

# BUILDINGS IN CONTEXT:

## A STUDY OF MIDDLE KINGDOM GRANARIES AND THEIR REPRESENTATION IN THE ARCHAEOLOGICAL, TEXTUAL AND VISUAL RECORD



*šnw.t*

*n. granary*

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This work has not previously been submitted for a degree or diploma at any university. To the best of my knowledge and belief, this thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Genevieve Holt  
25th October, 2019.



## **Abstract**

Grain was of fundamental importance to ancient Egypt in both life and afterlife. It provided the ingredients for the daily diet of bread and beer, it was a key part of the local and State economy, and the need for eternal sustenance in the afterlife meant that it played an important role in funerary practices. The storage of grain was thus an essential part of Egyptian life. Evidence for granaries can be found in the archaeological record at settlement sites, in texts such as estate accounts and commemorative inscriptions, and in tomb wall paintings and funerary models. Yet there are few detailed studies of these indispensable structures and they have tended to focus on one type of evidence.

This project is based on the idea that buildings are more than physical structures and that they can be seen as tangible expressions of a culture. The presence of granaries in settlements indicates the necessity of grain in daily life; the references to granaries in administrative texts is evidence of their role in the economy. However, granaries also feature in literary texts and funerary beliefs. This demonstrates how these buildings occupied a place in the culture which was more than their architectural function. By collecting and analysing different types of evidence for granaries from the Middle Kingdom period, this study seeks to explore the role these buildings played beyond their basic function as storage facilities. This exploration of an architectural form as an expression of culture will help enrich our understanding of this complex ancient society.

## **Dedication**

For Claire  
who also loved Ancient History

(1968 - 2019)

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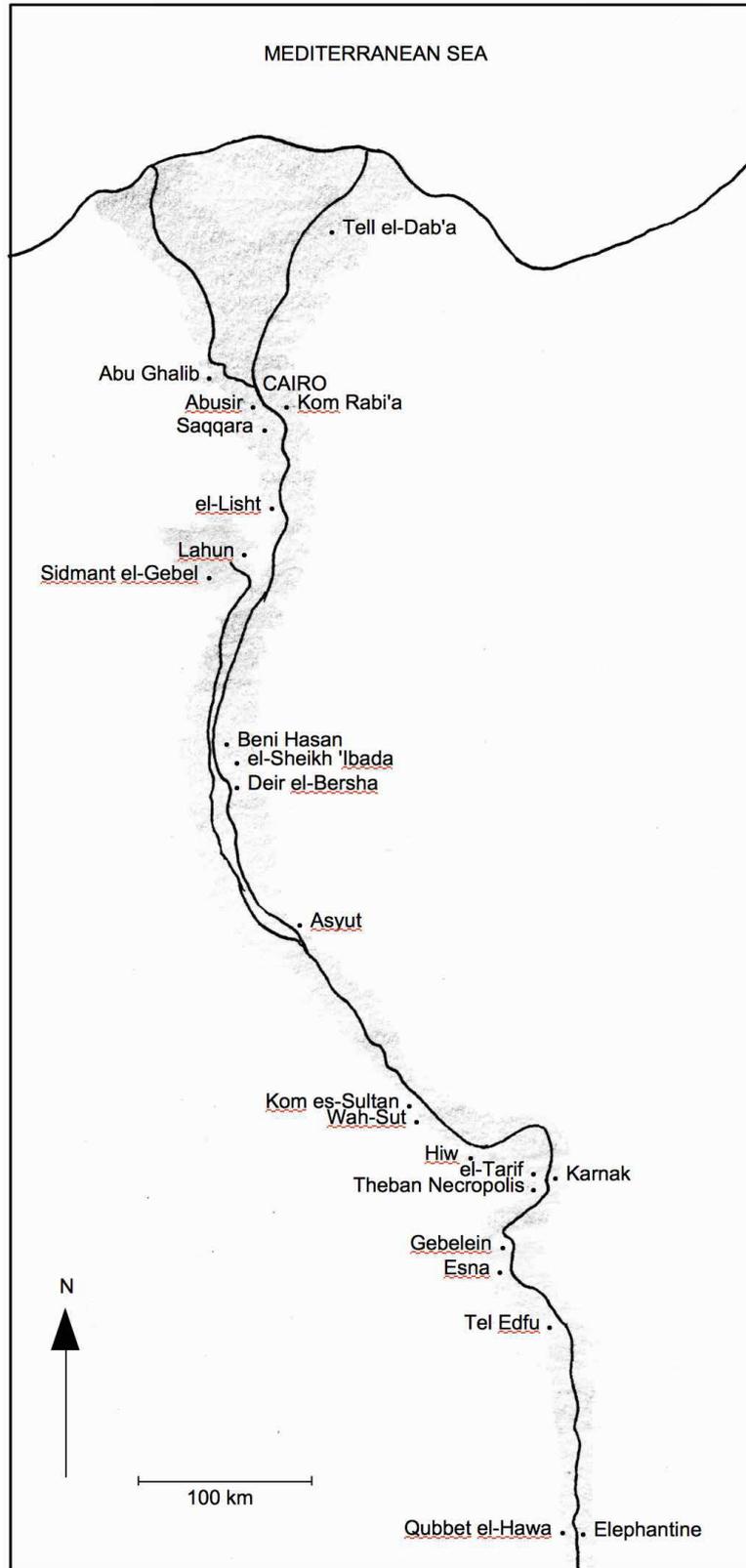
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Map of Egypt showing sites referred to in the text.

