the Naqada IIA-Naqada IIB, with some examples possibly dating to the Naqada IC period as well.⁹³⁹ Such enclosures surrounded the graves of both humans and animals interred at the cemetery, and in some cases enclosed multiple, presumably related tombs. The span of many of these enclosures leaves open the possibility that they were roofed, but there is no indication of this archaeologically. Friedman notes Reisner’s suggestion that the fences may have served as “revetments for mounds of earth placed over the graves.”⁹⁴⁰ This would conform to the substantial overburden above many of the tombs relative to the pillared hall structures further to the east, near Wall B7. In areas where the edges of graves are particularly well preserved it is clear that the fences had to have been constructed following the digging of the tombs themselves.⁹⁴¹ The largest examples surround the most substantial tombs or pillared courts: specifically, Tomb 72, Tomb 23, and the pillared court of Structure 07, but these features are present surrounding numerous graves within the elite cemetery, and seem to have been an important component of tomb superstructures at HK6 during the Naqada I-Naqada II periods.⁹⁴²

⁹³⁷ Fahmy et al. 2008, 177-178.

⁹³⁸ Friedman et al. 2011, 177; Friedman et al. 2009, 192.

⁹³⁹ Friedman 2017, 274-275; for an earlier partial list of the fences at the site, see Friedman 2009, 7.

⁹⁴⁰ Friedman et al. 2011, 187; Reisner 1936, 1-5, fig. 10.

⁹⁴¹ Friedman et al. 2011, 174.

⁹⁴² Friedman 2009, 7; see also Friedman 2017, fig. 1 for a plan of the HK6 cemetery complex.

Several large walls at Kom el-Gemuwia, a part of the Predynastic settlement and the core of the Early Dynastic urban site at Hierakonpolis, warrant further discussion: a 3 m thick wall revealed in Michael Hoffman's trench at square 10N5W, the stone revetment wall associated with the earliest cultic activities at Kom el Gemuwia, the 1st Dynasty palace façade, and the various phases of the town's perimeter wall.⁹⁴³ In a trench that was intended to excavate down to the natural bedrock, Michael Hoffman's team revealed a three meter thick wall that has tentatively been dated to the late Naqada II or early Naqada III period on the basis of sherds linked to the transition between these two periods.⁹⁴⁴ Little specifics are given about the construction of the wall itself, but its breadth suggests it was likely an enclosure wall related to either a palace or possibly one of the earliest phases of the temple—the revetment wall of the temple mound identified by Quibell and Green was approximately 30 m to the southeast.⁹⁴⁵ Adjacent to the wall was a wattle and daub structure demarcated by the postholes and trenches that defined the position of its walls that appears to have been contemporaneous with the wall.⁹⁴⁶ This construction may have had a domestic character given that an oven was excavated in association with the complex.⁹⁴⁷ In any case, the imprints of thin walls comprised of reeds and timber contrast sharply with the thick wall nearby. Unfortunately, the necessarily limited nature of this archaeological exposure precludes determining definitively if this was a thick outer wall of an important building or a particularly early and robust enclosure wall at this juncture.⁹⁴⁸

⁹⁴³ For the enclosure wall discovered in the test trench, see Hoffman 1989, 318 and Hoffman 1986, 6; for the stone revetment wall, see Quibell and Green 1902, 3-5; for the Early Dynastic palace façade, see Weeks 1971-72; for the perimeter walls near the town, see Fairservis 1971-72, 14-17.

⁹⁴⁴ Hoffman 1989, 318-319.

⁹⁴⁵ Fairservis 1986, fig. 1. This observation was first pointed out by Moeller in Moeller 2016, 95.

⁹⁴⁶ Hoffman 1986, 12, fig. 3.

⁹⁴⁷ Hoffman 1986, 12, fig.3.

⁹⁴⁸ For the technical difficulties encountered by Hoffman and his team, see Hoffman 1989, 318-320.

The enclosure walls known from the temple area relate to the New Kingdom, likely renovated during the Ramesside period.⁹⁴⁹ No enclosure walls are known from the Old Kingdom or Early Dynastic occupations of the site, but Quibell and Green describe a circular sand mound with a stone revetment.⁹⁵⁰ The sandstones used to build this wall were roughly the same size, 30 x 20 x 8 cm, and were preserved in a series of steps on a steep incline.⁹⁵¹ Quibell and Green note that this feature did not possess the structural integrity to withstand repeated efforts to climb it, and ascended too sharply to function as a stairway.⁹⁵² The relationship of this feature to the surrounding stratigraphy and architecture is extremely difficult if not impossible to determine. Fairservis's re-excavation of the northern part of the temple area further complicates the picture—only fragments of stones were excavated, and he suggests that the revetment may have only been partially excavated by Quibell, Green, and Clarke, and thus reflect a stone structure upon the mound rather than a revetment enclosing it.⁹⁵³ An alternative possibility is that many of the stones from the revetment were robbed out following the conclusion of British excavations at the site, but broadly, understanding of this unique feature remains extremely limited.

The Early Dynastic niched gate complex is the only known example of “palace façade” style architecture from this period that does not relate to a funerary or religious context.⁹⁵⁴ The interior of this building is unmistakably residential in character, characterized by an at times maze-like arrangement of interconnecting rooms, corridors, and courtyards. Features like the large clay platform at the center of the complex (decorated with a similar niched façade), the presence of clay sealings, and the absence of self-contained domestic units suggest that this

⁹⁴⁹ Fairservis 1986, 3-5.

⁹⁵⁰ Quibell and Green 1902, 3-6, pl. LXV.

⁹⁵¹ Quibell and Green 1902, 3.

⁹⁵² Quibell and Green 1902, 3.

⁹⁵³ Fairservis 1983, 10-11.

⁹⁵⁴ Weeks 1971-72.

building also possessed an official or administrative function. Most probably it was a palace, located at the heart of the Early Dynastic settlement.⁹⁵⁵

The wall associated with the niched façade extended at least 40 m south of the entrance—the building it enclosed was clearly quite large.⁹⁵⁶ The entrance is roughly 2.8 m wide, and the niching on the exterior face was clearly decorative: despite the apparent importance of the building, the wall is at times less than 0.8 m thick as a result of the palace façade architecture.⁹⁵⁷ Comparable to the entrance to the “fort” of Khasekhemwy, the enclosure wall projects outwards on either side of the gateway, creating a kind of entrance court just beyond the gateway itself, flanked by two buttresses.⁹⁵⁸ The bricks were approximately 24.5 x 12 x 6 cm, laid in alternating courses of headers and stretchers.⁹⁵⁹ No reed matting to help stabilize these walls was observed, though Weeks believes that the damp soil may have contributed to its disintegration.⁹⁶⁰ The elaborate niching along the exterior was coated with a thick layer of mud plaster (1.5 cm) and finished with a thin layer of white gypsum plaster.⁹⁶¹ The wall was preserved to a height of fourteen courses at its maximum extent along the southern part of the gateway. The complex was founded upon a layer of fine clay. Tracing the path of the enclosure wall has proven difficult, but it seems as though the entrance was located toward the northwest of the complex.⁹⁶²

Quibell and Green first noted town enclosure walls that surrounded the kom, and their team excavated a gateway roughly two-thirds of the way along its northern wall.⁹⁶³ Quibell and

⁹⁵⁵ For a recent re-evaluation of the complex and a comparison with the Early Dynastic palace at Buto, see Friedman and Bussmann 2018.

⁹⁵⁶ Friedman and Bussmann 2018, 81.

⁹⁵⁷ Weeks 1971-72, 30.

⁹⁵⁸ Friedman and Bussmann 2018, fig. 3, and see also the original plan in Weeks 1971-72. For the Hierakonpolis fort, see Friedman 2007.

⁹⁵⁹ Weeks 1971-72, 29.

⁹⁶⁰ Weeks 1971-72, 29.

⁹⁶¹ Weeks 1971-72, 30.

⁹⁶² Friedman and Bussmann 2018, fig. 3.

⁹⁶³ Quibell and Green 1902, 15.

Green date the construction to the Early Dynastic period on the basis of the preponderance of such material culture found nearby.⁹⁶⁴ Fairservis re-excavated this area during seasons in 1967 and 1968, and his observations confirm that the plan produced by Quibell and Green was idealized and greatly contribute to any attempt to understand the wall's phasing.⁹⁶⁵ In total, the town wall eventually expanded to an edifice roughly 9.50 m thick, and Fairservis identifies at least two phases.⁹⁶⁶ The earlier phase of walling, Wall A, was some 5.15 m thick, built using alternating headers and stretchers. The bricks were roughly 24.5 x 14 x 7 cm in size, and following its construction, various constructions were completed directly adjacent to the wall on both its internal and external face.⁹⁶⁷ Fairservis notes the presence of a possible buttress on its internal face, but otherwise does not mention any decorative features.⁹⁶⁸ At a later point, a new wall (Wall B) was constructed roughly 1.85 m outside of Wall A. This wall was approximately 2.5 m wide, built primarily using headers, with bricks that were approximately 28 x 14-16 x 8.5 cm.⁹⁶⁹ Fairservis notes that projections of headers were present at regular intervals every 1.57 m along Wall B, perhaps related to ornamental niches decorating its exterior face. The space between the two walls was filled with clay. No foundation trenches for these walls are described or depicted in section drawings of the walls, but it is possible that they existed and the high water table obscured their presence.⁹⁷⁰ The gateway noted by Quibell and Green was initially left as a gap within Wall A, and subsequently paved with mudbricks.⁹⁷¹ Fairservis notes that domestic installations and occupational debris were built along both the interior and exterior approach to

⁹⁶⁴ Quibell and Green 1902, 15, pl. LXXIII

⁹⁶⁵ Fairservis 1971-72, 14-17.

⁹⁶⁶ Fairservis 1971-72, 14-17; Fairservis 1986, 3-5.

⁹⁶⁷ Fairservis 1971-72, 15.

⁹⁶⁸ Fairservis 1971-72, 15.

⁹⁶⁹ Fairservis 1971-72, 15.

⁹⁷⁰ Fairservis 1971-72, 15.

⁹⁷¹ Fairservis 1971-72, 15-16.

the gate, as well as within the gateway itself. Shortly thereafter, presumably in relation to the construction of Wall B, these habitations were levelled and a new brick pavement was placed along the gateway, culminating in a kind of platform beyond the exterior entrance to the gate.⁹⁷²

Fairservis is circumspect regarding the dating of these walls in published reports, but in his final publication of the 1981 season, he dates Wall A to the Old Kingdom and Wall B to the New Kingdom.⁹⁷³ While it seems extremely likely that Wall A dates to either the Old Kingdom or Early Dynastic period, Wall B may well date to a period closer to the foundation of Wall A. It is difficult to confirm such a revision, however, since Fairservis does not describe the pottery leaning against the exterior of Wall B. Moreover, although Wall A was excavated to its foundations and rested upon a clay layer (likely a walking layer of compacted mud that resulted from laborers repeatedly traversing this layer during the wall's construction), this layer is not shown in Fairservis's section drawings.⁹⁷⁴ It is therefore difficult to be certain how much higher Wall B was founded than its predecessor, and indeed, Fairservis notes in his 1986 report that the two walls were founded upon the same clay level.⁹⁷⁵ Presumably the excavators recognized New Kingdom ceramics in the clay fill found between the two walls.

Nonetheless, it is worth noting several circumstantial factors that argue for an earlier foundation date. First, the walls follow the same course and orientation, so even if Wall A had fallen into disrepair and habitations were constructed abutting it, the surrounding settlement had not entirely eclipsed it. Second, there are few known town walls relating to provincial centers during the New Kingdom. While many monumental walls from this period have been excavated, the vast majority surround individual palaces and temples, or enclosed fortress-towns or

⁹⁷² Fairservis 1971-72, 16.

⁹⁷³ Fairservis 1986, 3-5.

⁹⁷⁴ Fairservis 1971-72, fig. 10.

⁹⁷⁵ Fairservis 1986,4.

specialized communities of workers.⁹⁷⁶ Some of this may be the result of a dearth of large, horizontal exposures at New Kingdom settlements; yet even at sites like Edfu with sweeping vertical exposures of stratigraphy ranging from the Old Kingdom through the Byzantine period, clearly visible renovations or additional phases were added to the town enclosure wall in nearly every period save the New Kingdom. Third, the combined widths of all phases of Early Dynastic and Old Kingdom town walls at Elephantine reached a similarly massive width of some 8 m, and at El Kab, the Old Kingdom town's double walls together with the space between them measured 10.06 m.⁹⁷⁷ Finally, it is worth noting that this periodization might have been influenced by the principal divide between layers in the temple area of the Kom, where the two primary phases of occupation identified by Fairservis's excavations dated to the Early Dynastic/Old Kingdom and New Kingdom, when new enclosure walls demarcated this area of the settlement.⁹⁷⁸ Further excavation would seem necessary to either confirm or further problematize Fairservis's dating.

The "fort" at Hierakonpolis, completed during the middle of the reign of Khasekhemwy, was first planned by Somers Clarke in 1902, and has been the subject of extensive excavations and conservation efforts since 1999.⁹⁷⁹ In its architecture, orientation, and monumentality, it recalls the massive funerary enclosure of Khasekhemwy at Abydos.⁹⁸⁰ Both enclosures are oriented in such a way that their corners align roughly with the cardinal directions. Both enclosures had a smaller external perimeter wall surrounding the main enclosure, and both

⁹⁷⁶ Kemp in Kemp et al. 2004, 275-276 notes that temple enclosures were the urban enceintes of their day during these later periods. Neither of the extensively excavated royal capitals from the New Kingdom (Armarna and Pi-ramesse) seem to have possessed an enclosure wall. No evidence of town walls has been found at Thebes. Nor were walls renewed at provincial centers like Edfu or Elephantine (or if they were, they were entirely razed prior to the construction of Late Period town walls.

⁹⁷⁷ See Chapter Four of this dissertation for Edfu's enclosure walls, where no fewer than four phases of accretion walls were established next to each other. For Elephantine, see Ziermann 1993, 77-79, 83-85, 127-128; for El Kab, see Hendrickx et al. 2010, 160.

⁹⁷⁸ Fairservis 1986, 3-5.

⁹⁷⁹ Friedman 2007, 328; for the plan by Somers Clarke, see Quibell and Green 1902, pl. LXXIV.

⁹⁸⁰ Friedman 2007; Bestock 2008, 57-58.

enclosures were at least initially constructed with a niched façade.⁹⁸¹ However, there are numerous important differences between the two structures. First, the “fort” at Hierakonpolis is almost square in form, rather than rectangular, and is far smaller (64.7 x 56.7 m) than the funerary enclosure at Abydos (126 x 65 m).⁹⁸² Magnetometry tests at Hierakonpolis have not revealed any locations in the vicinity that could plausibly serve as Khasekhemwy’s tomb, and the pottery excavated inside and near the “fort” seems to date to the earlier portion of Khasekhemwy’s reign (no examples from the 3rd Dynasty are present, and several forms known from Khasekhemwy’s tomb are also absent) so it seems clear that this structure was not originally a cenotaph or integrated into a broader mortuary complex.⁹⁸³ Thus, it seems more likely that the Hierakonpolis enclosure served as an important locus for special ceremonies centering around the living king or the divine realm, rather than any kind of mortuary purpose. Indeed, with its niched façade and imposing height, it is possible that the fort functioned as a kind of prototypical window of appearances, with the king’s appearance atop the structure creating a three dimensional, physical embodiment of the *serekh* cartouches so well known from the Early Dynastic Period.⁹⁸⁴

While wind erosion and structural problems have undermined the structure, they have also revealed a more complicated phasing of the monument than initially expected. The core of the monument seems to have been a wall decorated with a niched façade/exterior pilasters, roughly 2.10 m thick, enclosed and covered by a later phase of construction. This internal phase of walling has been observed within all of the fort’s principal enclosure walls.⁹⁸⁵ The second

⁹⁸¹ Friedman 2007, 311, 315; Bestock 2008, 57-58.

⁹⁸² For the “fort” at Hierakonpolis, see Friedman 2007, 310. For the Shunet el-Zebib, see Bestock 2008, 57.

⁹⁸³ For the ceramic forms, see Raue in Friedman 2007, 332. See also Friedman 2007, 328.

⁹⁸⁴ Friedman 2007, 328.

⁹⁸⁵ Friedman 2007, 313.

phase of the enclosure, which overlies and abuts the interior and exterior faces of this inner core of walling, was built at a slight batter—roughly two degrees on each side, a slope comparable to the smaller external perimeter wall that surrounded the enclosure. The combined thickness of the enclosure is approximately 4.8 m, with roughly 1.2 m of bricks added to the inner face of the phase 1 wall and roughly 1.5 m of brickwork added to the exterior face.⁹⁸⁶ The eastern wall of the enclosure seems to have been made slightly thicker, with “an extra row of headers on each side.”⁹⁸⁷ It is clear that the initial phase was incomplete, as there is no trace of plaster on its façade.⁹⁸⁸ Crucially, the second phase of walling was not bonded to the original phase, which likely contributed to the extensive erosion of the lower levels of these walls.⁹⁸⁹ The initial phase of walling seems only to have reached a height of 2-2.5 m before the decision was made to widen the enclosure’s walls. In total, the height of the enclosure wall measures nearly 9 m, likely close to its original extent.⁹⁹⁰

The foundations of these walls have only been exposed in limited areas.⁹⁹¹ In the southwest corner, it was clear that the lowest course of the second phase rested on roughly 10 cm of sand; the exposed corner of the first phase wall also rested on this same dense layer of sand, but there has been no evidence of a foundation trench associated with any of these walls, and nothing to suggest that the ground was comprehensively levelled in order to facilitate the construction of the fort. Rather, Friedman suggests that a basal “dado” that extended out roughly half a brick length (13 cm) from the edge of the second phase of the wall helped to stabilize the construction.⁹⁹² This feature ranged from one to eight courses in height, according to variations

⁹⁸⁶ Friedman 2007, 313-317.

⁹⁸⁷ Friedman 2007, 313.

⁹⁸⁸ Friedman 2007, 314.

⁹⁸⁹ Friedman 2007, 314.

⁹⁹⁰ Friedman 2007, 313.

⁹⁹¹ Friedman 2007, 316.

⁹⁹² Friedman 2007, 316.

in the local topography. The top of the dado was roughly at the same level, though its height along the north wall remains higher. The dado has not been located along the north wall, but this wall is more extensively damaged and this conceivably is simply due to the lack of preservation.⁹⁹³

The bricks of the initial wall are slightly smaller than the bricks from the later phase of walling, measuring roughly 26.5 x 12.5 x 6.75 cm (as compared to 26.5 x 12.5 x 8.75 cm from the phase two construction).⁹⁹⁴ The bricks from the inner core of the enclosure wall were built using a paler clay, evinced a “yellow/tan” hue, and were tempered with straw. Compositional analyses of the bricks from the first phase show that on average they were composed of 12% clay, 42% silt, and 46% sand. The inclusions within these bricks are more varied, including midden waste and ash. Dickinson suggests that paleo-silts from the nearby Sahaba formation, clay pits east of the fort, and recycled bricks from the settlement likely provided the source material for the bricks produced for the fort. Ash was used to help compensate for the limited availability of local clay to help harden the bricks.⁹⁹⁵ The bricks from the second phase of the enclosure were of higher quality, more standardized, and on average consisted of 13% clay, 48% silt, and 39% sand. Larger fragments of charcoal and small pottery fragments are more frequent in these bricks, and Dickinson notes that the increased organic material, lower sand content, and larger inclusions would have sped up the drying process.⁹⁹⁶

In both the initial and the later phase of wall construction, the bricks were primarily placed as headers. Occasionally, bricks were laid on edge to achieve a level base for subsequent foundations. Conor Power “tentatively observed” the “silica skeletons” of a bed of reeds or reed

⁹⁹³ Friedman 2007, 316.

⁹⁹⁴ Friedman 2007, 313

⁹⁹⁵ Dickinson 2012, 23.

⁹⁹⁶ Dickinson 2012, 23.

matting in the second phase walls at the internal northeast corner of the fort.⁹⁹⁷ If this identification is correct, it is one of the earliest known examples of this particular stabilizing technique employed within an enclosure wall. The internal face was cased with an outer layer comprised of alternating headers and stretchers; on the exterior face of the fort, this pattern was less regular, but Friedman notes a pattern of two courses of stretchers alternating with one course of headers.⁹⁹⁸ The 55 cm wide pilasters were bonded to the wall through the use of two headers every third course, in a row that was otherwise stretchers. The pilasters were covered with a thick mud coating (up to 3 cm in places) and subsequently plastered. It is unclear if more elaborate niches or pilasters were present on the eastern wall due to extensive weathering, as one would expect if the architecture of this monument corresponds to the funerary enclosures at Abydos.⁹⁹⁹ The entire monument was likely covered with this white plaster, as archival photos from Garstang's excavations show that parts of the eastern perimeter wall retained a white plaster coating, as did portions of the niched gateway.¹⁰⁰⁰

The gateway to the fort in the northeastern wall, near its eastern corner was flanked by projections, forming a kind of entrance court.¹⁰⁰¹ Unlike the pilasters that project outward along the sides of the enclosure, the niches here were built into the wall. Simple, single stepped niches (42-45 cm wide x 15 cm deep) were constructed on either side of more complex, two stepped niches (68 cm wide x 40 cm deep) along the more northerly wall of the entrance.¹⁰⁰² It is likely that similar features were present along the southern side and the more damaged western wall of the gateway area, but weathering and brick collapse makes it impossible to be certain. Indeed, it

⁹⁹⁷ Friedman 2007, 316.

⁹⁹⁸ Friedman 2007, 316-317.

⁹⁹⁹ Friedman 2007, 317.

¹⁰⁰⁰ Friedman 2007, 317.

¹⁰⁰¹ Friedman 2007, 318-321.

¹⁰⁰² Friedman 2007, 318.

is plausible that the same kind of niching was present along the eastern face of both projecting bastions, as well. Remnants of niching were discovered near remnants of the first phase wall along the southern side of the entrance court, where the second phase wall had eroded away; this suggests that a similar entrance plan was designed at the outset of the fort's construction. Along the gateway itself, the roughly 2.10 m thick first phase wall was encased but not bonded to the second phase constructions on its internal and external face, each roughly 1.35-1.50 m wide.¹⁰⁰³ The entrance itself was roughly 2 m wide, and Friedman notes parallels between this gateway and the "great door" niches at the southern corners of 2nd Dynasty mastabas at Saqqara and the niched gateway of the 1st Dynasty palace at Hierakonpolis's settlement.¹⁰⁰⁴

The interior face of the projecting bastions was not covered with brickwork from the second phase.¹⁰⁰⁵ The side chambers created by the projecting bastions perhaps contained staircases leading to the top of the monument—Clarke and Fairservis both claimed to have seen the outline of a staircase against these walls, but this cannot be verified given the state of preservation of these rooms.¹⁰⁰⁶ Friedman notes that a staircase "within one of the projecting wings" of the 1st Dynasty palace at Hierakonpolis's settlement site further corroborates the suggestions of Fairservis and Clarke.¹⁰⁰⁷

Little is known about the internal structures within the fort, but it seems that there was a substantial building within the complex—at least 19 m east-west by 10 m north-south.¹⁰⁰⁸ This installation had thick walls (the remnants of all of the building's outer walls appear to have been well over 1 m), and seems to have had two rooms. A granite column base discovered nearby

¹⁰⁰³ Friedman 2007, 318

¹⁰⁰⁴ Friedman 2007, 321.

¹⁰⁰⁵ Friedman 2007, 322-323.

¹⁰⁰⁶ Friedman 2007, 322; Quibell and Green 1902, 19-20.

¹⁰⁰⁷ Friedman 2007, 322-323.

¹⁰⁰⁸ Friedman 2007, 326.

highlights the ceremonial importance of this structure, and the building's dimensions are comparable to the internal structures within the 2nd Dynasty funerary enclosures of Khasekhemwy and Peribsen.¹⁰⁰⁹ The building's orientation is somewhat askew relative to the walls of the fort itself, and Friedman suggests that it was likely accessed from the east (based on parallels with the Abydos enclosures) and possibly from the southwest as well.¹⁰¹⁰

As a result of the construction of the exterior perimeter wall, the entrance to the interior of the fort was not axial. Though Clarke and Garstang reconstructed the perimeter wall along all four sides of the monument, the wall has not been traced far beyond the gateway along the northeastern wall, and its trajectory here is uncertain.¹⁰¹¹ This perimeter wall stands 2.60 m from the eastern face of the gateway, and the preserved segment suggests that a broader, enclosed corridor would have existed along the exterior face of the northeastern wall relative to the other sides of the fort.¹⁰¹²

A much smaller, 1.1 m gap in the northeastern wall near its northern corner served as an additional entrance to the fort before it was bricked up and subsequently turned into a large niche during the second phase of construction.¹⁰¹³ This feature recalls the northeastern niche in Aha's funerary enclosure, but its purpose is unknown. 8.5 m east of the interior southwest corner, a 0.80 m gap was also bricked up using second phase masonry. This perhaps served as a temporary workers entrance.¹⁰¹⁴

No cult vessels have been excavated within the fort, and it seems that little if any cultic activity continued at the site after its completion.¹⁰¹⁵ Nonetheless, it clearly retained its

¹⁰⁰⁹ Friedman 2007, 326. See Bestock 2008b, 56-57 for parallels from the enclosures of Khasekhemwy and Peribsen.

¹⁰¹⁰ Friedman 2007, 326.

¹⁰¹¹ Friedman 2007, 318-320.

¹⁰¹² Friedman 2007, 320.

¹⁰¹³ Friedman 2007, 321.

¹⁰¹⁴ Friedman 2007, 321.

¹⁰¹⁵ Friedman 2007, 328.

significance as a sacred place, given that minimal activities seem to have taken place within the fortress after it fell out of use. No further tombs were built within the structure until the Late Period, and a vessel inscribed for Hatshepsut and Thutmose III suggests that the site was at least informally revered well into the New Kingdom.¹⁰¹⁶ Friedman concludes that it is likely that the fort should be connected with the veneration of the living Khasekhemwy's kingship, perhaps in connection with the *sed* festival or the reunification of the land after a period of internecine struggle.¹⁰¹⁷

HERMOPOLIS

Site Description: The site of Hermopolis is located northwest of the modern settlement at Mallawi, near the village of el-Ashmunein. It was an important administrative center as early as the Old Kingdom, and a focal point for the worship for the cult of Thoth. Additionally, other important Egyptian creation myths like that of the Ogdoad appear to have originated in Hermopolis.¹⁰¹⁸ A series of temples have been at least partially excavated at the site, and tombs spanning much of Pharaonic history have been excavated at nearby Beni Hasan and Deir el-Bersheh.¹⁰¹⁹ Very few remains were excavated from strata prior to New Kingdom levels. Remnants of a Middle Kingdom temple were identified, and were dated to the reign of Amenhotep II on the basis of reliefs and inscriptions on its limestone gate building.¹⁰²⁰ Roeder identifies several elements of brick construction that might plausibly date to the Old Kingdom, but these are largely floating and it is difficult to definitively link them to specific buildings or enclosure wall systems.¹⁰²¹ With regard to later enclosure walls, the most salient aspect of

¹⁰¹⁶ Friedman 2007, 328.

¹⁰¹⁷ Friedman 2007, 328.

¹⁰¹⁸ Allen 1988, 20-21 discusses the Hermopolitan cosmogony and the Ogdoad.

¹⁰¹⁹ For an overview of Hermopolis, see Kessler in Redford 2001, 94-97.

¹⁰²⁰ Balcz and Bittel 1932, 27-34.

¹⁰²¹ Roeder 1937, Plan I; Roeder 1959, 75-76.

Roeder's excavations would seem to be that even as certain areas retained their sacral character for millennia, in some cases, the veritable maze of later enclosure walls and changing orientations of temple buildings emphasizes how such areas might be reinterpreted and substantially reorganized by later inhabitants.¹⁰²²

IKKUR

Site Summary: The fortress of Ikkur is located in Lower Nubia, about five kilometers north of Dakka, and is one of the closest fortresses to the traditional border of the Egyptian state at Elephantine. Originally visited at the end of the 19th century by Clarke and the beginning of the 20th century by Garstang, the site was subsequently excavated by Firth and George Reisner during their survey of Nubia in 1908-1909.¹⁰²³ The fortress is now submerged beneath the waters of Lake Nasser. Unfortunately, much about the fortress must remain unknown, despite its apparently excellent preservation at the time of Firth and Reisner's visit.¹⁰²⁴ Two distinct fortification systems were discovered at the site: an initial foundation characterized by U-shaped bastions roughly every 20 meters, and an outer system of higher mudbrick enclosure walls. Both fortification systems were surrounded by a ditch, and the outer fortifications preserve remains of a platform likely connected to a drawbridge installation that spanned this trench.¹⁰²⁵ Firth and Reisner suggest the inner fort was an Old Kingdom foundation and the outer walls were completed at some point between the 12th and 17th Dynasties.¹⁰²⁶ The presence of C-Group and early New Kingdom pottery at the site leave open the possibility that the fortress was founded in the Middle Kingdom and subsequently reoccupied and renovated extensively in the New

¹⁰²² Roeder 1959 generally provides a comprehensive overview of the German excavations at Hermopolis. Roeder 1959, 75-98 provides a history of the site, noting many of the features encountered during excavations.

¹⁰²³ Clarke 1916, 160; Firth 1912, 22-25; Garstang 1907 138-141. For a recent evaluation, see Vogel 2004, 216-217.

¹⁰²⁴ Firth 1912, 22.

¹⁰²⁵ Firth 1912, 22-23.

¹⁰²⁶ Firth 1912, 22.

Kingdom. In the absence of images of more detailed discussions of stratigraphy and the pottery unearthed at the site, it is impossible to precisely date these foundations, and Reisner and Firth acknowledge that the gap between the foundation of these fortifications might have been smaller, and the two fortresses might both date to the Middle Kingdom.¹⁰²⁷ The thicker, rectilinear walls clearly postdate the fortress system with semicircular bastions, since the former actually cuts the latter near its southwestern corner. Firth suggests that the site (as well as nearby Kubban) was likely related to managing and processing gold or other precious minerals retrieved from expeditions to the Wadi Allaqi.¹⁰²⁸

Relevant Enclosure Walls: As noted above, there are two notable systems of fortification walls at Ikkur that are visible in plans and photos of the site. The earlier, inner fortifications and later more robust mudbrick walls from a later fortress at the site are all substantial enclosure walls.¹⁰²⁹ Remnants of a “fallen wall” were noted outside the later, outer enclosure wall, near which a serpentine wall was discovered.¹⁰³⁰ Firth’s plan suggests that near this location there were remnants of an outer wall related to the initial fortress foundation, but there are no comments on this feature in excavation reports.¹⁰³¹

Technical Details: Details about the walls themselves are somewhat limited. Firth notes that both walls were completed using mudbricks that were approximately 32 x 16 x 10 cm in size.¹⁰³² Photos confirm that the exterior facing of these walls was built using alternating headers and stretchers, with masses of headers forming the internal of the walls.¹⁰³³ Firth also notes that a layer of reed matting was interspersed every eight courses in the outer wall, and holes from the

¹⁰²⁷ Firth 1912, 22.

¹⁰²⁸ Firth 1912, 24-25.

¹⁰²⁹ Firth 1912, 22-24.

¹⁰³⁰ Firth 1912b, Plan XX.

¹⁰³¹ Firth 1912b, Plan XX

¹⁰³² Firth 1912, 23.

¹⁰³³ Firth 1912, Plates 33-36.

timber of the original scaffolding were visible roughly every 90 cm at the same level where the layer of reeds was added.¹⁰³⁴ The outer fort was preserved in some places to a height of seven meters. Photos suggest that the fortification walls were likely coated with a kind of mud plaster, though this has often been eroded.¹⁰³⁵

I am skeptical of Reisner's identification of the inner fortress as a Third Dynasty foundation (or perhaps even earlier). Although the site is closer to Elephantine than Buhen, where the Egyptians were certainly active during the Old Kingdom, and its semicircular buttresses do recall the North Palace at Balat and the Early Dynastic Fortress at Elephantine, the initial Middle Kingdom fortification of the outer walls at Buhen looked somewhat similar to the inner walls at Ikkur.¹⁰³⁶ Moreover, semicircular bastions are well attested at smaller fortress in Lower Nubia dating to the Middle Kingdom, at sites like Wadi el-Hudi, El Hisnein, and Dhimit, albeit in drystone rather than mudbrick.¹⁰³⁷ Further, Firth mentions that traces of loopholes were noted at three points on the circumference of the southwestern most bastion, a technological innovation that to my knowledge is not attested prior to the Middle Kingdom, though this may simply be the result of the state of preservation and dearth of Old Kingdom fortifications that have been excavated.¹⁰³⁸ Perhaps most importantly, while Firth and Reisner mention finding C-Group and Early New Kingdom pottery at the site, they make no mention of any Old Kingdom ceramic material.¹⁰³⁹ On the other hand, the 32 x 16 x 10 cm brick sizes recorded by Firth are slightly smaller than expected for a public building in the Middle Kingdom, but not especially

¹⁰³⁴ Firth 1912b, Plate 33.

¹⁰³⁵ It is particularly visible in Firth 1912b, Plate 35.

¹⁰³⁶ Emery et al. 1979, 5, pl. 2.

¹⁰³⁷ See Harrell and Mittelstadt 2015 for the installations at El-Hisnein and Dihmit; see Shaw and Jameson 1993 for Wadi el-Hudi.

¹⁰³⁸ Firth 1912, 23.

¹⁰³⁹ Firth 1912, 24.

anomalous either.¹⁰⁴⁰ The serpentine wall found beyond the outer fortress system's fosse and drawbridge is assigned to the second, later phase of construction at the fortress by Firth and Reisner, but its alignment actually accords better with the remnants of earlier constructions noted on the plan further to the east.¹⁰⁴¹ Given that serpentine walls were rarely if ever used prior to the Middle Kingdom, this would seemingly suggest that the earliest foundations at the site should also be dated to the Middle Kingdom.¹⁰⁴² Beyond problematizing the initial hypotheses of Firth and Reisner, however, it is impossible to definitively date the earliest occupation of the site in the absence of more detailed reports on the archaeological material from Ikkur.

KARNAK

Site Summary: As the seat of both the 11th and 17th Dynasties, Thebes was a powerful royal center for much of Pharaonic history. The massive temple complexes of later periods obscure what appears to have been an extensive city below.¹⁰⁴³ These fragments have only been reached sporadically, and it is not possible to describe the layout of the town in great detail. Excavations led by French teams at Karnak North (directed by Jean Jacquet and Helen Jacquet-Gordon) and east of the Sacred Lake (directed by Jean Lauffray) together with a Canadian mission (led by Donald Redford) excavating at East Karnak have discovered remains at least as early as the Middle Kingdom.¹⁰⁴⁴ In places east of the Sacred Lake, there is evidence for strata as early as the First Intermediate Period or early Middle Kingdom.¹⁰⁴⁵ There appears to have been some degree of orthogonal planning, at least in the residences or administrative buildings in this vicinity of the

¹⁰⁴⁰ See for example the comparably sized bricks used to build Senwosret III's funerary enclosure: Wegner 2007, 367.

¹⁰⁴¹ Firth 1912, fig. 8; Firth 1912b, Plan XX.

¹⁰⁴² For serpentine walls, see Siegel 2016.

¹⁰⁴³ Millet and Masson 2011.

¹⁰⁴⁴ Jacquet-Gordon 2007, 321-323, fig. 6-7 and Jacquet 2001, 21-28; Redford et al. 1991, 98; Redford 1984, 98; Lauffray 1980, 44-52.

¹⁰⁴⁵ Leclère 2002, 32-33. Millet 2008 notes Old Kingdom ceramics near mudbrick installations.

site.¹⁰⁴⁶ Elsewhere, a range of smaller, likely domestic residences have been excavated both inside and beyond the enclosure walls noted at the site.¹⁰⁴⁷

Relevant Enclosure Walls: At least four distinct enclosure walls have been noted in strata dating to the Middle Kingdom at Karnak. During excavations at East Karnak of the Gem-pa-Aten led by Donald Redford, a 6 m thick wall oriented roughly towards true north-south perhaps defined the eastern limits of Middle Kingdom Thebes.¹⁰⁴⁸ Lauffray's publication of excavations undertaken when the "Sound and Light Show" seating area was constructed revealed a 5 m thick enclosure running east-west near the later temple enclosure wall of Thutmose III, separating a building or buildings with large columned halls from structures with thinner walls further to the north.¹⁰⁴⁹ Finally, further to the north, excavations near Thutmose I's treasury complex near the Temple of Montu revealed a 1.5 m enclosure wall dating to the 13th Dynasty that could be traced for some 50 m, extending north-south, before angling westward for another 40 m.¹⁰⁵⁰ There is no reason to suspect this wall and the thicker 12th Dynasty wall should be related to each other, or even that they are entirely contemporaneous. The houses near the large enclosure wall in East Karnak are oriented towards the wall itself and not the later temples in the area, suggesting that these features reflected the original arrangement of the Middle Kingdom town prior to Senwosret I's construction of his temple further to the west.¹⁰⁵¹ It is difficult to discern whether the complexes excavated east of the sacred lake were aligned with this wall, but it seems more likely that they correspond to a slightly later phase of architecture and certainly seem to reflect a different system of enclosures than the residences near East Karnak. One of the latest enclosure

¹⁰⁴⁶ Moeller 2016, 302-304, fig. 8.39.

¹⁰⁴⁷ Redford et al. 1991, 98.

¹⁰⁴⁸ Redford et al. 1991, 98; Redford 1984, 98.

¹⁰⁴⁹ Lauffray 1980, 44-52, fig. 16.

¹⁰⁵⁰ Jacquet-Gordon 2007, 321-323, fig. 6-7 and Jacquet 2001, 21-28

¹⁰⁵¹ Moeller 2016, fig. 8.39; see also Lauffray 1995, 23, fig. 13.

walls known prior to the New Kingdom at Karnak is the late 13th Dynasty wall unearthed by Jean Jacquet and Helen Jacquet-Gordon's work near the treasury of Thutmose I.¹⁰⁵² This almost certainly enclosed a complex or series of buildings distinct from the enclosure walls at East Karnak and east of the Sacred Lake. This wall was dated on the basis of 13th Dynasty storage jars deposited outside the wall.¹⁰⁵³ These jars had apparently been stoppered and sealed, and during their abandonment the broken seals had been gathered and dumped in the bottom of one of the broken vessels. Several seals bear the inscription *šm n pr-ḥd*, suggesting a function related to the administration of the treasury.¹⁰⁵⁴ This might suggest that an earlier treasury had been located near or underlying the 18th Dynasty one, or at the least that nearby residents within or beyond the enclosure wall served a role in a nearby temple's administration.¹⁰⁵⁵ Redford also notes the presence of a Second Intermediate Period wall in East Karnak, some 45 m southeast of the gate of Nectanebo.¹⁰⁵⁶

Technical Details: Unfortunately, very little information about the technical construction of these three enclosure walls is available. Lauffray's salvage excavations focused on the details of Thutmose III's later enclosure wall, not those of the much smaller fragments of the Middle Kingdom wall.¹⁰⁵⁷ On plans, the wall is represented as being some 14.5 bricks wide and roughly 5 m wide. These figures accord well with the average brick size cited by Millet in reports on excavations slightly further to the south (33 x 15 x 7 cm), assuming some small amount of mortar was employed between the bricks and plaster was added to both faces of the wall.¹⁰⁵⁸

¹⁰⁵² Jacquet-Gordon 2007, 321-323, fig. 6-7 and Jacquet 2001, 21-28

¹⁰⁵³ Jacquet 2001, 24-25.

¹⁰⁵⁴ Jacquet-Gordon 2007, 321.

¹⁰⁵⁵ Jacquet-Gordon 2007, 321, 323.

¹⁰⁵⁶ Redford 1988, 37, figs. 1, 8.

¹⁰⁵⁷ Lauffray 1980, 44-52.

¹⁰⁵⁸ Lauffray 1980, fig. 16; Millet 2007, 686.

Redford's plans and publications unfortunately do not discuss brick patterns or brick size, so little more can be said regarding the 6 m wide enclosure wall his team unearthed in East Karnak. However, it is worth noting that occupational debris and domestic architecture were located on both sides of the wall. Orel suggests that these extramural foundations would only have been abandoned during times of extreme crisis or immediate danger.¹⁰⁵⁹ Even as large enclosure walls might define the urban expanse of a settlement, numerous daily activities like farming would occur beyond their confines. At a thriving town like Thebes during the Middle Kingdom, it is also possible that increasing population necessitated new neighborhoods beyond the city walls.

Redford notes the presence of a 3.35 m wide Second Intermediate Period enclosure wall at East Karnak, though only four to five courses were preserved. A large filling was required to level out the declivity upon which it was built.¹⁰⁶⁰ Section drawings suggest that most of the core was constructed with headers, while stretchers were sometimes employed on the internal and external faces in order to avoid vertical joints.¹⁰⁶¹ Its function is entirely unknown, but Redford describes it as a "species of municipal circumvallation."¹⁰⁶² Ceramic remains date it to the early stretch of the Second Intermediate Period, for Redford notes that all sherds pre-date the 17th Dynasty.¹⁰⁶³

At North Karnak, the 13th Dynasty, 1.5 m wide enclosure wall noted by Jean Jacquet appears to have been three bricks wide.¹⁰⁶⁴ The interior core was comprised of headers, while alternating headers and stretchers were used along the faces of the wall. It is unclear how large

¹⁰⁵⁹ Redford et al. 1991, 98.

¹⁰⁶⁰ Redford 1988, 37.

¹⁰⁶¹ Redford 1988, fig. 8.

¹⁰⁶² Redford 1988, 37.

¹⁰⁶³ Redford 1988, 37.

¹⁰⁶⁴ Jacquet 2001, 21-28.

an area this wall enclosed, as its northern and western limits remain unknown, but it appears plausible that its area was greater than that of the later treasury constructed above.¹⁰⁶⁵ Plans seem to suggest the wall may have been built in sections, given brick patterns that suggest vertical joins near corners.¹⁰⁶⁶ The bricks were 48 x 23.5 x 11 cm, though smaller bricks were found on edge forming the lowest course of the wall.¹⁰⁶⁷ A foundation trench was also found, and the wall was founded in part on a bed of sand, and several anomalous projections were found on its eastern face.¹⁰⁶⁸

KOM EL-HISN

Site Summary: Kom el-Hisn was a provincial center in the third nome of Lower Egypt. The site has been linked to the ancient toponyms *ḥwt jḥwt* and *jmꜣw*, the former of which is attested as early as the Early Dynastic Period.¹⁰⁶⁹ However, the earliest archaeological remains at Kom el-Hisn date to the Old Kingdom, and tombs associated with the Middle Kingdom have also been excavated at the site. Visitors as early as Griffith¹⁰⁷⁰ remarked upon the presence of large enclosure walls, likely dating to the Ramesside period, when certain sites in the western delta were fortified to protect against encroaching Libyan groups.¹⁰⁷¹ The local topography together with textual sources have led scholars to suggest that the area likely played an important role raising cattle during the Old Kingdom, but unfortunately the excavations undertaken by Robert Wenke and his team at the site over three campaigns in the 1980s were not large enough in scope

¹⁰⁶⁵ Jacquet 2001, 21.

¹⁰⁶⁶ Jacquet 2001, 27, fig. 17.

¹⁰⁶⁷ Jacquet 2001, 21.

¹⁰⁶⁸ Jacquet 2001, 21-24, figs. 13-15.

¹⁰⁶⁹ Petrie 1900, pl. XX.15: a sealing of Meretneith. Additionally, two sealings from the tomb of Semerkhet mentions a *Hwt jḥwt nbw*, but this toponym has never been linked to Kom el-Hisn--see Petrie 1900, pl. XXVIII.73-74.

¹⁰⁷⁰ Gardner and Griffith 1888, 77 and pl. XXIV.

¹⁰⁷¹ Snape 2003.

to adequately test this hypothesis. These excavations, largely clustered in the southeastern half of the site revealed domestic architecture and occupational debris dating to the Old Kingdom.¹⁰⁷²

The site was also surveyed in the 1990s under the auspices of the Egypt Exploration Society.¹⁰⁷³

Relevant Enclosure Walls: While the large enclosure (116 x 64 m) that Griffith noted is now lost, the dimensions and shape¹⁰⁷⁴ together with the four installations decorated with cartouches of Ramesses II suggest that this enclosure likely dates to the New Kingdom.¹⁰⁷⁵ Wenke's team discovered a small portion of a different, 1.5 m wide wall in a 2 x 4 m step trench located just east of the modern village that covers the southwestern part of the ancient remains. This part of the tell was noticeably more elevated than its surroundings, and the presence of the nearby tomb of Khesu-wer part way up the slope of the mound suggested that earlier, Old Kingdom remains might be preserved at slightly lower levels.¹⁰⁷⁶ The enclosure wall belongs to these earlier strata, and runs roughly north-south. Cagle suggests that this wall perhaps circumvallated the entire mound, and while this is plausible, it is just as likely that this enclosure wall only cordoned off a particular building or portion of the site.¹⁰⁷⁷ No measurements or profiles have been published for this trench, so little can be said about the construction methods or technical details related to this enclosure wall.¹⁰⁷⁸

¹⁰⁷² Wenke et al. 2016, Wenke et al. 1988, Cagle 2001

¹⁰⁷³ Kirby et al. 1998.

¹⁰⁷⁴ The enclosure that Griffith describes is broadly similar to Ramesside fortress-towns at Aksha, Amara West, and Zawiyet Umm el-Rakham.

¹⁰⁷⁵ Gardner and Griffith 1988, 77-78, pl. XXIV.

¹⁰⁷⁶ Wenke in Wenke et al. 2016, 13 and fig. 1.8 and 1.9; for a slightly more detailed discussion of this wall, see Cagle in Wenke et al. 2016, 87-88. The precise position of this trench is visible in a plan from Wenke et al. 1988, 14, fig. 4.

¹⁰⁷⁷ Cagle in Wenke et al. 2016, 88.

¹⁰⁷⁸ The only published photos are visible in Wenke et al. 2016, fig. 1.8 and 1.9.

KOM OMBO

Site Summary: Kom Ombo, a provincial center in the first nome of Upper Egypt located roughly 40 km north of Elephantine, is attested textually in a number of ancient geographic lists, and surface material from the site suggests an occupation at least as early as the Old Kingdom.¹⁰⁷⁹ Inscriptions from the 18th Dynasty suggest that there was activity at the site during the New Kingdom, but the most substantial preserved monument at the site is a temple dating to the Ptolemaic period.¹⁰⁸⁰ The temple was constructed upon a large tell that has since been largely denuded as a result of modern and ancient excavations, erosion, and modern settlement and agricultural activities. Indeed, the contour maps drafted by Jacques de Morgan and his team demonstrate that much of the ancient settlement was lost in efforts to clear space around the Ptolemaic temple.¹⁰⁸¹ The ancient settlement remained largely uninvestigated until Barry Kemp's visit to the site in 1979.

Relevant Enclosure Walls: Though he merely surveyed the site and did not conduct any additional excavations, Kemp was nevertheless able to identify fragments of several large enclosure walls in various parts of the settlement area.¹⁰⁸² Kemp remarks that *sebbakh* digging and earlier clearing efforts have exposed parts of the mound, but not in sweeping vertical exposures as is the case at other Upper Egyptian sites like Edfu; rather, fragments of walls and intact stratigraphy that leans upon them have been haphazardly exposed across the tell. Though this complicates interpretations of the site, Kemp was able to estimate the size of the urban area (3 hectares) and roughly date many of the preserved remains to a common building horizon (Late

¹⁰⁷⁹ For a more extensive list of sources, see Gauthier 1926c, *Géographie III*, 83-84, Montet 1957, 25-26, and Gardiner 1947b, *AEM II*, 5*, 6*.

¹⁰⁸⁰ For publications of texts associated with this temple, see Gutbub 1973 and Gutbub 1995.

¹⁰⁸¹ De Morgan's drawings are published in de Morgan et al., 1895, 1-5. Other records of early excavations at the site can be found in Carter 1903, 172-175; Barsanti 1906, 107-109; Weigall 1907, 43; Maspero 1911, 154-155; Barsanti 1915, 168-176.

¹⁰⁸² Kemp 1985a, 40-50.

Old Kingdom-First Intermediate Period) on the basis of sherds recovered from associated strata leaning against these walls.¹⁰⁸³

Portions of enclosure walls were found to the northwest and southeast of the Ptolemaic temple enclosure, and in a line oriented E-W just north of the large *sebbakh* quarries in the southeastern quadrant of the tell. Nearly all of the preserved walls were burned to a reddish orange color *in situ*, save for the remains at Kemp's locus "E", where parts of the extant mudbrick retained its natural color.¹⁰⁸⁴ The walls were built using sloped accretion layers, not unlike other examples of enclosure walls with multiple phases known from sites like Elephantine, Edfu, and El Kab. This is perhaps most evident at the largest and best preserved of these wall fragments at locus "A", where at least two and possibly even three phases of walling are clearly visible.¹⁰⁸⁵ Kemp suggests that the wall fragments at locus "C" and locus "L" fall roughly along the edge of the tell, and may have served as part of an enclosure wall surrounding the settlement at Kom Ombo. The walls in loci A-D may relate to the enclosure wall protecting the northwestern part of the settlement at Kom Ombo, though the fragmented nature of these remains makes it impossible to rule out that some of these features belonged to extramural structures. Kemp does not assign a date to the remains at locus "M" or locus "J", and it remains impossible to do so with any certainty.

Technical Details and Construction Methods: The construction methods employed at the majority of the walls at Kom Ombo is hard to discern given the limited and discontinuous remains of nearly all of the preserved walls at the site. Nonetheless, larger sections like those

¹⁰⁸³ For a discussion of the ceramic material, see Kemp 1985a, 51-59. Kemp comments on aspects of the chronology of Kom Ombo in Kemp 1985a, 47, 50.

¹⁰⁸⁴ *Ibid.*, 44.

¹⁰⁸⁵ *Ibid.*, fig. 5 and Pl. IIa.

found at locus “A” find parallels in Old Kingdom walls from sites throughout Upper Egypt.¹⁰⁸⁶ After completing an initial phase with a sloped outer face, the initial wall was expanded through renovations where similarly sloped walls were added directly against this sloped exterior face. The brick sizes identified at the site were largely homogenous in size, save for one thicker fragment of a wall to the southeast of the Ptolemaic temple enclosure and the much smaller bricks (6-8 x 12-14 x 15-19 cm) found at locus J. The thicker wall to the southeast, at locus “M”, possessed bricks that were somewhat larger (8-10 x 14-17 x 31-34 cm) compared to the range of dimensions found at all of the other loci with preserved walls (6-8 x 12-16 x 26-31 cm).¹⁰⁸⁷ The size of the bricks at locus “M” find parallels in the 12th Dynasty enclosure walls at Edfu, but brick size is not an accurate way to precisely identify dates and Kemp does not make any conjecture based on pottery found nearby. It seems clear, however, that this construction was conceived and executed separately from the brickwork elsewhere at the site. Similarly, it seems likely but is not certain that the construction in locus “J” dates to a later period, since Kemp notes that it is clearly at a “higher level than the others.”¹⁰⁸⁸

KOR

Site Description: Kor, also known as Buhen South given its proximity to the larger fortress at Buhen, is located on the west bank of the Nile. It was first identified by Somers Clarke in 1899 during an expedition where he surveyed and excavated Egyptian fortresses in the vicinity of the Nile’s Second Cataract, and subsequently visited by Wooley and Randall-MacIver during their excavations at Buhen during 1909-1910 and Arkell in 1947.¹⁰⁸⁹ Jean Vercoutter excavated at the

¹⁰⁸⁶ Moeller 2004, 263-265.

¹⁰⁸⁷ For the range of brick sizes, see Kemp 1985a, 50-51, Fig. 7.

¹⁰⁸⁸ Ibid., 48.

¹⁰⁸⁹ Clarke 1916, 163, pl. xxvii; Randal-MacIver and Wolley 1911, 7; Arkell 1950, 27.

site over the course of a single campaign in the winter of 1953-1954, while H.S. Smith's salvage excavations concentrated on nearby cemeteries, the northernmost part of the settlement, and test trenches to determine stratigraphic and architectural phasing.¹⁰⁹⁰ Kor's appearance is notably different than many other nearby fortresses, and was much longer than it was wide. Due to the condition of the site, it remains unclear whether its eastern, riverine side was even walled.¹⁰⁹¹ It is likely that Kor was a somewhat lightly fortified settlement or town rather than a purely military installation. Nonetheless, at least three different phases of fortification were identified and planned by Vercoutter and Smith, but unfortunately these plans remain fragmentary.¹⁰⁹² Following earlier scholars, Vercoutter at first suggested that Kor was the location of *ʾkḥn*, but his own discoveries at Mirgissa later disproved this hypothesis.¹⁰⁹³ Dating the various phases of occupation at the site has also proven a challenge, hampered by the absence of a final publication of Vercoutter's work at the site.¹⁰⁹⁴ According to Smith's reconstruction, Kor was founded during the reign of Senwosret I and subsequently enlarged during the reign of Senwosret III.¹⁰⁹⁵ After falling under the control of the Kerman polity during the Second Intermediate Period, the site was reoccupied by Egyptian forces but its fortifications were not substantially refurbished.¹⁰⁹⁶

Relevant Enclosure Walls: Smith and Vercoutter highlight three drystone enclosure walls of note at Kor, each of which possessed rounded bastions at regular intervals, referred to as

¹⁰⁹⁰ Vercoutter 1955; Smith 1966.

¹⁰⁹¹ Smith 1966, fig. 1, pl. xxvii.

¹⁰⁹² Vercoutter 1955, 9-16; Smith 1966, 189-221.

¹⁰⁹³ Vercoutter 1955; for his identification of Mirgissa as Iken, see Vercoutter 1963.

¹⁰⁹⁴ Smith 1966, 189-190.

¹⁰⁹⁵ Vercoutter's reconstruction of Kor's occupational history is substantially different (Vercoutter 1955). Vercoutter suggests that Fortification III was actually founded in the New Kingdom, contra Smith. Smith's excavation of parts of Fortification I to its foundations definitively disproves Vercoutter's hypothesis that this was the earliest wall of the site (Smith 1966, 216-221).

¹⁰⁹⁶ Smith 1966, 227.

“Fortification” or “Enceinte” in preliminary reports on excavations at Kor.¹⁰⁹⁷ Vercoutter’s excavations confirmed that Fortification II was the first program of enclosure walls to be constructed, followed by an a new wall further to the west demarcated as Fortification III.¹⁰⁹⁸ A smaller wall was established within the ring of Fortification II, and is described as Fortification I.¹⁰⁹⁹ Broadly speaking, it is clear that these defensive walls were not built with the same care as the massive mudbrick installations at nearby fortresses throughout the Second Cataract.

Technical Details: Fortification II was actually two distinct enclosure walls: a main wall measuring 2.40 m in breadth, and a slimmer wall just to the west with a width of 0.90 m. Bastions were constructed roughly every 30 meters along this outer wall, though at least three were identified along the southern edge of the inner wall of Fortification II.¹¹⁰⁰ Smith re-excavated a bastion whose external measurements were roughly 4.50 m long by 3.90 m wide, though there was likely considerable variation along the roughly 800 m length where traces of this wall remain.¹¹⁰¹ As with other enclosure walls built at Kor, the walls comprising Fortification II were completed using local sandstone and built with an inward batter. It is possible that the inner wall of Fortification II jogs eastward towards the river as it heads north, while the smaller outer wall continued northward.¹¹⁰² The inner wall of Fortification II was rebuilt at least once, with the new phase of the wall sitting atop the remains of the foundations of the earlier construction.¹¹⁰³

Fortification III was the outermost system of walls constructed at Kor. Vercoutter’s excavations on the southern side of the site confirmed it was later than Fortification II, and after

¹⁰⁹⁷ Smith 1966, 189-221, 226-232; Vercoutter 1955, 9-16.

¹⁰⁹⁸ Vercoutter 1955, 10; Smith 1966, 199, 227.

¹⁰⁹⁹ Smith 1966, 215-221.

¹¹⁰⁰ Smith 1966, 190-199, fig. 1-3.

¹¹⁰¹ Smith 1966, 191.

¹¹⁰² Smith 1966, Fig. 1.

¹¹⁰³ Smith 1966, 191-193.

extending west some 52 m, it continues northward for roughly 630 m. It bends towards the north and continues for another 225 m before turning northeast towards the river.¹¹⁰⁴ Fortification III's construction using rough hewn stone blocks laid atop a bedding of mud mortar as well as its use of bastions make it broadly similar to Fortification II. However, Fortification III occasionally made use of mudbricks (measuring approximately 35 x 18 x 8 cm), which were used either as fillers or at times in the lowest preserved course to delineate the line of the wall. The breadth of the wall at its base was roughly 2.60 m.¹¹⁰⁵ The sides of the wall might originally have been coated with mud plaster (at times it reaches a thickness approaching 10 cm), though Smith suggests that this might simply have been excess mortar that was hastily and carelessly applied.¹¹⁰⁶ The wall was equipped with semicircular bastions at regular intervals, whose measurements ranged from 3.25-4.20 m in width by 6.70-7.25 m in length.¹¹⁰⁷ Smith excavated a serpentine wall along the inside face of the wall as it curves towards the northeast (reminiscent of a similar example of a serpentine wall just near the enclosure wall of the Western Settlement at Qasr el-Sagha).¹¹⁰⁸ This increases the likelihood that this wall should be dated to the Middle Kingdom.¹¹⁰⁹ Fortification III is also notable for the presence of at least two gateways into the settlement area at its northern and southern end. These entrances were protected by twin bastions, with the southern examples projecting some 9.00 m long and measuring about 3.50 m wide and their northern counterparts measuring 7.40 m x 3.80-3.30 m. The entryway measured only 1.60 m wide in the south, while it was 2.20 m wide at the northern gate. The foundations of

¹¹⁰⁴ Smith 1966, 199-205, figs. 1, 4-7; Vercoutter 1955, 10.

¹¹⁰⁵ Smith 1966, 202.

¹¹⁰⁶ Smith 1966, 202-203.

¹¹⁰⁷ Smith 1966, 203-204.

¹¹⁰⁸ Smith 1966, 205; for Qasr el-Sagha, see Śliwa 1986, 173-175, Abb. 2, 5-6, Taf. 24a.

¹¹⁰⁹ Smith 1966, 205.

the gate complex were completed in mudbrick and clad with stone, and it is unclear if the gateway itself was finished with stone or brick.¹¹¹⁰

Fortification I was some 90-100 cm wide, and stretched over 495 m along a mostly North-South axis before bending gently eastward towards the river near its northernmost margins. Over much of this stretch, Fortification I was quite denuded or entirely lost, but Vercoutter's plans suggest it followed the local topography at the site.¹¹¹¹ The wall was built using unworked, locally available sandstone blocks. Though alluvial mud mortar was used between the stones, no traces of mudbrick were identified by Smith.¹¹¹² Smith's excavation of test trenches in the central town and to the north confirmed that this wall was founded upon a layer of aeolian sand, and post-dates the large administrative buildings within the town.¹¹¹³ As with Fortifications II and III, Fortification I possessed small bastions that could perhaps be better described as outward projections of the wall itself rather than as a fighting platform or a feature intended to increase the solidity and stability of the wall. These bastions were not built to a uniform standard: Smith cites one example that had an external width of 4.20 m while the same measurement of another example was only 3.60 m. It seems likely that most of these bastions were between 3.5-4.5 m in width and measured roughly 3-4 m in length.¹¹¹⁴ Their purpose almost certainly was to allow for the inhabitants of Kor to better defend themselves, and it seems likely that they had many occasions to do so: Smith believes that Fortification I was only constructed as a temporary fortification after the town was sacked and subsequently reoccupied,

¹¹¹⁰ Smith 1966, 206-211.

¹¹¹¹ Vercoutter 1955, fig. 1; Smith 1966, 215-221.

¹¹¹² Smith 1966, 215.

¹¹¹³ Smith 1966, 215-216, fig. 10.

¹¹¹⁴ Smith 1966, 216.

allowing more time for refurbishments to the reconstructed wall along the course of Fortification II.¹¹¹⁵

Within the town itself, several large mudbrick walls are visible in plans published by Smith and Vercoutter, and there is a large wall that extends northward that might possibly enclose Vercoutter's Building 1.¹¹¹⁶ These foundations pose considerable problems to interpretations of the occupational history at the site: the large administrative buildings were cut by Fortification I, but they are oriented along a substantially different angle than Fortification II, such that this enclosure wall must have been built at either a higher or lower level than the administrative buildings or it must suddenly and dramatically change course to avoid them.¹¹¹⁷ Given that Smith has shown that Fortification I clearly was built after the abandonment of the administrative complex, it is tempting to wonder if Fortification II might also have been a later construction that actually was later than the administrative complex it seemingly surrounded. This might suggest that the purpose of the town shifted somewhat, from an administrative locale to a more defensive outpost. Smith's excavations suggest that the building history of the town was likely quite complex, and it is impossible to reconstruct with any certainty given the limited published data available.¹¹¹⁸

KUBBAN

Site Description: Though already discovered and described by Lepsius in the 19th century, the site of Kubban was not excavated until 1930 by Walter Emery.¹¹¹⁹ The fortress was strategically located at the mouth of the Wadi Allaqi on the east bank of the Nile and was likely founded

¹¹¹⁵ Smith 1966, 226-227.

¹¹¹⁶ Vercoutter 1955, Plan E; Smith 1966, fig. 1.

¹¹¹⁷ See for example, Smith 1966, fig. 12.

¹¹¹⁸ Smith 1966, 226-227

¹¹¹⁹ Lepsius 1849, Pl. III; Emery 1931.

during the reign of Senwosret I, and subsequently expanded under Senwosret III.¹¹²⁰ In its phasing and brick size, it is very similar to the nearby fortress of Ikkur. Two distinct phases were identified by Emery, again, similar to Ikkur, but he dates them to the early and mid to late 12th Dynasty respectively on the basis of ceramic evidence from the site.¹¹²¹ The first phase of the fortress measured some 76 x 58.8 m while it was expanded slightly during the Ramesside phase, to 97.2 x 70.4 m.¹¹²² A routine inspection of the fortress during the late 12th Dynasty or perhaps early 13th Dynasty is recorded on the recently published Papyrus Ramesseum 18, and it is likely that the fortress played an important role in protecting the Middle Kingdom state's mining interests in the Wadi Allaqi.¹¹²³

Relevant Enclosure Walls and Technical Details: The fortress walls represent the primary enclosure walls recorded at the site, and were protected by a dry ditch faced with bastions.¹¹²⁴ The walls of the fortress measured some 3 m wide during the initial phase of occupation, and these were widened to some 6 m during the second building phase of the fortress. As at Ikkur, the walls were built using 32 x 16 x 10 cm mudbricks that were likely fabricated nearby.¹¹²⁵ Emery's drawings show that the exterior face of the second phase wall was built using alternating courses of headers and stretchers.¹¹²⁶ Every eight courses, there was a section of reed matting and timber posts that was added to help stabilize the wall.¹¹²⁷ The wall itself tapered significantly towards the top—Emery suggests it could have been no more than 1-2 meters wide at the top.¹¹²⁸ Emery records a break on the eastern side of the southern wall that he attributes to

¹¹²⁰ Vogel 2004, 212-214.

¹¹²¹ Emery 1931, 71.

¹¹²² Emery and Kirwan 1935, 26-27.

¹¹²³ Liszka and Kraemer 2016.

¹¹²⁴ Emery and Kirwan 1935, 28-29.

¹¹²⁵ Emery and Kirwan 1935, 26-29.

¹¹²⁶ Emery and Kirwan 1935, 30, fig. 4.

¹¹²⁷ Emery and Kirwan 1935, 30.

¹¹²⁸ Emery and Kirwan 1935, 29.

an attack rather than decay, but the basis for this identification is unclear.¹¹²⁹ Emery also describes the exterior face of the walls as being comprised of a series of 2.5 m wide panels placed every 4 m, likely resulting in façade similar to the niches and buttresses known from artistic depictions of Egyptian fortresses.

The fortress could be entered from gateways on all four sides, including one along the western riverine side of the installation. These gateways were heavily fortified, and at times may have jogged at right angles in order to allow for better protection and confuse attackers attempting to force entry.¹¹³⁰ The main gateway was on the eastern side, flanked by two large pylons and bastions. The width of the external ditch was such that a draw bridge was necessary to traverse it. Unlike most other fortresses, no interior water supply or well was identified by excavators, suggesting that this fortress would have been more dependent than most upon access to Nile water via its western gateway.¹¹³¹ Lepsius's plans of the fortress include spur walls that would have offered additional protection on the riverine side of the complex, but these were already destroyed by the time of Emery's excavations, and Emery suggests he was mistaking the paneled buttressing for spur walls in some cases.¹¹³²

KUMMA

Site Description: Located on the east bank of the Nile across the river from Semna South, the small fortress at Kumma was comparatively lightly defended. It was roughly trapezoidal in shape, and its walls enclosed an area of some 2500 m².¹¹³³ It was founded during the reign of

¹¹²⁹ Emery and Kirwan 1935, 29-30.

¹¹³⁰ Emery and Kirwan 1935, 31, fig. 6.

¹¹³¹ Emery and Kirwan 1935, 31-33.

¹¹³² Emery and Kirwan 1935, 30, fig. 3.

¹¹³³ Vogel 2004, 257; Dunham 1960.

Senwosret III and likely helped to regulate riverine traffic at Egypt's southern border. The fort itself was founded on a small hill, giving it an expansive view of the surrounding area.¹¹³⁴

Relevant Enclosure Walls and Technical Details: The main enclosure walls of the fortress and the short spur wall extending to the southwest are the primary monumental walls known from the site.¹¹³⁵ The walls measured some 6.5 m thick, though on the eastern side parts of the wall measure 13 m thick, likely indicating the presence of a bastion or tower.¹¹³⁶ A 25 m long and roughly three meter wide spur wall was found on the southwestern side.¹¹³⁷ The fortress was heavily damaged, and no evidence of trenches or outworks was recovered. Indeed, it is difficult to pinpoint the existence of towers or buttresses due to its damaged condition. The walls were built using 32 x 15 x 8-9 cm mudbricks.¹¹³⁸ Every four courses, a mat of halfa grass and locally available reeds was laid to help the construction settle. 10-15 cm cross beams of wood were laid within the wall, helping to create a solid internal frame for the brickwork. The bricks were laid in alternating courses of headers and stretchers.¹¹³⁹

LAHUN

Site Description: The site of Lahun is located on the western margins of the Nile Valley, near the entrance to the Faiyum. A large settlement site was founded here, part of a broader emphasis by 12th Dynasty kings on exploiting the agricultural resources of the Faiyum region more extensively. This settlement, first excavated by Petrie, is one of the best known in all of Egypt from the Middle Kingdom.¹¹⁴⁰ It was rigorously planned, with orthogonal streets, an “acropolis”

¹¹³⁴ Dunham 1960, 113.

¹¹³⁵ Dunham 1960, 113-115.

¹¹³⁶ Vogel 2004, 257-258.

¹¹³⁷ Vogel 2004, 258.

¹¹³⁸ Vogel 2004, 257.

¹¹³⁹ Dunham 1960, 114-115.

¹¹⁴⁰ Petrie 1891; Petrie 1890, 21-32; for a recent re-evaluation of the site, see Moeller 2017.

and temple area, and two sizes of houses: large villas or mansions, and much smaller domestic residences.¹¹⁴¹ More recent investigations of the site and its textual material have determined that this community was termed Hetep-Senusret.¹¹⁴² Satellite imagery suggests that far less of the town was lost to erosion or obscured by later cultivation than once thought, and the full dimensions of the settlement and its western extension are some 390 x 244 m.¹¹⁴³ An extension directly to the west of Hetep-Senwosret was completed after the initial settlement, serving as a distinct community (Sekhem-Senwosret) of priests that served the mortuary cult of Senwosret II, though subordinate to the authority of the mayor of Hetep-Senwosret.¹¹⁴⁴

The pyramid of Senwosret II was also located nearby.¹¹⁴⁵ Though likely cased with limestone, this pyramid was built with a mudbrick atop a limestone outcrop, and surrounded by subsidiary mastabas found within the complex. The pyramid was approximately 106 m square at its base and was founded in an uncommonly verdant setting: a series of tree pits were noted just beyond the eastern, southern, and part of the western sides of the enclosure wall.¹¹⁴⁶ Tombs of nobles and royal family members were also excavated in the vicinity of the pyramid complex, leading to finds of some of the most spectacular jewelry ever discovered in Egypt.¹¹⁴⁷

Relevant Enclosure Walls: The urban enclave at Hetep-Senwosret at Lahun was surrounded by a 3.25 m thick enclosure wall.¹¹⁴⁸ A later phase also surrounded Sekhem-Senwosret, rendering the western wall of the earlier settlement a kind of internal dividing wall between the two communities.¹¹⁴⁹ The pyramid of Senwosret II possessed multiple enclosure walls: one near the

¹¹⁴¹ Moeller 2017, 188-192.

¹¹⁴² Quirke 2005; Horváth 2009.

¹¹⁴³ Moeller 2017, 188-192; Moeller 2016, 273-276.

¹¹⁴⁴ Moeller 2017, 204-205.

¹¹⁴⁵ Petrie 1891, 1-5.

¹¹⁴⁶ Lehner 1997, 175-176.

¹¹⁴⁷ See the jewelry detailed in Brunton 1920.

¹¹⁴⁸ Arnold 2005, 78.

¹¹⁴⁹ Arnold 2005, 80-83.

pyramid base in limestone, and a second outer wall in mudbrick.¹¹⁵⁰ Petrie also describes further rough stone revetment walls to help retain the pyramid platform, but these were not enclosure walls, per se.¹¹⁵¹

Technical Details: The enclosure wall of Hetep-Senwosret was first noted by Petrie during early excavations at the site.¹¹⁵² Later notes by Borchardt, excavations published by Frey and Knudstad, and investigations by Arnold and Moeller have greatly enhanced our understanding of the boundaries of the town site and have proved instrumental to understanding the phasing of this wall.¹¹⁵³ The wall was completed in brick, measuring some 3.15-3.25 m wide at its base.¹¹⁵⁴ The wall had a 6-7.5 degree batter, and its internal core was comprised almost entirely of headers. On its interior and exterior faces, bricks were laid in courses of alternating headers and stretchers to avoid any vertical joints.¹¹⁵⁵ Occasionally, bricks were laid on the diagonal in order to ensure that the wall was the necessary width.¹¹⁵⁶ Bricks of varying sizes were employed in the wall, but most of the examples measured by Borchardt were larger, 40-43 x 20-23 x 12-14 cm in size.¹¹⁵⁷ Significantly, Borchardt noted a limestone cornerstone at the northwestern corner of Hetep-Senwosret, confirming that this was originally the furthest extent of the town and that the extension of the town to the west was a later addition.¹¹⁵⁸ The original western wall of Hetep-Senwosret thus became a dividing wall between the original foundation and Sekhem-Senwosret, and was frequently used as a backing wall for housing units in the vicinity.¹¹⁵⁹ The town wall of

¹¹⁵⁰ Petrie et al. 1923, 5, pl. VIII.

¹¹⁵¹ Petrie et al. 1923, 4-5.

¹¹⁵² Petrie 1891, 5.

¹¹⁵³ Frey and Knudstad 2008; Arnold 2005; Moeller 2017.

¹¹⁵⁴ Arnold 2005, 78, citing Borchardt's notes.

¹¹⁵⁵ Arnold 2005, 81, 84, fig. 3a-c.

¹¹⁵⁶ Arnold 2005, 81, 84, fig. 3a-c.

¹¹⁵⁷ Arnold 2005, 80-82.

¹¹⁵⁸ Arnold 2005, 83-84, abb. 4a-c.

¹¹⁵⁹ Moeller 2017, 192-194, 204-205.

Lahun was finished with a mud plaster, and layers of reed matting were also used.¹¹⁶⁰ Despite its thickness, there is no evidence that the city wall at Lahun was a defensive fortification. It lacks any kind of external buttresses or towers, and the local inhabitants frequently modified it with staircases on the exterior side, perhaps in order to allow deliveries of grain to the granaries in the larger villas.¹¹⁶¹ The gateway to the northeast was the main entrance to the site. It was approached by a road flanked by two thin walls, with openings on either side to allow for access to spaces along the exterior of the wall. The gateway did not have any additional defensive elements, and appears to have been constructed out of mudbrick, but likely at one point possessed a limestone doorsill.¹¹⁶²

Within the town itself, few other enclosure walls are known. The dividing wall between the so-called acropolis or palace and Mansion 1 was 3.0 m thick, and built largely of headers.¹¹⁶³ Its construction details are broadly similar to those of the main town enclosure wall: at two different heights and in two different places, Frey and Knudstad observed layers of reed mounting overlain by a 1 cm thick layer of mud plaster. The mats were made using reed stems laced together with strands of palm fiber.¹¹⁶⁴ While excavating near the western edge of Hetep-Senwosret, Frey and Knudstad discovered a heretofore unknown later wall, also 3.0 m wide and preserved over some 35 m, roughly following the outer face of the dividing wall between Hetep-Senwosret and Sekhem-Senwosret.¹¹⁶⁵ This wall not only provides evidence of a later occupation, but also suggests that at least parts of the dividing wall between the two communities was preserved for a substantial amount of time.¹¹⁶⁶ A final enclosure wall known from the

¹¹⁶⁰ Arnold 2005, 85.

¹¹⁶¹ Frey and Knudstad 2007, 27-30; Frey and Knudstad 2008, 42-48.

¹¹⁶² Frey and Knudstad 2008, 63-70.

¹¹⁶³ Frey and Knudstad 2007, 30.

¹¹⁶⁴ Frey and Knudstad 2007, 30.

¹¹⁶⁵ Frey and Knudstad 2008, 33-35.

¹¹⁶⁶ Frey and Knudstad 2008, 33-35.

interior of the settlement is the wall surrounding the temple complex at Lahun.¹¹⁶⁷ This construction is still poorly understood, and possesses a somewhat unusual plan compared to earlier temples. Nevertheless, the presence of remnants of an enclosure wall, remnants of paving, and the absence of overbuilding in the surrounding areas on the interior of the path of the wall suggest that this was some sort of sanctuary. The wall itself is only partially preserved, but the remains of the surrounding architecture largely confirm Petrie's initial reconstruction of the layout of this precinct.¹¹⁶⁸

Unfortunately, Petrie and Brunton recorded few details about the enclosure walls of Senwosret II's pyramid complex.¹¹⁶⁹ It is clear from plans that they traced the course of the outer brick enclosure wall along its northern, eastern, southern, and western sides. Plates show that the interior face of the wall was constructed using alternating courses of headers and stretchers along the exterior façade, and there was also a mud plaster finish.¹¹⁷⁰ The wall is particularly well preserved near the southeastern corner, on its northern and western sides where it faces natural rocky slopes in the area. A stone staircase on the northern side allowed access to the ramparts of the wall and was partially preserved, allowing excavators to estimate a height 7.39 m for this outer brick enclosure wall.¹¹⁷¹ Though specifics are not mentioned, the wall may have a slight batter judging from photos of the excavation.¹¹⁷² The presence of reed matting laid at right angles to the trajectory of the wall was also noted, though Petrie and Brunton fail to specify the intervals at which it occurred.¹¹⁷³ They do note that these courses of matting were only present in the

¹¹⁶⁷ Frey and Knudstad 2008, 58-63.

¹¹⁶⁸ Frey and Knudstad 2008, 59.

¹¹⁶⁹ Petrie et al. 1923, 4-5, 9-11, pl. V-VIII, XXIII.

¹¹⁷⁰ Petrie et al. 1923, Pl. VI. For the plastering of the walls, see Petrie et al. 1923, 11.

¹¹⁷¹ Petrie et al. 1923, 10-11.

¹¹⁷² Petrie et al. 1923, Pl. VI.

¹¹⁷³ Petrie et al. 1923, 11.

upper levels of the wall, above the courses covered by stone chips in the southeast.¹¹⁷⁴ Prior to the large brick curtain wall's construction, a temporary revetment wall was apparently finished to the south and east in order to clear the area for the final brick enclosure wall.¹¹⁷⁵

Senwosret II's pyramid was surrounded by a stone enclosure wall.¹¹⁷⁶ Intriguingly, Petrie and Brunton describe the use of undressed stones/rocks that were subsequently cased with finer limestone.¹¹⁷⁷ The entirety of the eastern and southern sides appears to have been robbed out, as well as much of the finer limestone casing of the northern and western sides. Foundation trenches allowed the rough course of the wall to be determined, while the stone core of the structure remained to the north and the east.¹¹⁷⁸ The pyramid's inner stone enclosure wall was paneled and buttressed, decorated in the palace façade style, but if there was the kind of elaborate relief work known from Senwosret I's pyramid at Lisht, it did not survive.¹¹⁷⁹ The intervals of the buttresses were somewhat irregular, and the wall itself was relatively thin, at least judging from Petrie's restoration, which indicates the wall was likely well under 2.5 m in width even including the casing stones on both the interior and exterior of the wall.¹¹⁸⁰

LISHT

Site Description: The site of Lisht is thought to be close to Itj-Tawy, a major settlement south of Memphis founded by Amememhat I that served as a royal capital from his reign until the end of the Middle Kingdom.¹¹⁸¹ Though some settlement remains have been discovered intruding upon the necropolis, the layout and character of Itj-Tawy remain unknown and continue to be the

¹¹⁷⁴ Petrie et al. 1923, 11.

¹¹⁷⁵ Petrie et al. 1923, 10.

¹¹⁷⁶ Petrie et al. 1923, 4-5, Pl. V-VI, VIII, XXIII.

¹¹⁷⁷ Petrie et al. 1923, 4-5.

¹¹⁷⁸ Petrie et al. 1923, 4-5, fig. VIII.

¹¹⁷⁹ Petrie et al. 1923, 4-5, fig. VA.

¹¹⁸⁰ Petrie et al. 1923, Pl. XXIII. Petrie

¹¹⁸¹ Simpson 1963b.

subject of much scholarly debate.¹¹⁸² The pyramids of Amenemhat I, Senwosret I, and the many nearby tombs within the broader necropolis at Lisht were originally excavated by the Metropolitan Museum of Art expedition under the direction of Albert Lythgoe and later Ambrose Lansing and Arthur Mace.¹¹⁸³ While preliminary reports were regularly published in the Metropolitan Museum of Art's bulletins, it was not until the late 20th century when the documentation from the expedition and renewed excavations under the direction of Dieter Arnold allowed for the more comprehensive publication of this material.¹¹⁸⁴

Relevant Enclosure Walls: Enclosure walls played a crucial role in defining space within the Lisht cemeteries. The most prominent examples encompassed the pyramid complexes of Amenemhat I and Senwosret I, but numerous smaller but still substantial examples surrounded the tombs of the Middle Kingdom elite buried nearby.¹¹⁸⁵ Similar to the large necropolises further to the north at Giza, Saqqara, and Abusir, a comprehensive accounting of all these enclosure walls is beyond the scope of a single dissertation and adds little to attempts to understand how enclosure walls functioned more broadly, particularly since detailed information about these enclosure walls was often ignored by early 20th century excavators who understandably focused greater attention on the architecture of the tombs, their substructures, and any inscriptional evidence or relief fragments that could be identified. As such, frequently details like brick pattern, brick size, foundation details, or brick composition are entirely absent from the original excavation notes. As many examples as possible have been identified in the table below

¹¹⁸² Malleon 2007; Lorand 2013; for settlement at Lisht, see Arnold 1996.

¹¹⁸³ For an overview of these excavations, see Arnold 1988, 150-151 and Arnold 2015, XV.

¹¹⁸⁴ For the pyramid complex of Amenemhat I, see Arnold 2015; for the pyramid complex of Senwosret I, see Arnold 1988 and Arnold 1992; for some of the elite mastabas at Lisht, see Arnold 2008.

¹¹⁸⁵ For the inner enclosure wall at Senwosret I's complex, see Arnold 1988, 58-63; for the outer enclosure wall at Senwosret III's pyramid complex, see Arnold 1992, 15-18; for the inner enclosure wall of Amenemhat I, see Arnold 2015, 21; for the outer enclosure wall of Amenemhat I and the wall surrounding his temple complex, see Arnold 2015, 32-33. For the private tombs with enclosures, see Arnold 2008.

in order to facilitate a broader understanding of the use of enclosure walls at Lisht, but the technical details section will only discuss especially significant or unusual examples in addition to its discussion of the larger enclosures that defined space within the wider Lisht necropolis rather than simply delimiting the superstructure of a single tomb.

Several large enclosures warrant a more detailed discussion. First, the outer brick enclosure walls surrounding the pyramids of Amenemhat I and Senwosret I helped define space throughout the Lisht necropolis.¹¹⁸⁶ The unique decoration of the inner limestone enclosure wall at Senwosret I's pyramid is a rare example of an enclosure wall that was not only meticulously constructed, but also decorated with a painstaking attention to detail. The relief work and palace façade decorations are impressive even relative to other enclosure walls at royal mortuary complexes, and highlight how such enclosure walls were at minimum an integral part of the design schema of funerary monuments.¹¹⁸⁷ The remnants of the limestone enclosure wall of Amenemhat I's pyramid are not well preserved, but also show evidence of meticulous sculpting that differentiates them from the stone enclosure walls of Old Kingdom pyramids.¹¹⁸⁸ The internal enclosure walls surrounding the subsidiary pyramids within Senwosret I's enclosure will be briefly discussed, while the tomb enclosures of Senwosretankh and Senwosret (Tomb 758) serve as interesting exemplars of the kinds of enclosure walls employed at private tombs constructed in the shadow of the royal pyramids.¹¹⁸⁹

Technical Details: Plans from archival material of the original excavation depict a large, 2 m thick brick enclosure wall on all four sides of Amenemhat I's pyramid complex, but it is rarely

¹¹⁸⁶ Arnold 1992, 15-18; Arnold 2015, 32.

¹¹⁸⁷ Arnold 1988, 58-63.

¹¹⁸⁸ Arnold 2015, 21.

¹¹⁸⁹ Arnold 1992, 20, 23-24, 27, 29, 32, 35-37, Map VI; Arnold 2008, 14-16, 82.

visible in photos taken by the expedition.¹¹⁹⁰ At least seven private tombs with enclosure walls were included within the confines of the outer brick wall of Amenemhat I, in some places approaching the platform of the pyramid itself as in the case of the mastaba of Rehuerdjesen or the mastaba of Nakht.¹¹⁹¹ Plans of mastaba 956 within the temple complex do indicate a brick outer wall existed to the east of this installation, and Arnold believes that the initial conclusions of the original excavators were likely correct regarding the trajectory of this wall.¹¹⁹² Assuming this is the case, the roughly 4 cubit wide mudbrick wall enclosing Amenemhat I's pyramid complex defined much of the northern part of the cemetery at Lisht. A 2.22 m wide brick enclosure wall of Amenemhat I's cult temple likely joined with the outer enclosure wall on its eastern side. Remnants of this wall are visible where it abuts the pyramid platform of Amenemhat I.¹¹⁹³

Amenemhat I's inner limestone enclosure wall was easier to trace even though it was almost entirely robbed out by the time excavators investigated the site.¹¹⁹⁴ The paving stones to the southwest of Amenemhat I's cult temple preserved the scratched outlines of the lowest course of this wall, suggesting that this wall was roughly 1.57 m thick.¹¹⁹⁵ Several blocks from the lowest course of the wall as well as the upper most part of the wall were recovered and measured.¹¹⁹⁶ Unusually, the wall did not possess an even slope. Arnold calculates that at a height of some 2.4 m, the wall inclined at 70 degrees rather than the 80 degree slope employed below that point.¹¹⁹⁷ The top was not the rounded form familiar from limestone enclosure walls

¹¹⁹⁰ Arnold 2015, 32.

¹¹⁹¹ Arnold 2008, 63-84; Arnold 2015, pl. 95.

¹¹⁹² Arnold 2015, 32, pl. 95.

¹¹⁹³ Arnold 2015, 33.

¹¹⁹⁴ Arnold 2015, 21.

¹¹⁹⁵ Arnold 2015, 21.

¹¹⁹⁶ Arnold 2015, 21.

¹¹⁹⁷ Arnold 2015, 21.

of Old Kingdom pyramids, but rather a 3.4-5.5 cm wide flat surface. In one case, the top limestone block of the wall was attached to a lower course with a vertical cramp. There is no evidence for any kind of decorative program along the faces of this inner enclosure wall.¹¹⁹⁸

The outer brick enclosure wall of Senwosret I is much better attested archaeologically than the outer enclosure wall of Amenemhat I; in certain places on its eastern side the wall was preserved over 1 m high at the time of excavation, and finished with whitewashed mud plaster on both its internal and external faces.¹¹⁹⁹ It defined an area approximately 231 x 254.625 m around Senwosret's pyramid complex.¹²⁰⁰ Unlike in the area immediately next to Amenemhat I's tomb, no private mastabas appear to have been constructed within the confines of the outer brick enclosure save for the satellite pyramids surrounding Senwosret I's pyramid, though numerous intrusive shaft burials were excavated.¹²⁰¹ The foundations of the wall seem to have been substantially wider than the wall itself, roughly 3.1 m for a 2.625 m wide wall.¹²⁰² The enclosure walls had a sloping face, likely 81-82 degrees based on the inclination of the limestone blocks recovered from a gateway just south of the causeway's primary entrance into the pyramid complex.¹²⁰³ At least three phases of construction are identifiable at the southeastern corner, which was re-investigated by Arnold and his team in 1988.¹²⁰⁴ An initial corner created too large of an enclosed space, and a slightly wider wall was further to the north. A subsequent renovation extended this second wall further to the south once again so that the satellite pyramids would be enclosed within this outer brick enclosure.¹²⁰⁵ Twin gates, one to the north and the other to the

¹¹⁹⁸ Arnold 2015, 21.

¹¹⁹⁹ Arnold 1992, 15.

¹²⁰⁰ Arnold 1992, 15.

¹²⁰¹ Arnold 1992, Map VI.

¹²⁰² Arnold 1992, 15.

¹²⁰³ Arnold 1992, 15, note 6.

¹²⁰⁴ Arnold 1992, 15-16.

¹²⁰⁵ Arnold 1992, 15-16.

south of the pyramid causeway allowed for direct access into the pyramid court. These gateways were made of limestone, founded upon limestone slabs lying directly on the local bedrock.¹²⁰⁶ At the northeastern and southeastern corners, limestone blocks were found set in the ground at the corner of the enclosure wall.¹²⁰⁷

The inner limestone enclosure wall surrounding the pyramid of Senwosret I was largely robbed away by stone quarriers, but the remnants of the wall excavated from the buried debris on the south side and in the west suggest it was a uniquely decorated enclosure wall.¹²⁰⁸ The wall itself was roughly 2.625 m thick, and constructed with an 82°25' slope in the west and an 82°21' slope in the south.¹²⁰⁹ Arnold suggests that these measurements indicate a batter of one palm measurement for every cubit in height.¹²¹⁰ The wall was constructed upon the foundations of the pyramid court. The lowest course consisted of large, vertically lying limestone slabs with an internal fill of smaller undressed fieldstones and rubble at the core of the wall.¹²¹¹ Four to five smaller limestone slabs clad the upper part of the wall on each side. The top of the wall culminated in a rounded copestone.¹²¹²

On both the interior and exterior faces, the wall was decorated in panels decorated in meticulously detailed raised relief.¹²¹³ The lowest panel depicted fecundity figures bearing an offering of bread and two water jugs. Two ankh signs flank a *wꜣs* scepter. The middle panel was decorated with the palace façade motif, showing a kind of pylon gateway. The upper panel was decorated with the Horus name and prenomen of Senwosret I. The decoration was surmounted

¹²⁰⁶ Arnold 1992, 16-17.

¹²⁰⁷ Arnold 1992, 17-18.

¹²⁰⁸ Arnold 1988, 58-63.

¹²⁰⁹ Arnold 1988, 59.

¹²¹⁰ Arnold 1988, 59.

¹²¹¹ Arnold 1988, 59.

¹²¹² Arnold 1988, 59.

¹²¹³ Arnold 1988, 59-61.

by a Horus falcon wearing the double crown cut in very high relief, with even the individual tail feathers carefully depicted in the limestone, though multiple artists must have been involved: Arnold notes significant variation in the quality of the relief work.¹²¹⁴ The wall was topped with what Arnold terms a saddle-back coping—a symmetrical, rounded top.¹²¹⁵ The panels were usually some 4.425 m apart, and each one measured roughly 0.825 m wide. Arnold notes however that these measurements are idealized and in reality the excess sizes of some decorated panels and more careless surveying often resulted in fairly sizable deviations from this norm. Reconstructions of the panels suggest a height of 5.49 m for the wall itself.¹²¹⁶

Senwosret I's pyramid complex also had nine different satellite pyramids. Each of these likely had their own proper enclosure wall save for Pyramids 8 and 9 which were very likely encompassed by the same enclosure.¹²¹⁷ The largest enclosure was that of Pyramid 1, roughly 52.5 x 39.375 m, according to Arnold's estimates, but these inferences are not based upon any preserved remains.¹²¹⁸ A preliminary report mentions a limestone wall, suggesting it was perhaps made of stone, but it was not visible in any photos.¹²¹⁹ Each pyramid had its own enclosure wall save for Pyramids 6 and 7, which were separated by a partition wall within a larger enclosure, and Pyramids 8 and 9, which were enclosed within a single enclosure wall.¹²²⁰ All of these satellite pyramids were protected by limestone walls ranging from 0.7875 to 1.05 m thick, according to Arnold's estimates.¹²²¹

¹²¹⁴ Arnold 1988, 59-61, fig. 19-21.

¹²¹⁵ Arnold 1988, 59.

¹²¹⁶ Arnold 1988, 59-61.

¹²¹⁷ Arnold 1992, Map VI.

¹²¹⁸ Arnold 1992, 20.

¹²¹⁹ Arnold 1992, 20.

¹²²⁰ Arnold 1992, 37.

¹²²¹ Arnold 1992, 20, 23-24, 27, 29, 32, 35-37, Map VI.