Image: G. Holt after Baines, J. and Malek, J. (1984), *Atlas of Ancient Egypt*, Oxford, p.67.  
 For consistency, the spelling of all sites is based on that used in this book.

## Chronology

<b>PREDYNASTIC PERIOD</b>	<b>c. 4400-3100 BC</b>
<b>EARLY DYNASTIC PERIOD</b>	<b>c. 3100-2649</b>
First to Second Dynasty	
<b>OLD KINGDOM</b>	<b>c. 2649-2130</b>
Third to Eighth Dynasty	
<b>FIRST INTERMEDIATE PERIOD</b>	<b>c. 2130-2030</b>
Ninth/Tenth Dynasty (Lower Egypt)	c. 2130-2030
Eleventh Dynasty (Upper Egypt)	c. 2120-2030
<b>MIDDLE KINGDOM</b>	<b>c. 2030-1650</b>
Eleventh Dynasty	c. 2030-1981
Twelfth Dynasty	c. 1981-1902
Thirteenth Dynasty	c. 1802-1650
Fourteenth Dynasty (Lower Egypt, excluding Memphis region)	c. 1700-1650
<b>SECOND INTERMEDIATE PERIOD</b>	<b>c. 1650-1550</b>
Fifteenth to Seventeenth Dynasty	
<b>NEW KINGDOM</b>	<b>c. 1550-1070</b>
Eighteenth to Twentieth Dynasty	
<b>THIRD INTERMEDIATE PERIOD</b>	<b>c. 1070-664</b>
Twenty-First to Twenty-Fifth Dynasty	
<b>LATE PERIOD</b>	<b>664-332</b>
Twenty-Sixth to Thirtieth Dynasty	
<b>MACEDONIAN PERIOD</b>	<b>332-305</b>
<b>PTOLEMAIC PERIOD</b>	<b>305-30</b>

Adapted from Oppenheim A., Arnold, Do., Arnold, Di., and Yamamoto, K. (2015),  
*Ancient Egypt Transformed. The Middle Kingdom*, New Haven and London, xix.

## Abbreviations

<i>BACE</i>	<i>The Bulletin of the Australian Centre for Egyptology</i>
<i>GM</i>	<i>Göttinger Miszellen Beiträge zur ägyptologischen Diskussion</i>
<i>JEA</i>	<i>The Journal of Egyptian Archaeology</i>
<i>MDAIK</i>	<i>Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo</i>
<i>SAK</i>	<i>Studien zur Altägyptischen Kultur</i>
<i>TLA</i>	<i>Thesaurus Linguae Aegyptiae</i> <a href="http://aaew.bbaw.de">aaew.bbaw.de</a>
<i>ZÄS</i>	<i>Zeitschrift für ägyptische Sprache und Altertumskunde</i>