By comparison, the enclosure walls of private mastabas located throughout the Lisht necropolis were often wider, but nearly always completed in brick. Tomb 956 was encompassed by a 3.3-3.4 m thick brick enclosure, though this was far wider than most enclosures at the cemetery.¹²²² With the possible exception of an inner stone enclosure wall at the largest private tomb at the site, attributed to Senwosretankh, all of these enclosures were constructed using brick.¹²²³ This latter tomb also possessed two brick enclosure walls as well as a thick brick pylon or bulwark on the eastern end of the enclosure that possessed a gate with stone foundations. Arnold suggests that the inner wall was 2.625 m wide.¹²²⁴ Despite the fact that the wall was entirely destroyed, Arnold suggests that this wall likely had a niched façade by analogy with the paneled recesses at the enclosure wall of the Tomb 758 of Senwosret at Lisht North.¹²²⁵ The walls of this enclosure were paneled and plastered.¹²²⁶ Several features recur at multiple tombs at the cemetery: limestone foundations or door jambs were frequently used at gateways, drainage channels were employed to avoid the buildup of water within tomb enclosures and limit water damage, and bricks on the faces of enclosures were typically laid as alternating headers and stretchers.¹²²⁷

MAZGHUNA

Site Description: Located just south of Dahshur, Mazghuna was the site of two late Middle Kingdom pyramids—neither of which can be definitively linked with a particular pharaoh from the Late 12th or Early 13th Dynasty.¹²²⁸ Neither pyramid was entirely completed, and both

¹²²² Arnold 2008, 83.

¹²²³ See table below.

¹²²⁴ Arnold 2008, 14-15.

¹²²⁵ Arnold 2008, 15, 78.

¹²²⁶ Arnold 2008, 78.

¹²²⁷ Arnold 2008 discusses private mastabas at Lisht in considerable detail.

¹²²⁸ Petrie et al. 1912.

pyramids possessed fairly complicated substructures. The pyramids were excavated by Ernest Mackay under the auspices of the British School of Archaeology in Egypt and the Egypt Research Account.¹²²⁹ The southern pyramid at Mazghuna measured some 55 m square, but its superstructure was not entirely finished. It was surrounded by a serpentine enclosure wall, and possessed a chapel on its eastern side.¹²³⁰ The northern pyramid possessed an even larger tomb substructure, but the superstructure of the pyramid itself was never begun. Mackay's excavations also revealed remains of a mudbrick causeway approaching from the east.¹²³¹

Relevant Enclosure Walls: The only enclosure wall described in excavation reports is the serpentine wall surrounding the South Mazghuna pyramid.¹²³² Serpentine walls were rarely found surrounding completed monuments, and it is plausible that the original design of the South Mazghuna pyramid called for it to be replaced by a rectilinear wall. However, the serpentine enclosure wall surrounding the pyramid was wider and more substantial than most other examples of this form of wall that surrounded unfinished funerary monuments.¹²³³

Technical Details: The serpentine enclosure wall was roughly 105 cm wide, or about 3.5 bricks thick according to Mackay's measurements.¹²³⁴ Mackay found the serpentine enclosure wall preserved to a height of some 91 cm. He describes bricks that ranged from approximately 30.5-32 x 16-17.5 x 9-10.5 cm in size.¹²³⁵ Mackay suggests that the wall was built almost exclusively using stretchers, with occasional instances where bricks were set on edge to fill uneven spaces. The wall itself was plastered with mud and coated with "a white stucco" that was perhaps derived from gypsum. The northern wall measured 77.72 m, the western wall measured 76.63

¹²²⁹ Mackay in Petrie et al. 1912, 41-55.

¹²³⁰ Mackay in Petrie et al. 1912, 41-50.

¹²³¹ Mackay in Petrie et al. 1912, 50-55.

¹²³² Mackay in Petrie et al. 1912, 47-48.

¹²³³ See examples of Serpentine walls noted in the table in Siegel 2016.

¹²³⁴ Mackay in Petrie et al. 1912, 47.

¹²³⁵ Mackay in Petrie et al. 1912, 47.

m, the eastern side 76.61 m, and the southern side some 76.40 m.¹²³⁶ Efforts to level the ground were only necessary on the southern side, which was constructed at a slightly higher elevation.¹²³⁷

MEDAMUD

Site Description: Medamud is located on the east bank of the Nile, roughly 7.5 km northeast of modern day Luxor. The site of Medamud was excavated by the Institute Français d'Archéologie Orientale between 1925-1939, and excavations have recently been renewed under the direction of Felix Relats Montserrat.¹²³⁸ The publication of the reinvestigation of the temple is ongoing, but the use of geophysical surveys has helped clarify and correct the plans of the temple complex and have even revealed some new, though likely later, enclosure walls.¹²³⁹ By 1928, it was clear that multiple sanctuaries had been constructed at the site and Bisson de la Roque and his team identified re-used blocks from an earlier Middle Kingdom sanctuary.¹²⁴⁰ The tentative plan produced by Robichon and Varille is difficult to confirm, and it is unknown how many of the interior rooms of the temple were linked to each other.¹²⁴¹ The site was a center for the cult of Montu, who rose to increasing national prominence as the nearby city of Thebes became the seat of the kings who would reunify Egypt after the First and Second Intermediate Periods. The later temple complexes are notable for having both a north-south and east west axis, unusual among many Egyptian temples.¹²⁴²

¹²³⁶ Mackay in Petrie et al. 1912, 47.

¹²³⁷ Mackay in Petrie et al. 1912, 67.

¹²³⁸ Nivet-Sambin 2008; Relats Montserrat et al. 2016; Relats Montserrat 2017; Relats Montserrat 2014; Robichon and Varille 1939a; Robichon and Varille 1939b; Robichon and Varille 1940.

¹²³⁹ Relats Montserrat et al. 2016, 357-358.

¹²⁴⁰ Bisson de la Roque and Clère 1929, 39-94.

¹²⁴¹ Robichon and Varille 1939, 84-87, fig. 1-2; Nivet-Sambin 2008, 314-316.

¹²⁴² Nivet-Sambin 2008, 313.

Relevant Enclosure Walls: Several enclosure walls are known from Medamud's Old and Middle Kingdom temple complexes. The earliest was polygonal and asymmetrical, and surrounded the early sanctuaries at the site.¹²⁴³ The entrance to the sanctuary area was flanked by two gateways, perhaps even early manifestations of pylons in Egyptian architecture.¹²⁴⁴ The temple of Senwosret III, constructed atop the ruins of the earlier edifice, was rectangular in form. It possessed thick outer walls on its eastern, southern, and western sides, and had a second outer enclosure wall as well.¹²⁴⁵

Technical Details: The early excavators at Medamud were unfortunately very sparse in their description of the technical details of the enclosure walls surrounding the early temples. The earliest temple at the site possessed a whitewashed and plastered brick wall that stood 1.75 m tall with a rounded top.¹²⁴⁶ Unfortunately, the width of this wall is not included in published reports, though it seems to have been widened near its entrance to the north. This polygonal wall was built according to an entirely different orientation than the later Middle Kingdom or Ptolemaic temples.¹²⁴⁷ Robichon and Varille suggest that the sanctuary consisted of sacred groves, but these personal interpretations should likely be amended considerably.¹²⁴⁸ Nonetheless, it is clear that this early sanctuary did not possess a kind of formalized, rectilinear structure known from later Egyptian temples, and one parallel noted by Kemp is the earliest Satet sanctuary at Elephantine.¹²⁴⁹

¹²⁴³ Robichon and Varille 1940, 1-2 and color plan.

¹²⁴⁴ Robichon and Varille 1940, 1-2 and color plan.

¹²⁴⁵ Nivet-Sambin 2008, 317-318, fig. 1-2; Robichon and Varille 1939a, 84-87, fig. 1-2.

¹²⁴⁶ Robichon and Varille 1940, 1.

¹²⁴⁷ Robichon and Varille 1940, 1-2 and color plan.

¹²⁴⁸ Robichon and Varille 1940, 1; Relats Montserrat 2014.

¹²⁴⁹ Kemp 2006, 116-121.

The Middle Kingdom temple possessed thick outer walls, some 5.5 m thick.¹²⁵⁰ These walls were almost certainly completed in mudbrick, as there is not enough limestone or limestone detritus to suggest these walls were finished in stone.¹²⁵¹ The northern portion of the wall was largely destroyed, and an entrance was noted to the east. Robichon and Varille also restore an entrance to the north, though it is unclear upon what basis they arrived at this conclusion.¹²⁵² Six foundation deposits were excavated by Robichon and Varille: four beneath parts of the enclosure wall, and two within the temple courtyard.¹²⁵³ The plan of the temple was apparently modified after the foundation rituals, since the temple's outer enclosure wall extends further to the south.¹²⁵⁴ Within the deposits beneath the wall, Robichon and Varille note small vases and cups of fired terra cotta, the head and shoulder of a sacrificed cow or bull, and a mudbrick on top. The deposits within the temple courtyard did not possess bones of any kinds, but had bronze tools.¹²⁵⁵ As a general rule, the varying enclosures at Medamud are extremely complex, and more work is likely necessary to distinguish the varying phases employed over the course of nearly three millennia at the site.

MEDINET MADI

Site Description: Known for a 12th Dynasty temple to Renenutet, the site of Medinet Madi was a major settlement in the Faiyum region.¹²⁵⁶ While the temple itself possessed thick outer walls and is a relatively early exemplar of stone architecture used in a temple setting, no information about an enclosure wall has been published thus far. It is possible that its thick outer wall,

¹²⁵⁰ Nivet-Sambin 2008, 317.

¹²⁵¹ Nivet-Sambin 2008, 315-316; Kemp 2006, 131-133.

¹²⁵² Nivet Sambin 2008, 317-318; Robichon and Varille 1939a, fig. 2-3.

¹²⁵³ Robichon and Varille 1939a, 86.

¹²⁵⁴ Robichon and Varille 1939a, 86, fig. 2-3.

¹²⁵⁵ Robichon and Varille 1939a, 86.

¹²⁵⁶ Naumann 1939.

culminating in the front of the temple in an Egyptian version of the classical distyle in antis, could have been thought to have performed some of the specific functions of an enclosure, but it is nonetheless notable that no such wall has been described thus far.¹²⁵⁷

MEIDUM

Site Description: Located on the west bank of the Nile over 70 km south of the center of modern day Cairo, the site of Meidum marks the southernmost royal necropolis of the Old Kingdom.

The site is best known for the Bent Pyramid, likely built by Snefru but perhaps started under Huni.¹²⁵⁸ This construction served as a template for Snefru's subsequent foundations at Dahshur.

Ceramic remains demonstrate that Meidum was not abandoned following the end of the 4th Dynasty, but continued to be occupied into at least the 6th Dynasty.¹²⁵⁹ Most recent scholarship has focused on whether the pyramid was ever completed and what structural factors spurred Snefru to construct new pyramids just to the north at nearby Dahshur.¹²⁶⁰ Notably, the pyramid itself, like most early step pyramids, seems to have initially been built using a series of layered accretion walls. It was subsequently finished as a "true", smooth sided pyramid.¹²⁶¹

Relevant Enclosure Walls: The enclosure walls at Meidum have received little attention over the years. Three systems of free standing walls warrant comment: the causeway leading to the pyramid complex, the first known example of such a feature, a long wall perhaps associated with a nearby town, and the large outer enclosure wall of the pyramid complex.¹²⁶² More recent

¹²⁵⁷ Naumann 1939; Wilkinson 2000, 137.

¹²⁵⁸ Maragioglio and Rinaldi 1964, 6-8.

¹²⁵⁹ Rzeuska 2011, 722.

¹²⁶⁰ Reader 2015; Mendelssohn 1973; Edwards 1974; Davey 1976.

¹²⁶¹ Petrie 1892, Pl. II; Reader 2015, 203-210.

¹²⁶² For the causeway, see El Awady 2009, 91-93, Petrie 1892, 9 and Wainwright in Petrie et al. 1910, 6-9; for the town wall, see Rzeuska 2011, 718, 721-722, Petrie et al. 1910, 2, 8; for the peribolos walls, see Petrie 1892, 7, and Maragioglio and Rinaldi 1964, 26.

photos of the site suggest that remnants of the valley temple's or perhaps the pyramid town of Djed-Snefru's settlement enclosure wall was still present at the site.¹²⁶³

Technical Details: Very little information is available about each of these walls. The outer enclosure wall of the pyramid complex was almost entirely destroyed when Petrie first excavated the site.¹²⁶⁴ He notes that foundation stones remained in a number of places along the wall and that the first course of limestone blocks were present in parts of the southern side of the complex. The wall measured roughly 57 inches thick at its base.¹²⁶⁵ On the basis of a coping stone recovered from the causeway, Petrie estimates the peribolos wall possessed a height of some 70-80 inches.¹²⁶⁶ The enclosure had an entrance along its eastern side near the end of the causeway. Petrie traced an irregular, almost rectangular quadrilateral polygon as the shape of the wall, measuring 8479 inches on its southern side, 8561 inches on its northern side, 9307 inches on its eastern side, and 9300 inches on its western side—thus approximating a 216 x 236 m enclosure.¹²⁶⁷ Petrie's peribolos wall corresponds to the temenos wall referenced by Maragioglio and Rinaldi in their survey of the site: they note an enclosure wall with a width of 1.40-1.45 m at its base, and estimate a height of some 2.03 m, thus corresponding very closely to Petrie and Wainwright's measurements.¹²⁶⁸ It is likely that the northern side of the enclosure wall was intended to be at a slightly further distance from the pyramid base than the other sides.¹²⁶⁹

The causeway approached the pyramid at an oblique angle, and halted roughly 4.45 m from the peribolos wall.¹²⁷⁰ The causeway was some 66 inches wide at its base, and in places had

¹²⁶³ Rzeuska 2011, 718, 721-722.

¹²⁶⁴ Petrie 1892, 7.

¹²⁶⁵ Petrie 1892, 7.

¹²⁶⁶ Petrie 1892, 7.

¹²⁶⁷ Petrie 1892, 7.

¹²⁶⁸ Maragioglio and Rinaldi 1964, 26, and Petrie 1892, 7.

¹²⁶⁹ Maragioglio and Rinaldi 1964, 26.

¹²⁷⁰ El Awady 2009, 91-92. Wainwright in Petrie et al. 1910, 6-9.

a foundation some 75 inches wide. On the basis of part of a rounded coping stone that was recovered from the causeway, Petrie restores a height of some 90 inches.¹²⁷¹ No adornments or decorations are noted. The full length of the causeway could not be traced as a result of the higher water table near the edge of the modern cultivation.¹²⁷² The causeway seems to have terminated in a thicker buttress near the peribolos wall, and Wainwright mentions a similar feature at its eastern limit, near the proposed site for the valley temple.¹²⁷³ Unlike later causeways, coping stones recovered near the installation make it clear that it was not roofed.¹²⁷⁴

Rzeuska notes a possible settlement enclosure wall, visible to the south of the robbed out remains of the pyramid causeway.¹²⁷⁵ The wall is too eroded to determine brick patterns, though the broad outlines of the mass of bricks suggest that the wall was perhaps sloped.¹²⁷⁶ Petrie also encountered this wall, but interpreted it as a kind of boundary wall for the cemetery itself. Petrie traced this wall for some 300 feet, and Wainwright describes it as being built using mudbrick and measuring some 65 to 75 inches wide.¹²⁷⁷ It is unclear whether this construction should be viewed as a boundary limiting access to the cemetery or rather a wall bounding the desert fringe of the pyramid town and valley temple. Regardless, the size of the wall suggests it was an enclosure of some sort. A thinner wall extended orthogonally from this wall near the southern buttress of the pyramid causeway, then jogged north-south once again after 33 feet.¹²⁷⁸

¹²⁷¹ Petrie 1892, 9.

¹²⁷² Petrie 1892, 9.

¹²⁷³ Wainwright in Petrie et al. 1910, 8.

¹²⁷⁴ Petrie 1892, 9; El Awady 2009, 92.

¹²⁷⁵ Rzeuska 2011, 721-722.

¹²⁷⁶ Rzeuska 2011, 718, fig. 7.3-4.

¹²⁷⁷ Petrie in Petrie et al. 1910, 2; Wainwright in Petrie et al. 1910, 8.

¹²⁷⁸ Petrie et al. 1910, 8.

Foundation deposits of Old Kingdom pottery were found near this corner, potentially suggesting that this was the site of the Bent Pyramid's valley temple.¹²⁷⁹

MEMPHIS

Site Description: Memphis, located near the apex of the Nile Delta, was a settlement of paramount importance throughout the Pharaonic period, and an urban center that comprised the de facto capital or co-capital of Egypt for much of the past 5000 years.¹²⁸⁰ However, the spread of modern day Cairo and the relative dearth of interest in both Egyptian settlement sites and archaeological remains in the Nile Delta until the latter half of the 20th century meant that until recently, little was known about the urban remains of the site—and knowledge of these areas is still far outstripped by that of nearby funerary monuments, cemeteries, and their associated communities. At Mit Rahina, Kom el-Rabia, Kom Tuman, and Kom el-Fakhry, Pharaonic levels have been reached, but no substantial enclosure walls dating to periods prior to the New Kingdom have been identified—indeed, Old Kingdom layers have only been revealed at Kom el-Fakhry.¹²⁸¹ The absence of enclosure walls from Memphis in the 3rd millennium BCE is likely simply the result of the extremely limited exposures of strata relating to the Early Dynastic, Old Kingdom, First Intermediate Period, and even Middle Kingdom in the Memphite region. Recently, a large wall (11 m thick, and extending some 80 m) at Kom Tuman was discovered by Galina Belova and her team, but this wall has been securely dated on the basis of both small finds and strong architectural parallels to the Late Period.¹²⁸² The wall possesses a 2 cm thick coating of white plaster, leading excavators and news reports to tentatively identify it with

¹²⁷⁹ Petrie et al. 1910, 2, 8; Rzeuska 2011, 713-719.

¹²⁸⁰ Moeller 2016, 158-161 provides a recent evaluation of the settlement remains from earlier levels at the site. See also Jeffreys 2012 and the publications of the Egypt Exploration Society's *Survey of Memphis*.

¹²⁸¹ Moeller 2016, 158-161. See Kemp 1977, 192-195 on the likelihood of an Old Kingdom settlement at Kom el-Fakhry.

¹²⁸² Belova and Ivanov 2016, 25; Belova 2018, 2, 9-10.

Memphis's famed "White Walls"—a common epithet of the city attested as early as the 3rd Dynasty.¹²⁸³ Further enclosure walls have been noted near the palace of Merenptah and the assumed temple of Ptah, but all of these are from eras that post-date the time periods of study for this dissertation.¹²⁸⁴

Indeed, the enclosure walls of Memphis warrant greater discussion because of textual rather than archaeological attestations. One of the most commonly associated toponyms of Memphis during the Old Kingdom and First Intermediate Period was *jnbw ḥd*, or "White Walls."¹²⁸⁵ It is unclear if this epithet refers to a physical settlement or citadel enclosure wall, or a series of enclosure walls associated with royal funerary monuments in necropolises throughout the Memphite region.¹²⁸⁶ Regardless, the prominence of certain enclosure walls in the city during later periods can be inferred from one of the most common divine epithets of the principal Memphite deities, Ptah—one whose most common epithets was "Ptah, South of His Wall", presumably referring to his temple within the settlement.¹²⁸⁷ While this epithet is prominent in later texts, it is attested as early as the 5th Dynasty in the mastaba of Peribsen at Saqqara.¹²⁸⁸ Despite their absence in the archaeological record at Memphis, it is clear from textual sources that enclosure walls within the town played an integral role in defining how this urban space was described and conceptualized.

¹²⁸³ Belova and Ivanov 2016, 25.

¹²⁸⁴ Jeffreys in Redford 2001, 373-376.

¹²⁸⁵ Zibelius 1978, 39-42.

¹²⁸⁶ Goedicke 1971-72, 71; Franke 2003 argues that it relates only to the royal palace.

¹²⁸⁷ Zibelius 1978, 40-41.

¹²⁸⁸ Schafer and Roeder 1913, 22.

MENDES

Site Description: The site of Mendes is one of the largest archaeological sites in the Nile Delta, and was an important provincial center and capital of the 16th Lower Egyptian nome.¹²⁸⁹ The site warrants attention in this study precisely because what little evidence is known complicates the picture of Old Kingdom town enclosures.¹²⁹⁰ Excavations have discovered architectural phases dating to the early 1st Dynasty at the site, and coring results uncovered ceramics from the Buto-Ma'adi period.¹²⁹¹ Wenke and Brewer also located stratigraphy associated with the transition of this indigenous northern culture to the Naqada II.¹²⁹² Although scholars have a fairly good understanding of the chronological range of the site, horizontal exposures at the site have been limited. Previous trenches and sondages have focused almost exclusively on the main temple precinct and funerary monuments as opposed to defining the edges of the Old Kingdom occupation at the site.¹²⁹³

If Mendes has not yet yielded evidence of town walling until the first millennium BCE, an episode in the occupational history of the area surrounding the temple precinct can be interpreted as evidence for why town walls would have seemed an attractive defensive strategy during the late Old Kingdom. Although a cultic presence was likely present at the Mendes temple mound from as early as the Naqada III, the area around the Mendes temple precinct transitioned from a domestic area (Phase VIII and Phase VII) to an administrative and cultic area during the 1st Dynasty (Phase VI). The site apparently prospered during the 2nd Dynasty (Phase V), but there were substantial architectural changes of the early 3rd Dynasty (Phase V/IV) to the

¹²⁸⁹ Redford 2010.

¹²⁹⁰ For the most up to date information on the Early Dynastic and Old Kingdom strata at the site, see M.J. Adams 2009 and M.J. Adams 2020.

¹²⁹¹ M.J. Adams 2009, 196-197.

¹²⁹² Brewer and Wenke 1992, 191-197.

¹²⁹³ Matthew J. Adams: personal communication.

area near the temple precinct. The construction of a massive mudbrick platform on the temple mound (Phase III) in the 4th or 5th Dynasty was precipitated by the creation of a “dense sherd layer” (Phase Va). However, a traumatic incident occurred at Mendes at the end of the 6th Dynasty (Phase III).¹²⁹⁴ Significant destruction was found in the vicinity of the temple mound, the temple was destroyed, looters plundered the provincial cemetery, and 35 individuals were found in the temple courtyard hastily buried under construction debris.¹²⁹⁵ Additional poor burials were cut into the temple mound shortly after the calamity, and the site’s excavators postulate that these individuals were likely victims of the same massacre responsible for the deposition of the 35 bodies in the temple court.¹²⁹⁶ The pottery of Phase III “can generally be classified as ‘classic’ Old Kingdom, the 4th-6th Dynasties”, and the rebuilding of the temple precinct following the catastrophe is most likely to be dated to the early First Intermediate Period or extremely late 6th Dynasty.¹²⁹⁷

Although no settlement enclosure walls have been discovered at Mendes, the catastrophe at the end of the Old Kingdom demonstrates why town enclosure walls and other elements of defensive architecture would prove appealing. The Phase III calamity also complicates the idealized, harmonious representations of the Old Kingdom state that is well known from tomb reliefs. Indeed, the evidence from Mendes illustrates the fluctuating fortunes and potentially harsh reality of life in a provincial center during the Early Dynastic Period and Old Kingdom, with the site’s relative wealth demonstrated by the sizeable 5th and 6th Dynasty mastabas, and the subsequent catastrophe revealing the precariousness of this prosperity. Indeed, the devastation

¹²⁹⁴ M.J. Adams 2020. Dr. Adams kindly sent me a copy of his submitted manuscript for the next volume of *Delta Reports*. The relevant stratigraphic information is detailed in pp. 50-62 of this report. Substantial changes and revisions have been made since M.J. Adams 2009—rather than viewing the late 2nd Dynasty as a period of partial abandonment at the site, Mendes appears to have prospered during this time.

¹²⁹⁵ Matthew J. Adams, personal communication.

¹²⁹⁶ Matthew J. Adams, personal communication.

¹²⁹⁷ M.J. Adams 2009, 203. For additional interpretation of the calamity, see M.J. Adams 2009, 203-205.

from the late Old Kingdom/early First Intermediate Period perfectly illustrates the appeal substantial town walling and other forms of defensive architecture would have held during periods of political instability.¹²⁹⁸

Relevant Enclosure Walls: The earliest evidence for substantial enclosure walls at the site is a wall that extends from approximately 2 m beyond the southwest corner of the much later naos court all the way to the mastaba fields further to the north. At its southernmost point, the wall turns to the east for a short distance before being cut by later Saite foundations. This suggests that it enclosed a relatively large area, demarcating the complex that replaced the earlier Old Kingdom temple podium from the surrounding architecture and cemeteries. It is clear that there were at least two building phases of this relatively small enclosure.¹²⁹⁹ The foundations of the wall's first phase link it to the clay floor of the terrace where numerous individuals were buried following the calamity that befell the city at the end of the Old Kingdom, and suggest a First Intermediate Period date. This initial phase was not especially robust—it appears only two bricks thick in plans of the area, and was only some 63 cm thick with very small bricks that were laid somewhat carelessly. No ceramics or *in situ* strata can be linked with the rebuilding phase, but this phase seems to have levelled and then rebuilt the earlier wall to a width of only 52.5 cm. This second phase made use of larger, more solid bricks that were roughly 36 x 18 cm.¹³⁰⁰

Other installations likely existed given the limited horizontal exposure of First Intermediate Period and Old Kingdom strata at the site; preliminary reports and other publications suggest the presence of an “Old Kingdom temple enclosure”, but this is not

¹²⁹⁸ The construction of substantial town walls during the First Intermediate Period at Edfu likely reflects such concerns.

¹²⁹⁹ M.J. Adams 2009, 205.

¹³⁰⁰ M.J. Adams, personal communication.

described in detail or easily discernible on published plans of the site.¹³⁰¹ Redford suggests that the circular “bastion” near the center of the northern side of the 6th Dynasty temple platform perhaps served a defensive, as opposed to ceremonial purpose.¹³⁰² Regardless of its function, this feature was sizable: 7.5 m long and 3 m thick. The internal structure of this installation consisted of a core of rubble that was strengthened by a series of transversal “strut” walls. Moreover, the southern edge of this feature was roughly 1 m lower than the ground to the north, necessitating a curvilinear retaining wall. It is not certain that this feature represents defensive architecture or a “hastily constructed bastion”; it differs from roughly contemporaneous bastions known from Balat and earlier examples from Elephantine, though Redford suggests that this type of defensive architecture was well known throughout the 3rd Millennium BCE.¹³⁰³

MIRGISSA

Site Description: Mirgissa was one of the largest and most important of the fortress sites in Lower Nubia.¹³⁰⁴ Referenced as an important center in the Semna Dispatches, a collection of documents and reports from the 12th Dynasty fortress system in the region, and noted as a trading entrepot on Senwosret III’s Year 8 border stela, Mirgissa was also one of the largest and most heavily defended fortresses in the region.¹³⁰⁵ Mirgissa is one of the most extensively excavated of the Nubian fortresses. Wheeler led a nearly four month long expedition in 1931-1932 under the auspices of the Harvard University-Museum of Fine Arts Expedition, while Jean Vercoutter led seven salvage campaigns at the site between 1962-1969 after the construction of the Aswan

¹³⁰¹ Redford 2010, 27, Fig. 3.11; M.J. Adams 2020, 67 mentions a 2-3 m temenos wall likely built in the Middle Kingdom that was constructed above the First Intermediate Period temenos and cemetery.

¹³⁰² Redford 2010, 45-46.

¹³⁰³ Redford 2010, 45-46.

¹³⁰⁴ Monnier 2010, 143-148; Vercoutter 1970; Vogel 2004, 240-245; Dunham 1967.

¹³⁰⁵ For the Semna dispatches, see Smither 1945, 4, 7; for recent discussions of the Year 8 boundary stela (Berlin 14753), see Loeben 2001 and Vogel 2011, 326-327. Vercoutter first identified the site of Iken with Mirgissa: Vercoutter 1964.

High Dam.¹³⁰⁶ In addition to the fortress itself, there were remnants of a nearby town and a slipway that was likely used to haul cargo overland during times when the cataract was impassable.¹³⁰⁷ Mirgissa was built in a highly strategic location at the Second Cataract and in the vicinity of several desert trails.¹³⁰⁸

Relevant Enclosure Walls: At least three different systems of monumental enclosure walls were present at Mirgissa: the main fortress itself and its associated defensive works, the so-called northern enclosure, and a satellite outpost near the slipway that allowed boats and cargo to be transported overland past some of the heaviest rapids in this section of the Nile.¹³⁰⁹ The main fortress consisted of an inner and outer wall that joined along the eastern side, and was built upon a bluff overlooking the Nile. The inner wall measures some 180 x 100 m, and the outer area measures roughly 240 x 120 m. Vercoutter suggests that the area encompassed by the double walls of the citadel as well as the outer glacis encompassed some 86,000 m².¹³¹⁰ The northern enclosure just beyond the fortress defended the urban enclave associated with the site.¹³¹¹ This fortification wall was preserved sporadically over the course of some 560 m, and in many ways resembles the fortifications identified at other Lower Nubian sites like Kor or Ikkur. The area within this enclosure was much thinner than the Upper Fortress/citadel, but Vercoutter estimates some 85,000 m² were included within its confines.¹³¹² The smaller satellite fortress near the end of the slipway and across the river from the later fortress of Dabenarti measured some 25 x 25 m.¹³¹³

¹³⁰⁶ Vercoutter 1970; Dunham 1967; Wheeler 1961.

¹³⁰⁷ Vercoutter 1970, 11-15.

¹³⁰⁸ For its environmental setting, see Vercoutter 1970, 3-8 and Dunham 1967, 141-142.

¹³⁰⁹ Vercoutter 1970, 9-11, 13-15.

¹³¹⁰ Vercoutter 1967-68, 269.

¹³¹¹ Vercoutter 1970, 10.

¹³¹² Vercoutter 1970, 10.

¹³¹³ Vercoutter 1970, 13-15; Monnier 2010, 147.

Technical Details: The defensive fortifications at Mirgissa are extremely sophisticated, particularly those of the Upper Fortress/Citadel. The walls were well over 5 m in breadth, typically ranging from about 5.65-6 m in breadth along the inner wall, while at times reaching 7 m in width along the outer wall.¹³¹⁴ Wheeler described the inner wall as having a 7:1 batter, suggesting that they could have reached a height of well over 10 m in antiquity.¹³¹⁵ The foundations of the wall were protected by an outer glacis, sloping downwards at roughly a 45 degree angle.¹³¹⁶ Wheeler also described buttresses or piers, approximately 2 m² in size, set along the walls every 3.5 m or so.¹³¹⁷ Larger buttresses were placed at corners and at every fourth or fifth interval along all the outer walls of the fortress save the eastern, riverside wall.¹³¹⁸ The outer fortress was only accessible via a heavily defended gateway on its northern side, flanked by interior and exterior bastions, and a river stairway near its southeastern corner that provided access to the Nile and was guarded by spur walls. The inner citadel also had gateways leading to the outer fort on its northern and southern sides.¹³¹⁹

Wheeler described the brick measurements at the fortress as being 33.4 x 16.5 x 9.0 cm in size, with roughly 1 cm of mortar set between each course.¹³²⁰ The consistency of the bricks varied, with some being made from alluvial mud while others contained stone chips. Wheeler believed that the walls were built course by course, since bricks of a similar consistency were often used in the vicinity of one another. This is possible, and parallels with certain other highly planned mudbrick buildings known from Middle Kingdom Egypt, like elements of Senwosret

¹³¹⁴ Dunham 1967, 154.

¹³¹⁵ Dunham 1967, 154.

¹³¹⁶ Dunham 1967, 154.

¹³¹⁷ Dunham 1967, 154.

¹³¹⁸ Dunham 1967, 154.

¹³¹⁹ Dunham 1967, 154; Vercoutter 1970, 9.

¹³²⁰ Dunham 1967, 154-155.

III's mortuary temple in Abydos.¹³²¹ The brickwork within the wall was not at all uniform, however. Wheeler mentioned entire courses of continuous headers, continuous stretchers, and even portions where bricks were set on end.¹³²² Additionally, at times bricks were laid diagonally on edge, sunken in a thicker daub of mortar, in order to even out the height of the course. Though the courses are not precisely level, the drop in elevation from north to south was uniform, and Wheeler suggested that the builders must have used horizon sighting to obtain such an even plane.¹³²³

Every 12 courses, a mat of halfa grass was laid upon the latest course of brickwork, before being topped with mud mortar.¹³²⁴ This was used exceptionally regularly over the course of the wall. Timber was also employed extensively and regularly throughout the fortress. Within the walls, entire trunks were set transversely across the width of the wall. Most logs were 15-20 cm in diameter, but some were as small as 10 cm while others were as large as 28 cm in thickness. These logs were roughly 2 to 3.5 cm apart, and typically were placed directly atop layers of grass and reed matting.¹³²⁵ A complex system of intersecting passages within the wall that Wheeler describes as "ventilators" were also identified throughout the western wall, most being some roughly 18 cm by 9 cm wide, while others were smaller. These passages would have both accelerated the drying process if newly fabricated bricks were used within the walls, and perhaps would have allowed for the circulation of cooler air within the fort. Wheeler suggested that some of these ventilators would ideally be included every 12 courses or so within the wall.¹³²⁶

¹³²¹ Dunham 1967, 155; for the mortuary temple of Senwosret III, see Wegner 2007, 62-63.

¹³²² Dunham 1967, 155.

¹³²³ Dunham 1967, 155.

¹³²⁴ Dunham 1967, 156.

¹³²⁵ Dunham 1967, 156-157.

¹³²⁶ Dunham 1967, 157.

The links between the main fortress at Mirgissa and the northern enclosure unfortunately could not be clarified since the northern enclosure was heavily eroded in this area.¹³²⁷ Indeed, despite the terminology employed by Vercoutter, it was not precisely an enclosure, but rather a large wall that guarded a large urban expanse from attack from the east. The fortifications consisted of a double set of walls: a thick inner wall measuring some 5.65 m thick—roughly the same thickness as some of the walls of the upper fortress.¹³²⁸ Roughly one meter beyond this wall, a thinner, 90 cm outer wall equipped with semicircular bastions protruded some 3.25 m from the base of the wall.¹³²⁹ The double walls of the northern enclosure extend some 150 m north-northeast from the gateway of the upper fortress before abruptly following a rocky spur east-northeast towards the river for 60 m before turning once again north-northeast for another 250 m.¹³³⁰ The wall is visible sporadically some 560 m from the entrance to the upper fortress at Mirgissa.¹³³¹ Vercoutter's descriptions suggest that there were likely a number of large walls within this area, some of which were much later than the original "northern enclosure". One of these later walls forms an enclosure that overlaps with and extends somewhat to the north of the original double walls with two 8 m wide openings, one to the south towards the interior of the fortress, and one to the west towards the desert.¹³³² These wider passageways led Vercoutter to conclude that they were perhaps designed to accommodate chariots, since the gateway of the original upper fortress would have been too narrow for such vehicles, though this would potentially suggest a New Kingdom date for this renovation.¹³³³

¹³²⁷ Vercoutter 1970, 10. Vercoutter 1965, 62-64 and 66-67.

¹³²⁸ Vercoutter 1970, 10.

¹³²⁹ Vercoutter 1970, 10.

¹³³⁰ Vercoutter 1970, 10.

¹³³¹ Vercoutter 1970, 10.

¹³³² Vercoutter 1970, 10.

¹³³³ Vercoutter 1970, 10.

The satellite outpost across the river from Dabenarti island was far less robust than the other fortifications described above. Its walls were only 90 cm thick, and the fortress was far smaller, roughly 25 x 25 m.¹³³⁴ It was entered from the southwest, and the entire complex was built on a rocky outcrop some 9 m above the Nile's maximum level. Brickwork helped to level the interior of the fort.¹³³⁵ Hearths and a modest Middle Kingdom ceramic repertoire are the only traces of occupation from within the outpost, though it was later used as a burial site (apparently, mainly of children) after the walls had collapsed and eroded. It seems likely it served as a small outpost, guarding the slipway further to the north.¹³³⁶

NAQADA

Site Description: Naqada was a crucially important Predynastic settlement and series of cemeteries, and in later periods was associated with the god Seth. The site is located roughly 30 km north of Luxor on the west bank of the Nile. Much research has understandably focused upon the cemeteries excavated by Petrie and Quibell, but the only sizable enclosure walls at the site were found in a settlement area named the South Town by Petrie.¹³³⁷

Relevant Enclosure Walls: Petrie only briefly describes so-called South Town, but does mention a roughly 34 x 50 m construction that had a 2 m thick enclosure wall.¹³³⁸ Petrie mentions bricks that were approximately 26 x 13 x 7 cm in size, but provides little additional information.¹³³⁹

Unfortunately, the building was damaged by *sebbakh* digging and other activities and later investigations of the site could only locate heaps of collapsed mudbrick, not any coherent plans

¹³³⁴ Monnier 2010, 147.

¹³³⁵ Monnier 2011, 147.

¹³³⁶ Vercoutter 1970, 13-15.

¹³³⁷ Petrie and Quibell 1896, 54, Pl. LXXXV. For Naqada more generally, see Helck in Helck, Otto, and Westendorf 1982, 344-347.

¹³³⁸ Petrie and Quibell 1896, 54, Pl. LXXXV.

¹³³⁹ Petrie and Quibell 1896, 54, Pl. LXXXV.

of structures previously identified by Petrie and Quibell.¹³⁴⁰ Indeed, it remains unclear whether the 2 m wide wall Petrie mentioned was an actual enclosure wall or merely the very thick walls of an important building complex. However, ceramic evidence has suggested that much of the activity in the South Town should be dated to the late Naqada II or early Naqada III period¹³⁴¹; if Petrie's identification of the 2 m thick wall as an enclosure is correct, this would make it one of the earliest enclosure walls in Egypt. However, the absence of any *in situ* stratigraphy to help confirm the estimates based on surface scatters of ceramics makes such an identification uncertain.

QASR EL-SAGHA

Site Description: Located a little under 8 km north of the modern edge of the Birket Qarun lake, in the vicinity of basalt quarries at Widan el-Faras to the north. The site consists of three principal components: most prominently, a 12th Dynasty temple whose construction likely began during the reign of Senwosret II, a poorly preserved eastern settlement roughly 250 m to the southeast of the temple, and 250 m to the southwest of the temple, a state-planned settlement with an orthogonal layout.¹³⁴² The temple and western settlement seem to have been used throughout the 12th Dynasty, and fragments of Tell el-Yahudiya juglets found within the Western Settlement suggest that an occupation extended at least through the late 13th Dynasty.¹³⁴³ Further ceramic remains and C¹⁴ dating suggest that the settlement remained in use during the Second Intermediate Period.¹³⁴⁴ Šliwa has suggested that architecture and barracks-like housing at the

¹³⁴⁰ Barocas, Fattovich, and Tosi 1989, 296-298.

¹³⁴¹ Hassan and Matson 1989, 314,

¹³⁴² For the temple, see Arnold and Arnold 1979; for the eastern settlement, see Šliwa 1988, 206-213; for the western settlement, see Šliwa 1986; Šliwa 1992a, and Šliwa 1992b.

¹³⁴³ Šliwa 1992a, 30, fig. 11.

¹³⁴⁴ Šliwa 1992a, 38, note 24.

Western Settlement is consistent with what would be expected at a forced labor camp, or *hnrt*.¹³⁴⁵

Relevant Enclosure Walls: Surprisingly, there is no evidence for an enclosure wall associated with the temple complex. Though it is possible that a mudbrick enclosure wall has deteriorated or eroded over time, this seems highly unlikely. No mudbrick architecture is preserved at the Eastern Settlement, but a robust enclosure wall surrounded the Western Settlement. This wall was built using relatively sandy mudbricks, and limestone blocks were added to increase stability at particularly important points along the wall.¹³⁴⁶ Prior to the construction of the enclosure wall, the parts of the site appear to have been surrounded by serpentine walls.¹³⁴⁷

Construction Methods and Technical Details: Śliwa's extremely detailed plans and published reports furnish critical information about the southwestern corner and gate of the enclosure wall surrounding the Western settlement.¹³⁴⁸ The wall itself was built in a single phase, with foundation trenches cut some 1.10-1.5 m deep. At its lowest levels, the wall was slightly wider: Śliwa's plans depict it as being five bricks thick. There is a slight discrepancy between Śliwa's general measurements for the thickness of the wall at its foundations (2.10-2.15 m) and his estimated brick measurements (34 x 17 x 10 cm), even allowing for an extremely liberal application (3 cm on all sides) of clay mortar between each brick.¹³⁴⁹ In any case, it is clear that the thickness of the enclosure wall approached 2 m. After five courses, the wall tapered to a width of four and a half bricks. The wall was built using alternating courses of headers and stretchers, but the placement of bricks towards the interior of the wall became far more jumbled,

¹³⁴⁵ Śliwa 2005.

¹³⁴⁶ Śliwa 1992a, 21.

¹³⁴⁷ Śliwa 1992a, 21. See also Siegel 2016.

¹³⁴⁸ Śliwa 1986, 171-175, Abb. 2-6, 8.

¹³⁴⁹ Śliwa 1986, 171, Abb. 2-6.

and it is clear from plans of the southwestern corner that bricks were occasionally laid diagonally in order to ensure a roughly consistent width. Śliwa remarks upon the sandy consistency of the bricks, which suggests that the bricks were locally made and not imported from locations closer to Lake Moeris or the Nile Valley.¹³⁵⁰

At corners and at other key points within the wall, carefully shaped limestone blocks helped stabilize the structure. Such blocks were visible in the northeastern corner of the city wall, and Śliwa's plans suggest that others were visible at the corners of housing units bordering the street that circumvallated the settlement just inside the enclosure wall.¹³⁵¹ At the more extensively excavated southwestern corner, the block had been removed by later looters searching for a foundation deposit, but the location where it surely had been placed remained visible. Limestone blocks also reinforced the gateway found in the middle of the northern side of the enclosure wall, protecting an entrance only 1.40 m wide.¹³⁵² The stone was likely quarried from deposits from the nearby Gebel.

RAS BUDRAN

Site Summary: Located on the El-Markha plain in South Sinai, the site of Ras Budran is located almost directly across the Red Sea from the related site of Wadi al-Jarf. Originally identified as a unique, rounded fortress by Greg Mumford after preliminary investigations of the site, subsequent excavations have forced a revision of this hypothesis, as there is no indication that the site ever served a military purpose.¹³⁵³ Though Mumford maintains that the site was used in the late 5th-6th Dynasty, the small finds and ceramic assemblage from Ras Budran

¹³⁵⁰ Śliwa 1986, 171, Abb. 3.

¹³⁵¹ Śliwa 1986, 172-173, Abb. 2-5, 7.

¹³⁵² Śliwa 1986, 172-173.

¹³⁵³ Mumford 2006, Mumford 2012, Mumford and Hummel 2015. Mumford's changing ideas are most clearly evidenced in Mumford and Hummel 2015, 61-64.

overwhelmingly suggests a 4th Dynasty occupation, roughly contemporary to the usage of the harbor installations at Wadi al-Jarf.¹³⁵⁴ Mumford suggests that the site was only occupied very briefly, but preliminary reports show at least three important occupational phases that roughly correspond to strata identified at Wadi al-Jarf.¹³⁵⁵ While it is possible that the ancient coastline approached Ras Budran itself, I remain unconvinced that it is certain that massive winter storms or tidal waves were responsible for the abandonment of and subsequent damage to the Ras Budran installation rather than more incremental processes of erosion.¹³⁵⁶ Given that Ras Budran eschews more traditional construction techniques and features already visible in Egyptian military architecture in the early Dynastic Period, it seems highly unlikely this “fort” served a military function beyond the basic notion that any robust walls can be repurposed for defensive use. Rather, it seems to have served as a kind of landmark for expeditionary teams, as well as a forward base camp where industrial process and storage could occur in the vicinity of the Red Sea but were protected from the harsh winds that sometimes visited the Red Sea coast.¹³⁵⁷

Relevant Enclosure Walls: The architectural remains at Ras Budran consist of a roughly circular dry-stone construction with a diameter of approximately 44 m, built using the locally accessible limestone.¹³⁵⁸ This wall measures some 7 m at its base and tapers to 5 m at the top; in sections along its northern side, it was preserved to a height of 3.5 m. A 4 m wide “bastion” projects from the western side of the installation over 20 m, though Mumford has revised his initial appraisal of the function of this feature and now suggests that it perhaps served as a protective breakwater or quay for ships anchoring at Ras Budran.¹³⁵⁹ This structure is preserved

¹³⁵⁴ Tallet and Marouard 2016, 168-176 details many of the misconceptions about Ras Budran.

¹³⁵⁵ *Ibid.*, 172-176.

¹³⁵⁶ *Contra* Mumford and Hummel 2015, 60, 64.

¹³⁵⁷ Mumford and Hummel 2015, 64.

¹³⁵⁸ Mumford 2006, 16.