### Museums

Aberdeen	Museum of Anthropology
ABDUA	University of Aberdeen, Human Culture Collection
Berlin	Staatliche Museen zu Berlin
Boston	Museum of Fine Arts
Brussels	Musée Royaux d'Art et d'Histoire
Cairo	Egyptian Museum
Cambridge	Fitzwilliam Museum
Chicago	Oriental Institute
Copenhagen	Ny Carlsberg Glyptotek
Leipzig	Ägyptisches Museum der Karl-Marx-Universität
Liverpool	World Museum
Liverpool SAOS	University of Liverpool, School of Archaeology and Oriental Studies
London	British Museum
Manchester	Manchester Museum
MMA	Metropolitan Museum of Art
Oxford	Ashmolean Museum
Paris	Musée du Louvre
Philadelphia	University of Pennsylvania Museum
ROM	Royal Ontario Museum
Rostock	Museum der Stadt
Turin	Museo Egizio
UCL	Petrie Museum, London
YPM	Peabody Museum, Yale

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# Chapter 1 Laying the Foundations

“Now make these six measures of barley into bread and beer for me as daily rations,  
that I may live on them.”

*The Eloquent Peasant*<sup>1</sup>

## 1.1 Introduction

Granaries in ancient Egypt were a simple structure which serviced a basic need: the storage of grain. The archaeological evidence clearly indicates that most settlements, and a number of houses, had some form of granary large enough to hold grain for a period of time. Yet, these essentially utilitarian buildings also occupied a complex position in the funerary beliefs of this society as borne out by their depiction in tomb wall scenes and their representation as models in the burial assemblages of privileged individuals. Accounts, which recorded the organisation of produce, confirm the place of granaries in the administration of the movement of grain throughout the country. Yet, just as the funerary context for wall scenes and models hints at a complex relationship between granaries and religious beliefs, non-administrative texts also demonstrate that the concept of a granary went beyond understanding it only as a storage unit. Instead, the metaphorical use of the term *šnw.t* indicates that there was a powerful connection between the idea of a granary and notions of plenty and abundance.

This project looks at the position of granaries in the ancient Egyptian society of the Middle Kingdom period.<sup>2</sup> It considers the evidence for their presence in the archaeological record at settlement sites in the Nile valley and examines some of the practicalities involved in the storage of grain. It explores the use of various terms for storage facilities and considers the possibility of re-assigning the Egyptian words to the physical remnants of these buildings. This project looks at the multiple strands of archaeological, textual and visual evidence in order to attempt to understand the place that granaries occupied in the ancient Egyptian society of this time.

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1 Translation by V.A. Tobin in Simpson (2003:26).

2 c. 2030-1650BC. Dates and the spelling of the names of pharaohs are based on that used in Oppenheim et al. (2015: xix).

## 1.2 Literature Review

Grain was an essential part of the daily lives of the Ancient Egyptians and not only for the key role it played in the diet of the entire population. In a culture which had no coinage, grain, along with copper, silver and linen, was a fundamental part of the economy. Thus, the storage of grain was indispensable for both the individual and the State. The harvesting, collecting, storing and distribution of grain is regularly referred to, not only in discussions which centre on the economy of Ancient Egypt, but also in surveys of the archaeological evidence from settlements and in studies of the representations of granaries within the funerary context. Additionally, there have been studies of the textual evidence for the movement and storage of grain, although these have primarily focussed on titles such as “overseer of the granary” and the seals which were used to secure packaged goods. However, while the crucial role that grain played in Ancient Egypt is clearly acknowledged by scholars, no comprehensive survey has yet been done of the archaeological, representational and textual evidence for the storage of this basic commodity. While several key studies have focussed on granaries, the scope of these has been constrained by the principal concern of the author.

One of the key articles which is regularly referred to in discussions about Middle Kingdom granaries, or indeed granaries from any period, is that written by Kemp (1986).<sup>3</sup> His examination interprets the archaeological remains of large granaries by combining an analysis of a single model of a granary from the tomb of Meketre with the archaeological evidence from Lahun and several of the Middle Kingdom forts built in the southernmost part of Egypt. Using this evidence, he discusses the possible ration allowance for soldiers housed at the forts and how this could provide information about the population of state-planned settlements such as at the pyramid town of Lahun. Adams (2007) looks at granaries in a somewhat more domestic context, although his focus is still on a larger installation which he compares with funerary models, rather than the smaller circular granaries also unearthed at Kom es-Sultan.<sup>4</sup> Moeller (2016) focusses solely on the archaeological evidence as a way of identifying levels of self-sufficiency within a settlement. She contrasts granaries in the smaller residences at Tell el-Dab'a F/I with the presence of larger facilities restricted to certain residences, such as located at Lahun and Wah-Sut, as an indicator of a redistributive system, possibly as part of the overall state economy.<sup>5</sup> Murray (2000) also focusses on the

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3 Kemp (1986:120-136.).

4 Adams discusses the funerary context of the models and acknowledges that “caution must be exercised in viewing the models literally as depictions of real structures”. Adams (2007: 19).

5 Moeller (2016: 258).

archaeological evidence, particularly botanical remains and notes these can be used not only as proof of the different food types used within a settlement but also as a way of indicating how they were processed and, potentially, how they were stored.<sup>6</sup>

The link between administration and granaries is well established and has been extensively studied through textual evidence as part of the discussion of the economy of ancient Egypt. Studies such as that by Papazian (2013) refer to the importance of both the central Granary and Treasury in the administration of the country and note that the granary, rather than supplying the entire country, would have formed a template for the administration of grain supplies throughout districts. However, in order to explore the administrative system through textual evidence these studies have mostly concentrated on the analysis of titles or an examination of accountancy records. For example, Grajetzki (2013) discusses the change in administrative titles from the Old Kingdom to the Middle Kingdom and the importance of analysing this change in order to understand the evolution of the administrative system as evidenced by the change in titles. Likewise, Quirke (2004) looks at the context of titles associated with *šnw.t* as a way of distinguishing the different roles of officials in state and local administration. Meanwhile, Ezzamel's (2002) study of accountancy practices focusses on the redistributive aspect of the ancient Egyptian economy during the Middle Kingdom. This project offers a different approach to the textual evidence in which, while some administrative evidence is considered, the scope of texts which specifically refer to storage facilities is expanded to include a range of genres. Thus an exploration of examples of non-administrative texts for words related to grain storage, such as in biographical inscriptions and literary works, has the potential to demonstrate how these buildings were used and conceptualised by the ancient Egyptians.

A large part of the discussion of granaries has focussed on the visual evidence. Interpretations of archaeological evidence and the role of granaries in daily life regularly include visual evidence as a means for further understanding the way in which granaries were used.<sup>7</sup> Siebels (2001) uses the depiction of granaries and their location in wall scenes as a way of understanding how crops (especially barley and emmer) were stored and controlled.<sup>8</sup> Barker (2018) also considers the place of granaries within the representation of the

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6 Murrary (2000: 509).

7 For an early example of how archaeological evidence is combined with the interpretation of representational evidence in order to advance a more integrated understanding of how granaries functioned see Badawy (1966: 31-36). More recently, Adamski and Kołodziejczyk (2014), in their analysis of storage facilities from the Predynastic period until the Old Kingdom, write that models allow for reconstruction as “they represent the actual type of structures”. Adamski and Kołodziejczyk (2014:64).

8 Siebels (2001: 85).

agricultural cycle and identifies the importance of granaries in the position they occupy at the culmination of this cycle.<sup>9</sup> However, the study of this evidence for these store buildings, in tomb wall scenes and funerary models, is complicated by the fact that the depictions represent seemingly realistic images from daily life. While Waki (2002) and Warden (2017) both use wall paintings as a way of aiding the reconstruction of granaries and their use, they express caution in using the scenes as representative of reality.<sup>10</sup> Eyre (1999) notes that the depictions were created from an “élite perspective”.<sup>11</sup> An additional problem lies in understanding the conventions of Egyptian art, as Samuel (1993) notes: “How well can we today understand the scenes we see on the walls of tombs, or depicted in models?”<sup>12</sup>