¹³⁵⁹ Mumford 2012; Mumford 2006, 22-23.

to a height of 2.8 m at its highest point. Along the western side of the enclosure wall, just north of the so-called bastion, a stairway was constructed to allow access to the top of the installation and the associated projecting wall to the west. Entrance to the complex, located just south of the projecting wall on the western side of the installation, was blocked up using local limestone slabs and marl clay.¹³⁶⁰

The main enclosure wall of the installation at Ras Budran is relatively unique for several reasons. First, its circular form has few parallels in other examples of Old Kingdom architecture.¹³⁶¹ Second, the use of dry-stone construction methods, while not unprecedented, was generally rarely used in the Nile Valley or Nile Delta. Much like at Wadi al-Jarf, the Egyptian builders appear to have resourcefully used the material at hand when there was not sufficient clay or straw to create the amount of mudbricks necessary to complete such a complex.¹³⁶² Third, there are few contemporaneous parallels for the construction of such a robust installation that was almost certainly only occupied on occasions when Egyptian expeditions operated in the region, though comparably large and far better fortified buildings are well known from the Middle Kingdom.¹³⁶³

Construction Methods and Technical Details: The main enclosure wall at Ras Budran was constructed using slabs of locally available limestone, with a combination of sand and marl clay packing serving as a kind of rudimentary mortar between courses of rocks. The wall tapered from a width of 7 m at its base to roughly 5 m at its apex.¹³⁶⁴ Most limestone blocks do not appear to have been shaped or smoothed extensively prior to being set in the wall, and generally

¹³⁶⁰ Mumford and Hummel 2015, 58-61.

¹³⁶¹ Mumford 2006, 41, 46-47.

¹³⁶² Mumford 2006, 64-65.

¹³⁶³ For example, the “fortresses” at Wadi el-Hudi, el-Hisnein East and West, and Dihmit North and Dihmit South. Shaw and Jameson 1993, Liszka 2015, and Harrell and Mittelstaedt 2015.

¹³⁶⁴ Mumford 2006, 22.

the limestone is of rather low quality.¹³⁶⁵ Survey work suggests that it could have been quarried from nearby bands of limestone some 4-6 km from the site, though it is possible that some limestone was shipped across the Red Sea from Wadi al-Jarf.¹³⁶⁶ The entry to the fortress was blocked up using a combination of cobblestones, marl clay, and limestone blocks. After the initial construction of the outer phase, a sloping retaining wall appears to have been added to the interior face of the main enclosure.¹³⁶⁷ Cracking in the roof slabs of the entryway of the Ras Budran complex suggest at least a degree of structural instability that may have manifested itself in antiquity.¹³⁶⁸ Section drawings of the main enclosure wall's masonry suggest that it possessed at least a small foundation trench, while the retaining wall appears to have been constructed upon accumulated occupational debris.¹³⁶⁹ Mumford suggests that parts of the retaining wall and the main enclosure were deliberately dismantled prior to the abandonment of Ras Budran.¹³⁷⁰ The "bastion" or projecting wall was built in a similar manner to the main fortress, using essentially identical materials. The wall itself was built in a similar manner and using comparable materials to the main enclosure wall. A foundation trench was built two courses deep, and the wall slopes downwards as it continues westward, away from the main complex.¹³⁷¹

SAQQARA

Site Description: One of the most famous and largest necropolises in the entirety of Egypt, Saqqara was an important cemetery serving the denizens of the Memphite region for most of the

¹³⁶⁵ Mumford and Hummel 2015, 64.

¹³⁶⁶ Mumford and Hummel 2015, 64.

¹³⁶⁷ Mumford 2006, 24; Mumford and Hummel 2015, 55.

¹³⁶⁸ Mumford 2006, 24-25.

¹³⁶⁹ Mumford and Hummel 2015, Fig. 4, Fig. 9, and Fig. 10.

¹³⁷⁰ Mumford 2006, 28-29.

¹³⁷¹ Mumford and Hummel 2015, 58-61.

Pharaonic period.¹³⁷² During the time frame covered by this dissertation, Saqqara is perhaps most well-known for the Step Pyramid of Djoser, the earliest known pyramid complex and one of the most iconic monuments from Pharaonic Egypt.¹³⁷³ The pyramids of numerous pharaohs throughout the Old Kingdom were built at the site, including but not limited to Sekhemkhet, Unas, Teti, and further to the south, Pepi I, Pepi II, and Djedkare Isesi.¹³⁷⁴ Mastaba fields containing burials from throughout Egyptian history are scattered throughout the site; many of these tombs were initially excavated in the 19th century and have since become inaccessible or lost.¹³⁷⁵ The sheer number of funerary monuments at the site make a comprehensive accounting of all enclosure a near impossibility, but the most salient examples will be discussed below.

Relevant Enclosure Walls: A comprehensive survey of Saqqara's funerary monuments and their respective enclosure walls would be of limited value, so this dissertation will investigate only the most important and well documented examples from this cemetery. The Gisir el-Mudir is possibly the earliest example of monumental stone architecture in ancient Egypt, and the varying construction techniques employed within its enclosure wall demonstrate that the Egyptians were still learning how best to build in stone.¹³⁷⁶ The enclosure walls at Djoser's pyramid complex are massive, a kind of fully realized conception the earlier massive enclosures known from his

¹³⁷² A comprehensive bibliography is of course impossible, but Helck in Helck, Otto, and Westendorf 1984, 386-400, Spencer in Helck, Otto, and Westendorf 1984, 400-409, Malek in Helck, Otto, and Westendorf 1984, 409-412, and Smith in Helck, Otto, and Westendorf 1984, 412-428 provide a solid overview. See also Chauvet in Redford 2001, 176-179.

¹³⁷³ Lauer 1936-39; Firth et al. 1935-35.

¹³⁷⁴ For Sekhemkhet, see Goneim 1957 and Goneim 1956. For the Mastabat el-Faraon, see Jéquier 1928 and Maragioglio and Rinaldi 1967, 148. For the pyramid of Userkaf, see Maragioglio and Rinaldi 1970, Lauer 1955, and El-Khouly 1985. For the pyramid of Isesi, see Maragioglio and Rinaldi 1977 and Megahed and János 2017. For the pyramid of Unas, see Labrousse et al. 1977. For Teti I, see Lauer and Leclant 1972. For Pepi I, see Lehner 1997, 157-160, and also the bibliography on 249. For Merenre, see Lehner 1997, 160-161 and bibliography on 249. For Pepi II and his queens, see Jéquier 1928b.

¹³⁷⁵ On Saqqara generally, see Helck in Helck, Otto, and Westendorf 1984, 386-400, Spencer in Helck, Otto, and Westendorf 1984, 400-409, Malek in Helck, Otto, and Westendorf 1984, 409-412, and Smith in Helck, Otto, and Westendorf 1984, 412-428.

¹³⁷⁶ Mathieson et al. 1997, 53.

2nd Dynasty predecessor, Khasekhemwy.¹³⁷⁷ Other Old Kingdom royal tombs at Saqqara include that of Sekhemkhet, the Mastabat el-Faraon of Shepseskaf, the pyramids of Userkaf, Djedkare Isesi, Unas, Teti, Pepi I, Merenre, and Pepi II.¹³⁷⁸ Additionally, the 8th Dynasty pharaoh Qakare Ibi constructed a small pyramid, and there is a further small pyramid north of the pyramid of Teti that has tentatively been assigned to the First Intermediate Period.¹³⁷⁹ While the 12th Dynasty pharaohs built their pyramids elsewhere, two late Middle Kingdom pyramids built by Khendjer and an unknown king were completed at south Saqqara.¹³⁸⁰ The superstructure of nearly all of these monuments was intended to be surrounded with an enclosure wall that in many cases should be seen as an integral part of the monument itself. In addition to these royal tombs, numerous private mastabas were completed at Saqqara, many of which had small perimeter walls surrounding them. These will not be discussed in any comprehensive fashion, but several relevant examples will be highlighted.

Technical Details: Saqqara is home to the earliest monumental stone architecture in ancient Egypt, and in the case of the Gisir el-Mudir, the Djoser pyramid complex, and the Sekhemkhet pyramid complex, it is clear that stone enclosure walls (or at least massive walls clad in Tura limestone) were conceived of as integral parts of these monuments. The National Museum of Scotland's work on the Saqqara plateau in the 1990s focused in part upon the Gisir el-Mudir, a massive 400 x 615 m enclosure faced with limestone.¹³⁸¹ The date of this structure is disputed,

¹³⁷⁷ Kaiser 1969.

¹³⁷⁸ See footnote 1374 above: for Sekhemkhet, see Goneim 1957 and Goneim 1956. For the Mastabat el-Faraon, see Jéquier 1928 and Maragioglio and Rinaldi 1967, 148. For the pyramid of Userkaf, see Maragioglio and Rinaldi 1970, Lauer 1955, and El-Khouly 1985. For the pyramid of Isesi, see Maragioglio and Rinaldi 1977. For the pyramid of Unas, see Labrousse et al. 1977. For Teti I, see Lauer and Leclant 1972. For Pepi I, see Lehner 1997, 157-160, and also the bibliography on 249. For Merenre, see Lehner 1997, 160-161 and bibliography on 249. For Pepi II and his queens, see Jéquier 1928b, Jéquier 1933, and Jéquier 1936-40.

¹³⁷⁹ Jéquier 1935; Lehner 1997, 164-165.

¹³⁸⁰ Jéquier 1933.

¹³⁸¹ Mathieson et al. 1997.

but the excavators have come to the conclusion that it likely should be placed in the 2nd Dynasty, in the reign of Khasekhemwy or perhaps even earlier.¹³⁸² This would make the Gisir el-Mudir one of the earliest monumental stone constructions in all of Egypt, and suggest that it perhaps even served as a template for later complexes constructed during the reigns of Djoser and Sekhemkhet. It seems likely that the complex was unfinished. The physical walls of the Gisir el-Mudir are massive, likely 15-17 m thick.¹³⁸³ The core of the wall was generally completed using a rubble filling that included small stones, small fragments of dark, silty mudbricks, and rubble.¹³⁸⁴ The facing of the wall was comprised of local limestone, but the masonry of the wall betrays certain fundamental mistakes about stone construction: frequently, vertical joints are present as a result of blocks stacked directly on top of one another, encouraging cracking along the wall face.¹³⁸⁵ On the north side, the wall was bolstered by a 6.6 m thick revetment wall, sloping upwards at a roughly six degree angle.¹³⁸⁶ This wall was constructed primarily using fieldstones. The use of stone or brick walls casing a rubble core is not unheard of but relatively unusual in Egyptian architecture throughout Pharaonic history, and in this particular case is perhaps another indication that the builders of this wall were still negotiating how to best go about constructing large stone monuments. Solid masonry was used at the corners of the construction. No evidence for an internal monument or complex comparable to a step pyramid or mastaba was uncovered over the course of geophysical surveys of the site. A further large “L-shaped enclosure” to the northwest of the Gisir el-Mudir has been identified by the National

¹³⁸² Mathieson et al. 1997, 53.

¹³⁸³ Mathieson et al. 1997, 53.

¹³⁸⁴ Mathieson et al. 1997, 23, 36, fig. 4.

¹³⁸⁵ Mathieson et al. 1997, 35-36.

¹³⁸⁶ Mathieson et al. 1997, 26.

Museum of Scotland Saqqara Project, but it was badly denuded and remains largely unpublished.¹³⁸⁷

The step pyramid of Djoser was defined by a massive limestone enclosure wall some 1645 m long, roughly 544.90 m north-south x 277.60 m east-west.¹³⁸⁸ The core of the wall was comprised of rubble, smaller fieldstones, brick fragments, rubble, and occupational debris. Firth and Quibell's notes are somewhat vague, but it is clear that many of the flat boundary stelae commemorating Djoser were recycled as building material within the rubble cores of many of the walls of the complex.¹³⁸⁹ On both sides however, the wall was faced with finely dressed ashlar masonry. These walls were built using local limestone blocks and essentially retained the rubble core of the temenos wall, creating an enclosure with a thickness of roughly 5 m.¹³⁹⁰ The blocks of these walls were set into a mud mortar. Finer white limestone was used for the facing of these walls. This finer limestone generally extended roughly 2.35 m into the wall itself. The exterior face was cut in a kind of palace façade style in imitation of the niched panels of plastered mudbrick known from Early Dynastic private mastabas.¹³⁹¹

The wall stands some 10 m high and possessed regular projecting buttresses, approximately 211 in total. These buttresses typically measured some 3.14 m wide (roughly 6 cubits) and were spaced every 4.19 m (roughly 8 cubits), and project roughly 2.35 m outward from the wall (4.5 cubits).¹³⁹² The buttresses set at the corners of the complex project slightly further outwards and are square in form. Larger bastions were created to allow for the creation

¹³⁸⁷ Mathieson 2007, fig. 1, Mathieson et al. 1997, 17.

¹³⁸⁸ Lauer 1936, 82. Firth and Quibell briefly discuss the enclosure wall in Firth and Quibell 1935, 10.

¹³⁸⁹ Firth and Quibell 1935, 119, Pl. 86.

¹³⁹⁰ Lauer rarely comments on the total thickness of the enclosure wall, in part because it varied and also because it is often obscured by dummy buildings built next to it. Generally speaking though, plans tend to confirm that it was roughly 5 m in width. Lauer 1936, 82.

¹³⁹¹ Lauer 1936, 82-84.

¹³⁹² Lauer 1936, 82-84.

of some 14 false double-leaved gateways, with three on the northern and southern sides and four each on the eastern and western sides (with the actual entrance to the complex located on the eastern side, near the southern corner). These larger bastions measured some 17 cubits long, or almost 9 m. The wall was built with rounded coping at its apex.¹³⁹³ Firth and Quibell suggest that the eight rows of square indentations are imitations of small loopholes, but it seems just as likely that these could be either an aesthetic preference or skeumorphs of timber posts set laterally within a mudbrick wall. The elaborate niched façade of the wall was almost certainly completed on all four sides given the numerous instances on all four sides where the carefully cut paneling is visible.¹³⁹⁴

The exterior face of the wall was vertical, accentuating the visual effects of the niched façade. Lauer and his team were able to recover and identify numerous blocks that suggest that the wall possessed a roughly 1 m wide parapet along its interior face.¹³⁹⁵ Fine limestone was also used as a revetment in two places along the internal face of the wall, but for the most part, the large dummy buildings masked the internal face of the wall. In other instances, less carefully dressed stone was used as a revetment wall, as was the case near the area linking the Heb-Sed courtyard to the entrance colonnade.¹³⁹⁶ Finer limestone was used on the east face of the courtyard of the Southern Mansion, as well as on the southern edge of the large court situated to the south of the Step Pyramid, just in front of the South Tomb. Generally, the internal face of the enclosure wall was also slightly sloped.¹³⁹⁷

¹³⁹³ Lauer 1936, 82-84, 9092.

¹³⁹⁴ Quibell et al. 1935, 9-10; Lauer 1936, 82-84, 86-92.

¹³⁹⁵ Lauer 1936, 84-86.

¹³⁹⁶ Lauer 1936, 92-94.

¹³⁹⁷ Lauer 1936, 94-98.

This enclosure was an integral part of the funerary complex, and helped to link Djoser's monument with earlier royal mortuary traditions that centered around funerary enclosures. Even as the stone step pyramid at the center of the complex inaugurated the pyramid age with its innovative new architectural design, the enclosure wall that delimited the royal tomb could easily be seen as a development of earlier architectural traditions known from the constructions of Khasekhemwy at Abydos or the Gisir el-Mudir.¹³⁹⁸ The enclosure's niched façade was decorated by bastions and entered through a colonnade at the southeastern edge of the enclosure. By analogy with the earlier funerary enclosures of Khasekhemwy, it seems highly likely that the limestone walls of the Djoser complex are actually skeumorphs of a mudbrick enclosure wall.¹³⁹⁹ The paneling of the wall recalls the bastions from Khasekhemwy's enclosure at Abydos. There is some evidence that a makeshift ramp over the northeast corner of the enclosure wall was used.¹⁴⁰⁰ Whether this was for the funeral procession, to allow Djoser's body to be placed in his tomb without navigating some of the narrower passages in the complex or simply to traffic construction materials into the complex is unknown. It seems highly likely that the enclosure wall (or at least the last phase of the enclosure) comprised one of the final phases of the Step Pyramid's construction, but it was already present during early phases of the monument.¹⁴⁰¹ It remains plausible, however, that earlier enclosure wall phases were constructed in tandem with earlier iterations of funerary monument.

Sekhemkhet's funerary complex was modelled upon Djoser's, and meticulously excavated under the direction of M. Zakaria Goneim in the early 1950s.¹⁴⁰² It measures roughly

¹³⁹⁸ On the origins of pyramids, see O'Connor 2002.

¹³⁹⁹ Kaiser 1969.

¹⁴⁰⁰ Lehner 1997, 84-85.

¹⁴⁰¹ Lauer 1936, 10-26 and 206-231 discusses the phasing of the monument. For the early presence of the enclosure wall, see O'Connor 2002, 171.

¹⁴⁰² Goneim 1957; Goneim 1956.

536 x 194 m.¹⁴⁰³ Goneim's excavations led to the discovery of the temenos wall of the complex, which was built using Djoser's enclosure as a clear template. The bastions and niches have nearly identical dimensions to Djoser's enclosure, with similar large spaces available for the carving of false gateways at intervals along the wall.¹⁴⁰⁴ Sekhemkhet's complex was certainly unfinished, and likely buried in antiquity. The sixth course of stone was left undressed, suggesting that it was abandoned prior to being finished.¹⁴⁰⁵ Mason's marks, quarry marks, designs of the builders, and even levelling lines were preserved in red ochre and charcoal along portions of the face of the wall.¹⁴⁰⁶ A horizontal red line extends along the side of the wall, and is labelled *nfrw*, or zero, suggesting that this served as an initial levelling marker, likely created by using a string coated in red ochre ink or paint. This line was replicated at subsequent levels, and further vertical lines are used to indicate the desired dimensions of the recesses, panels, and buttresses that comprised the wall's niched façade.¹⁴⁰⁷ Designs of recumbent lions, a possible warrior holding a bow, boats, and falcons might perhaps indicate the names of particular teams of quarrymen or masons employed during the construction of the wall.¹⁴⁰⁸

Sekhemkhet's enclosure wall was encased by blocks of fine white limestone, extending roughly 30-35 cm, while the interior of the wall was comprised of a core of rougher local limestone.¹⁴⁰⁹ The blocks of fine limestone were larger than those employed at the Djoser complex, but were employed far more sparingly, in only a single course of casing blocks. Though the wall had a slight batter, it was nearly vertical compared to many Old Kingdom walls,

¹⁴⁰³ Goneim 1957, 1.

¹⁴⁰⁴ Goneim 1957, 1-6.

¹⁴⁰⁵ Goneim 1957, 2.

¹⁴⁰⁶ Goneim 1957, 1-6; Goneim 1956, 40.

¹⁴⁰⁷ Goneim 1957, 4.

¹⁴⁰⁸ Goneim 1957, 2-4, fig. 12-24.

¹⁴⁰⁹ Goneim 1957, 2.

with a slope of some 8 cm for every 3 m of height.¹⁴¹⁰ It is difficult to reconstruct which areas of the enclosure wall Goneim was able to clear and which were never excavated, though the dimensions of the complex are certainly broadly visible in aerial photos of the site.¹⁴¹¹ In any case, Goneim states that the complex was intended to be expanded, with the northern enclosure moved some 200 m further north prior to the completion of the temenos wall.¹⁴¹² Rubble and rough stone cross walls were discovered atop and abutting the buried remains of the initial, aborted attempt at the northern side of the enclosure wall. Evidence of copper chisel marks were found on the remains of this wall, and large numbers of flint implements were found near the intended site of the new northern enclosure wall, suggesting that these tools played a role in shaping and dressing the limestone casing stones.¹⁴¹³ Part of a boundary stone of Djoser was found recycled within the pyramid's masonry, similar to examples known from Djoser's own enclosure.¹⁴¹⁴ The dimensions of the wall are not stated definitively, but based on Goneim's plans and by analogy with Djoser's enclosure wall it was likely intended to be about 5 m thick.¹⁴¹⁵

Two enclosure walls surround the Mastabat el-Faraon, a funerary monument typically assigned to Shepseskaf.¹⁴¹⁶ Both walls were completed using mudbrick—one ten meters away from the mastaba itself, measuring 2.05 m wide, and a second much less well preserved wall 48 m from the monument.¹⁴¹⁷ Jéquier estimates that the inner enclosure wall, which in some places was preserved to a height of some 2.50 m, would likely have been roughly 3-3.50 m high.¹⁴¹⁸

¹⁴¹⁰ Goneim 1957, 2-4.

¹⁴¹¹ Goneim 1957, pl. I-III.

¹⁴¹² Goneim 1957, 2.

¹⁴¹³ Goneim 1957, 2-4.

¹⁴¹⁴ Goneim 1957, 8, fig. 26.

¹⁴¹⁵ Goneim 1957, pl. II, IV. For the step pyramid, see Lauer 1936, 82.

¹⁴¹⁶ Maragioglio and Rinaldi 1967, 148; Jéquier 1928, 17-19.

¹⁴¹⁷ Maragioglio and Rinaldi 1967, 148; Jéquier 1928, 17-19.

¹⁴¹⁸ Jéquier 1928, 18.

The outer face of the wall is characterized by courses of alternating headers and stretchers, and both the inner and outer faces slope inwards.¹⁴¹⁹ By analogy with other royal funerary enclosures from the 4th Dynasty, it seems most likely that the top of the wall was likely saddle-backed, though this feature is known primarily from stone enclosures since the apex of mudbrick walls was far less frequently preserved than rounded coping stones.¹⁴²⁰ A small opening in the northwestern side was later bricked up, a feature that has been interpreted as a kind of construction opening.¹⁴²¹ The outer wall was only visible along the eastern, southern, and small parts of the western side, and Jéquier provides no datums for the width or estimated height of this wall. The entire complex was approached by a causeway that has since been lost. Jéquier describes the corridor as a 1.70 m wide channel between two 1.20 m wide brick walls, surmounted with a vaulted ceiling that at its highest point likely measured over 3 m high.¹⁴²² The walls were clearly plastered, and remnants of the vaulting were preserved near the lower end of the causeway. The causeway stretched some 760 m in total from the brick courtyard of the Mastabat al-Faraun to its lower terminus.¹⁴²³ Jéquier also notes a small portion of a thin wall discovered south of the ramp, 2.35 m from the causeway near the elbow where it slants west towards the mastaba complex.¹⁴²⁴ The role of this wall is unclear, but he suggests it might perhaps delimit the broader avenue of the causeway area.

Userkaf's pyramid was situated just south of the southern enclosure wall of Djoser's complex. Like his 4th Dynasty predecessors, Userkaf's complex was surrounded by a limestone enclosure wall. This wall measured 8 cubits, or 4.20 m wide, at its base, and was estimated to be

¹⁴¹⁹ Jéquier 1928, 18.

¹⁴²⁰ Jéquier 1928, 18.

¹⁴²¹ Jéquier 1928, 18.

¹⁴²² Jéquier 1928, 17-18.

¹⁴²³ El Awady 2009, 105-106; Jéquier 1928, 19-21.

¹⁴²⁴ Jéquier 1928, 20.

some 8.40 m high. Remnants of the saddle-backed coping of this wall have been discovered at the site.¹⁴²⁵ Plans of the site suggest that this enclosure wall was widened somewhat as the causeway reached the pyramid temple of Userkaf, but this architectural feature—perhaps one might even say a rudimentary pylon—has received little attention from scholars thus far.¹⁴²⁶ There otherwise seems to have been little that distinguished the pyramid enclosure wall from the outer walls of the pyramid temple, and these should be treated as integral parts of the same funerary complex. The walls were sloped, likely with an intended batter of one palm per cubit of height, or 82°. ¹⁴²⁷ The Queen’s pyramid of Neferhetepes was about 1.42 m wide at its base. Labrousse restores a height of some 4.20 m, or roughly 8 cubits to this wall.¹⁴²⁸ Coping stones recovered from this wall suggest that it was asymmetrical, sloping more sharply, indeed almost vertically, on the interior side of the wall.¹⁴²⁹ The slope of the wall itself seems to have been steeper than Userkaf’s enclosure wall, perhaps approaching 85°. ¹⁴³⁰ Perhaps the most important shift inaugurated by Userkaf is the increased size of the mortuary temple within the pyramid complex—in many cases, distinguishing between the pyramid complex enclosure wall and the outer walls of the entrance to the pyramid temple could be somewhat challenging.

When the later 5th Dynasty pharaohs Djedkare Isesi and later Unas once again chose the site of Saqqara for their pyramid complexes, it is all but certain that enclosure walls delimited these monuments. However, in the case of Djedkare Isesi’s pyramid enclosure wall, only minimal plans have been furnished. Little is known about the pyramid itself since it was first excavated by Maspero in the 19th century and Abdel Salam Hussein’s work on the site in the

¹⁴²⁵ Maragioglio and Rinaldi 1970, 20-22, pl. 1-2; Labrousse and Lauer 2000, 29-30, fig. 31 and 36.

¹⁴²⁶ Maragioglio and Rinaldi 1970, 20-22, pl. 1-2.

¹⁴²⁷ Maragioglio and Rinaldi 1970, 20-22, pl. 1-2.

¹⁴²⁸ Labrousse and Lauer 2000, 153, fig. 40,42, 342, 359-362, pl. 34d.

¹⁴²⁹ Labrousse and Lauer 2000, 153.

¹⁴³⁰ Labrousse and Lauer 2000, 153.

1940s remains unpublished.¹⁴³¹ Maragioglio and Rinaldi's reinvestigation and survey of the site shows that the outer walls of Isesi's pyramid enclosure were built using a core of local limestone and finished with finer white limestone.¹⁴³² The northern enclosure wall has been excavated entirely, while the others sides have been confirmed in select locations. These measured at least 4.2 m wide.¹⁴³³ The enclosure wall of the satellite pyramid was substantially thinner, typically only about 1.1 m thick. In all cases, these walls were sloped on both their interior and exterior faces, and topped with saddle-backed coping.¹⁴³⁴ The causeway approaching the pyramid ran some 220 m, with roughly 2.5 m thick walls on either side.¹⁴³⁵

Similarly, the enclosure wall of the pyramid of Unas has received comparatively little attention. The pyramid was surrounded by an approximately 2.65 m (5 cubits) thick enclosure that encompassed not only the pyramid, but also the large pyramid temple of Unas to the east.¹⁴³⁶ The enclosure surrounds an area roughly 96.90 x 76.80 m, though its form is not perfectly rectangular and occasionally jogs northward or southward in order to accommodate the pyramid temple and satellite pyramid. Much of the enclosure wall has been robbed away entirely, but large sections of the foundations remain to the north and east of the pyramid. The wall was built entirely using fine Tura limestone.¹⁴³⁷ In places where the foundations remain, it was approximately 3 blocks wide, with the lengths of these blocks varying from 0.80 to 1.33 m in size. Because so little of the wall was preserved, it is unclear whether the wall would have had a rounded top or would have rested flat, nor can the batter of the inner and outer faces of the wall

¹⁴³¹ Lehner 1997, 153.

¹⁴³² Maragioglio and Rinaldi 1977, 82-84.

¹⁴³³ Maragioglio and Rinaldi 1977, 82-84.

¹⁴³⁴ Maragioglio and Rinaldi 1977, 84.

¹⁴³⁵ Maragioglio and Rinaldi 1977, 86-88; El Awady 2009, 109-110.

¹⁴³⁶ Labrousse et al. 1977, 56-59, fig. 60.

¹⁴³⁷ Labrousse et al. 1977, 58.

be ascertained with certainty.¹⁴³⁸ Unas's causeway was built using limestone, with walls roughly 2.35-2.50 m wide and intricate reliefs carved upon its walls. The lintels of the gate connecting the causeway to the pyramid temple were built out of granite. It was massive in size, and must have extended some 750 m in total—one of the longest of all of the pyramid complexes.¹⁴³⁹

The 6th Dynasty kings Teti, Pepi I, Merenre, and Pepi II were all buried at Saqqara as well.¹⁴⁴⁰ Merenre's pyramid has only been partially surveyed, and little is known of its enclosure wall though it is all but certain that his complex possessed one.¹⁴⁴¹ Teti I's pyramid was badly damaged by stone robbers, though renewed excavations led by Lauer and Leclant have recovered much of the ground plan. Teti's pyramid complex possessed a large pyramid temple (complete with a sanctuary, entrance hall, and open courtyard), a single satellite pyramid in its southeastern corner, and a causeway.¹⁴⁴² The enclosure wall of Teti's pyramid complex protected a roughly 105 x 127.575 m (200 x 243 cubits) area. It was preserved to a height of nearly 3 m in its northeastern corner, roughly six courses of limestone blocks high.¹⁴⁴³ At its base, the wall was 4.19 m thick, or about 8 cubits. The outer faces were built using Tura limestone, while the internal core of the wall consisted of rubble.¹⁴⁴⁴ The limestone blocks employed in the wall ranged from 0.30 to 1.80 m long, though most were between 1.04-1.60 m in size. They typically extended between 0.52-0.85 m into the wall itself, and were separated by a thin mud plaster mortar. No evidence of recesses or paneling was identified. Generally, though not always, both the inner and outer face of the wall sloped at a rate of roughly 3.8 cm per course of blocks—put in the terms of the ancient Egyptian measuring units, there was a batter of two fingers for

¹⁴³⁸ Labrousse et al. 1977, 58-59.

¹⁴³⁹ El Awady 2009, 110-114.

¹⁴⁴⁰ Lehner 1997, 156-163.

¹⁴⁴¹ Lehner 1997, 160-161.

¹⁴⁴² Lauer and Leclant 1972.

¹⁴⁴³ Lauer and Leclant 1972, 40-42

¹⁴⁴⁴ Lauer and Leclant 1972, 41.

every cubit of height. The top of the wall was rounded, saddle-backed in form.¹⁴⁴⁵ The complex was entered through an opening gateway and vestibule that measured roughly 13 cubits, or 6.825 m, thick.¹⁴⁴⁶ In addition to the enclosure of his own pyramid complex, two of Teti's queens, Khout and Ipout possessed smaller pyramid complexes with enclosure walls of their own, but little is known about the details of these constructions.¹⁴⁴⁷ Pepi I's badly damaged pyramid complex has been the subject of extensive study by the French during the latter half of the 20th century.¹⁴⁴⁸ Details about the complex's enclosure walls are not abundant, but Leclant and Clerc note that they were over 4 m thick.¹⁴⁴⁹ At least five queens' pyramids have also been identified in the vicinity of Pepi I's pyramid.¹⁴⁵⁰ Broadly speaking, his complex follows the outlines of his predecessors Teti, Unas, and Isesi.

The pyramid of Pepi II was also surrounded by a limestone enclosure wall, originally forming a kind of rectangle oriented east-west, some 99 x 124 m in size.¹⁴⁵¹ Alterations to the complex during the reign of Pepi II necessitated the razing of the wall on its southern, northern, and western sides and reconstructing it some four meters further from the pyramid.¹⁴⁵² Only the foundations of the initial phase remain, dug almost 1 m into the earth, but for the second phase of the wall, the first course of limestone blocks is visible in rare places.¹⁴⁵³ The wall measured some 4 m wide at its base, and likely stood some 8-10 m tall. The wall was topped with a saddle-backed cope.¹⁴⁵⁴ There is no trace of any sort of decoration or paneling along the sides of the

¹⁴⁴⁵ Lauer and Leclant 1972, 41-42. They note, however, that the west wall is vertical in the part where it is conserved to the north of the pyramid temple.

¹⁴⁴⁶ Lauer and Leclant 1972, Pl. XXXV.

¹⁴⁴⁷ Labrousse 1994.

¹⁴⁴⁸ Lehner 1997, 249 provides an excellent bibliography.

¹⁴⁴⁹ Leclant 1982, 67.

¹⁴⁵⁰ Labrousse 1994.

¹⁴⁵¹ Jéquier 1938, 7.

¹⁴⁵² Jéquier 1938, 7-8.

¹⁴⁵³ Jéquier 1938, 7.

¹⁴⁵⁴ Jéquier 1938, 7.

walls, though it seems likely that these were sloped on both their inner and outer faces.¹⁴⁵⁵

Unique among the Old Kingdom pyramids, Pepi II's pyramid was equipped with a 6.5 m wide socle.¹⁴⁵⁶ The reason for this construction is unknown—this girdle wall could have served as a reinforcement for structural issues at the base of the pyramid, or less pragmatically, it could have been designed with an eye towards replicating hieroglyphic representations of pyramids.¹⁴⁵⁷ The construction of this plinth necessitated the dismantlement and reconstruction of the enclosure wall and many of the buildings completed nearby.¹⁴⁵⁸ Indeed, one might even view the socle wall as a kind of inner enclosure wall that had been abandoned by most 5th and 6th Dynasty pharaohs.

Further pyramids were constructed for Pepi II's queens Ipout II and Neith. These constructions also had enclosure walls and chapels—indeed, all of the essential elements from Pepi II's own pyramid complex, albeit on a smaller scale.¹⁴⁵⁹ Neith's pyramid was contained within a rectangular limestone enclosure, 48.30 x 35 m in size.¹⁴⁶⁰ The wall was formed with facing of limestone blocks on both the internal and external side, with a rubble core filled with smaller fieldstones and debris. It was preserved to a height of one or two courses in some places, and there was no sign of any slope, suggesting that it was topped by a parapet rather than a saddle-backed coping stone.¹⁴⁶¹ Ipout's pyramid complex enclosure wall was a continuation of Neith's, and entered through a granite doorway.¹⁴⁶² Jéquier does not provide dimensions for this

¹⁴⁵⁵ Jéquier 1938, 7-8.

¹⁴⁵⁶ Jéquier 1938, 6-7.

¹⁴⁵⁷ Lehner 1997, 161; Jéquier 1938, 6-7. I am skeptical that such a massive building decision was made simply to conform to a graphical ideal, and view Jéquier's discussion of possible minor structural problems as slightly more probable.

¹⁴⁵⁸ Jéquier 1938, 5-7.

¹⁴⁵⁹ Jéquier 1933. For the 48.30 x 35 m enclosure of Neith, see Jéquier 1933, 3. It was made using limestone blocks for casing with a rubble core, and unusually had no slope. A mudbrick banking or wall was found next to it, of uncertain date, though the excavator suspects it was also from the 6th Dynasty. The height must have surpassed 4 meters, according to Jéquier. No mention is made of Ipout II's enclosure.

¹⁴⁶⁰ Jéquier 1933, 3.

¹⁴⁶¹ Jéquier 1933, 3.

¹⁴⁶² Jéquier 1933, 41.

wall and highlights the poor state of preservation at the complex, but it seems likely that the construction of this wall was very similar to that of Neith's pyramid complex.¹⁴⁶³

Pepi II's queen Wedjebten was interred nearby in a pyramid of her own, separated from the surrounding necropolis by its own 1.55 m thick enclosure wall.¹⁴⁶⁴ Like the enclosure of Pepi II, Wedjebten's enclosure was founded upon rough stone foundations dug into the ground. The faces of the wall were built using limestone, dressed on its interior and exterior façades. The interior core of the wall consisted of rough limestone chips, mortar, and rubble.¹⁴⁶⁵ The wall could not have been taller than 4 m in height, and likely was much smaller—perhaps roughly 3 m in view of its width. Jéquier found the wall in a much destroyed state, and in many cases only the trenches where the foundations had been robbed away were visible.¹⁴⁶⁶ A narrow door allowed access on the northern side near the northeastern corner. The lintels were still standing to a height of some 2.03 m, and were built using grey sandstone and inscribed with the queen's name and titles.¹⁴⁶⁷

Following the Old Kingdom, Saqqara was still used as a royal necropolis. During the First Intermediate Period, the pyramids of Qakare Ibi and very likely Merykare were at the site, but so badly damaged that little can be stated definitively about their enclosure walls.¹⁴⁶⁸ The last two royal pyramids built at Saqqara within the timeframe covered by this dissertation were completed near the southern margins of the site, likely both by 13th Dynasty pharaohs. One was completed by Khendjer, another further to the south by an unknown pharaoh.¹⁴⁶⁹ Khendjer's pyramid was surrounded by both an inner and an outer enclosure wall. The outer perimeter wall

¹⁴⁶³ Jéquier 1933, 41.

¹⁴⁶⁴ Jéquier 1928b, 8-10.

¹⁴⁶⁵ Jéquier 1928b, 8.

¹⁴⁶⁶ Jéquier 1928b, 8.

¹⁴⁶⁷ Jéquier 1928b, 9-10.

¹⁴⁶⁸ Lehner 1997, 164-165.

¹⁴⁶⁹ Jéquier 1933.

was 2.60 m thick, and constructed using mudbricks. It encompassed a roughly 122.65 x 125.90 m area. This wall was preserved in parts along all sides of the pyramid. Though the surrounding area was clearly levelled, no foundations were discovered over the course of Jéquier's excavations.¹⁴⁷⁰ A staircase was completed near the southeastern corner of the enclosure, but its function remains unclear.¹⁴⁷¹

Khendjer's inner enclosure is notable for multiple reasons. First, an initial phase of the enclosure wall was completed in mudbrick in the form of a serpentine or sinusoidal wall.¹⁴⁷² This wall was almost certainly a provisional wall during the building of the complex, serving to prevent sand and debris from encroaching upon the construction area. That said, it was slightly larger than most serpentine walls, measuring some 1.5-2 bricks wide.¹⁴⁷³ Subsequently, a rectilinear stone wall was erected directly above the serpentine wall. Only the foundations of this wall were visible.¹⁴⁷⁴ The wall was decorated with a niched façade, and on one block discovered by Jéquier, decorations were present on three sides, indicating a system of paneled bastions and recesses must also have been present.¹⁴⁷⁵ The wall itself measured about 3 m thick. The wall had largely been robbed away, so its exact trajectory was not always recoverable.¹⁴⁷⁶ Brick serpentine walls were also found surrounding small shaft tombs found within the complex, but these were not wide or robust enough to be termed permanent enclosure walls.¹⁴⁷⁷

The unfinished pyramid to the southwest was surrounded by a 123.50 x 123.50 m mudbrick wall.¹⁴⁷⁸ This enclosure is especially anomalous since it was built as a serpentine wall,

¹⁴⁷⁰ Jéquier 1933, 6-7.

¹⁴⁷¹ Jéquier 1933, 9-10, pl. II.

¹⁴⁷² Jéquier 1933, 7, pl. II, IVa. See also Siegel 2016 on serpentine walls.

¹⁴⁷³ Jéquier 1933, 7, pl. IVa; Siegel 2016.

¹⁴⁷⁴ Jéquier 1933, 7, pl. IVa.

¹⁴⁷⁵ Jéquier 1933, 7-8.

¹⁴⁷⁶ Jéquier 1933, 7.

¹⁴⁷⁷ Jéquier 1933, pl. II.

¹⁴⁷⁸ Jéquier 1933, 55-58, pl. XIII, XV.

and was built into a 1 m deep bed cut into the surrounding soil. The bricks of this wall were smaller than those of the nearby pyramid, measuring roughly 34-36 x 17-18 x 8 cm.¹⁴⁷⁹ This outer wall delimited the pyramid complex, but it was comparatively thin: only 0.65 m wide—at most two bricks. No trace of an inner enclosure wall was recovered closer to the pyramid. Jéquier hypothesizes that a gap in the wall on its western side was not originally planned but was deliberately maintained to allow for the ingress of construction materials and personnel.¹⁴⁸⁰

Private tombs from nearly all periods of Pharaonic history are represented at Saqqara, though mastabas from the Early Dynastic Period and Old Kingdom are particularly notable for the purposes of this study. A thorough catalog of the enclosure walls surrounding private mastabas at Saqqara would take a lifetime to compile, so I will highlight only a select few salient examples here. Many of the large Early Dynastic mastabas at Saqqara are surrounded by at least one enclosure wall—in earlier phases, sometimes they are surrounded by a second, outer one as well. As at many other sites, later mastabas at the Saqqara necropolis were surrounded by a separate enclosure wall far less frequently. The reason for this is unclear. It may have been a product of changing theological ideas, or something as simple as the lack of available space. During the Old Kingdom, the decision to group mastabas together near the burial of the king perhaps obviated the need for an individual or even communal enclosure walls, since the tombs were very clearly part of a separate precinct within the necropolis. Moreover, the overbuilding in the Saqqara necropolis perhaps made large stretches of it somewhat impassable—the clusters of tombs themselves could serve as an informal barrier to movement, even if this undoubtedly failed to fulfill any religious or ideological components of an enclosure wall. Indeed, nearly all of the mastabas with separate enclosure walls should be dated to the column or 1st Dynasty

¹⁴⁷⁹ Jéquier 1933, 55-56.

¹⁴⁸⁰ Jéquier 1933, 56.

mastabas stretching north to south along the easternmost ridge at North Saqqara. This list is far from comprehensive, but portions of outer enclosure walls distinct from the niched façade of the mastaba itself were discovered at tombs S3357, S3036, S3500, S3503, S3504, S3505, S3506, and S3507.¹⁴⁸¹ Emery suspected the presence of enclosure walls surrounding other mastabas, but was not always able to locate them.¹⁴⁸² The crowded nature of the Saqqara necropolis meant that at times some of these earlier enclosure walls may have been destroyed in order to make room for later tombs.

Tomb S3357 had two distinct enclosure walls, both built using mudbrick, and separated by a 1.20 m wide corridor.¹⁴⁸³ The outer enclosure wall was 0.75 m (three bricks) wide and preserved to a height of 0.65 m. It was approximately three bricks wide, and the wall was dressed with a thick mud plaster and lime wash. The inner enclosure wall was somewhat thinner, only 0.55 m (two bricks) wide. Emery does not provide dimensions for the bricks but it seems likely they were roughly 24 x 12 x 6-7 cm in size.¹⁴⁸⁴ The walls were best preserved on the eastern side. On the northeastern side, near the corner, a large mass of brickwork was found underneath the foundations of a second dynasty tomb, leading Emery to suggest that the original height must have approached at least 1.50 m.¹⁴⁸⁵ The bricks were laid in alternating courses of headers and stretchers.¹⁴⁸⁶

Tomb 3036 had a thick enclosure wall with an entrance from the eastern side, in axial alignment with a staircase leading to the burial chambers.¹⁴⁸⁷ The enclosure wall originally

¹⁴⁸¹ For S3503, see Emery 1954, 129-130; for S3504, see Emery 1954, 8-9; for S3505, see Emery 1958, 7; for S3506, see Emery 1958, 40-41; for S3507, see Emery 1958, 75-76. For S3357, see Emery 1939, 11-12; for S 3036, see Emery 1949, 72-73.

¹⁴⁸² For one such example, see Emery 1949, 13.

¹⁴⁸³ Emery 1939, 11-12, Pl. 1-2

¹⁴⁸⁴ Emery 1939, 11-12, fig. 3, Pl. 1-2.

¹⁴⁸⁵ Emery 1939, 12.

¹⁴⁸⁶ Emery 1939, 11-12.

¹⁴⁸⁷ Emery 1949, 71-72.

measured 1.30 m wide on its north side, 1.65 m wide on its south and east sides, and 1.50 m wide on its western side. Subsequent renovations expanded the wall to 2.00 m thick on its southern, eastern, and western sides. Both the inner and outer face were covered with a fine mud plaster, and Emery states that the bricks were laid in alternate courses of headers and stretchers.¹⁴⁸⁸ The wall was approximately 1.50 m from the niched façade of the mastaba everywhere save its eastern side, where the corridor separating them was 2.05 m in breadth. The wall was preserved in places to a height of 1.20 m, but Emery highlights the thickness of the wall and the presence of multiple phases of construction, and suggests that it originally must have been substantially taller.¹⁴⁸⁹ On the eastern side, a trench 1.25 m beyond the wall's outer face was planted with small trees—it is unclear whether this garden extended around all four sides of the mastaba, but evidence was only discovered on the eastern side.¹⁴⁹⁰

Tomb 3504 possessed an enclosure wall on all four sides, preserved to a maximum height of 0.73 m, though Emery allows for the possibility that its original height might have been somewhat higher.¹⁴⁹¹ No gateway was identified specifically though Emery suggests it was probably situated on the southern end of the eastern wall. The bricks were laid in alternate courses of headers and stretchers, and the wall measured 0.95 m thick. The walls were plastered with gypsum and whitewashed, and enclose a 56.45 x 25.45 m area. Tomb 3503 has a small enclosure wall that was only found on its eastern side—it measured only 0.65 m thick at its base. Emery depicts this enclosure as being built using stretchers exclusively, but this may perhaps be

¹⁴⁸⁸ Emery 1949, 71.

¹⁴⁸⁹ Emery 1949, 71.

¹⁴⁹⁰ Emery 1949, 72-73.