The most comprehensive survey of three-dimensional representations is that undertaken by Tooley (1989).<sup>13</sup> However, the focus of this study is not on interpreting how the models might represent actual buildings, but on the context of their funerary function. By using an art historical approach Tooley identifies the chronological development of the models and regional trends in burial customs and suggests that magico-religious items such as the models may have been produced by temple related workshops.<sup>14</sup> It is clear from this study that the function of the models is more complex than simply representing a building. The detailed study by Arnold (2005) examines a single funerary model in the light of both archaeological evidence and the funerary context and asks if it is real or imagined? In considering the funerary context of the model she notes that “while these objects were made for funerary purposes [the Egyptians] were great observers of real life”.<sup>15</sup> A particular point is made as to the problem of modern conceptions and the description of the models as 'miniatures', “a somewhat misleading term because normally the functions of a model would be to demonstrate the eventual effect of a [large-scaled], planned building... The Egyptian models were not tools to demonstrate something, but magically potent objects in their own right.”<sup>16</sup>

Perhaps the most surprising aspect of the discussion about granaries is the lack of consistency in terminology. Ambiguity in the definition of terms applies not only to the Egyptian words, but also to the modern labels which identify the types of buildings used for storing grain. The term silo and granary are regularly used interchangeably, Warden (2017)

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9 Barker (2018:7).

10 Waki (2002:106), Warden (2017:142).

11 Eyre (1999:46).

12 Samuel (1993: 276).

13 It should be noted that in her discussion Tooley primarily focussed on models which were complete, had a reliable provenance and were constructed from wood. Tooley (1989: xii).

14 Tooley (1989:xi, 382).

15 Arnold (2005:8).

16 Arnold (2005:6).

even going so far as to write that “archaeologically, both look the same” while Chłodnicki (2017) interprets rounded structures as silos.<sup>17</sup> Adams, in the article discussed above, defines a granary area as being a court with a chambered, rectilinear silo.<sup>18</sup> However, Waki, in his discussion on storage facilities at Amarna, notes the problems associated with identifying a space simply based on its plan “as any kind of room could be put to various uses”.<sup>19</sup> Yet, the etymological origins of 'granary' and 'silo' suggest that the words do have different meanings.<sup>20</sup> This distinction is picked up by Dachy (2014) in an article which identifies four different types of storage facilities in the archaeological record. These categories are based on the way the structure's function affects both the long term viability of the grain and the ease of access to it.<sup>21</sup> The term granary is used throughout this project for storage facilities which were constructed above ground, the almost universal form of grain storage at this time.<sup>22</sup>

It is readily apparent that there is a need for a comprehensive investigation of granaries from the Middle Kingdom period. Such a study would help to address the gaps in the analyses of granaries in previous inquiries. Examinations such as Tooley's art historical approach towards funerary models, Kemp's emphasis on the archaeological record and Quirke's consideration of granary-related titles, are examples of the way in which the author's particular interest dictates the methodology behind the analysis. Such studies are not designed to provide a comprehensive analysis and interpretation of all the available evidence. It is clear that granaries played an important part in the daily lives of the Ancient Egyptians, both at the individual and at the State level. In addition to this, the presence of the depictions of granaries in the funerary context indicates that these buildings had a significance beyond their role in the sustenance of the general population and the functioning of the economy. An extensive study of storage facilities allows for the assessment of different types of evidence

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17 Warden (2017:143, note 15), Chłodnicki (2017:49).

18 Adams (2007:11).

19 Waki (2002:104).

20 The Greek word σιρός specifically refers to an inground storage facility. Liddell and Scott (1996, 9th edition: 1600). The Romans used the term *sīrus* for an underground granary, which had its origins in the Greek term and *grānārium* meaning a place where things are kept. The language does not specify if this was above ground or not. Glare (1983: 846-847).