¹⁴⁹¹ Emery 1954, 8.

the result of its poor preservation. A low, 0.40 m tall bench runs along its interior face. The wall and bench were both plastered with white lime.¹⁴⁹²

Tomb 3505 is the largest of the Early Dynastic mastabas that Emery excavated at Saqqara, and was surrounded by a sloped enclosure wall that in places was preserved to a height of 1.60 m.¹⁴⁹³ At its base, the wall was some 2.10 m thick, and enclosed a roughly 65.20 x 40 m area. A white gypsum plaster covered both faces of the wall. The wall was sloped: Emery cites a fairly significant 3 on 1 batter for both the interior and exterior faces. The corridor between the wall and the mastaba proper is 0.9-1.1 m wide. On the eastern side, small postholes were found (in some cases with decayed wood still inside), perhaps the remnants of some kind of scaffolding or woodwork that was subsequently paved over during the final phases of excavation. It was entered on its eastern side, near the stairway leading to the substructure.¹⁴⁹⁴ Tomb 3505 possessed a funerary temple to the north, whose outer wall extended around the mastaba to the south. This outer wall was distinct from the niched façade of the mastaba itself, and formed a kind of inner enclosure wall.¹⁴⁹⁵ It was built with a 4 on 1 slope on the outer side but had a vertical interior face. It measured some 3.00 m thick at its base, and was preserved to a height of some 1.90 m. A skin wall or dado was added on the outer face up to a height of 1.20 m, and the entirety of this wall was plastered with a white gypsum admixture. Emery's line drawings and plates show that both these enclosure walls were generally completed with a core of headers, while headers and stretchers were alternated along the internal and external faces of the wall. The

¹⁴⁹² Emery 1954, 129-130.

¹⁴⁹³ Emery 1958, 6-7.

¹⁴⁹⁴ Emery 1958, 6-7.

¹⁴⁹⁵ Emery 1958, 7.

preserved painting on the niched façade of the tomb indicates it was elaborately decorated using black, yellow, red, blue, and white.¹⁴⁹⁶

Tomb 3506 also possessed an enclosure wall.¹⁴⁹⁷ This wall measured 1.15 m thick, and the core of the wall was built using alternating courses of headers and stretchers. Unusually, the outer face of the wall was built exclusively using stretchers, according to Emery. It is plausible that these reflect later walls added after the initial construction. This wall surrounded not only the tomb itself, but also the boat pit just to the north. The main entrance to the project was located to the east, but a second entrance was also located to the south. A transverse wall of comparable length divides the boat pit from the rest of the mastaba complex, and a doorway between these two features was located in this wall near its eastern side. The entirety of these walls were plastered using a white gypsum plaster.¹⁴⁹⁸

Tomb 3507 possessed a thin outer enclosure wall, that in places still stood at its original height of 1.45 m on the structure's eastern side. It was covered with a white gypsum plaster, and Emery's line drawings and photos suggest it had a slight batter. At its base, it measured only 0.8 m wide, and it tapered to a width of 0.28 m at its apex.¹⁴⁹⁹ Tomb 3500 had an even less robust enclosure wall—it measured only 0.8 m high and was just 0.80 m wide on its northern and southern sides, though it was 1.28 m thick at its base on its eastern and western sides. Unlike other pyramids at Saqqara, only one entrance was located in the enclosure wall, on the south end of the west side.¹⁵⁰⁰ It was vertical in form, unlike later sloping examples from royal pyramids.

¹⁴⁹⁶ Emery 1958, 7.

¹⁴⁹⁷ Emery 1958, 40-41.

¹⁴⁹⁸ Emery 1958, 40-41.

¹⁴⁹⁹ Emery 1958, 75-76.

¹⁵⁰⁰ Emery 1958, 99-100.

Emery's plates do not show the enclosure wall clearly but based on comparisons with other nearby tombs it seems highly likely that it was plastered with white gypsum.¹⁵⁰¹

As noted above, excavators have noted fewer enclosure walls surrounding mastabas post-dating the 1st Dynasty. Plans of the 2nd Dynasty mastaba of Ruaben, or the famous 3rd mastaba of Hesyre (S2405) with its elaborate wooden panels and beautifully painted geometric motifs on its niched façade, seem to have possessed an enclosure wall.¹⁵⁰² It seems likely that many of these mastabas were more extensively decorated in both paint or other, perhaps wooden adornments, than extant preservation might suggest. Whether such elaborate decorations extended to the enclosure wall itself is unclear, though it seems highly likely that such enclosure walls were at least originally intended to be plastered.

There is some ambiguity as to whether the outer walls of a mastaba should be termed an enclosure wall. Earlier excavators certainly frequently referred to them as such,¹⁵⁰³ though they would not meet the earlier stated criterion of being free-standing walls independent of the structural integrity of the monument that they surround. Indeed, the outer walls were the primary factor that determined how well a mastaba's superstructure would hold its shape over time. Nonetheless, the niched façade of the outer walls of elite, 1st Dynasty mastabas deliberately recalled the form of contemporary royal funerary enclosures and perhaps helped to inspire the niched decorations of later pyramid enclosure walls rendered in stone.¹⁵⁰⁴ Just as importantly, elite mastabas were a crucial opportunity for Egyptian builders to experiment with construction techniques with structures that employed masses of brickwork. Wooden planks and reed matting

¹⁵⁰¹ Emery 1958, pl. 114-115.

¹⁵⁰² For Hesy, see Quibell 1913; For Ruaben, see Quibell 1923, Pl. I.

¹⁵⁰³ Emery consistently refers to the niched facades of the Early Dynastic mastabas he excavated at Saqqara as part of a mastaba enclosure, if not the enclosure wall.

¹⁵⁰⁴ O'Connor 2002.

are notable in the constructions of First Dynasty mastabas, at least as early as they are attested from royal tombs.¹⁵⁰⁵ Certainly, the construction of town walls or larger buildings in Egyptian settlements must have contributed as much, and perhaps more, to the knowledge of Egyptian architects and laborers, but the mudbrick mastabas of the Early Dynastic Period and Old Kingdom provided additional opportunities for experimentation. Generally speaking, I have excluded most of these mastabas from the kind of detailed discussion dedicated to freestanding enclosure walls; however, I will attempt to highlight where building techniques used in mastaba construction offer interesting parallels or contrasts to contemporary enclosure wall construction.

Additionally, changing tomb designs manifested new or challenging ideas about the afterlife, and political exigencies often dictated where elite officials could or should choose to be buried. For the purposes of this dissertation, architectural trends are most notable, though these frequently reflected underlying religious or political ideologies. The stark difference between the limestone funerary monuments of the pharaoh and his queens contrasted with the typically mudbrick superstructures of private funerary monuments during the periods covered by this dissertation. The use of a niched façade fell out of fashion as the Old Kingdom continued, and distinct enclosure walls for individual mastabas, already relatively unusual even in the Early Dynastic Period, became still more uncommon during the 3rd, 4th, 5th, and 6th Dynasties.¹⁵⁰⁶ Rock-cut *saff* tombs and family sepulchers are more frequently attested during the First Intermediate Period, while the new mastabas of the Middle Kingdom elite more frequently employed enclosure walls once more, at least on occasion at cemeteries like Lisht.¹⁵⁰⁷

¹⁵⁰⁵ La Loggia 2015, 44-123 lists a host of Early Dynastic tombs that make use of timber bonding in addition to using wooden beams for roofing slabs, as well as making use of reed matting.

¹⁵⁰⁶ Note the few examples from Giza and other later Old Kingdom royal necropolises, for example.

¹⁵⁰⁷ See the entry for Lisht, earlier in this appendix.

SEMNA WEST

Site Description: The site of Semna West was located on the west bank of the Nile, at the southern end of the Nile's Second Cataract.¹⁵⁰⁸ The fort was L-shaped, and heavily fortified. Like nearby Shalfak and Uronarti, its plan conformed somewhat to the local topography. The fortress walls enclosed an area of some 7856.5 m².¹⁵⁰⁹ The interior of the fortress had many of the same modules familiar from other Nubian fortresses: barracks like housing units, storage magazines, orthogonal street layouts, a command building, and heavily fortified chambered gateways.¹⁵¹⁰ The site was most extensively excavated by George Reisner over several seasons from 1924-1928, but Somers Clarke also described aspects of the fortress at an earlier visit to the site.¹⁵¹¹

Relevant Enclosure Walls and Technical Details: Semna West was heavily fortified, with fortification walls between 5 and 8 m thick, elaborate buttresses, and roughly 15 roughly T-shaped towers spaced along the outer walls to provide extra defense along the wall, near corners, and at either side of the entrances to the fort along its northern and southern sides.¹⁵¹² The walls were also defended by outer curtain walls, trenching, and a glacis.¹⁵¹³ Buttresses were added on its landward sides roughly every 2.5 m.¹⁵¹⁴ 32 x 14 x 8 cm bricks were used to construct the installations at the fortress, while timber cross beams and organic matting were employed roughly every five courses.¹⁵¹⁵ Granite chips were added in places to obtain a level foundation

¹⁵⁰⁸ Dunham 1960.

¹⁵⁰⁹ Vogel 2004, 259.

¹⁵¹⁰ Dunham 1960, 5-8.

¹⁵¹¹ Reisner 1925; Reisner 1929a; Reisner 1929b; Clarke 1916, 169-172.

¹⁵¹² Dunham 1960, Map III.

¹⁵¹³ Dunham 1960, 5-6, Map III.

¹⁵¹⁴ Vogel 2004, 260.

¹⁵¹⁵ Vogel 2004, 259; Dunham 1960, 5-6

for the fortresses walls.¹⁵¹⁶ The gateways were long, with entrance passageways roughly 16 m long at the north gate and 15 m at its southern counterpart.¹⁵¹⁷

SEMNA SOUTH

Site Description: Semna South was a citadel or small fortified outpost 1.5 km south of the Semna cataract, on the west bank of the Nile.¹⁵¹⁸ It was smaller than most of the other fortresses founded in Lower Nubia, measuring only 34.3 x 33 m.¹⁵¹⁹ Its foundation date within the 12th Dynasty is unclear—its square shape is reminiscent of earlier fortifications founded further north in Lower Nubia during the reign of Senwosret I, and sealings with motifs more characteristic of his reign suggest this was the likely foundation date.¹⁵²⁰ It was linked to Semna West or other fortress complexes by a large enclosure wall that extended over 1 km from the fortress, originating from its southeastern corner.¹⁵²¹ Only the 12th Dynasty is attested at the site, and Vogel suggests that this could be explained if its primary function was to serve as a base for military and construction personnel responsible for completing Semna West and Kumma nearby.¹⁵²² This would have rendered Semna South somewhat superfluous, and could help to explain its apparently relatively short occupation. Its abandonment seems unlikely to have occurred immediately, however, since abandoning Semna South would seemingly obviate the need for the large wall linking the fortress complex at Semna West with this installation.

Relevant Enclosure Walls and Technical Details: In contrast to Kumma across the river, the walls at Semna South were exceptionally thick and heavily defended by various ditches, curtain

¹⁵¹⁶ Dunham 1960, 5.

¹⁵¹⁷ Vogel 2004, 260.

¹⁵¹⁸ Zabkar 1972; Zabkar and Zabkar 1982.

¹⁵¹⁹ Zabkar and Zabkar 1982, 7. This figure measures only the internal dimensions of the fort however—the added walls would likely extend each side by some 9 m each.

¹⁵²⁰ Zabkar and Zabkar 1982, 14-15.

¹⁵²¹ Zabkar and Zabkar 1982, 8-9.

¹⁵²² Vogel 2004, 264-265.

walls, and other outworks. Despite its small size, Semna South's enclosure walls boast the broadest average width out of any of the Nubian fortresses, roughly 9 m in breadth.¹⁵²³ Vercoutter notes a 4 m wide outer curtain wall.¹⁵²⁴ The fort was completed using mudbrick, and Vercoutter notes a variety of brick sizes, ranging from 27-32 x 13-16 x 8-9 cm.¹⁵²⁵ The fortress was protected by towers at each corner. Vogel describes these as most probably cross shaped, though these installations were too destroyed to confirm this hypothesis.¹⁵²⁶ In a unique find among the Nubian fortresses, the corners of the fortress were consecrated with foundation deposits, including miniature ceramics and pearls.¹⁵²⁷ The walls were protected by a 6 m wide and 6 m deep ditch complete with a scarp and counterscarp.¹⁵²⁸ Remnants of further mudbrick screening walls were excavated and planned beyond the fort's dry moat.¹⁵²⁹ Granite slabs were used in parts to help clad the fortresses' glacis.¹⁵³⁰ A further wall stretched from the south corner of the screening wall and extended 40-80 m west of the fortress. This wall was founded upon a thick stone foundation (some 2 m deep) and was likely the beginning of a large outer wall that connected the fortress at Semna South with the fortress at Semna West.¹⁵³¹ Vercoutter believed that this great wall should be linked with the wall extending from Semna West toward Uronarti.¹⁵³² The purpose of this wall is unclear, but it seems logical that in the cataract regions control of easily accessible land routes between certain fortresses would have been of strategic

¹⁵²³ Vogel 2004, 264. Vercoutter gives an even larger figure of 12 m at their base: Vercoutter 1966, 127.

¹⁵²⁴ Vercoutter 1966, 127.

¹⁵²⁵ Vercoutter 1966, 127.

¹⁵²⁶ Vogel 2004, 264. Vercoutter suggests they were square shaped. Vercoutter 1966, 127.

¹⁵²⁷ Zabkar and Zabkar 1982, 11.

¹⁵²⁸ Vogel 2004, 264. Zabkar and Zabkar provide a different figure, noting a 4 m wide and 1.5 meter deep trench, but plans of the site suggest it was somewhat larger. Vercoutter suggests the trench was 7.5 meters wide: Vercoutter 1966, 127.

¹⁵²⁹ Zabkar and Zabkar 1982, 8-9, 12-13; Vogel 2004, 264-265.

¹⁵³⁰ Vogel 2004, 264.

¹⁵³¹ Vogel 2004, 264-265.

¹⁵³² Vercoutter 1966, 131.

interest to the ancient Egyptians. Dating this wall is complicated, but it certainly finds a parallel with the original wall stretching over 7 km from Aswan to Konosso, and a 12th Dynasty foundation seems highly probable.¹⁵³³

SERRA EAST

Site Description: Serra East is a site located on the east bank of the Nile River just north of the Second Cataract, near the sites of Akhsa and Faras.¹⁵³⁴ Serra East was most probably founded during the reign of Senwosret III and subsequently reoccupied and refurbished during the New Kingdom.¹⁵³⁵ The site was excavated over the course of several campaigns in the early 1960s by a team from the Oriental Institute, led by James Knustad.¹⁵³⁶ The fortress was rectilinear in plan, roughly 90 x 90-100 m, but it is unclear whether its western side was fully walled or whether the northern and southern walls simply extended to the edge of the Nile.¹⁵³⁷ Unfortunately, a modern railway prevented excavation in this part of the site. Within the fortress, Knustad and his team excavated housing units and storage areas.¹⁵³⁸ The site does not appear to have been built upon a level elevation, as Knustad describes two retaining walls of drystone were necessary to create a level terrace.¹⁵³⁹ Further to the west was a kind of stone basin that was no longer operational once the site was reoccupied in the New Kingdom. Knustad interprets it as a harbor, but it is not connected to the river, and Williams suggests that it could have served as a prison for high value military prisoners.¹⁵⁴⁰ The fortress itself was protected by a fosse cut into the local alluvium and

¹⁵³³ Zabkar and Zabkar 1982, 12-13; Vercoutter 1966, 131; Mills 1967-68, 206.

¹⁵³⁴ Knustad 1966; Williams 1999.

¹⁵³⁵ Williams 1999, 447. Knustad 1966, 172-175. Knustad does note that fragments of private seal impressions seem to bear the prenomen of Senwosret II, (Knustad 1966, 175), so it is possible the fortress was founded slightly earlier.

¹⁵³⁶ Knustad 1966.

¹⁵³⁷ Williams 1999, 447-448.

¹⁵³⁸ Knustad 1966, Plan 2.

¹⁵³⁹ Knustad 1966, 176.

¹⁵⁴⁰ Knustad 1966, 176-177; Williams 1999, 448-449.

bedrock, lined by angled bricks and faced with rocks where it cut through soil rather than the *gebel*. This ditch measured roughly five meters wide by two meters deep.¹⁵⁴¹ The entrance to the site is not entirely clear, though it seems most probable that there was a small postern gate or door in the eastern wall, and the main entrance was at its western, riverine side.¹⁵⁴²

Relevant Enclosure Walls: While Knudstad mentions retaining walls related to the upper terrace of the fortress, and there are stone embankments related to the enigmatic basin structure, the only freestanding enclosure walls known from the site are the curtain walls of the fortress itself.

Technical Details: Details about brick size and bricklaying patterns at the actual walls at Serra East are unfortunately not provided in Knudstad's preliminary report, but later publications by Bruce Beyer Williams greatly supplement this material.¹⁵⁴³ From Knudstad's plan and plates showing the Middle Kingdom levels of the fortress, it is apparent that there are many similarities between Serra East and other Second Cataract fortresses founded during the Middle Kingdom. Knudstad notes that the interior corners at Serra East were built using interlocking courses of brickwork and timber cribbing, just like at a similar installation he examined at Semna.¹⁵⁴⁴ The brickwork seems to have been carefully planned, laid primarily in stretchers with occasional header courses.¹⁵⁴⁵ The walls were built in sections, such that there were occasional vertical seams between the sections.¹⁵⁴⁶ The walls were not solid masses of brick: every seven to ten courses, reed mats were laid down.¹⁵⁴⁷ Timber frames were built into the structure, extending both laterally and longitudinally, and sometimes small vents were left within the brickwork that

¹⁵⁴¹ Williams 1999, 447-448.

¹⁵⁴² Williams 1999, 448; Knudstad 1999, 176.

¹⁵⁴³ Knudstad 1966; Williams 1999.

¹⁵⁴⁴ Knudstad 1966, 177.

¹⁵⁴⁵ Williams 1999, 448.

¹⁵⁴⁶ Williams 1999, 448.

¹⁵⁴⁷ Williams 1999, 448.

were only covered by plastering at the interior or exterior face.¹⁵⁴⁸ Knudstad suggests that while there were some differences, the construction of Serra East was broadly similar to that of Mirgissa.¹⁵⁴⁹ The walls of the fortress are well over 5 m thick, and bastions were added regularly every few meters.¹⁵⁵⁰ The fortress walls were built upon a foundation of stone chips and sand.¹⁵⁵¹ The buttresses were not bonded to the curtain walls, but timber beams did extend across the entirety of the fortification wall into these buttresses.¹⁵⁵² The exterior faces of the fortress walls were repeatedly re-plastered and whitewashed.¹⁵⁵³ During the New Kingdom, these walls were refurbished extensively.¹⁵⁵⁴

SHALFAK

Site Description: Located roughly 5 km northeast of Uronarti, Shalfak was originally constructed on the west bank of the Nile but after the construction of the High Dam at Aswan is now only partially preserved on a small island.¹⁵⁵⁵ The fortress was far smaller than the more rectilinear “plains” fortresses further to the north, and was built so that its plan conformed to the local topography. The enclosed area within the fortress measures roughly 1838 m².¹⁵⁵⁶ It was founded during the reign of Senwosret III. The fortress was first excavated by the Harvard University-Museum of Fine Arts Boston expedition in 1931, and excavations continue under the direction of Claudia Näser.¹⁵⁵⁷

¹⁵⁴⁸ Williams 1999, 448.

¹⁵⁴⁹ Knudstad 1966, 177.

¹⁵⁵⁰ Williams 1999, 448.

¹⁵⁵¹ Williams 1999, 448.

¹⁵⁵² Williams 1999, 448.

¹⁵⁵³ Williams 1999, 448.

¹⁵⁵⁴ Knudstad 1966, 172-173.

¹⁵⁵⁵ Näser et al. 2017, 153. For general publications, see Näser et al. 2017 and Dunham 1967.

¹⁵⁵⁶ Näser et al. 2017, 154.

¹⁵⁵⁷ Näser et al. 2017, Dunham 1967.

Relevant Enclosure Walls and Technical Details: The principal enclosure walls at the site are the fortress walls, together with their adjoining spur walls that extend to the north, east, and south. At the thickest portion of the wall, to the west of the gateway, these walls measured some 7.67 m thick, among the broadest of the fortification walls employed in Nubia.¹⁵⁵⁸ As is typical of Egyptian fortifications, the walls were constructed with sizable buttresses that were regularly spaced along the walls, and built using 31-33.5 x 16-17.5 x 9-10 cm mudbricks.¹⁵⁵⁹ The spur walls of the fortress offered additional protection and were substantial in size. The northeastern wall measured some 115 m long and is now largely submerged beneath the Nile. A 22 m long wall on the northwest side and an additional, 20 m long flanking wall to the southeast provided extra protection near a stairway leading to the river.¹⁵⁶⁰ Two gateways allowed for entrance into the fortress: a main gate on the fort's southwestern side, and a smaller passageway through the fort's northeastern enclosure wall allowed access to an exterior building complex.¹⁵⁶¹ The walls seem to have been plastered yellow.¹⁵⁶²

TARKHAN

Site Description: The site of Tarkhan is located about 60 km south of Cairo and was excavated by William Flinders Petrie between 1911 and 1912.¹⁵⁶³ The site is notable for the wide social range of deceased persons buried at the site. Generally, the wealthier burials cluster upon the hills, while the smaller pit graves and less robust tombs are located in the valley of the site.¹⁵⁶⁴

¹⁵⁵⁸ Näser et al. 2017, 156.

¹⁵⁵⁹ Näser et al. 2017, 157.

¹⁵⁶⁰ Dunham 1967, 119-120.

¹⁵⁶¹ Dunham 1967, 120-121.

¹⁵⁶² Näser et al. 2017, 163-165, figs. 12-13.

¹⁵⁶³ Grajetzki 2008, 113. For the original excavation reports, see Petrie, Wainwright, and Gardiner 1913, Petrie 1914, and Petrie 1915. See also Grajetzki 2004 for a general overview of the site.

¹⁵⁶⁴ Ellis 1992.

Relevant Enclosure Walls and Technical Details: Enclosure walls surrounding the larger First Dynasty mastabas 1060,¹⁵⁶⁵ 2038, and 2050¹⁵⁶⁶ received minimal attention from excavators and later researchers, so little information beyond their presence can be noted. All of these tombs possessed a palace façade, and it seems as though at one corner of mastaba 2038 the surrounding “fender wall” as Petrie termed it, was much thicker and hewed close to the palace façade niching of the mastaba superstructure itself.¹⁵⁶⁷ In the case of Mastaba 2038, Petrie describes brick sizes of 9.75 x 4.7 x 2.9 inches in both the mastaba and its small enclosure wall.¹⁵⁶⁸

TELL EL DAB’A

Site Description: Tell el Dab’a, or Avaris, is a sprawling settlement located in the Eastern Delta. The Austrian Archaeological Institute and the University of Vienna sponsored excavations at the site from 1966-1969 and from 1979 until the present.¹⁵⁶⁹ Avaris was initially founded as a planned settlement in the Nile Delta, part of a broader internal colonization effort initiated during the early Middle Kingdom.¹⁵⁷⁰ A further planned neighborhood and later a temple have been identified at the site of Ezbet Rushdi.¹⁵⁷¹ The site expanded dramatically, with more organic neighborhoods arising in areas F/1 and Area A/IV.¹⁵⁷² Given its location near Egypt’s northeastern frontier, it is perhaps unsurprising that Avaris became a hub for a large immigrant community of Levantine individuals.¹⁵⁷³ In addition to the broadroom and longroom temples in Area A/II that are obviously distinct from the tripartite sanctuaries traditionally favored at

¹⁵⁶⁵ Wainwright in Petrie, Wainwright, and Gardiner 1913, 13-20.

¹⁵⁶⁶ Petrie 1914, 3-8.

¹⁵⁶⁷ Petrie 1914, 4, plate XVIII.

¹⁵⁶⁸ Petrie 1914, 4.

¹⁵⁶⁹ Bietak 1996 provides a nice overview of the primary excavation areas at the site.

¹⁵⁷⁰ Czerny 1999, 133-135.

¹⁵⁷¹ Czerny 2015.

¹⁵⁷² Moeller 2016, 321-326 traces these developments at Avaris.

¹⁵⁷³ For a detailed analysis of a statue of a Levantine man that nonetheless uses Egyptian iconography as well, see Schiestl 2006.

contemporaneous Egyptian temples, the material culture at Avaris points to an influential population of Asiatics living and thriving at the site.¹⁵⁷⁴ With the collapse of the Middle Kingdom and the rise to power of the Hyksos Dynasty, Avaris served as a major royal center.¹⁵⁷⁵ Large palaces were completed at Ezbet Helmi and Area F/II.¹⁵⁷⁶ Avaris was conquered by Theban forces during the reign of Ahmose, reunifying Upper and Lower Egypt. New palaces were constructed, and Avaris continued to function as a major port and trading center, though it was eventually eclipsed by nearby Pi-Ramesses (modern Qantir).¹⁵⁷⁷

Relevant Enclosure Walls: As with any such large site, there are huge numbers of enclosure walls potentially relevant for this study. Several particularly salient examples include the Second Intermediate Period Town Wall, remnants of enclosure walls surrounding planned settlements in Area F/1 and Area R/1, and the outer walls of the temple in area R/I.¹⁵⁷⁸ In Area A/II, some of the outer walls of the various temples in this neighborhood could potentially be termed enclosure walls, though none are freestanding enclosures distinct from the outer walls of the temple itself.¹⁵⁷⁹ Aside from the town walls, one of the few other architectural features with a possibly defensive function is the Hyksos palace located in Area F/II.¹⁵⁸⁰ This palace was constructed upon thick casemate style platforms, with individual courtyards or building complexes oriented around a large tower.¹⁵⁸¹ No enclosure walls were identified associated with this structure, but given its apparent role as a palatial building and site of ritual offerings, it is very plausible that an enclosure wall of some kind delineated the structure and remains to be excavated. Geophysical

¹⁵⁷⁴ For these temples, see Bietak 1996, 36-48.

¹⁵⁷⁵ Bietak 1996.

¹⁵⁷⁶ Jánosi 1996; Bietak and Forstner-Müller 2006; Bietak et al. 2007.

¹⁵⁷⁷ For Pi-Ramesses and Avaris, see Bietak 1996, 82-83.

¹⁵⁷⁸ For area F/1, see Czerny 1999, 19-20. For Area R/1, see Czerny 2015, 92-93, 174-176.

¹⁵⁷⁹ Bietak 1996, fig. 30.

¹⁵⁸⁰ Bietak and Forstner-Müller 2006; Bietak et al. 2007.

¹⁵⁸¹ Bietak and Forstner-Müller 2006, 68-77.

surveys indicate that the building and its extensions covered some 8,000 m², only a small portion of which has been investigated thus far.¹⁵⁸² There was also a tower or outbuilding with thick walls located just north of Temple II—one of two temples in A/II that was built according to Near Eastern rather than Egyptian religious traditions.¹⁵⁸³ However, it seems more likely that this tower was a part of the broader religious complex.

Technical Details: The earliest enclosure wall known from Tell el Dab’a defines the northern limits of the planned settlement in area F/I.¹⁵⁸⁴ This community was orthogonally planned and large in size, extending at least 10,000 square meters.¹⁵⁸⁵ The earliest settlement known from Tell el Dab’a, it dates to the late 11th or early 12th Dynasty.¹⁵⁸⁶ The community’s southern and western limits have not yet been identified, and only the northern enclosure wall has been excavated.¹⁵⁸⁷ It was roughly four and a half bricks thick, measuring some 160 cm in breadth, though much of the wall was very poorly preserved. The bricks in the wall were the same size as those used to construct the internal housing units: 35-37 x 18 x 7-8 cm.¹⁵⁸⁸ Czerny describes the bricks as greenish yellow, consisting of a mix of sand and clay with added ash.¹⁵⁸⁹ A short stretch of a roughly 2.10 m wide wall was identified to the east, and Czerny notes that this could be the eastern limit of the enclosure wall, but notes that given the shoddy preservation and inconsistencies between the northern enclosure wall and this feature, it is possible that the actual enclosure wall was further to the east.¹⁵⁹⁰ The building excavated in the presumed northeastern corner may have had its own screening or enclosure wall given that no column bases or rosettes

¹⁵⁸² Bietak and Forstner-Müller 2006, 66.

¹⁵⁸³ Bietak 1996, fig. 30.

¹⁵⁸⁴ Czerny 1999, 17-20.

¹⁵⁸⁵ Czerny 1999, 17.

¹⁵⁸⁶ Czerny 1999, 133-135; Moeller 2016, 252.

¹⁵⁸⁷ Czerny 1999, 19-20, Abb. 2.

¹⁵⁸⁸ Czerny 1999, 19-20.

¹⁵⁸⁹ Czerny 1999, 19-20.

¹⁵⁹⁰ Czerny 1999, 20.

walls were identified in the space between this wall and an internal wall with a parallel orientation. The walls in this building used slightly larger, less sandy bricks (39-40 x 18-19 x 7 cm). This outer wall was only 80-85 cm thick, or roughly two bricks.¹⁵⁹¹

Excavations to the northeast at nearby Ezbet Rushdi revealed a second, slightly later planned community dating to the 12th Dynasty.¹⁵⁹² On its western side, this neighborhood was also bounded by an enclosure wall and it seems likely that this wall bounded the entire settlement.¹⁵⁹³ After the settlement was razed to allow for construction of a temple, the western enclosure wall of the temple precinct was completed just to the east of the earlier settlement enclosure wall.¹⁵⁹⁴ The northern entrance and pylon of the temple was completed directly overlying an older wall that likely should be seen as the northern part of the planned settlement enclosure wall, but it was impossible to definitively link this small northern preserved section of wall with the remains of the settlement enclosure wall to the west.¹⁵⁹⁵ The eastern limit of the settlement is unclear, but Czerny suggests that the later temple and settlement remains visible in the geophysical scan of the area were likely already bounded by an existing wall.¹⁵⁹⁶ The preserved remains of the western enclosure wall (M191) of the early planned settlement were completed using sandy mudbricks measuring 35-40 x 19-20 x 9-10 cm, and was six to six and a half bricks wide—or roughly 2.26 m thick.¹⁵⁹⁷ The wall was subsequently renewed, serving perhaps as a further enclosure wall to the temple complex. This later wall (M621) had almost identical dimensions: it was 2.28 m thick, and constructed using similar sandy bricks that were

¹⁵⁹¹ Czerny 1999, 20.

¹⁵⁹² Czerny 2015; Czerny 2010.

¹⁵⁹³ Czerny 2015, 31; Abb. 5A-5E; Czerny 2010, 71, fig. 2, 5-10. Czerny's reconstructions highlight that the other approximate dimensions of the planned community are unknown, however, so the presence of an enclosure wall is in large part inferred from limited excavated remains.

¹⁵⁹⁴ Czerny 2015, 92-93, and compare Abb. 5A-5E and Abb. 10; Czerny 2010, 71.

¹⁵⁹⁵ Czerny 2010, 72.

¹⁵⁹⁶ Czerny 2010, 72.

¹⁵⁹⁷ Czerny 2015, 176.

approximately 36-37 x 17-19 x 8-10 cm.¹⁵⁹⁸ Both walls were built with alternating courses of headers and stretchers as facing, while the internal core of the wall was almost entirely headers.¹⁵⁹⁹

The temple that was built atop part of the planned settlement had thick enclosure walls constructed using siltier mudbricks.¹⁶⁰⁰ Generally, larger bricks were employed in the construction of the temple and its enclosure walls than those used to construct other buildings in the vicinity of Area R/1. On its western, southern, and eastern sides, the temple enclosure wall measured 1.26-1.28 m thick and used quite large, 46-52 x 24-26 x 10-12 cm long bricks. Though this breadth varied from 1.06-1.30 m thick in certain places, likely due to ancient damage to the wall, the wall was generally two and a half bricks thick.¹⁶⁰¹ The front-facing pylon gateway was the thickest wall excavated in area R/1, measuring some 3.70 m thick at its foundations. The wall was built with sloped interior and exterior sides. The mudbricks typically measured 48 x 22-26 x 10-12 cm, and the wall was built using alternating headers and stretchers on its internal and external faces with a core comprised almost entirely of headers.¹⁶⁰²

The most substantial walls at Tell el Dab'a are the Second Intermediate Period Town walls, identified in parts of the northern, southern, and eastern margins of Avaris, though the site was not defended by a single contiguous fortification wall.¹⁶⁰³ Sections of a fortified town wall were excavated during the late 1980s during work at Ezbet Helmi.¹⁶⁰⁴ The same wall is also visible in magnetometry scans of the area extending to the east and must have measured at least

¹⁵⁹⁸ Czerny 2015, 176.

¹⁵⁹⁹ Czerny 2015, 174-176, Abb. 56.

¹⁶⁰⁰ Czerny 2015, 92-93, 176.

¹⁶⁰¹ Czerny 2015, 176.

¹⁶⁰² Czerny 2015, 176, Abb. 56.

¹⁶⁰³ Forstner-Müller 2013.

¹⁶⁰⁴ Forstner-Müller 2013, 241-243; Jánosi 1994, 28-30.

280 m long.¹⁶⁰⁵ This wall measured 6.20 m wide at its base, and its exterior face was sloped. The interior face of the wall was essentially vertical, and the wall was founded upon a foundation bed of yellow sand.¹⁶⁰⁶ 5.30 m wide bastions that project roughly 3.60 from the face of the wall were constructed at intervals of roughly 18.10 m.¹⁶⁰⁷ During a later phase, the wall was reinforced with a layer of bricks that filled the space between these bastions.¹⁶⁰⁸ To the south of the excavated enclosure wall, there was a garden area with numerous tree pits.¹⁶⁰⁹ This area was oriented to the course of the enclosure wall and not the later New Kingdom palaces in the Ezbet Helmi area.¹⁶¹⁰ It seems likely that the heavy fortifications along the Pelusiac branch of the Nile suggest that this was the area from which the Hyksos most expected an attack, and that these walls enclosed important administrative or palatial complexes during the Second Intermediate Period.¹⁶¹¹

Remnants of town walls have also been identified in magnetometry scans at the southern limits of the site, near the village of Ezzawin.¹⁶¹² A 30 m long magnetic anomaly aligned with the ancient course of the Nile was identified and auger drillings have confirmed that at least part of the installation was mudbrick, and not simply a sandy embankment used to create a levee—though this wall may have also served that function as well. Further scans have shown that this feature extends further to the east, south of the modern village of Tell el Dab’a.¹⁶¹³ Further fortifications are visible in magnetic imagery in the eastern part of Avaris, near the modern day

¹⁶⁰⁵ Forstner-Müller 2010, fig. 12; Forstner-Müller 2013, 242.

¹⁶⁰⁶ Jánosi 1994, 28.

¹⁶⁰⁷ Jánosi 1994, 28.

¹⁶⁰⁸ Jánosi 1994, 29.

¹⁶⁰⁹ Jánosi 1994, 30.

¹⁶¹⁰ Jánosi 1994, 29, abb. 8.

¹⁶¹¹ Forstner-Müller 2013, 247.

¹⁶¹² Forstner-Müller 2013, 244-245.

¹⁶¹³ Forstner-Müller 2013, 245.

villages of Ezbet Machali and Ezbet Mehesin.¹⁶¹⁴ Forstner-Müller interprets this part of the site as a suburban area located near a subsidiary branch of the Nile, and augur drillings once again confirmed that the magnetic anomaly is the result of mudbrick constructions.¹⁶¹⁵ In the absence of excavation, it is unclear whether these parts of the town walls would have been defended with the robust buttresses noted along the portions of the wall identified near Ezbet Helmi.

These walls are significant for numerous reasons—first, relative to earlier periods like the Late Old Kingdom, fewer town walls are archaeologically attested at urban sites from the Late Middle Kingdom or Second Intermediate Period. Second, the town walls at Avaris do not seem to have enclosed the entirety of the town, but instead reinforced certain areas deemed vulnerable.¹⁶¹⁶ This is not entirely surprising, since the sprawling urban expanse of Avaris during the Second Intermediate Period likely covered over 260 hectares.¹⁶¹⁷ Forstner-Müller suggests that some of these walls to the south and east may have also aided in protecting the lower lying areas of the settlement from high Nile floods.¹⁶¹⁸ The most robust defensive works of the city were concentrated near administrative centers and the Nile, highlighting the importance of naval engagements and naval supremacy during the wars between the 15th and 17th Dynasties.

TELL EL-FARKHA

Site Description: Tell el-Farkha is located roughly 120 km northeast of Cairo, on the northern outskirts of the village of Ghazala. First discovered in 1987, excavations have been ongoing at the site since 1998 under the auspices of the Polish Centre of Mediterranean Archaeology.¹⁶¹⁹

The site has been subdivided into three separate mounds or koms. The Western Kom had a suite

¹⁶¹⁴ Forstner-Müller 2013, 245-246.

¹⁶¹⁵ Forstner-Müller 2013, 245-246.

¹⁶¹⁶ Forstner-Müller 2013, 247.

¹⁶¹⁷ Forstner-Müller 2013, 241.

¹⁶¹⁸ Forstner-Müller 2013, 247.

¹⁶¹⁹ Chlodnicki in Chlodnicki et al. 2012, 9-15.

of cultic, administrative, and residential installations, including the earliest known breweries discovered in Lower Egypt.¹⁶²⁰ The Central Kom was originally thought to have only poorer housing, but larger residences and possibly administrative buildings have been revealed over the course of the last decade.¹⁶²¹ A cemetery was located on the southern part of the Eastern Kom, and elsewhere in this part of the site, a non-residential, non-sepulchral installation was identified in recent seasons and is the subject of ongoing investigation.¹⁶²² Seven phases of occupation have been identified, the earliest of which date to the Naqada IIB-C.¹⁶²³ In this phase, only the indigenous Lower Egyptian culture is present at the site. Phase 2 (Naqada IID1) reflects a period of cultural transition, while the Upper Egyptian Naqada emerges as dominant during Phases 3 (Naqada IID2-Naqada IIIA1) and Phase 4 (Naqada IIIA1-B). Phase 5 dates to the Protodynastic Period, Phase 6 to the Early Dynastic Period, and Phase 7 to Dynasties 3 and 4.¹⁶²⁴

Relevant Enclosure Walls: At least five installations at Tell el-Farkha possessed either an enclosure wall or very robust outer walls that demand some treatment here. In the cemetery on the southern part of the Eastern Kom, Grave 55 was surrounded by a small perimeter wall.¹⁶²⁵ An enigmatic building of unknown function at the edge of the Eastern Kom possessed roughly 1 m thick outer walls with rounded corners, constructed in mudbrick. Ciałowicz and Ludwin suggest that it may be either a fortification, an enclosure wall, or an attempt to help control and prevent excessive flooding from the Nile.¹⁶²⁶ The building had two entrances, and bricks were conserved to a height of 0.52 cm.¹⁶²⁷ On the Central Kom, mudbrick walls were eventually completed to

¹⁶²⁰ Ciałowicz in Chłodnicki et al. 2012, 149-180.

¹⁶²¹ Chłodnicki and Geming in Chłodnicki et al. 2012, 89-104; Chłodnicki in Chłodnicki et al. 2012, 105-114.

¹⁶²² For an overview of the cemetery, see Dębowska-Ludwin in Chłodnicki et al. 2012, 53-76. For the settlement remains, see Chłodnicki in Chłodnicki et al. 2012, 19-34.

¹⁶²³ Chłodnicki in Chłodnicki et al. 2012, 12, Table 1.

¹⁶²⁴ Chłodnicki in Chłodnicki et al. 2012, 12, Table 1.

¹⁶²⁵ Dębowska-Ludwin in Chłodnicki et al. 2012, 67-70.

¹⁶²⁶ Ciałowicz and Dębowska-Ludwin 2013, 29-30.

¹⁶²⁷ Ciałowicz and Dębowska-Ludwin 2013, 29.

help partition various parts of the tell.¹⁶²⁸ These walls date to some of the earlier preserved levels at Tell el-Farkha, when finds at the site reflect increasing contact with the Naqada culture, but still primarily reflect a local, indigenous Lower Egyptian culture.¹⁶²⁹ In particular, large mudbrick walls and remnants of wooden and reed fencing were excavated in the vicinity of a larger building that Chlodnicki and Geming term the “Lower Egyptian Residence.”¹⁶³⁰ On the Western Kom, fencing and later mudbrick enclosure walls surrounded the Lower Egyptian brewery complex, the so-called “Naqada Residence”, and helped delineate space within and around a cultic and administrative installation that was rebuilt atop the ruins of the “Naqada Residence.”¹⁶³¹

These walls are some of the earliest enclosures known from Egypt, and particularly in the Nile Delta where few sites have mudbrick architecture of the same scale or sophistication. Moreover, they demonstrate that the Lower Egyptian Culture of the Nile Delta was capable of constructing monumental edifices even in levels before extensive evidence of Upper Egyptian material culture was present.¹⁶³² Many of these walls had multiple phases, or were changed slightly as the complexes they surrounded or in which they were integrated developed over time. Indeed, during earlier phases, many of these walls seem to have been constructed out of wooden beams and reeds, and only traces of their trajectory have been preserved. Parts of the site appear

¹⁶²⁸ Chlodnicki and Geming in Chlodnicki et al. 2012, 92.

¹⁶²⁹ Chlodnicki and Geming in Chlodnicki et al. 2012, 89-97.

¹⁶³⁰ Chlodnicki and Geming in Chlodnicki et al. 2012, 92-95.

¹⁶³¹ For the fencing surrounding the brewery context, see Cialowicz in Chlodnicki et al. 2012, 149-151, 156-162. For the “Naqada Residence”, see Cialowicz in Chlodnicki et al. 2012, 164. These thicker walls may represent the outer walls of a building rather than a distinct enclosure wall. For the later cultic or administrative building built atop the ruins of the “Naqada Residence”, see Cialowicz in Chlodnicki et al. 2012, 171, and see also 178, fig. 26.

¹⁶³² See for example, the settlement partitions and remains of the “Lower Egyptian Residence” on the Central Kom: Chlodnicki and Geming in Chlodnicki et al. 2012, 92-97. See also the breweries from the Western Kom, detailed in Cialowicz in Chlodnicki et al. 2012, 149-162.

to have been fenced repeatedly, and only later were rebuilt using mudbricks.¹⁶³³ The absence of plans that depict the entirety of any of Tell el-Farkha's three koms make it difficult to ascertain if these enclosure walls were largely left in place, razed, or reoriented during later phases of occupation at the site during the 3rd and 4th Dynasty.

Technical Details: Grave 55 is located on the Eastern Kom, and dates to the Early Dynastic Period (Naqada IIIC2). It was relatively large (9.16 x 6.77 m in size), and consisted of a tomb with four chambers, a mudbrick superstructure, perimeter wall, and a nearby subsidiary burial. The structure was built using dark mudbricks “arranged in layers that created the core of the structure, covered with an extra wall of sand-and-mud bricks.”¹⁶³⁴ Reed matting was also used to help stabilize the structure, inserted every three layers.¹⁶³⁵ The perimeter wall itself was carefully constructed, roughly 0.30 m wide, and meticulously plastered, suggesting it was likely intended to be visible.¹⁶³⁶

Also on the Eastern Kom, an enigmatic building with 1 m thick walls was found over the course of excavations of a test trench near the edge of the kom.¹⁶³⁷ The one excavated room was 2.5 x 6 m in size, but it was likely part of a larger complex. As it did not have a burial chamber, it does not appear to be funerary in nature, and the lack of hearths associated with the feature have led excavators to suggest that it was likely not residential.¹⁶³⁸ It has tentatively been dated to the Naqada IID2/Naqada IIIA1 phase, but there was not enough ceramic material or small finds within the building to confirm this with certainty.¹⁶³⁹ Like many buildings at Tell el-

¹⁶³³ For example, Chłodnicki and Geming in Chłodnicki et al. 2012, 92-95, Ciałowicz in Chłodnicki et al. 2012, 149-151, 156-162.

¹⁶³⁴ Dębowska-Ludwin in Chłodnicki et al. 2012, 69-70.

¹⁶³⁵ Dębowska-Ludwin in Chłodnicki et al. 2012, 70.

¹⁶³⁶ Dębowska-Ludwin in Chłodnicki et al. 2012, 70.

¹⁶³⁷ Ciałowicz and Dębowska-Ludwin 2013, 29-30.

¹⁶³⁸ Ciałowicz and Dębowska-Ludwin 2013, 29.

¹⁶³⁹ Ciałowicz and Dębowska-Ludwin 2013, 29.

Farkha, it is oriented along a northwest-southeast axis. Two entrances allow ingress into the room, one along the northern wall and the other opposite along its southern counterpart.¹⁶⁴⁰ Like much of the monumental architecture at Tell el-Farkha, it had conspicuously rounded corners.¹⁶⁴¹ Whether this was an enclosure wall (seemingly unlikely given the small area enclosed), early defensive architecture, or simply a portion of a monumental mudbrick installation of unknown purpose, there are few parallels for this type of construction. Other examples at Tell el-Farkha have rounded corners, and the later temple complex at Tell Ibrahim Awad had similarly curved corners.¹⁶⁴²

Other parts of the tell indisputably possessed free-standing enclosure or partition walls. On the Central Kom, the settlement was separated into different zones that served different functions—according to Chlodnicki and Geming, “each zone was separated by a fence, originally made of wood and other organic material, and later by a thick mudbrick wall.”¹⁶⁴³ The western part of the settlement was residential, to the southeast was a neighborhood with small houses, and there were no solid constructions to the northeast.¹⁶⁴⁴ A double fence that was at least 20 x 25 m surrounded the “Lower Egyptian Residence” on the western edge of the Central Kom.¹⁶⁴⁵ Even if these early walls were built primarily of wood, and technically not large enough to fit within the parameters of enclosure walls included within this study, it is still notable that such features were used at an incredibly early date to help delineate internal boundaries within a settlement. Furthermore, it is significant that such a feature existed in Lower Egypt prior to extensive interaction with the Naqada culture from the south.¹⁶⁴⁶ These fences

¹⁶⁴⁰ Cialowicz and Dębowska-Ludwin 2013, 29.

¹⁶⁴¹ Cialowicz and Dębowska-Ludwin 2013, 29-33.

¹⁶⁴² Cialowicz and Dębowska-Ludwin 2013, 33; Eigner 2000, 164.

¹⁶⁴³ Chlodnicki and Geming in Chlodnicki et al. 2012, 92.

¹⁶⁴⁴ Chlodnicki and Geming in Chlodnicki et al. 2012, 92.

¹⁶⁴⁵ Chlodnicki and Geming in Chlodnicki et al. 2012, 92-95.

¹⁶⁴⁶ Cialowicz in Chlodnicki et al. 2012, 162.

were replaced by a thick mudbrick wall that measured 1.6 m thick at the base and 1.2-1.3 m thick at the top, though its full height was not preserved.¹⁶⁴⁷ It had slightly sloping sides, and used larger mudbricks near its base. The bricks were very large in size: 40 x 20 cm, while smaller 36 x 18 and 30-32 x 16 cm bricks were employed near the top of the wall. The bricks used greenish silt together with sand and straw.¹⁶⁴⁸ The wall was not especially well built, but rather, different bricklaying arrangements were used throughout the construction.¹⁶⁴⁹ Brick fragments and mud mortar were used to fill in gaps within the wall.¹⁶⁵⁰ In addition to controlling access to the building, the wall likely perhaps unintentionally helped to protect it from the Nile floods that frequently threatened the construction. Indeed, the western part seems to have been destroyed by a flood and the wall almost entirely washed away, save for the lowest 10-20 cms.¹⁶⁵¹ At its greatest height, the wall measured up to 80 cm in the south, and 60 cm in the north.¹⁶⁵² Buildings within the enclosure used similarly thick walls (and in parts may have been abutting or even bonded to the perimeter wall itself). A 1.2 m thick wall surrounded a 2.4 x 5.2 m room at the southwestern corner of the residence, and a later room was also added inside the southern edge of the enclosure that had comparably thick walls.¹⁶⁵³ Chlodnicki and Geming emphasize that these walls were designed to “separate different functional areas of the settlement” rather than to delineate specific buildings, and in times of emergency could have served as defensive walls due to their thickness.¹⁶⁵⁴ Two pear-shaped mace heads (one of bone and the other of

¹⁶⁴⁷ Chlodnicki and Geming in Chlodnicki et al. 2012, 95.

¹⁶⁴⁸ Chlodnicki and Geming in Chlodnicki et al. 2012, 95.

¹⁶⁴⁹ Chlodnicki and Geming in Chlodnicki et al. 2012, 95.

¹⁶⁵⁰ Chlodnicki and Geming in Chlodnicki et al. 2012, 95.

¹⁶⁵¹ Chlodnicki and Geming in Chlodnicki et al. 2012, 95.

¹⁶⁵² Chlodnicki and Geming in Chlodnicki et al. 2012, 95.

¹⁶⁵³ Chlodnicki and Geming in Chlodnicki et al. 2012, 95-96.

¹⁶⁵⁴ Chlodnicki and Geming in Chlodnicki et al. 2012, 96.

basalt) and four beads fashioned out of thin gold foil highlight the importance and unique nature of this building in the local landscape.¹⁶⁵⁵

Enclosures surrounded several constructions on the Western Kom. The earliest examples appear to have bordered the Lower Egyptian brewery complexes in particular. Remnants of parallel fences made of wood and organic material were traced along the northeastern border of the breweries.¹⁶⁵⁶ Further remnants of wooden fences were found to the southwest of the breweries, as well.¹⁶⁵⁷ These wooden fences were later replaced by mudbrick walls, similar to the examples on the Central Kom.¹⁶⁵⁸ Cialowicz suggests that these walls likely served to protect and delimit an important production area at the site.¹⁶⁵⁹ Furthermore, they were also likely an (often unsuccessful) attempt to help protect the brewery complex from the high Nile floods that repeatedly seem to have damaged the complex.¹⁶⁶⁰

The “Naqada Residence” on the Western Kom possessed outer walls, if not a clearly separate enclosure wall.¹⁶⁶¹ It dates to the earliest period of Tell el-Farkha’s interaction with Naqadan cultural elements and was damaged first by an earthquake, later destroyed as a result of fire, and subsequently flooded by the Nile.¹⁶⁶² The complex’s southern room measured 15 x 2 m and likely served as a warehouse, where one storage jar was almost certainly a south Levantine import, and it seems likely that the administrators of this building were involved with organizing and administering trade with the Levant and likely Upper Egypt as well.¹⁶⁶³ Only the eastern wall

¹⁶⁵⁵ Chlodnicki and Gering in Chlodnicki et al. 2012, 97.

¹⁶⁵⁶ Cialowicz in Chlodnicki et al. 2012, 149-150.

¹⁶⁵⁷ Cialowicz in Chlodnicki et al. 2012, 156, fig. 15.

¹⁶⁵⁸ Cialowicz in Chlodnicki et al. 2012, 156-162.

¹⁶⁵⁹ Cialowicz in Chlodnicki et al. 2012, 161-162.

¹⁶⁶⁰ Cialowicz in Chlodnicki et al. 2012, 162.

¹⁶⁶¹ Cialowicz in Chlodnicki et al. 2012, 164.

¹⁶⁶² Cialowicz in Chlodnicki et al. 2012, 165, 168.

¹⁶⁶³ Cialowicz in Chlodnicki et al. 2012, 164-165.

of the Naqada Residence has been completely excavated, but it was 1.4-1.6 m thick.¹⁶⁶⁴ This outer wall was far more robust than the 0.3-0.4 m wide internal walls of the building. Cialowicz suggests that the walls likely served a defensive purpose, or at least served to separate the building from the surrounding settlement.¹⁶⁶⁵ Following an earthquake, the settlement was quickly rebuilt, and its internal structure modified. A 2.5 m thick wall with a rounded corner toward the south separated the western part of the building from the eastern part of the complex.¹⁶⁶⁶ Most of the internal compartments of this installation were enclosed by mudbrick walls that were 1-2.5 m in breadth. It is unclear why the structure was rebuilt and expanded to a point where it covered over 500 m².¹⁶⁶⁷

Immediately above the destruction layer of the Naqada Residence, a new administrative and cultic complex was completed atop the Western Kom.¹⁶⁶⁸ The earliest phase was characterized by large 1.6 m thick walls that surrounded the northeastern, northwestern, and southeastern sides of an empty, roughly 8 x 8 m courtyard. These walls were not enclosure walls, per se, for they extended beyond the courtyard, and supported numerous smaller walls that formed internal rooms within the building.¹⁶⁶⁹ Outside the building, walls occasionally abutted the exterior face of the administrative-cultic complex.¹⁶⁷⁰

It is crucial to note that the Naqada Residence and later, the administrative-cultic complex built atop the ruins of this structure, did not have separate enclosure walls. Rather, thicker outer walls seem to have fulfilled many of the functions an independent, free-standing enclosure wall would normally assume—delimiting the building as distinct from the surrounding

¹⁶⁶⁴ Cialowicz in Chlodnicki et al. 2012, 164.

¹⁶⁶⁵ Cialowicz in Chlodnicki et al. 2012, 165.

¹⁶⁶⁶ Cialowicz in Chlodnicki et al. 2012, 164-165.

¹⁶⁶⁷ Cialowicz in Chlodnicki et al. 2012, 164-165.

¹⁶⁶⁸ Cialowicz in Chlodnicki et al. 2012, 171-180.

¹⁶⁶⁹ Cialowicz in Chlodnicki et al. 2012, 171.

¹⁶⁷⁰ Cialowicz in Chlodnicki et al. 2012, 178, fig. 26.

settlement, emphasizing the monumentality of the structure, and serving as defensive walls as circumstances demanded. Curiously, most of the free-standing enclosure walls and internal wall systems known from Tell el-Farkha either date to the earliest phases of occupation at the site. Only one later enclosure wall is definitively attested, the perimeter wall surrounding the monumental tomb superstructure of Grave 55 on the Eastern Kom.

TELL EL-YEHUDIYA

Site Description: Located northeast of Cairo, Tell el-Yehudiya was a strategic site guarding access to the Wadi Tumilat and trading routes with the Sinai and Asia. The site is known for the eponymous Tell el-Yehudiya ware, a series of distinctive ceramic forms common throughout much of the Levant and first identified by W.M.F. Petrie at this site.¹⁶⁷¹ Second Intermediate Period burials at the site also attest to a potential Hyksos occupation at Tell el-Yehudiya.¹⁶⁷² The site was reoccupied during the New Kingdom.¹⁶⁷³ Tell el-Yehudiya has been overbuilt extensively, and few enclosure walls were noted even by Petrie. Petrie's excavation methods and dating are certainly obsolete, but he notes one relevant installation that he describes as a "Hyksos camp."¹⁶⁷⁴

Relevant Enclosure Walls and Technical Details: The so called "Hyksos camp" at Tell el-Yehudiya was built atop a sand embankment measuring roughly 460 m square.¹⁶⁷⁵ Petrie describes an irregular embankment with sloped sides, with the exterior side plastered and whitewashed, entered from the east. The sand and earthen slopes were also supported by stepped mudbrick retaining walls on its exterior side, but apparently no walls defended the top of the

¹⁶⁷¹ Petrie 1906, 3, pl. V.

¹⁶⁷² Petrie 1906, 10-16.

¹⁶⁷³ Petrie 1906, 16-19.

¹⁶⁷⁴ Petrie 1906, 3-10, pls. II-IVa.

¹⁶⁷⁵ Petrie 1906, 5. Petrie states the north-south sides measured 1467-1536 feet, while the east-west sides were 1471-1562 feet.

camp—or had been razed or robbed away prior to any archaeological investigation.¹⁶⁷⁶ The slope of the embankment was very irregular and not consistent on each side. The interior side of the retaining wall holding up the earthworks was almost vertical in certain sections.¹⁶⁷⁷ Petrie describes bricks of widely varying sizes, suggesting that perhaps some of them were reused from nearby decaying or destroyed buildings.¹⁶⁷⁸ Remnants of a foundation trench for a stone wall were also noted beyond the base of the sloping embankment, but the stones had been entirely robbed away.¹⁶⁷⁹ I am unaware of any parallels to this structure in Egypt, and it is potentially a rare example of a Middle Bronze age style rampart or glacis in Egypt.¹⁶⁸⁰ I remain somewhat skeptical of Petrie’s identification of this installation’s date and function, but in the absence of additional archaeological data or photos, this remains a plausible working interpretation.

TELL ES-SAKAN

Site Description: Located some 5 km south of Gaza, Tell es-Sakan was the subject of salvage excavations following its unexpected discovery in 1998.¹⁶⁸¹ In addition to a later Canaanite occupation, the site revealed a substantial Egyptian colony that dates roughly primarily to Dynasty 0, with perhaps some material from the very early 1st Dynasty. Pottery and seal impressions of serekhs help to both date the site and attest to the Egyptian character of the material culture during the earliest occupation of Tell es-Sakan.¹⁶⁸² The site was divided into three parts, but only Chantier A revealed large amounts of Egyptian wares and small finds since the other excavations did not excavate as deep into the tell.¹⁶⁸³ Pierre de Miroschedji and his

¹⁶⁷⁶ Petrie 1906, 4-6, pl. III.

¹⁶⁷⁷ Petrie 1906, 6, pl. III.

¹⁶⁷⁸ Petrie 1906, 7.

¹⁶⁷⁹ Petrie 1906, 7-8.

¹⁶⁸⁰ For these constructions, see Burke 2008.

¹⁶⁸¹ de Miroschedji and Sadek 2000; de Miroschedji and Sadek 2001; de Miroschedji et al. 2001.

¹⁶⁸² de Miroschedji et al. 2001, 77-79.

¹⁶⁸³ de Miroschedji et al. 2001, 80-90.

team identify nine phases of occupation in this part of the site: four phases of which (A-8 through A-6) correspond to the Egyptian occupation of the site, while the latter five (A-5 through A-1) are linked to the subsequent Canaanite levels.¹⁶⁸⁴

Relevant Enclosure Walls: Three enclosure walls are known from Tell es-Sakan, termed by de Miroschedji walls A, B, and C.¹⁶⁸⁵ Wall C corresponds to level A-5, and thus later in the Early Bronze Age (likely EB III or very early EB IV), during a period when there was not a major Egyptian presence at the site. The earlier walls have been associated with level A-8, and appear to have been built during a period of Egyptian control at the site, and are the earliest known Egyptian monumental enclosure walls surrounding an entire settlement.¹⁶⁸⁶ Two phases of wall A have been identified, termed by de Miroschedji Wall A1 and Wall A2. Wall A2 appears to have been added just inside the initial construction of Wall A1, atop roughly 20-30 cm of occupational debris from phase A-8. Wall A2 is itself linked to level A-7 on the basis of several floor levels leaning against it. Later, these walls were torn down and a larger, more robust wall, Wall B, was completed slightly further to the west.¹⁶⁸⁷ De Miroschedji associates this wall with level A-6 on the basis of three successive floors that seal Wall A. Because the salvage excavations at Tell es-Sakan had limited time and resources, the path of these walls cannot be determined beyond the limits of the 525 m² area excavated by de Miroschedji and his team, but they all travel roughly along a northwest-southeast orientation.¹⁶⁸⁸ Wall A1 may have had a bastion associated with it just beyond the northwestern border of the excavation area, while de Miroschedji identifies a possible tower or bastion associated with Wall B together with a

¹⁶⁸⁴ de Miroschedji et al. 2001, 78-79.

¹⁶⁸⁵ de Miroschedji et al. 2001, 84, fig. 5-10.

¹⁶⁸⁶ de Miroschedji et al. 2001, 84.

¹⁶⁸⁷ de Miroschedji et al. 2001, 84

¹⁶⁸⁸ de Miroschedji and Sadek 2001, 32.

glacis.¹⁶⁸⁹ The collapse of Wall B onto the interior of the settlement effectively seal the latest strata linked to the final phase of Egyptian occupation at the site, A-6, from the later Canaanite levels.¹⁶⁹⁰ The progressively larger walls attest to the consolidation of an urban area over a somewhat lengthy occupation of the site, likely over the course of the late Predynastic and the beginnings of the Early Dynastic periods.¹⁶⁹¹

Construction Methods and Technical Details: In addition to being the earliest settlement enclosure walls excavated thus far at a site with Egyptian material culture, the walls at Tell es-Sakan possess several notable technical features. First, Wall A1 and Wall A2 use extremely large bricks, measuring some 55 x 30 x 10 cm in size.¹⁶⁹² No foundation trench was associated with either construction, as Wall A1 was founded upon natural sand, while Wall A2 was built directly against the internal face of Wall A1 atop accumulated occupational debris. Wall A2 appears to have been constructed to shore up Wall A1 and prevent it from toppling over inwards. Wall A1 was roughly 1.50 m in breadth, and was conserved to a height of roughly 1.50 m, while Wall A2's addition expanded the wall to a thickness of some 3.55 m. Debris seems to have been dumped over the wall, leading to sloped strata leaning against Wall A's exterior face.¹⁶⁹³

Wall B measured some 3.80 m thick and was preserved in some locations to a height of 1.80 m. The wall was built using large, red-brown bricks measuring 45 x 30 x 10 cm. Wall B appears more rectilinear, and less sloped than its predecessors. It likely was at least 5-6 m tall, an estimate made both on the basis of the original width of the wall as the quantity of brick collapse from this wall that seals level A-6 from later Canaanite levels of occupation at Tell es-

¹⁶⁸⁹ de Miorschedji et al. 2001, 84.

¹⁶⁹⁰ de Miorschedji and Sadek, 44.

¹⁶⁹¹ de Miorschedji and Sadek, 41-46; de Miorschedji et al. 90.

¹⁶⁹² de Miorschedji et al. 2001, 84.

¹⁶⁹³ de Miorschedji et al. 2001, 84, fig. 6.

Sakan.¹⁶⁹⁴ De Miroschedji's section drawing shows a substantial foundation trench, and Wall B was founded upon a base of lithified quartz sandstone blocks, resting upon the natural sand.¹⁶⁹⁵ De Miroschedji identifies a large bastion or tower on the external face of Wall B, perhaps associated with a postern entrance or gateway between two segments of the wall. More controversially, de Miroschedji states that a glacis helped protect the base of Wall B, and suggests that this feature was roughly 2 m high and at least 5 meters wide.¹⁶⁹⁶ Only small fragments of this feature are visible in photos at the site, and the next attestations of such a feature in Egyptian architecture date to the Middle Kingdom. Moreover, section drawings depicting the exterior of Wall B make the glacis look more like striated occupational debris rather than the less homogenous deposits of soil that would be expected at the base of a glacis.¹⁶⁹⁷ However, de Miroschedji's identification cannot be definitively disproved on the basis of the existing evidence; indeed, Tell es-Sakan was a frontier site where defensive architecture was perhaps more of a priority than at locations in the Nile Valley, and the stability problems that appear to have plagued Wall A may have also spurred the creation of such a glacis to help stabilize the edifice.

TELL IBRAHIM AWAD

Site Description: The site of Tell Ibrahim Awad is located 10 km north of Faqus in the eastern Nile Delta, and is best known for the Middle Kingdom and Old Kingdom temples excavated at the site in the late 1980s and early 1990s.¹⁶⁹⁸ Recent work at the site has also turned toward analyzing some of the tombs discovered in the surrounding area.¹⁶⁹⁹ Though there is widespread

¹⁶⁹⁴ de Miroschedji et al. 2001, 84, fig. 6.

¹⁶⁹⁵ de Miroschedji et al. 2001, 84.

¹⁶⁹⁶ de Miroschedji et al. 2001, 84; de Miroschedji and Sadek 2001, 34.

¹⁶⁹⁷ de Miroschedji et al. 2001, fig. 6.

¹⁶⁹⁸ Eigner 1992; van den Brink 1992; van Haarlem and Hikade 2006, van Haarlem 2005; Eigner 2000; Eigner 2007.

¹⁶⁹⁹ Phillips et al. 2009.

evidence of settlement debris throughout the site, only the temple area has been planned extensively.¹⁷⁰⁰ Six phases of occupation have been identified in the strata associated with the two sanctuaries, ranging from the early Middle Kingdom to Naqada IIIb.¹⁷⁰¹ The more recent temple dates to the Middle Kingdom, likely the late 11th Dynasty, while an earlier, “pre-formal” temple not dissimilar to other Old Kingdom temples at Elephantine and Medamud was first constructed during the 4th-5th Dynasties.¹⁷⁰² It appears that the surrounding settlement continued just adjacent to the Old Kingdom temple enclosure wall. Eigner suggests that remains of even earlier temples from the 1st Dynasty and even Dynasty 0 can be identified in earlier strata given the presence of a stone palette and a faience tile in Phase 5a-b.¹⁷⁰³

Relevant Enclosure Walls: Eigner describes several walls from 1st Dynasty and Dynasty 0 strata as enclosure walls (Phases 5 and 6). They are much thinner than later enclosure walls, though this is unsurprising given the early date of this phase.¹⁷⁰⁴ However, because the only area of the site to reach such early levels is the area directly beneath the Old Kingdom sanctuary, it is still perhaps premature to conclude that these walls are associated with the small installations identified in the same phase—they may be walls associated with a larger building rather than enclosure walls associated with the early temples. Regardless, the thinness of the walls distinguishes these walls from roughly contemporaneous enclosure walls at Tell es-Sakan.¹⁷⁰⁵ During the Old Kingdom, the sanctuary itself assumed a plan that recalls later Levantine broad-room temples.¹⁷⁰⁶ A separate enclosure wall protects the northern and western sides of the

¹⁷⁰⁰ See for example Eigner 2000 and Eigner 2007.

¹⁷⁰¹ Eigner 2000, 162-169.

¹⁷⁰² Eigner 2000, 164-166.

¹⁷⁰³ Eigner 2000, 167-168.

¹⁷⁰⁴ Eigner 2000, 167.

¹⁷⁰⁵ For Tell es-Sakan, see de Miroschedji and Sadek 2000, de Miroschedji and Sadek 2001, and de Miroschedji et al. 2001.

¹⁷⁰⁶ Eigner 2000, 164-166; Bietak 2010.

sanctuary, and helps to form the entry way on the eastern side of the temple, giving the structure roughly the form of the *h* hieroglyph. This enclosure wall was apparently rebuilt several times along roughly the same track surrounding the temple. In its initial phase, its northwestern corner was rounded, and only two and a half bricks (roughly 75 cm) wide on its western side.¹⁷⁰⁷ The wall along the temple's northern and eastern sides appears to be roughly three bricks wide, or 85-90 cm. Subsequent renovations added a square rather than rounded corner in the northwest. The bricks were variable in size, but tended to fall within the range of 27-31 x 13 cm.¹⁷⁰⁸

The Middle Kingdom sanctuary was larger, followed an East-West rather than North-South orientation. Eigner suggests the enclosure walls surrounded a large area south of the temple complex itself, but modern cultivation and a small irrigation canal have prevented the excavation of the western side of the temple, making it impossible to confirm this assumption.¹⁷⁰⁹ A series of soundings beyond the canal have allowed for a rough estimate of the size of the sanctuary, since one drill core revealed an absence of a layer of sand associated with the temple foundation that was present in the three other nearby soundings.¹⁷¹⁰ The Middle Kingdom enclosure walls thus enclosed a space that was roughly 35 m in breadth (N-S), but the E-W dimensions of the temple are not possible to identify securely. The bricks measure between 40-45 x 20-22 x 11-13 cm. On its northern side, the enclosure wall measured just over 2.04 m (4 Egyptian cubits) thick. Much smaller stretches of the enclosure wall have been excavated along the building's western and eastern sides, but it appears that the wall tapers to roughly 1.78 m (3.5 Egyptian cubits) at some point beyond 15 m to the west.¹⁷¹¹

¹⁷⁰⁷ Eigner 2000, 163-166. Eigner 2007, 93-96 evaluates the unusual plan of the complex.

¹⁷⁰⁸ Eigner 2000, 163-166. See also Eigner 2007, 85-89.

¹⁷⁰⁹ Eigner 1992, 69.

¹⁷¹⁰ Eigner 1992, 69-72.

¹⁷¹¹ Eigner 1992, 69-72, 74, 76-77.

URONARTI

Site Description: The fortress of Uronarti was founded during the reign of Senwosret III, on the northern portion of the island bearing the same name. It is located in the Second Cataract region of the Nile, some 4 km north of Semna.¹⁷¹² Together with Shalfak, it is one of two fortress installations in Lower Nubia that was not submerged following the construction of the Aswan High Dam.¹⁷¹³ It is roughly triangular in shape, measuring 57 x 114 x 126 m, with a 250 m long spur wall extending further to the north.¹⁷¹⁴ Wheeler’s excavations revealed a series of lower fortification walls surrounding kilns and other installations beyond the fortress walls.¹⁷¹⁵ In addition to smaller dwellings and huts, there was also a large structure that has been termed a “campaign palace” located near the southern tip of the island, but its function and date remain uncertain.¹⁷¹⁶ Together with Semna, Uronarti was also a site where Senwosret III ordered the establishment of a large border stela during his Regnal Year 16.¹⁷¹⁷ The fortress was first excavated by Wheeler and his team from the Boston MFA-Harvard expedition over the course of two seasons in 1928-29 and 1930, and excavations have recently been renewed by a team led by Laurel Bestock and Christian Knoblauch.¹⁷¹⁸

Relevant Enclosure Walls: Multiple sets of monumental walls at Uronarti warrant detailed discussions: first, there are the fortress enclosure walls themselves, together with the massive spur wall extending to the northeastern edge of the island, and a smaller L-shaped spur wall

¹⁷¹² Dunham 1967, 3-5.

¹⁷¹³ Bestock et al. 2013, 140-142. For Shalfak, see Näser et al. 2017.

¹⁷¹⁴ Dunham 1967, 4.

¹⁷¹⁵ Dunham 1967, 11, Map III.

¹⁷¹⁶ Dunham 1967, 22-30, Map II.

¹⁷¹⁷ For the Uronarti stela, see Janssen 1953. For additional data regarding the context of these border stelae, see Seidlmayer 2000 and Vogel 2011, 329-335.

¹⁷¹⁸ For Wheeler’s results, see Dunham 1967. For the more recent excavations at the site, see Bestock et al. 2013, Bestock and Knoblauch 2014, Bestock and Knoblauch 2015, and Bestock 2017.

stretching to the southeast from the corner of the fortress.¹⁷¹⁹ Second, a large wall reminiscent of examples connecting Semna West and Semna South and Aswan and Konosso extended southward towards Semna on the west bank of the river near Uronarti.¹⁷²⁰ Third, remains of a lower fortification wall with large, semicircular bastions reminiscent of the first phase of fortification walls at Buhen has been identified further to the south.¹⁷²¹ These were only traced over a short stretch, however.

Technical Details: My own participation in excavations at Uronarti in 2018-2019 allowed me to clarify some of the observations made by Wheeler and later published by Dunham.¹⁷²² In many respects, the fortress walls at Uronarti bear significant similarities to those of other Second Cataract fortresses. They are extremely wide, measuring up to 8 m thick in some places.¹⁷²³ The fortress was built primarily using mudbricks, roughly 31 x 16 x 8 cm in size. On the northern and western side of the fortress, reed matting was added after roughly every four courses. Throughout the south wall and at the main gate, and along the southern portion of the eastern, reed layers were laid every six courses or so. This sort of division seems to suggest some kind of division between phases or working groups constructing the edifice, as the consistency of the patterning within fortification walls and excepting the larger buttresses is easily visible. Large wooden beams were also added lengthwise and along a transverse orientation, though not in an especially orderly fashion. There seems in some cases to have been an effort to place the beams directly above a layer of reed matting, but this was only haphazardly followed. The faces of the

¹⁷¹⁹ Dunham 1967, 4-13.

¹⁷²⁰ Bestock et al. 2013, 138-139; Mills 1967-68, 206; Zabkar and Zabkar 1982, 12-13.

¹⁷²¹ Bestock et al. 2013, fig. 16; Dunham 1967, 11, Map III. For Buhen, see Emery et al. 1979, 5, pl. 2.

¹⁷²² Dunham 1967.

¹⁷²³ Vogel 2004, 251. This figure seemingly includes the width of the buttresses or perhaps even one of the larger towers.

walls tend to be alternating courses of headers and stretchers, with headers predominating in the center of the wall, cemented together with a thick application of silty mortar.

Views of the Uronarti walls reinforce the notion that large mudbrick walls were comprised of much more than mudbrick. Mortar comprised a huge part of any enclosure wall, and bricks may have been placed somewhat further apart in order to skimp on construction materials. In some ways, mortar might prove a more valuable indicator of phasing than the bricks themselves, since it needed to be fabricated on site as necessary. While bricks throughout the main fortress are largely similar, with minimal sand, temper, or organic and ceramic inclusions, the mortar binding courses of bricks together at the southeast spur wall was much more gravelly, with small pebbles, rock chips, and sand. The north spur wall mortar also had more rock chips than the mortar binding walls at the main fortress, though it has noticeably fewer inclusions than the mortar of the southeast spur wall. Wooden beams seem to have been slotted into the fortress walls somewhat haphazardly—even at highly planned sites like the Second Cataract fortresses, monumental mudbrick construction was as much an art as a science. In one location, sherds from a broken beer jar appear to have been added above a layer of reed matting as a kind of makeshift levelling course. While great care was taken with the foundations, efforts were undertaken to avoid vertical joins, and layers of reeds or brush were added at regular intervals together with an internal framework of transversely placed timber beams, the internal placement of bricks was often modified on a seemingly *ad hoc* basis.

Like other Second Cataract fortresses, the walls of Uronarti were bolstered by buttresses along the exterior of the wall, and large towers and bastions protected the corners of the fortress, gateways to the north and south, and various points along the northern spur wall and the northern wall of the fortress itself. Thick walls formed a massive gateway at the main entrance to the fort,

near the center of its southern wall. Generally speaking, these seem to have been bonded to the main fortification wall itself. The fort was entered along the southwestern and northeastern sides, and these passageways were protected by robust gatehouses. Like at Semna West, the towers extending from the wall itself were roughly T-shaped in form.¹⁷²⁴ The placement of timber and reeds in these walls seems more irregular: at a buttress near the southern end of the western wall, layers of reeds are placed at intervals of every five courses and then every four higher up the wall. It is unclear if this particular element was a later addition, not actually bonded to the fortification walls, or if this is a rare area of the fortress where the regular placement of courses of reeds was interrupted.

While much research remains to be done, one of the more striking elements of Uronarti's fortifications is the use of large fieldstone terracing. While the Second Cataract fortresses do tend to conform to the local topography more than plains-style fortresses like Buhen or Mirgissa, the effort required to retain the massive mudbrick walls at Uronarti against the steeply sloping mountain side appears to have been enormous. At least some of the walls on the east side of the fortress were constructed directly upon bedrock, perhaps a necessity given the steep escarpment on this side of the island. Terracing was used near the river stairway, and larger terracing efforts occurred on the western side where it seems possible that the bedrock slopes downward somewhat. Many of these courses within fieldstone terraces were joined with a mud mortar, and in some cases, mudbricks are visible cladding the base of the wall, presumably for extra stability. Excavations during the 2019 season at Uronarti in Wheeler's Room 5, located at the southwestern corner of the fortress, seem to have revealed phases of stratigraphy associated with construction of the room. A trench in the center of the room revealed a deep layer of sand atop a

¹⁷²⁴ For Semna West, see Dunham 1960; Vogel 2004, 259-263.

layer rich with organic debris, and timber, perhaps remains of scaffolding or shaving beams for placement in the enclosure wall. Regardless, the deep layer of sand suggests that in some places, the slope of Uronarti was filled in to provide a level surface for constructing the internal features of the fortress. Even at sites that largely conform to the local environment, significant efforts were necessary to prepare certain areas for the foundation of huge mudbrick enclosure walls.

Parts of the lower fortification walls were revealed to the southeast. This wall was far thinner (less than three meters at its base) and built in at least three phases, presumably after the completion of the southeast spur wall. An initial roughly rectilinear phase was completed first, followed by a steeply sloped addition on the internal side of this wall, and finally, a kind of mudbrick glacis or shallow embankment that seems to clad the base of the second phase. The internal face of the first and second phases of the wall was plastered white, while remains of yellow plaster were still visible on the external face of the first phase of the lower fortification wall. The bricks and mortar of this construction did not differ dramatically from those of the main fortress, though the mortar is noticeably siltier and contains fewer inclusions than that of the southeast spur wall. Evidence of extensive re-plastering is visible, suggesting that these outer walls were, unsurprisingly, a target of regular maintenance.

In addition to the fortress itself, parts of a substantial wall stretching some 4.5 km toward the Semna fortress complex further to the southwest were briefly investigated by A.J. Mills during salvage excavations in the 1960s and revisited by Bestock and Knoblauch in recent years.¹⁷²⁵ This wall was some 2.5 m thick, and perhaps would have helped to protect communications and supply lines between these two border fortresses. Although this wall was largely built in mudbrick, there was at least one section crossing a wadi where crude, unhewn

¹⁷²⁵ Mills 1967-68, 206; Zabkar and Zabkar 1982, 12-13; Bestock et al. 2013, 38-39; Bestock and Knoblauch 2014, 35

drystone architecture was used and the wall was widened somewhat.¹⁷²⁶ Small watch towers seem to have been present at the tops of local hills. The Uronarti Regional Archaeological Project has begun a desert survey that reconfirmed the position of surviving portions of this wall on a series of excursions to various sites near Semna in January, 2019.¹⁷²⁷ Courses of mudbrick were barely preserved near the base of some fieldstone walls, and it is possible that the wall itself was flanked by loosely defined trails or roads.

WADI ES-SEBUA

Site Description: Better known for the later New Kingdom temple associated with the site, a walled C-Group village at Wadi es-Sebua was also excavated as part of salvage excavations in 1965.¹⁷²⁸ The perimeter wall of this village is roughly semicircular, since the western side of the enclosure is protected by a cliff face. Within the wall are numerous drystone constructions, some directly against the enclosure itself, often using more rounded or curved walls than typically expected with Egyptian architecture.¹⁷²⁹ The village can be entered from small entrances to the north and south, but the main, slightly baffled entrance is located on its eastern side.¹⁷³⁰ The enclosure wall is roughly 100 m long, 1.5-2 m high, though possibly higher in antiquity, and roughly 1.2-1.4 m in width at its base (tapering to 80 cm at its highest preserved points). 32 loopholes were found preserved within the wall, roughly 1-1.1 m above the ground, but it is likely that there were further examples that have since collapsed.¹⁷³¹ The dry-stone architecture of the enclosure wall together with the installations inside are reminiscent of settlements at Wadi

¹⁷²⁶ Mills 1967-68, 206.

¹⁷²⁷ Levine et al. 2019.

¹⁷²⁸ Sauneron 1965; Sauneron 1981; Sauneron and Jacquet 2005; Liszka 2017.

¹⁷²⁹ Sauneron and Jacquet 2005, 322-338. Liszka notes the use of sloping stone courses, which she identifies as typical of C-Group architecture: Liszka 2017, 37-42.

¹⁷³⁰ Sauneron and Jacquet 2005, 326-328.

¹⁷³¹ Sauneron and Jacquet 2005, 326, 328-329. Liszka views these loopholes instead as simply windows: Liszka 2017, 47.

Maghara and Wadi el-Hudi, but particular parallels have been drawn between the site and other desert fortresses; nonetheless, it is typically described as a kind of C-Group type-site.¹⁷³²

WADI MAGHARA

Site Description and Relevant Enclosure Walls: Wadi Maghara was a mining site utilized during the Old Kingdom and Middle Kingdom in South Sinai.¹⁷³³ In addition to the mines themselves and various royal stelae placed in the vicinity of the site by expeditions from the 4th, 5th, and 12th Dynasties, a village was noted by Petrie and later Chartier-Raymond.¹⁷³⁴ The village was protected by a small drystone enclosure wall that appears to have been roughly 2 m high.¹⁷³⁵ The numerous rock shelters and houses constructed within the village are agglutinated and often border the wall itself. The village was reached from the north by a stairway that descended into the wadi below.¹⁷³⁶

WADI EL-NATRUN

Site Description: Well-known from textual sources and a key source of natron in both ancient and modern times, few remains from the Pharaonic period have been excavated at Wadi Natrun.¹⁷³⁷ One exception is a small fortress discovered in 1933 as a result of digging by the Salt and Soda Company, and later investigated by Ahmed Fakhry.¹⁷³⁸ Unfortunately, by the time of Fakhry's arrival, most of the fortress had already been dismantled, many of the bricks removed and used for fertilizer, and the easily accessible small finds had been looted.¹⁷³⁹ Fakhry identified

¹⁷³² Liszka 2017, 37-42.

¹⁷³³ Chartier-Raymond 1988; Petrie 1906.

¹⁷³⁴ Chartier-Raymond 1988; Petrie 1906, 37-40.

¹⁷³⁵ Chartier-Raymond 1988, 17.

¹⁷³⁶ Chartier-Raymond 1988, 17-18.

¹⁷³⁷ Fakhry 1941.

¹⁷³⁸ Fakhry 1941, 845-848, pl. CXIV.

¹⁷³⁹ Fakhry 1941, 845-846, pl. CXIV.

the site as a fortress with an associated temple inside its walls. The granite gateway of the temple was partially preserved upon Fakhry's arrival at the site in 1939, and he was able to identify a cartouche of *shꜥtp-jb-rꜥ* on the right door jamb.¹⁷⁴⁰ This would seem to suggest that at least some of the activities at the site can be dated to the reign of Amenemhet I. Much of the southwestern side of the complex was too damaged to recover a plan.¹⁷⁴¹

Relevant Enclosure Walls: The temple gate way was located near the center of the “fortress”. The complex that housed the inscribed doorjambs and lintels was 59.20 x 47.40 m.¹⁷⁴² Fakhry describes an enclosure wall that had already been heavily damaged by illicit digging seeking mudbricks for fertilizer, but it is unclear if this was distinct from the mudbrick walls surrounding the temple complex.¹⁷⁴³ Fakhry's plans of the site would suggest that there was a 1-2 m enclosure wall that surrounded the site, and he notes the presence of a defensive ditch 1.20 m beyond this wall.¹⁷⁴⁴ The interior of the fortress appears to clearly have been orthogonally planned, and at least in Fakhry's plan recalls other state-planned settlements from the early Middle Kingdom, particularly Qasr el-Sagha and Ezbet Rushdi.¹⁷⁴⁵

ZAWIYET EL-ARYAN

Site Description: South of Giza, the site of Zawiyet el-Aryan is best known for the so-called Layer Pyramid and the Unfinished pyramid of Baka or Nebka.¹⁷⁴⁶ In addition to these monuments, there are also nearby mastaba fields. The dating of this monument remains problematic, but it seems likely that the Layer Pyramid was completed at the behest of a mid 3rd

¹⁷⁴⁰ Fakhry 1941, 846.

¹⁷⁴¹ Fakhry 1941, 846, pl. CXIV.

¹⁷⁴² Fakhry 1941, 845-846, pl. CXIV.

¹⁷⁴³ Fakhry 1941, 845-846.

¹⁷⁴⁴ Fakhry 1941, 845.

¹⁷⁴⁵ For Qasr el-Sagha, see Śliwa 1986 and Śliwa 1992; for Ezbet Rushdi, see Czerny 2010.

¹⁷⁴⁶ For the Layer Pyramid, see Dodson 2000. For the Unfinished Pyramid, see Dodson 1985.

Dynasty Pharaoh.¹⁷⁴⁷ No enclosure walls have been noted at the site, but it is notable that the construction technique of the pyramid itself, wherein blocks of stone were added in sloping vertical layers, is highly reminiscent not only of other 3rd Dynasty pyramids but of the kinds of oblique accretion walls known from Egyptian enclosure wall construction throughout the third millennium BCE.¹⁷⁴⁸ No trace of an enclosure wall was found near this structure, but a large enclosure did surround the Unfinished Pyramid.¹⁷⁴⁹ Scant details were recorded by Barsanti, who focused his excavations on clearing the pyramid itself.¹⁷⁵⁰ The dating of this pyramid remains unclear though most scholars suggest a 4th Dynasty assignation.¹⁷⁵¹ As one might expect from its name, the monument was left largely unfinished.

Relevant Enclosure Walls and Technical Details: While excavating the Unfinished Pyramid, Barsanti delegated 50 workers to clearing the sand from within the pyramid enclosure, a work which took some eight days.¹⁷⁵² He describes the presence of a 2.10 m wide enclosure wall that he suggests was built entirely of stone and helped prevent flooding from rain falling on the neighboring cliffs.¹⁷⁵³ The wall enclosed a space roughly 400 x 500 m in size.¹⁷⁵⁴

DESERT FORTRESSES IN LOWER NUBIA AND HARBOR INSTALLATIONS ON THE RED SEA COAST

The harbor installations at sites like **Wadi el-Jarf**, **Ayn Soukhna**, and **Mersa Gawasis** were only occupied temporarily, as the point where expeditions embarked for the eastern coast of

¹⁷⁴⁷ Dodson 2000, 88-90; Lehner 1997, 95.

¹⁷⁴⁸ See Lehner 1997, 218.

¹⁷⁴⁹ Barsanti 1906, 265.

¹⁷⁵⁰ Barsanti 1906; Barsanti 1907.

¹⁷⁵¹ Dodson 1985; Strouhal and Nemeckova 2006.

¹⁷⁵² Barsanti 1907, 206.

¹⁷⁵³ Maragioglio and Rinaldi 1967, 16-17 .Barsanti 1906, 265.

¹⁷⁵⁴ Lauer 1962, 21. Maragioglio and Rinaldi suggest it was 420 m east-west by 465 m north-south according to Barsanti's sketches.

the Red Sea, or further south along the Sudanese or Eritrean coast.¹⁷⁵⁵ While the Egyptians took precautions to safeguard the boats and storage material stowed in caves near these sites, no evidence of substantial dry-stone enclosure walls have been identified at these sites. That said, there are anomalous structures at sites like Mersa Gawasis, and later, Gebel Zeit. At Mersa Gawasis, “Feature 4” consists of an oval shaped enclosure wall “built with rocks of fossil coral.”¹⁷⁵⁶ This 0.5-1.0 m thick wall surrounded a small horseshoe shaped installation that post-dates the enclosure wall, and has been associated with maritime activities since fragments of a limestone anchor were found in a hole near the entrance to the structure, but its plan recalls later *ad hoc* shrines at other expedition sites like **Gebel Zeit**.¹⁷⁵⁷ Pragmatism appears to have guided the choice of stone at both sites, as the sanctuary at Gebel Zeit was constructed using locally available, poor quality limestone.

The relative absence of defensive architecture is a marked contrast to Middle Kingdom outposts that were seasonally occupied during mining expeditions to Lower Nubia, southeast of Elephantine. Five sites in particular stand out: namely Wadi el-Hudi, El Hisnein West and El Hisnein East, and Dihmit North and Dihmit South. These complexes seem to have been used to safeguard and shelter personnel and equipment during an expedition, as well as to provide a space where mineral ore could be processed. All five “fortresses” possess a drystone perimeter wall completed with the kind of rudimentary defensive architecture well known from other Egyptian fortresses and citadels from the late Old Kingdom and Middle Kingdom.

¹⁷⁵⁵ For Wadi el-Jarf, see Marouard and Tallet 2016; for Ayn Soukhna, see el-Raziq et al. 2012, el-Raziq et al. 2011, and el-Raziq et al. 2016; for Mersa Gawasis, see Bard and Fattovich 2018; Bard and Fattovich 2012.

¹⁷⁵⁶ Bard and Fattovich et al. 2007, 41-42; Bard and Fattovich 2011, 111-12.

¹⁷⁵⁷ Castel et al. 1984-1985, 99-101, fig. 1.

WADI EL-HUDI

Site Description: Wadi el-Hudi is the largest and best known of these installations, having been excavated and surveyed on multiple occasions throughout the 20th and 21st centuries.¹⁷⁵⁸ It is located in the Eastern Desert, some 35 km southeast of Aswan. Recently, the site was the subject of salvage excavations led by Kate Liszka.¹⁷⁵⁹ In addition to the fortress, a nearby hilltop settlement 1 km to the north was also protected by a dry-stone enclosure wall. This settlement was protected with a roughly 1 m thick dry-stone enclosure wall that was preserved to a height of up to 2 m in some locations.¹⁷⁶⁰ In addition to sorting areas for processing mineral ore, some 40 dry-stone shelters have been identified within the settlement. Both Shaw and Liszka have suggested that the architecture at the settlement site in particular is reminiscent of C-Group settlements.¹⁷⁶¹ The fortress was roughly square in plan, with a large, roughly trapezoidal annex added to its eastern side. In total, the perimeter wall enclosed an area of roughly 3600 m².¹⁷⁶² The phasing of the fortress remains unclear—it is uncertain if it was originally built on a roughly rectangular plan and then divided with a large internal wall, or if it was initially built in a square shape and subsequently extended.¹⁷⁶³ Inscriptions in the vicinity of the site together with pottery from the fortress suggest a 12th Dynasty foundation for the fortress.¹⁷⁶⁴

Construction Methods and Technical Details: As at many other desert sites, the fortress and settlement enclosure walls were completed using locally available dry stones. The wall at the fortress was roughly 1 m at the base, tapering to perhaps 0.5 m at the top.¹⁷⁶⁵ Loopholes or

¹⁷⁵⁸ Shaw and Jameson 1993; Liszka 2015; Liszka 2017a; Liszka 2018; Fakhry 1952; Sadek 1980; Sadek 1985

¹⁷⁵⁹ Liszka 2015; Liszka 2017a; Liszka 2018.

¹⁷⁶⁰ Shaw and Jameson 1993, 86-88; Liszka 2017a, 18-20.

¹⁷⁶¹ Shaw and Jameson 1993, 96; Liszka 2017b, 42-50.

¹⁷⁶² Harrell and Mittelstadt 2015, 31, Table 1.

¹⁷⁶³ Shaw and Jameson 1993, 91-92.

¹⁷⁶⁴ For the inscriptions, see Fakhry 1952, Sadek 1980, and Sadek 1985. For a brief discussion of the ceramic evidence, see Shaw and Jameson 1993, 96.

¹⁷⁶⁵ Harrell and Mittelstadt 2015, Table 1; Shaw and Jameson 1993, 88.

windows allowed for additional protection, and Shaw postulates that a ledge found along the northern wall may have served as a kind of platform that allowed the occupants of the fortress to peer over the wall itself.¹⁷⁶⁶ The bastions at the site were not built to identical sizes, but all have a roughly rounded, U-shaped form, and protrude roughly 3 m from the edge of the enclosure wall.¹⁷⁶⁷ Near the largest internal building, Shaw's "Building A", the builders appear to have left an open space between the enclosure wall and the building itself. Though Shaw suggests this is a kind of *pomoerium*, other constructions in the fort directly abut the drystone perimeter wall.¹⁷⁶⁸ On the southern and western side, walls stood to a height of some 2.1m, which Shaw suggests approached their original height.¹⁷⁶⁹ Rounded bastions at each corner would have provided additional stability at the corners of the fortress, as well as serving as watchtowers or firing platforms.¹⁷⁷⁰ Entrances were located near the center of the eastern and northern walls. On the eastern side, bastions guarded each side of the gateway, while two projecting walls form a baffled entrance on the northern side of the complex.¹⁷⁷¹

Far less is known about the settlement enclosure at Wadi el-Hudi, but it appears to have been smaller and did not possess defensive features like loopholes or bastions like its more fortified counterpart to the south.¹⁷⁷² Shelters seem to have been constructed directly against the wall, and Shaw notes several large, horseshoe shaped drystone features that perhaps served as additional windbreakers within the settlement area.¹⁷⁷³ The architecture in this settlement is reminiscent of more indigenous Lower Nubian houses than the more rectilinear construction of

¹⁷⁶⁶ Shaw and Jameson 1993, 88-89.

¹⁷⁶⁷ Shaw and Jameson 1993, 88-89; Harrell and Mittelstadt 2015, Table 1.

¹⁷⁶⁸ Shaw and Jameson 1993, 88.

¹⁷⁶⁹ Shaw and Jameson 1993, 88.

¹⁷⁷⁰ Shaw and Jameson 1993, 88-89.

¹⁷⁷¹ Shaw and Jameson 1993, 88-89.

¹⁷⁷² Liszka interprets these features as windows rather than loopholes or arrow slits: Liszka 2017b, 39-41.

¹⁷⁷³ Shaw and Jameson 1993, 87-88.

Building A in the fortress.¹⁷⁷⁴ The 1 m thick dry-stone wall also recalls enclosure walls from other seasonally occupied settlements associated with mining in the Sinai—namely, Wadi Maghara.¹⁷⁷⁵

EL-HISNEIN EAST AND EL-HISNEIN WEST

Site Description: The twin fortresses at el-Hisnein East and el-Hisnein west are only 700 m apart, some 20 km southwest of Wadi el-Hudi and roughly 29 km southeast of Elephantine.¹⁷⁷⁶ El Hisnein East is broadly similar to the fortress at Wadi el-Hudi—it is comparable in size, roughly 3800 m², with similar features of defensive architecture. Harrell and Mittelstadt identify a military barracks near the northern corner of the fort, where there is a rectangular vestibule that allows entry into two elongated interior rooms.¹⁷⁷⁷ Circular stone shelters are found at various points in el-Hisnein East, paralleling comparable installations at Wadi el-Hudi and Wadi es-Sebua.¹⁷⁷⁸

Harrell and Mittelstadt note that the site of el-Hisnein West “hardly deserves the appellation ‘fort’.”¹⁷⁷⁹ A perimeter wall encloses a substantially larger area than any of the other dry-stone forts from lower Nubia, and it possesses a bastioned inner citadel, some 30 x 17 m in size. Harrell and Mittelstadt suggest that the walls of this inner fort could only have attained a height of some 1.5 m, however.¹⁷⁸⁰ The builders of the el-Hisnein West fort installation incorporated a felsite dike into the fort’s perimeter wall, effectively protecting its eastern and

¹⁷⁷⁴ Shaw and Jameson 1993, 96; Liszka 2017b.

¹⁷⁷⁵ Shaw and Jameson 1993, 96. For Wadi Maghara, see Chartier-Raymond 1988 and Chartier-Raymond et al. 1994.

¹⁷⁷⁶ Harrell and Mittelstadt 2015, 30.

¹⁷⁷⁷ Harrell and Mittelstadt 2015, 31.

¹⁷⁷⁸ Harrell and Mittelstadt 2015, 31-32.

¹⁷⁷⁹ Harrell and Mittelstadt 2015, 32.

¹⁷⁸⁰ Harrell and Mittelstadt 2015, 32.

southern sides. Local stones were added to the felsite dike on the southern side, since it was less robust than its counterpart to the east.¹⁷⁸¹

Relevant Enclosure Walls: The perimeter wall at el-Hisnein East reached a height of some 2 m, and was approximately 240 m long, built using locally available stone.¹⁷⁸² Two bastions protect the entrance to the fort's gate near its northern corner. The bastions at the fortress are not standardized in size, but are semi-circular and extend roughly 3 m from the perimeter wall.¹⁷⁸³ The perimeter wall was roughly 1 m at its base, tapering towards the top of the wall.¹⁷⁸⁴

At el-Hisnein West, the perimeter wall is roughly 415 m long in total, including the parts comprised of felsite dikes east and south of the fort.¹⁷⁸⁵ However, despite the presence of bastions on the northern and western sides of the wall, it was only 1-1.5 m high and roughly 0.3 m in breadth—hardly sizable enough to serve as anything beyond a minor inconvenience in the face of a determined attacker. The use of natural topography, in this case the wall-like igneous rock formations to the south and east, demonstrates the resourcefulness and pragmatism of el-Hisnein West's builders.¹⁷⁸⁶

DIHMIT NORTH

Site Description: 12.5 km south-southeast of el-Hisnein is the smaller fortress of Dihmit North. It is the smallest of the five desert forts southeast of Aswan, roughly 2000 m².¹⁷⁸⁷ The walls at the fortress lack windows and bastions. A large rectilinear building occupies most of the interior space in the fort, and there are traces of a smaller, less complex construction just to the north

¹⁷⁸¹ Harrell and Mittelstadt 2015, 32-33.

¹⁷⁸² Harrell and Mittelstadt 2015, 31-33.

¹⁷⁸³ Harrell and Mittelstadt 2015, 31.

¹⁷⁸⁴ Harrell and Mittelstadt 2015, 31, Table 1.

¹⁷⁸⁵ Harrell and Mittelstadt 2015, 31, Table 1.

¹⁷⁸⁶ Harrell and Mittelstadt 2015, 30-33, 37-38.

¹⁷⁸⁷ Harrell and Mittelstadt 2015, 33, Table 1.

within the perimeter wall. The perimeter walls at this fort were roughly 2 m high and 1 m thick at the base, and constructed using locally available stone.¹⁷⁸⁸

DIHMIT SOUTH

Site Description: Dihmit South is 6 km southwest of Dihmit North. It is one of the largest of the desert fort installations; its perimeter wall encloses an area of roughly 5900 m².¹⁷⁸⁹ The fortress was roughly trapezoidal in shape, with bastions and loopholes comparable to el-Hisnein East and Wadi el-Hudi. Two large installations are clearly visible in satellite images of the site.¹⁷⁹⁰ A number of houses have been discovered outside of the fortress, and a cleared pathway some 3-4 m in width was found to the north and west of the fortress. The function of the large buildings within the fortress remains unknown.¹⁷⁹¹ Beyond the enclosure wall of the fortress, a single line of stones stretches around much of the eastern, northern, and western sides of the complex. Its purpose remains unclear, but Harrell and Mittelstaedt suggest that this might perhaps have been part of a now destroyed or never completed curtain wall.¹⁷⁹²

Relevant Enclosure Walls: The enclosure wall at Dihmit South is taller than at the other Eastern Desert fortresses, reaching 2.4 m in height in some locations.¹⁷⁹³ It possesses similar U-shaped bastions, with windows about 1 m high spaced irregularly throughout the sections between them.¹⁷⁹⁴ The bastions are similar in size (extending roughly 3 m from the wall) to other examples from Wadi el-Hudi. Larger, chiseled, and roughly rectangular blocks were used to fortify the structural integrity of the gate complex on the southern side.¹⁷⁹⁵ Harrell and

¹⁷⁸⁸ Harrell and Mittelstadt 2015, Table 1, 33-34.

¹⁷⁸⁹ Harrell and Mittelstadt 2015, Table 1, 34-37.

¹⁷⁹⁰ Harrell and Mittelstadt 2015, 35, pl. 12.

¹⁷⁹¹ Harrell and Mittelstadt 2015, 34.

¹⁷⁹² Harrell and Mittelstadt 2015, 34.

¹⁷⁹³ Harrell and Mittelstadt 2015, 34.

¹⁷⁹⁴ Harrell and Mittelstadt 2015, Table 1, 34, 37.

¹⁷⁹⁵ Harrell and Mittelstadt 2015, Table 1, 34, 37.

Mittelstaedt note that the width and height of these walls generally approximate the measurements of the New Kingdom cubit, but also note that the height of the perimeter wall approximates the height that individuals can easily lift relatively large stones.¹⁷⁹⁶ However, through the use of ladders or scaffolding, higher walls could have been created if deemed necessary. It is unclear if the dimensions of these fortresses were planned extensively. The defensive nature of the perimeter wall seems evident given the bastions and “loopholes” within the enclosure wall, reinforced gate complexes, and the frequent presence of an open space between the walls and interior buildings within Dihmit South.¹⁷⁹⁷ The small size of the fortifications and the potentially seasonal occupation of this fortress would problematize this identification somewhat, however.

ADDITIONAL SITES IN MIDDLE EGYPT

The site of **Asyut** was an important settlement that played an important role in the conflicts between the Herakleopolitan and Theban polities during the First Intermediate Period, and later demarcated the boundary between the 17th Dynasty Kings and their Hyksos neighbors further to the north.¹⁷⁹⁸ The prominent role that the city played in these military conflicts makes it likely that fortifications of some kind, or at least a citadel, were present at the site in antiquity.¹⁷⁹⁹ Such a hypothesis is strengthened by the presence of relatively bellicose tomb inscriptions and wall paintings in the tombs of First Intermediate Period monarchs buried at the site’s necropolis.¹⁸⁰⁰ Unfortunately, the settlement associated with the necropolis has never been excavated and is likely obscured by modern constructions and fields. Thus, no physical enclosure

¹⁷⁹⁶ Harrell and Mittelstadt 2015, 37.

¹⁷⁹⁷ Harrell and Mittelstadt 2015, 34-37.

¹⁷⁹⁸ Beinlich 1975. For archaeological evidence of this border at Cusae during the Second Intermediate Period, see Bourriau 1999.

¹⁷⁹⁹ Beinlich in Helck and Otto 1975, 489-495; Spanel 2001.

¹⁸⁰⁰ Khadragy 2008.

walls have ever been excavated at the site, and even earlier travelers do not seem to have remarked upon their presence in the local landscape.

Roughly 40 km southeast of Asyut, the site of **Qau el-Kebir** served as capital of the 10th Upper Egyptian nome. The site is best known for the massive rock-cut tombs of the Middle Kingdom nomarchs and the large, generally well-equipped cemetery of First Intermediate graves further to the south.¹⁸⁰¹ Unfortunately, the provincial townsites has not been preserved, and there are no monumental, free-standing enclosure walls distinct from the outer walls of the Middle Kingdom tomb complexes. At **Armant**, blocks from the Middle Kingdom temple have been discovered, reused as part of later installations at the site.¹⁸⁰² However, it has thus far been impossible to reconstruct the plan of the Middle Kingdom temple, and therefore the role of any earlier enclosure walls at the site remains unclear. Similarly, there is ample evidence from stelae and the nearby rock-cut tombs at el-Hawawish to suggest activity at **Akhmim** during the Old Kingdom, First Intermediate Period, and Middle Kingdom, but the modern settlement has likely covered the ancient remains.¹⁸⁰³

The settlement of **Zawyet Sultan** (Zawiyet el-Meitin), just under 7.5 km southeast of Minya, possesses occupational debris and architectural remnants comparable to other Old Kingdom urban sites.¹⁸⁰⁴ There are remains of a large Greco-Roman wall running on an approximately North-South orientation. Though no enclosure walls that can be dated to the timeframe of this study have been identified, it is significant that surface pottery collected in the vicinity of these exposures during survey seasons in 1999, 2000, and 2001 suggests that an

¹⁸⁰¹ For an overview of the site, see D'Amicone 1999 and Petrie 1930.

¹⁸⁰² Thiers 2014; Werner 2001; Eggebrecht in Helck and Otto 1975, 435-441.

¹⁸⁰³ Naguib Kanawati has extensively documented many of the tombs of El-Hawawish: Kanawati 1980-1992; for Akhmim more generally, see Kanawati 1992, Brovarski 1985, and Kuhlmann 1983.

¹⁸⁰⁴ Moeller 2005; Moeller 2016, 217-218.

earlier settlement was expanded during the Late Old Kingdom.¹⁸⁰⁵ Near the southern edge of the site, beyond the Old Kingdom mastabas, two Old Kingdom exposures revealed the presence of two building complexes which were associated with 5th-6th Dynasty pottery.¹⁸⁰⁶ In addition to remains of the stone foundations of a New Kingdom temple towards the northern margins of the site, a large late 3rd/early 4th Dynasty Step Pyramid is present just to the southeast, hinting at an earlier occupation of the site.¹⁸⁰⁷

¹⁸⁰⁵ Moeller 2005, 29, 32-37.

¹⁸⁰⁶ Moeller 2005, 35-36.

¹⁸⁰⁷ Moeller 2005, 29.

APPENDIX B: DRAWINGS OF DIAGNOSTIC CERAMICS FROM STRATA RELATED TO EDFU'S ENCLOSURE WALLS

The drawings from Zone 4 (Plates 1-9) were selected, drawn, and inked by Oren Siegel. Those examples from Zone 3 (Plates 10-24) were drawn by Julia Górecka and analyzed by Valérie le Provost.

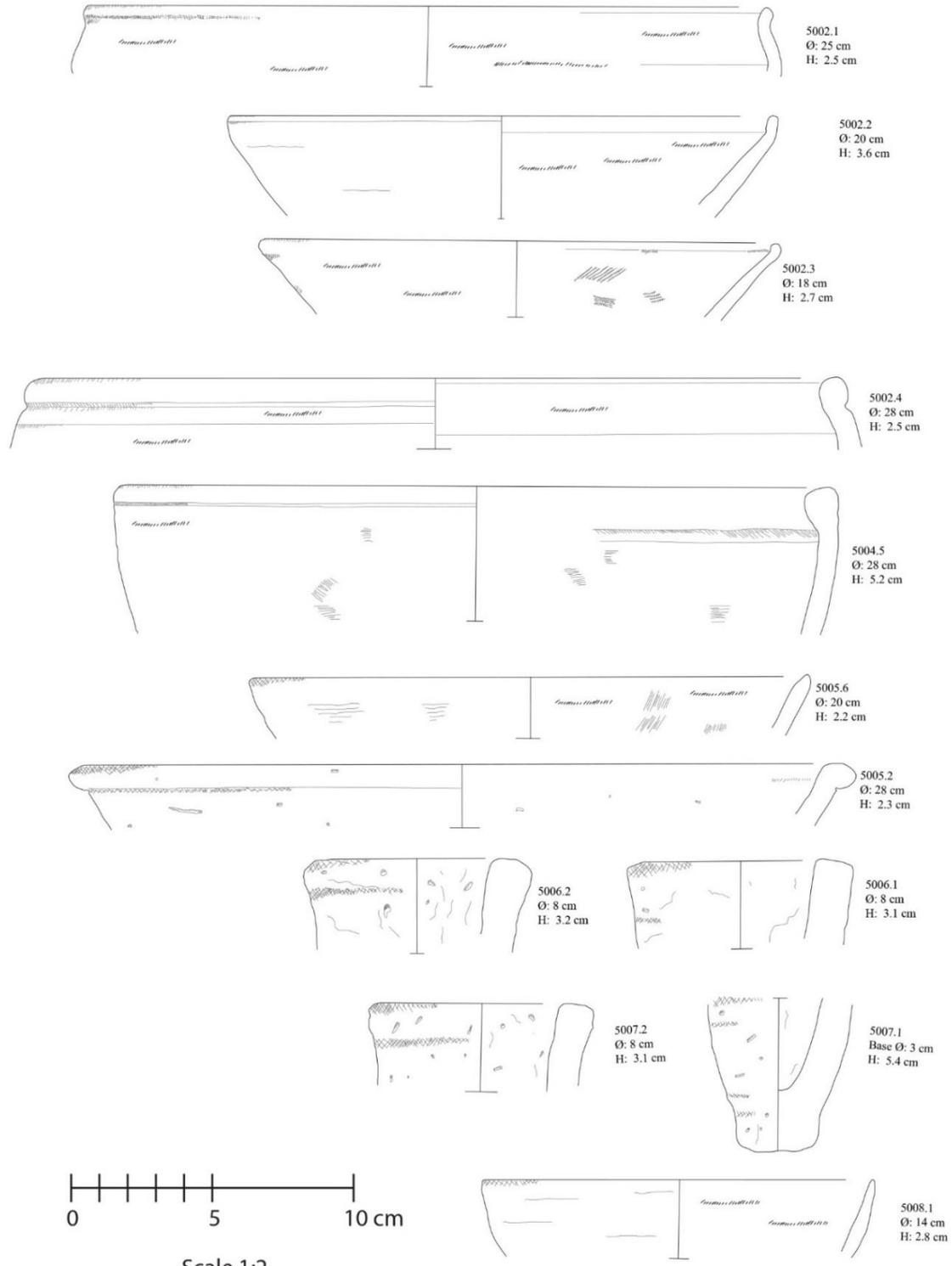
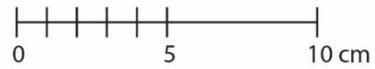
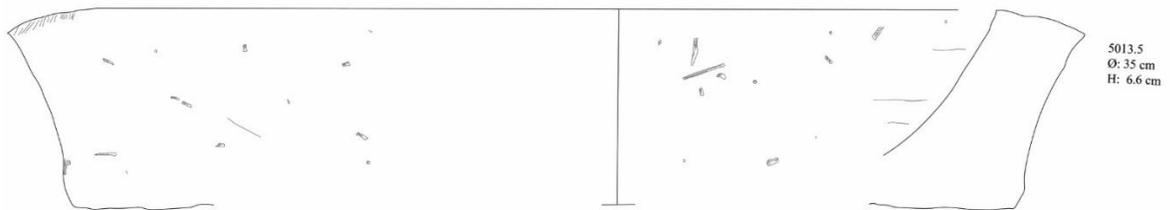
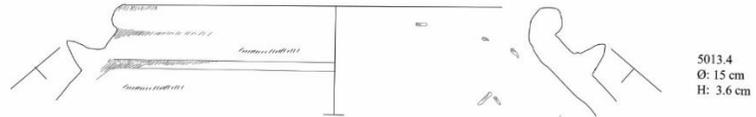
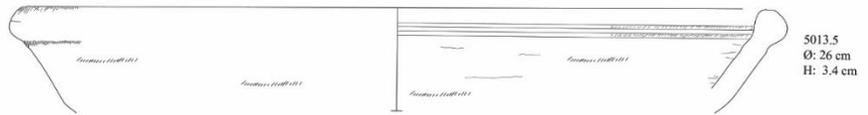
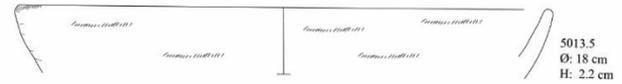
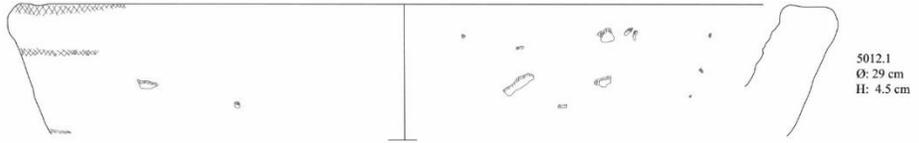


Plate 1: US 5002, 5004, 5005, 5006, 5007, and 5008

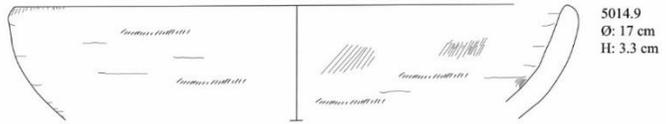
Plate 1: US 5002, 5004, 5005, 5006, 5007, and 5008



Scale 1:2

Plate 2: US 5011, 5012, and 5013

Plate 2: US 5011, 5012, and 5013



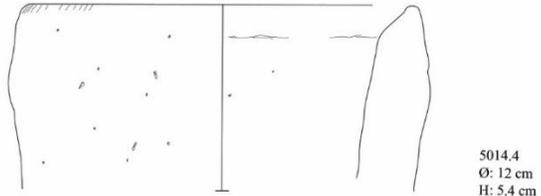
5014.9
Ø: 17 cm
H: 3.3 cm



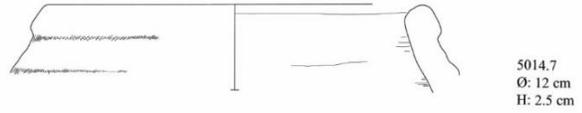
5014.1
Ø: 14 cm
H: 1.7 cm



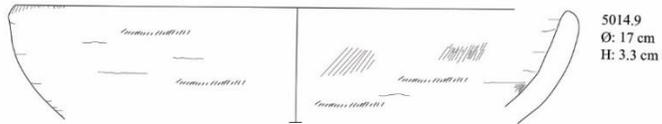
5014.6
Ø: 22 cm
H: 2.5 cm



5014.4
Ø: 12 cm
H: 5.4 cm



5014.7
Ø: 12 cm
H: 2.5 cm



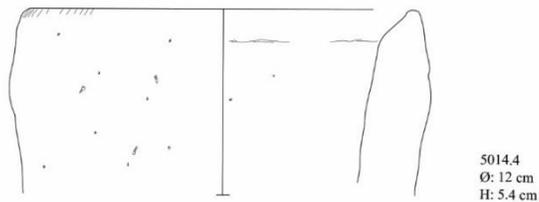
5014.9
Ø: 17 cm
H: 3.3 cm



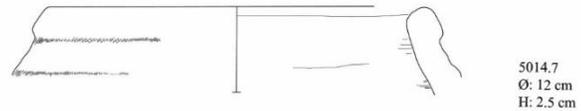
5014.1
Ø: 14 cm
H: 1.7 cm



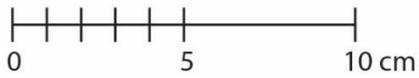
5014.6
Ø: 22 cm
H: 2.5 cm



5014.4
Ø: 12 cm
H: 5.4 cm



5014.7
Ø: 12 cm
H: 2.5 cm



Scale 1:2

Plate 3: US 5014

Plate 3: US 5014

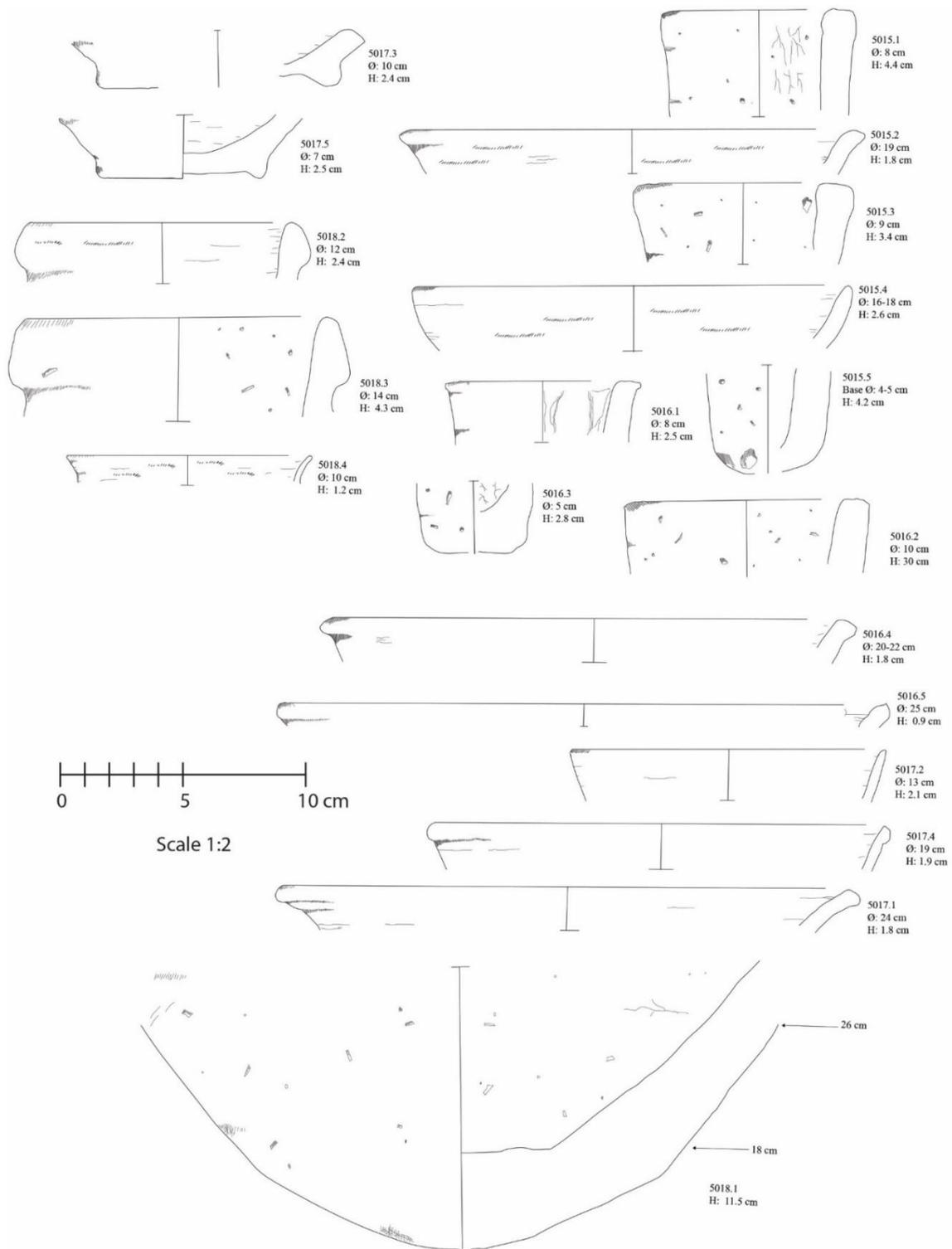


Plate 4: US 5015, 5016, 5017, and 5018

Plate 4: US 5015, 5016, 5017, and 5018

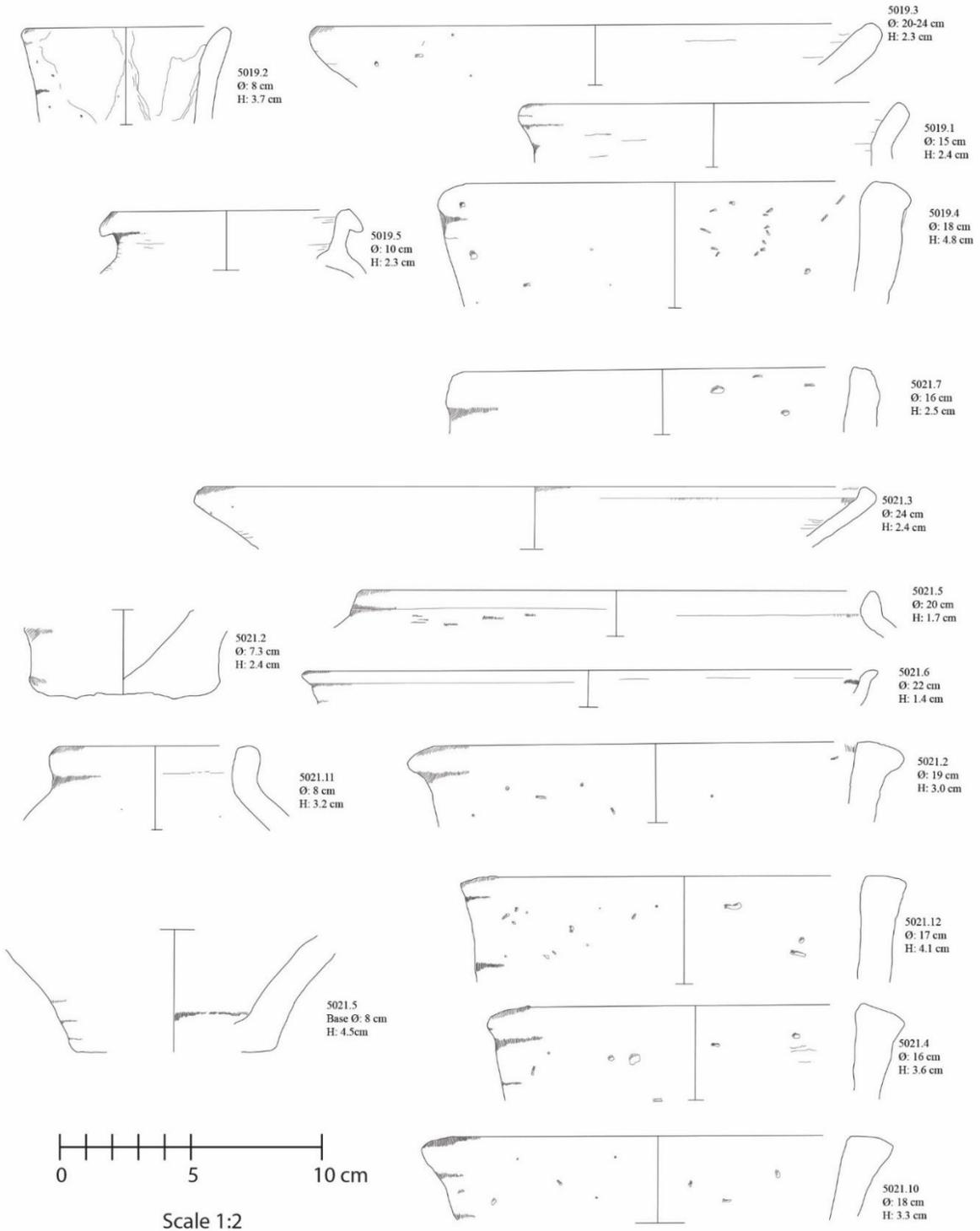
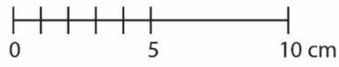


Plate 5: US 5019 and US 5021

Plate 5: US 5019 and 5021



Scale 1:2

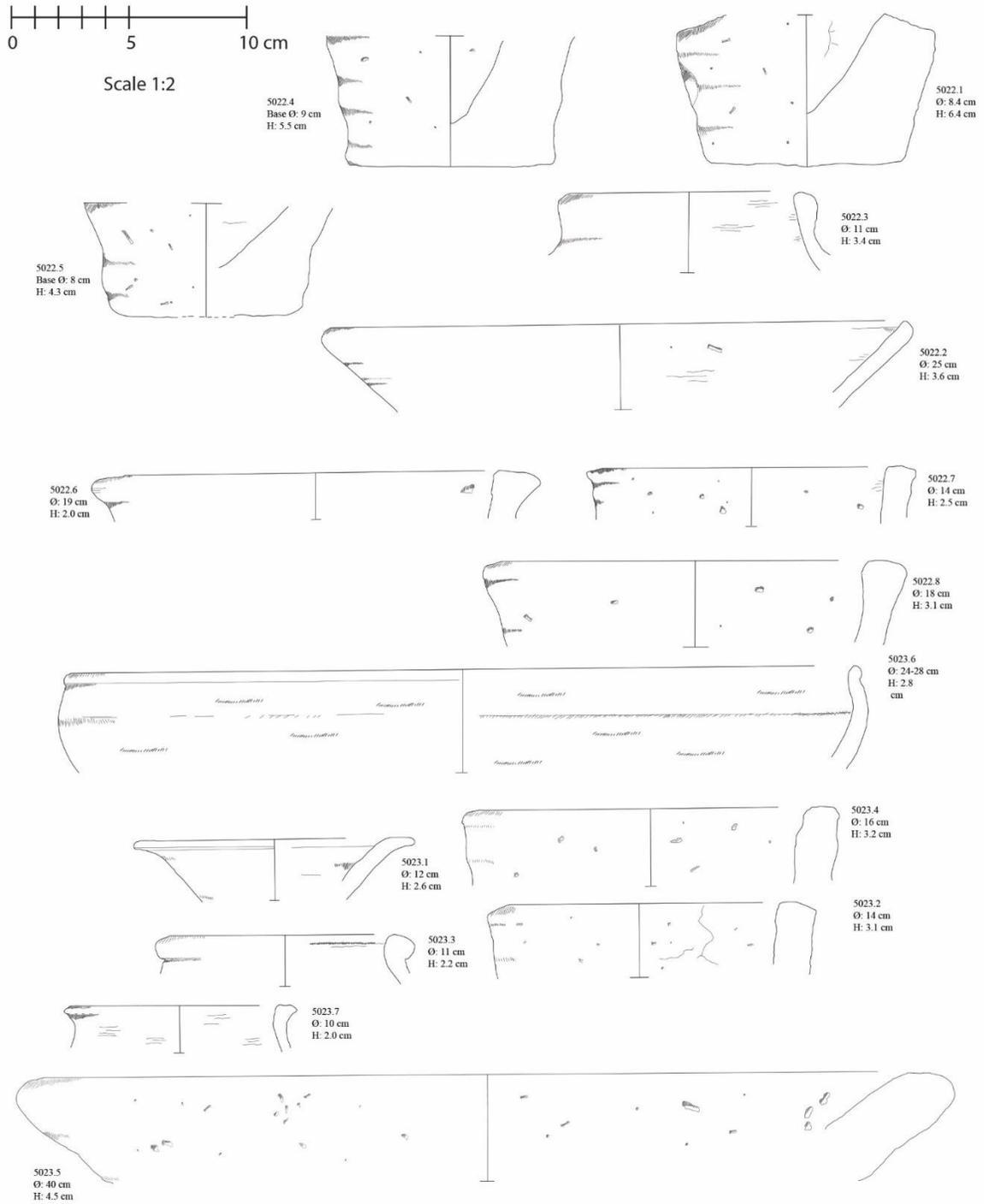


Plate 6: US 5022 and US 5023

Plate 6: US 5022 and 5023

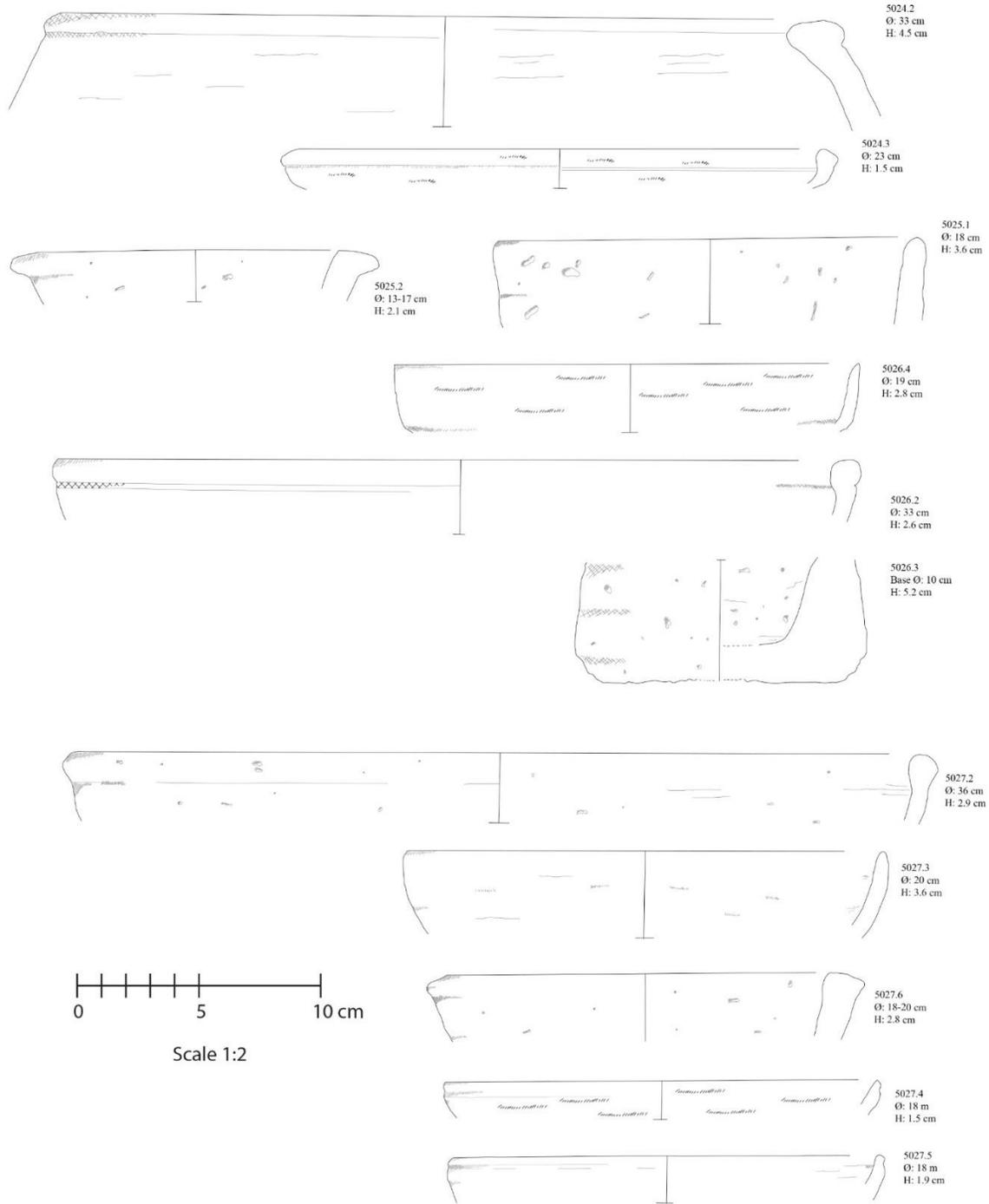
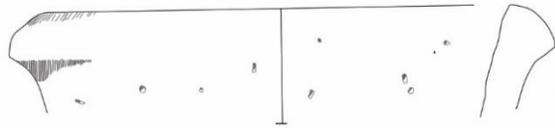
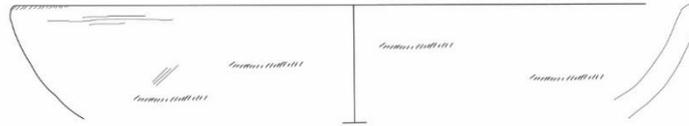


Plate 7: US 5024, 5025, 5026, and 5027

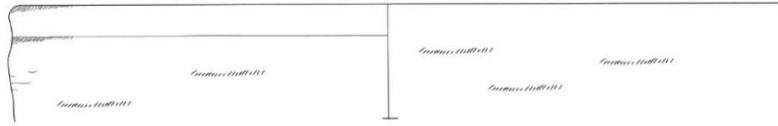
Plate 7: US 5024, 5025, 5026, and 5027



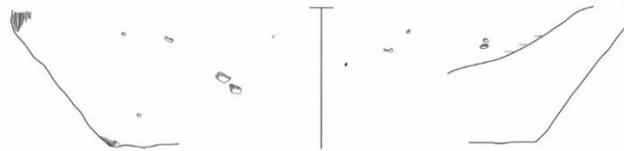
5028.2
Ø: 15 cm
H: 3.1 cm



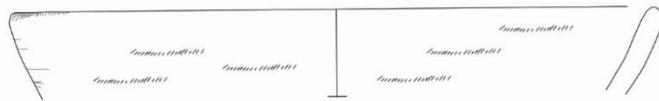
5028.1
Ø: 19 cm
H: 3.1 cm



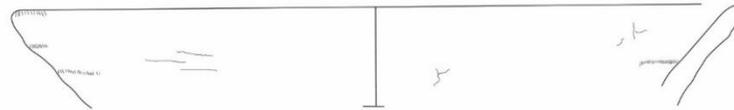
5028.3
Ø: 23 cm
H: 3.2 cm



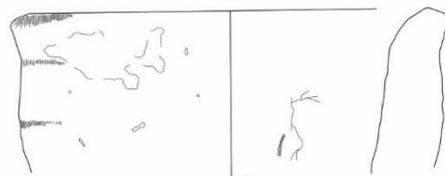
5028.6
Ø: 12 cm
H: 3.8 cm



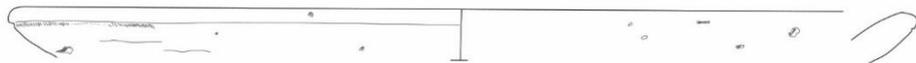
5028.5
Ø: 18 cm
H: 2.4 cm



5029.1
Ø: 20 cm
H: 2.7 cm



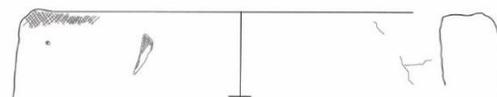
5029.2
Ø: 10-14 cm
H: 4.6 cm



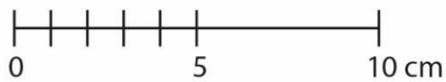
5030.1
Ø: 25 cm
H: 1.4 cm



5033.1
Ø: 17 cm
H: 1.7 cm



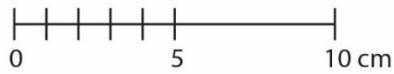
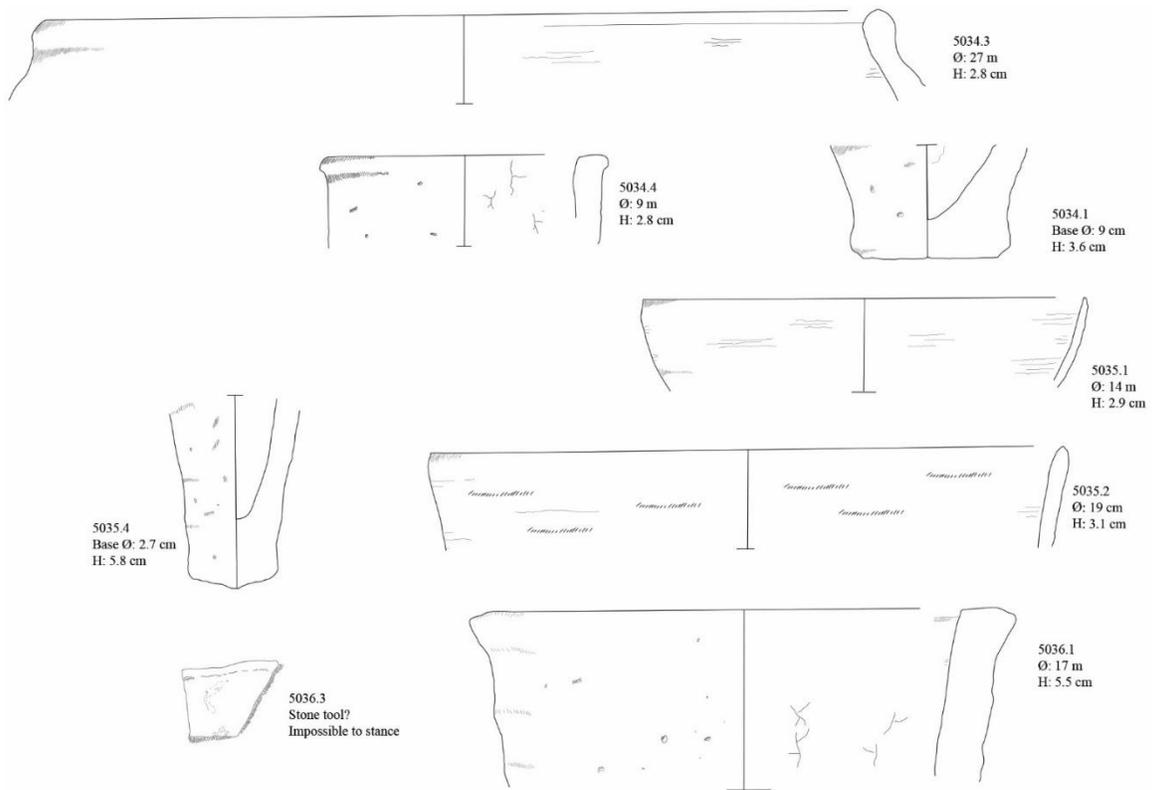
5033.2
Ø: 13 cm
H: 2.4 cm



Scale 1:2

Plate 8: US 5028, 5029, 5030, 5033

Plate 8: US 5028, 5029, 5030, 5033



Scale 1:2

Plate 9: US 5034, 5035, and 5036

Plate 9: US 5034, 5035, and 5036

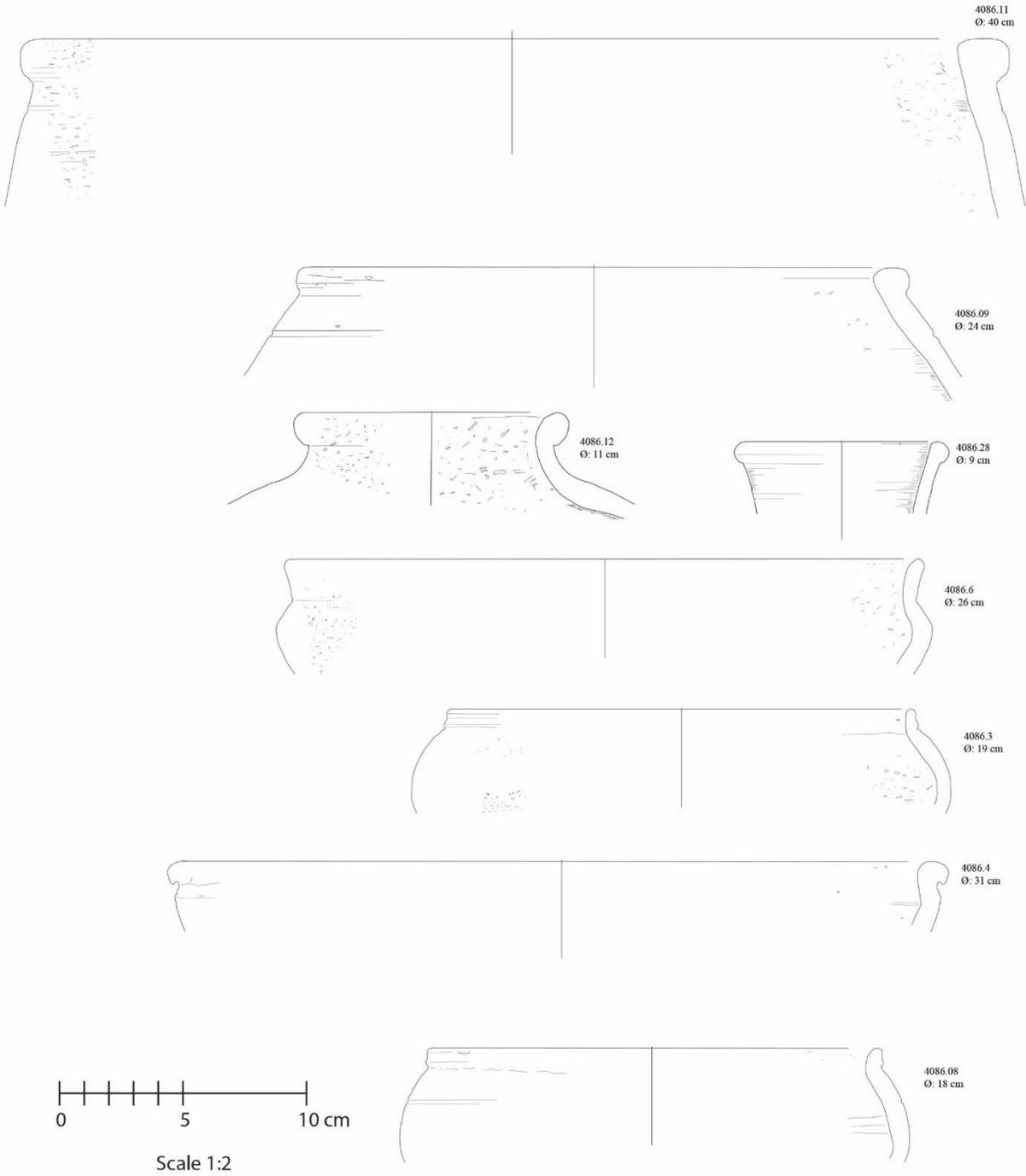


Plate 10: US 4086(a)

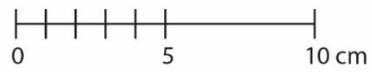
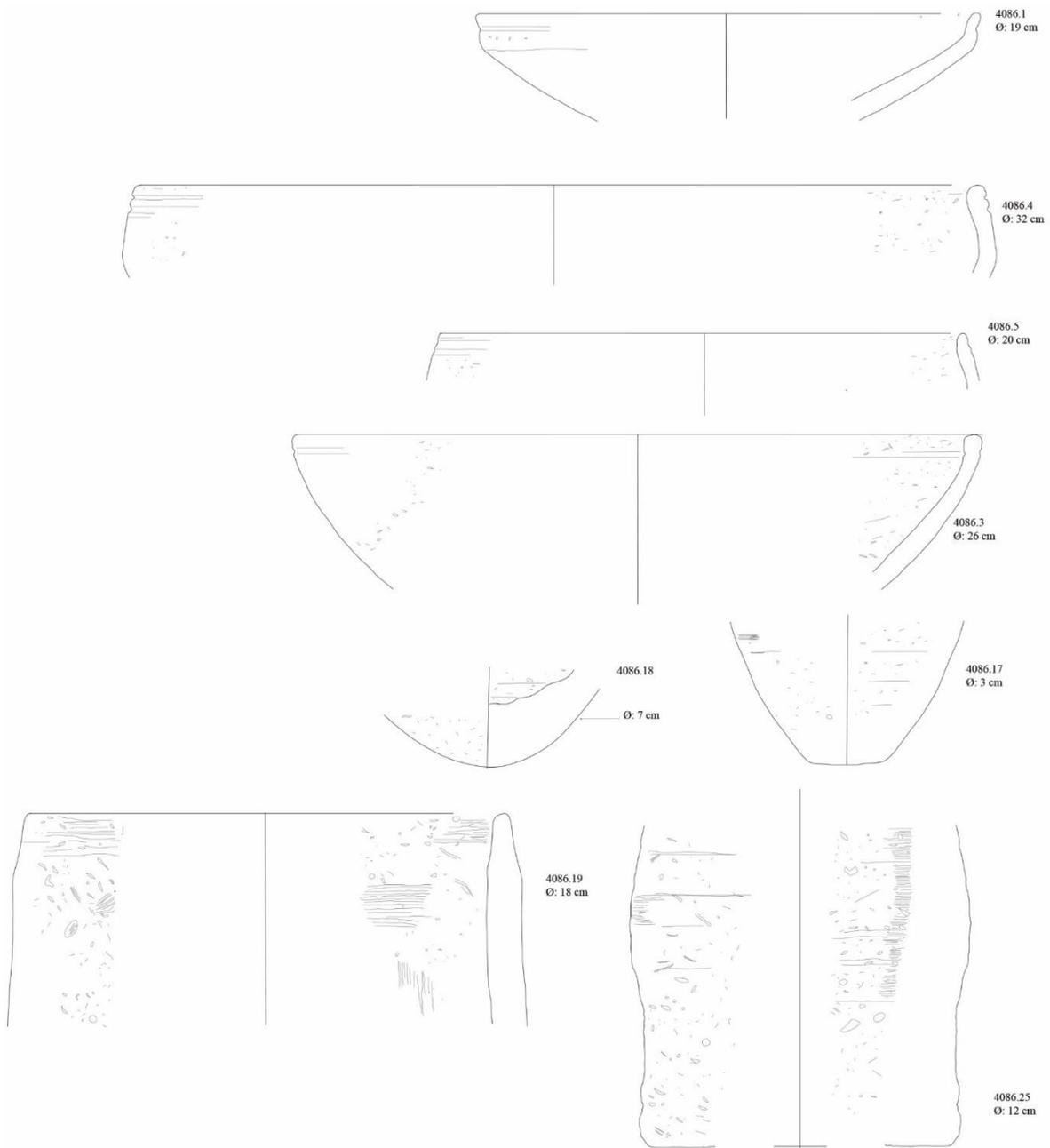
Plate 10: US 4086(a)



Plate 11: US 4086(b)

Scale 1:2

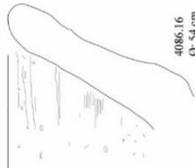
Plate 11: US 4086 (b)



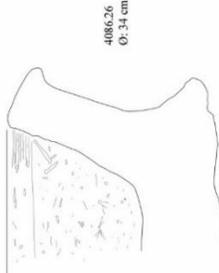
Scale 1:2

Plate 12: US 4086(c)

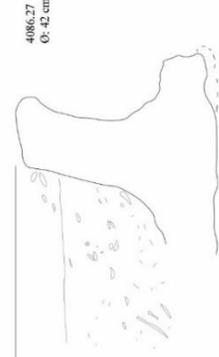
Plate 12: US 4086(c)



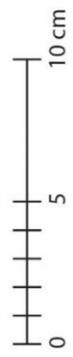
4086.16
Ø: 0.54 cm



4086.26
Ø: 0.34 cm



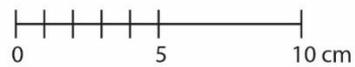
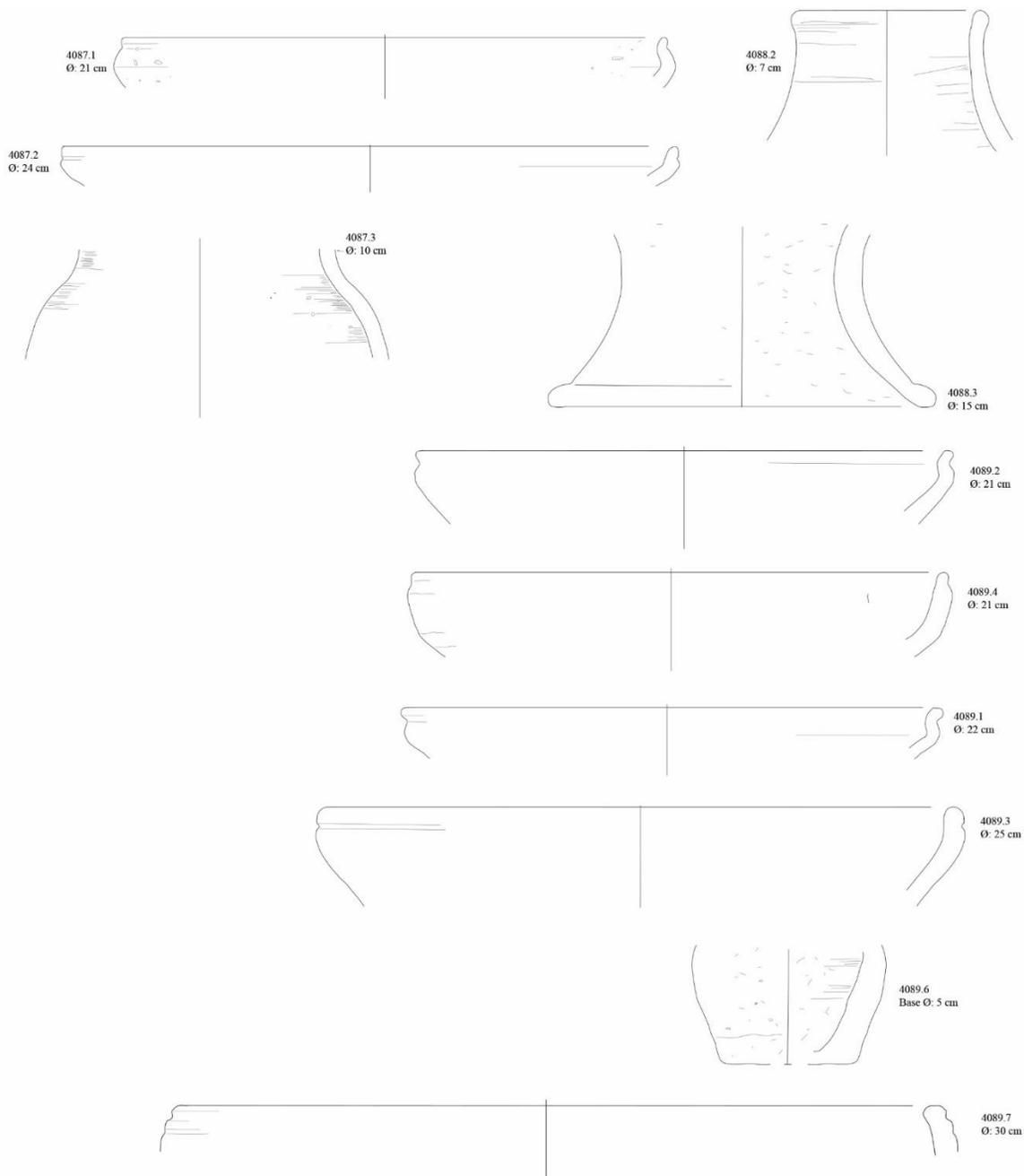
4086.27
Ø: 0.42 cm



Scale 1:2

Plate 13: US 4086(d)

Plate 13: US 4086(d)



Scale 1:2

Plate 14: US 4087, 4088, and 4089

Plate 14: US 4087, 4088, and 4089

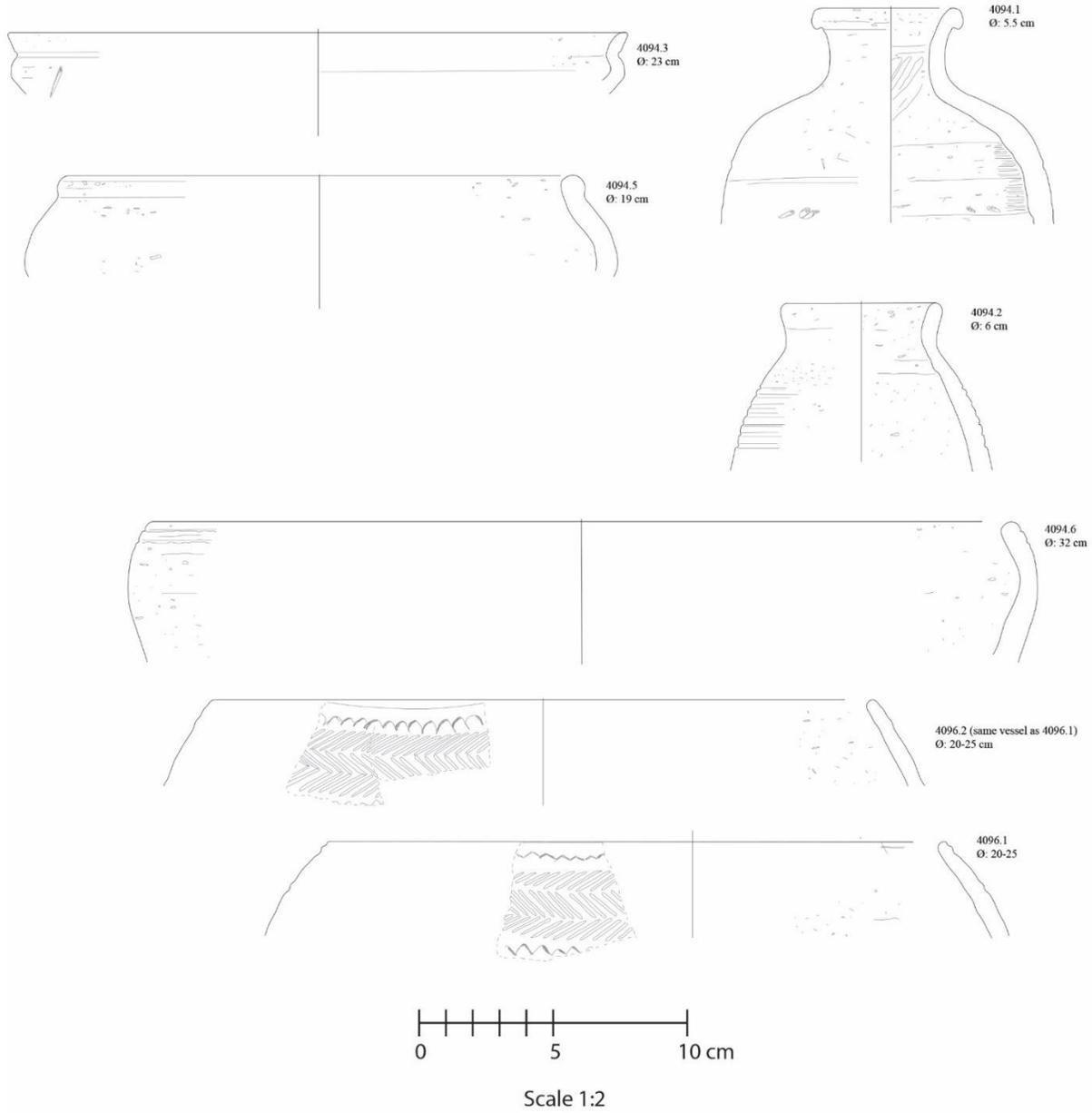
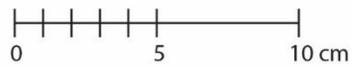
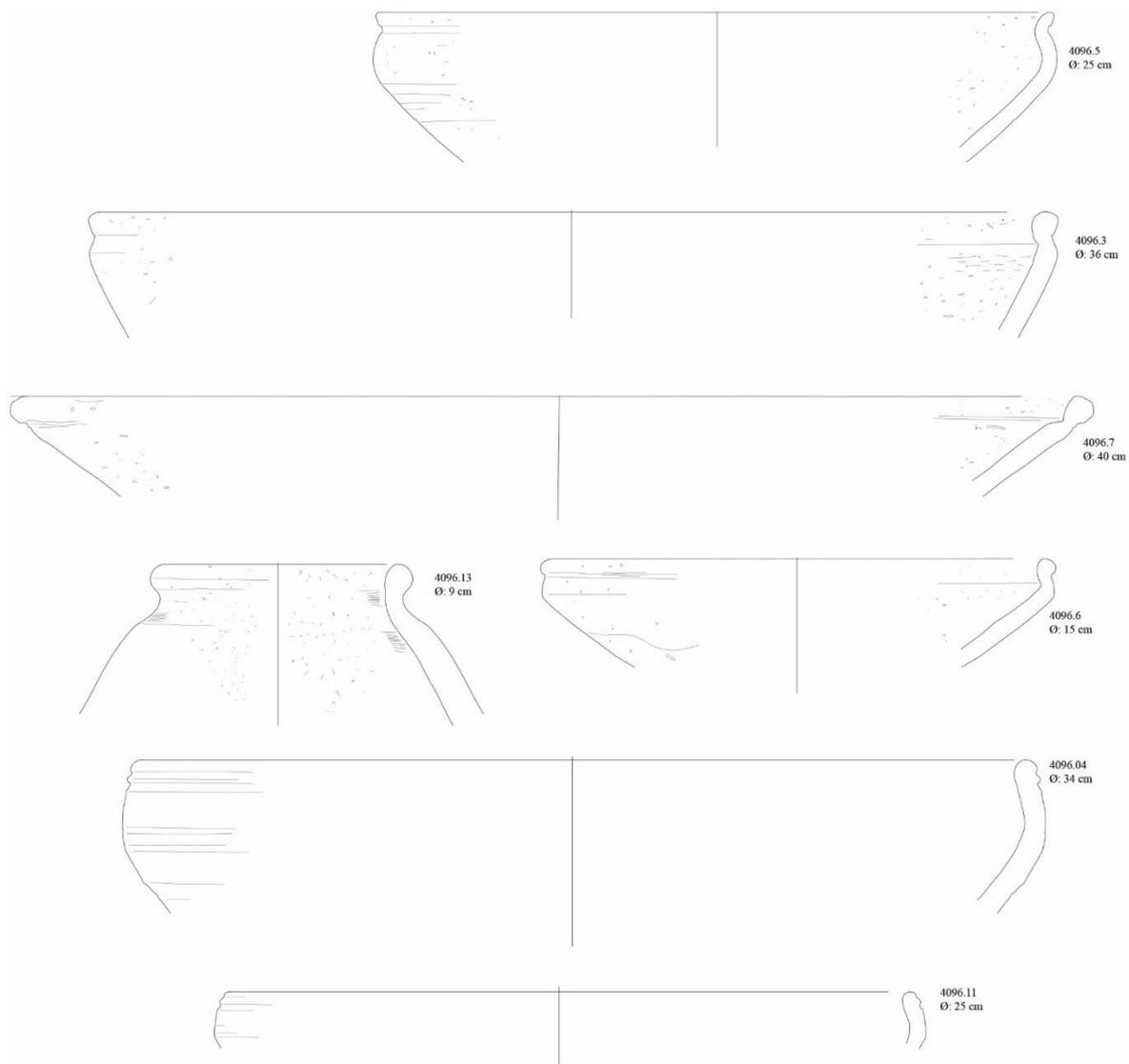


Plate 15: US 4094 and 4096(a)

Plate 15: US 4094 and 4096(a)



Scale 1:2

Plate 16: US 4096(b)

Plate 16: US 4096(b)

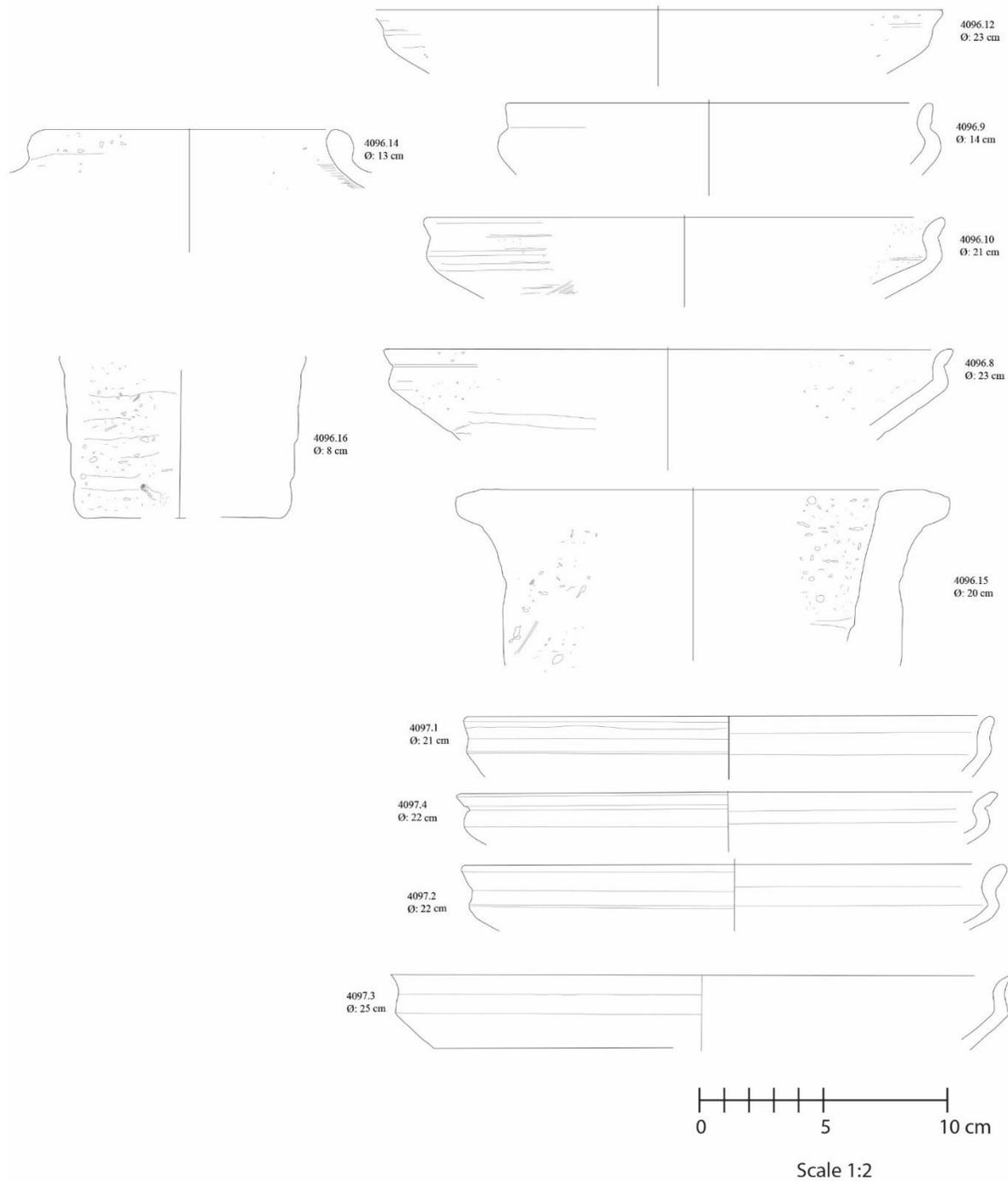


Plate 17: US 4096(c) and 4097(a)

Plate 17: US 4096(c) and 4097 (a)

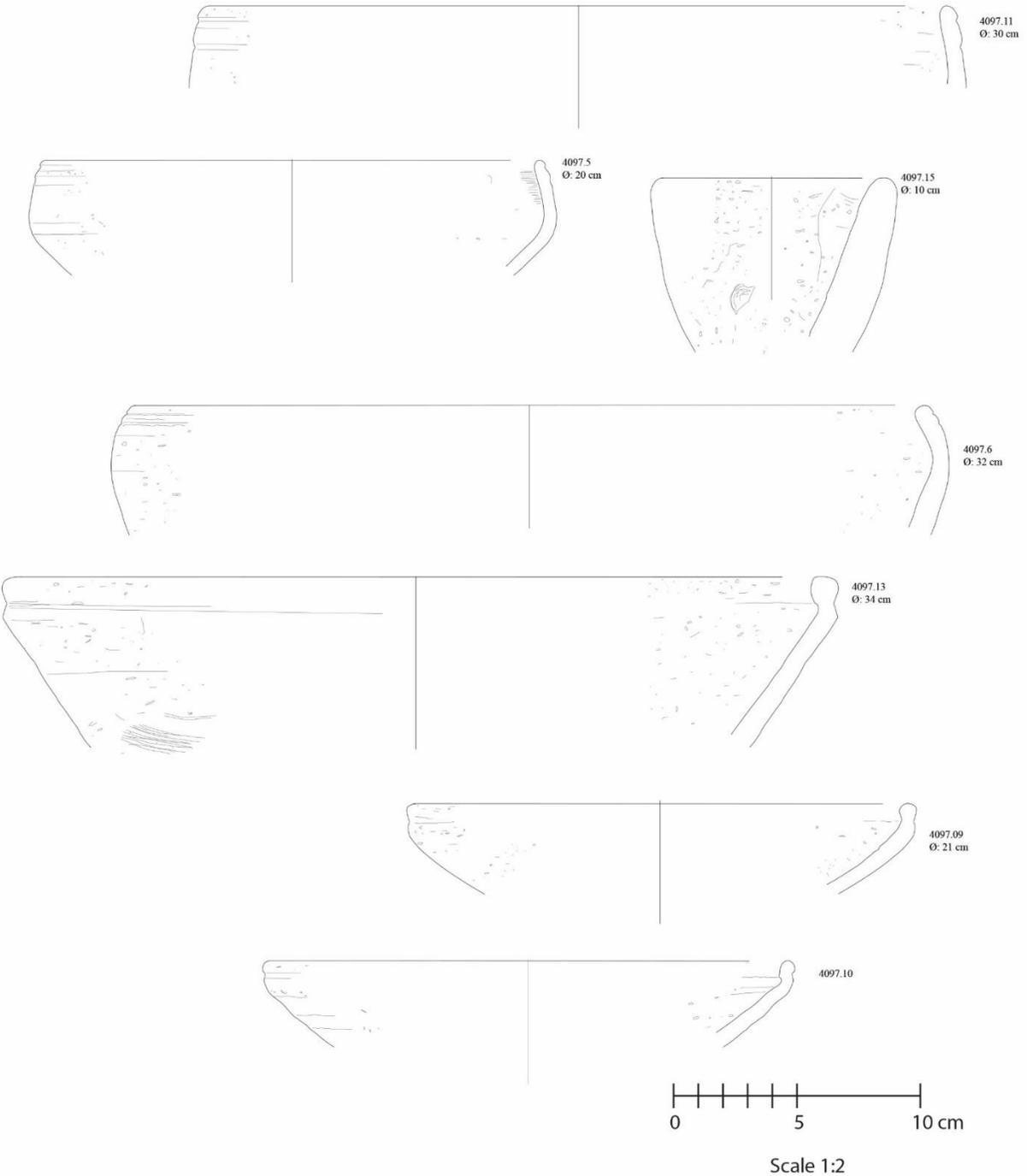


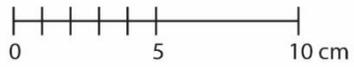
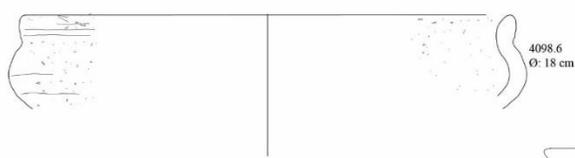
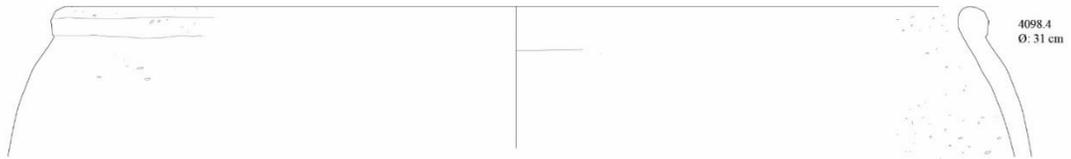
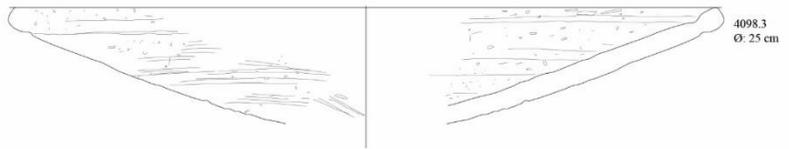
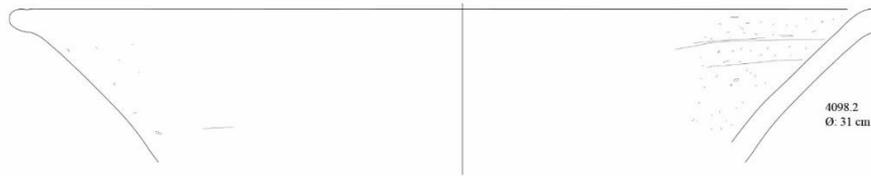
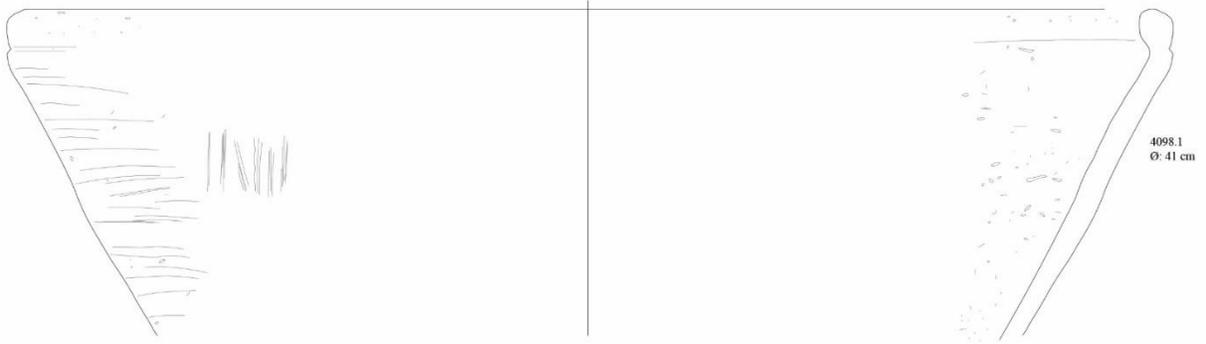
Plate 18: US 4097(b)

Plate 18: US 4097(b)



Plate 19: US 4097(c)

Plate 19: US 4097(c)



Scale 1:2

Plate 20: US 4098

Plate 20: US 4098

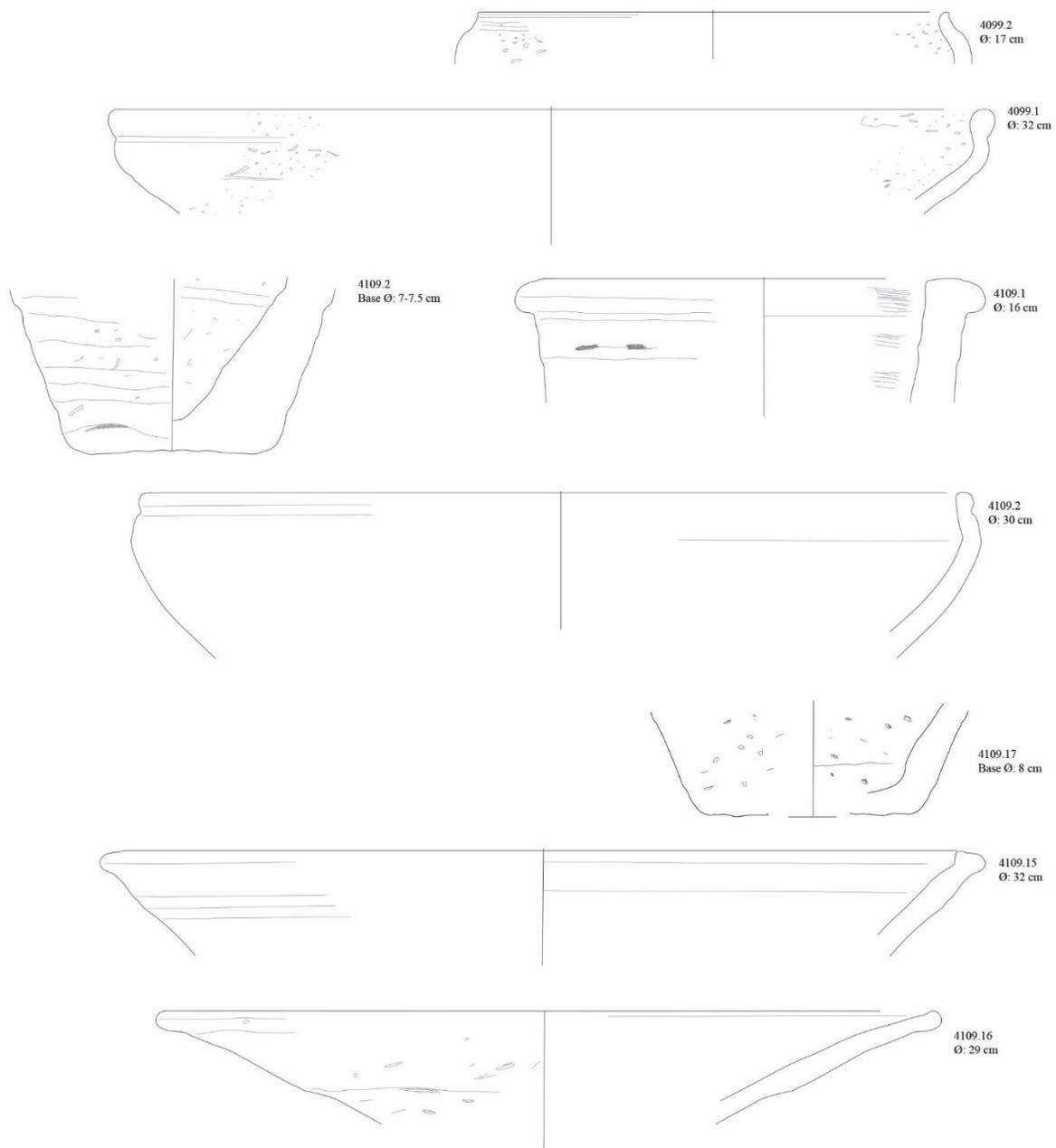


Plate 21: US 4099 and 4109(a)

Plate 21: US 4099 and 4109(a)

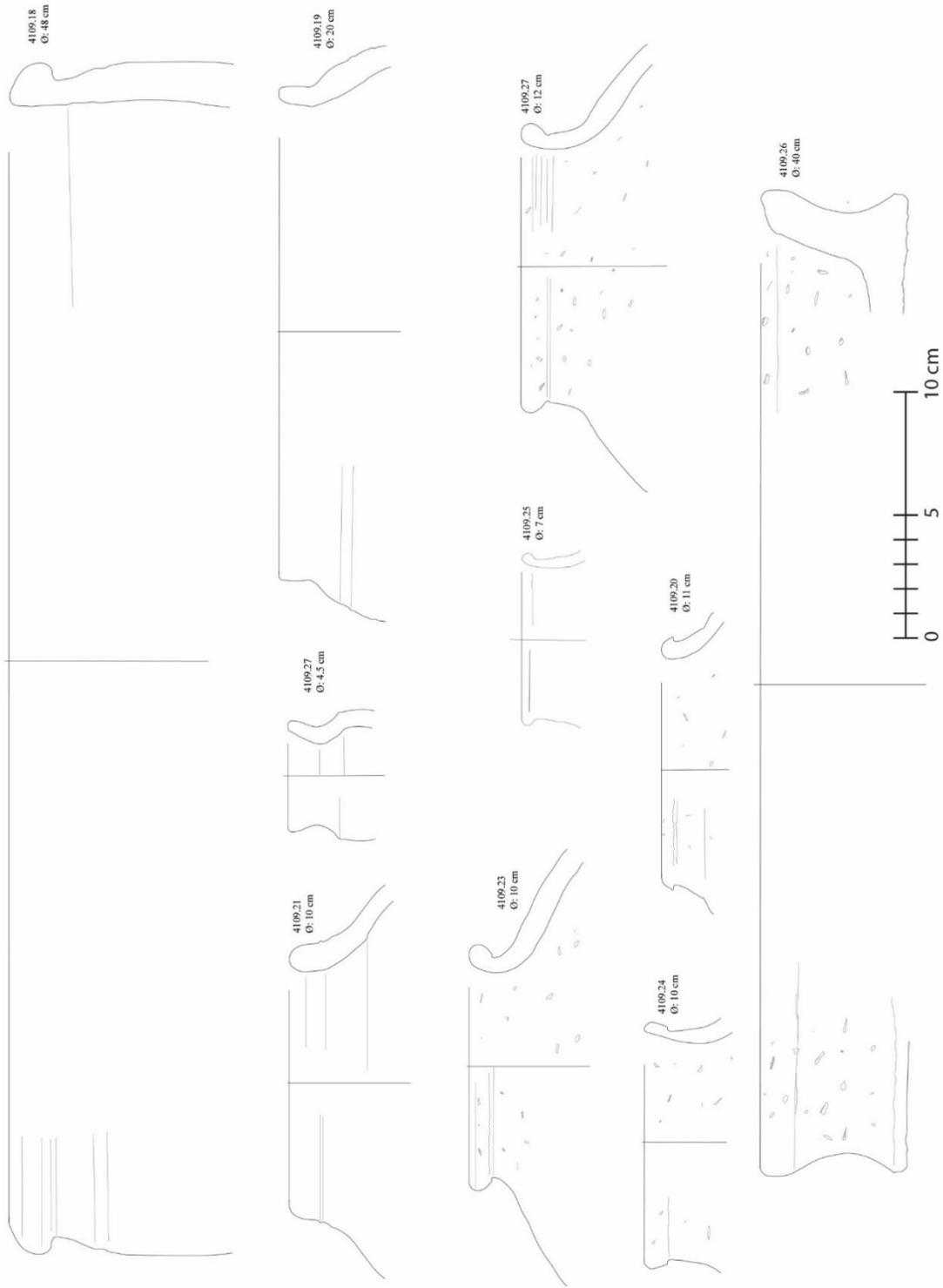


Plate 22: US 4109(b) Scale 1:2

Plate 22: US 4109(b)

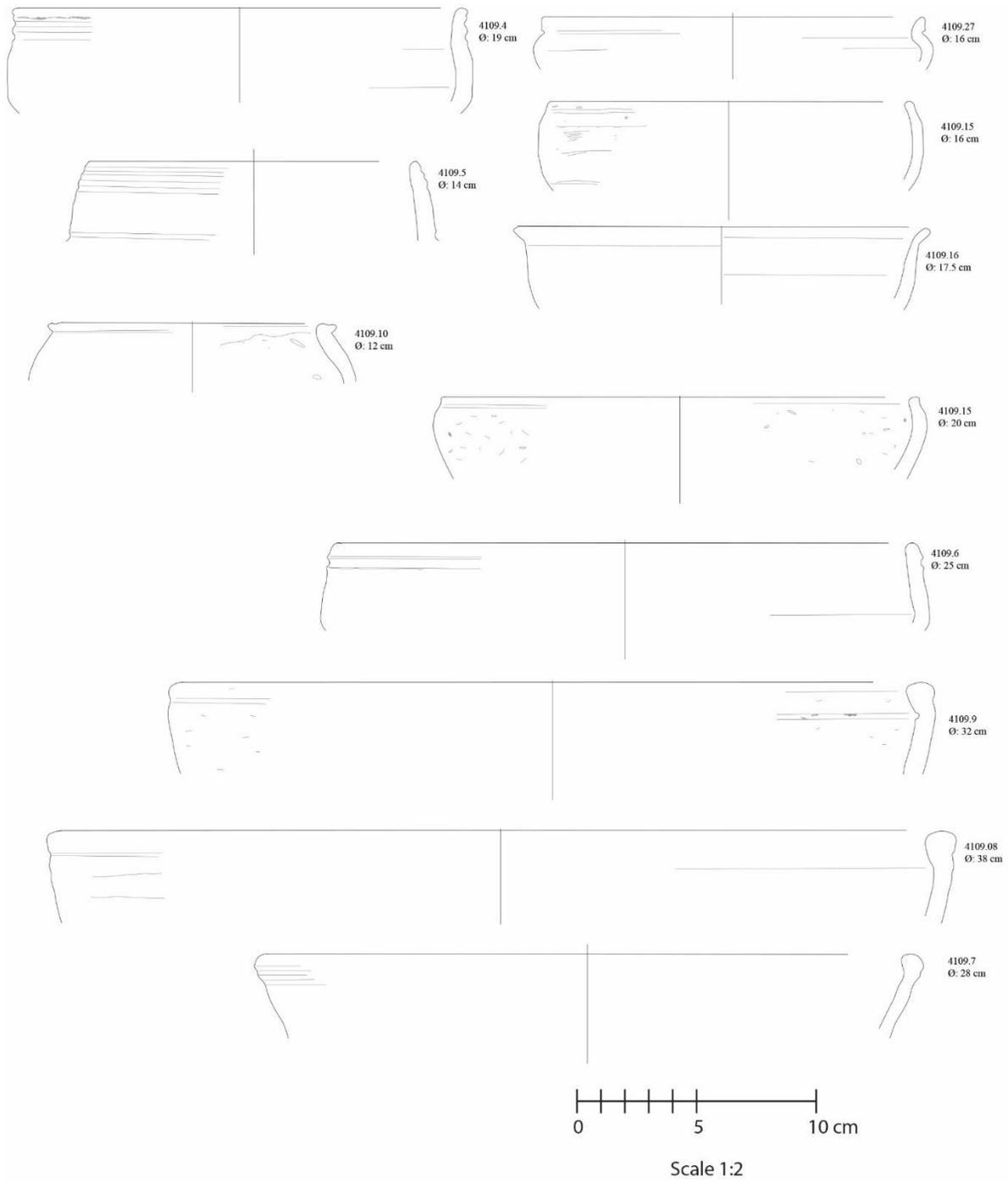
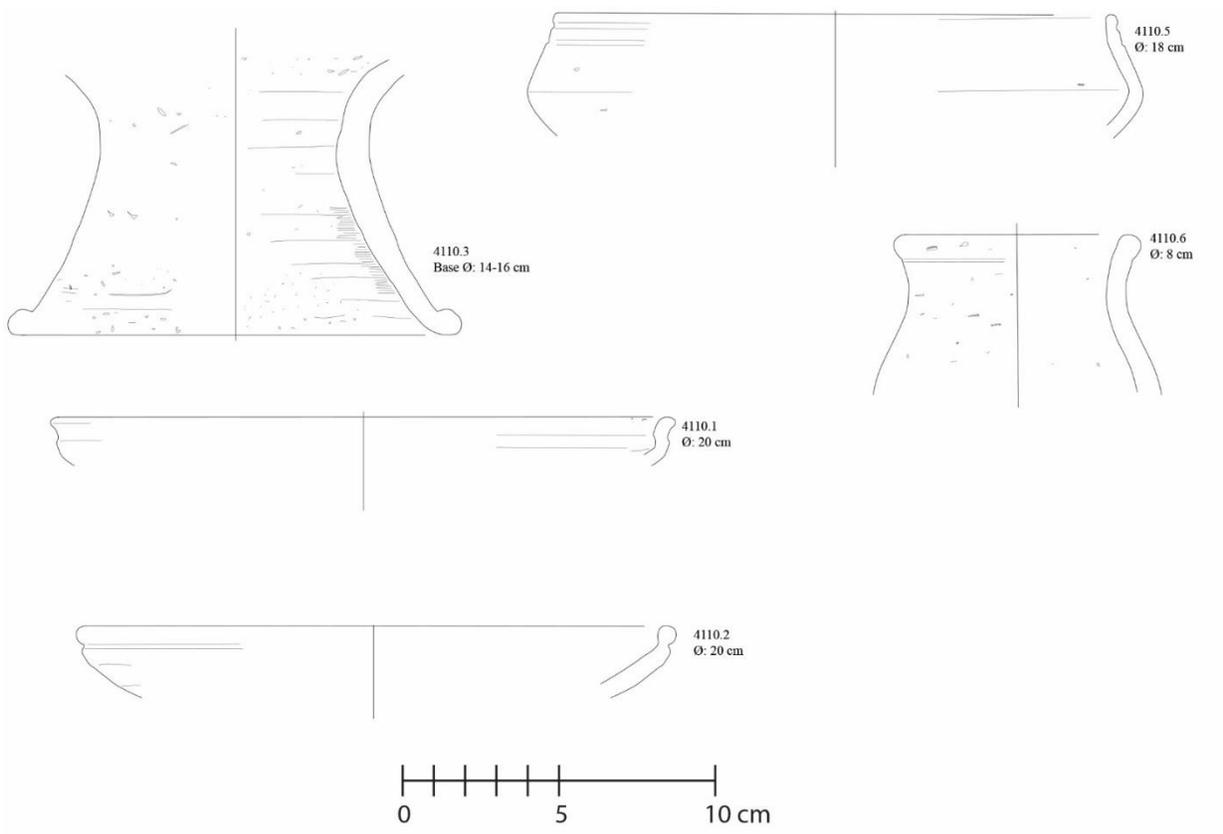


Plate 23: US 4109c

Plate 23: US 4109(c)



Scale 1:2

Plate 24: US 4110

Plate 24: US 4110

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