21 Dachy (2014:33, Table 1).

22 Grain storage facilities are often referred to as 'silos' and 'granaries' in archaeological reports. The distinction often rests on the shape of the building whereby circular structures are termed 'silos' and rectangular buildings are referred to as 'granaries'. This project utilises the term 'granary' following the discussion by Dachy (2014) in which grain storage facilities are classified not by their shape but by the way in which the structure affects the storage of the grain. Thus the term 'silo' is applied to underground units with their anaerobic environments which allow for long-term storage of grain, while 'granary' is applied to above ground structures which have an aerobic environment so that grain can only be stored satisfactorily for the short to medium-term.

and offers the possibility of a deeper understanding of the role granaries played in Ancient Egyptian society. Until there is a wide-ranging examination of the evidence for granaries, then the place of these buildings both in daily life and in the afterlife will remain elusive.

### 1.3 Scope, Approach and Limitations

The scope of this study is wide-ranging as it looks at several areas of evidence associated with grain storage facilities primarily from the Middle Kingdom period (Dynasty 11-13), in the archaeological, textual and visual record.<sup>23</sup> While previous studies of these buildings have generally focussed on one type of data, this project utilises the information from all three types of evidence in order to create a wholistic assessment of storage facilities. The three types of material used in this project each contribute unique sets of data. The archaeological evidence provides concrete proof about the presence of storage facilities in settlements through information such as building fabric, shape and size. Textual evidence provides information about the movement of goods at both a State and local level, while non-administrative texts have the potential to provide a conceptual framework for how the ancient Egyptians thought about these buildings. Likewise, visual evidence provides conceptual information about granaries, particularly in regards to their prominent role in funerary beliefs.

A wholistic approach to multiple strands of evidence allows for the development of a more complex picture of ancient Egyptian society. This approach places equal emphasis on different threads of information and enables a more detailed exploration of the data through a variety of interpretations. This weaving together of interpretations creates a stronger foundation for the conclusions made as a result of examining the evidence. In order to make it possible to create a more complex picture which may allow for such an interpretation the evidence has been examined in two parts. Chapters 2-4 consider each type of evidence separately. Chapter 2 considers the archaeological evidence from settlement sites.<sup>24</sup> The initial reference point for the choice of sites was Moeller (2016). The choice of site was also dictated by the availability of published excavation reports. Additionally, those sites which did not have adequate evidence for granaries could not be included. Chapter 3 examines textual evidence by analysing excerpts from texts which have references to grain storage

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23 Some evidence from the First Intermediate Period has also been included, partly to expand the field of evidence examined, but also as the division between the two periods is not necessarily as distinct as a chronological table may imply. The phrase “visual evidence” is used as a collective for wall scenes and funerary models.

24 Fortresses were not included in this survey as they represent a particular type of settlement with a narrow purpose. It was therefore felt that the evidence for them may not be an accurate reflection of the role of granaries in less specialised settlements.

facilities. Documents were sourced following a search for the relevant terms in the TLA. Additional references were found in the source material from the unpublished dissertation of Bardoňová (2019). However, the evidence from titles associated with granaries has been omitted due to the limited size of the project. Additionally, it was felt that the inclusion of these titles would eclipse the results of the study of other texts as there is large body of evidence for these titles due to the extensive preservation of them in funerary contexts. Chapter 4 analyses both two-dimensional and three-dimensional representations of granaries in wall scenes and tomb models. This material was sourced through meketre.org for wall scenes and the unpublished dissertation of Tooley (1989) for funerary models. Representations of granaries in coffins have been omitted in order to restrict the data studied to a manageable amount for a project of this size. The quantity of data studied is extensive and dealing with each site, text and visual representation individually was not practical for a project of this size. Therefore a thematic approach has been taken in order to analyse the data. This approach meant that the evidence discussed in each chapter could be compared and contrasted in order to bring out key points as revealed by the analysis. The results of these separate examinations are then integrated into a single discussion in Chapter 5.<sup>25</sup>

The benefits of approaching each type of evidence separately has meant that it has been possible to examine certain elements from a point of view which draws out the most useful information for a particular data set. For example, archaeological and visual material has been enhanced by the knowledge of the physical setting of the evidence. Additionally, the separate analyses of these different types of information have enabled conclusions to be made based on one type of material alone, without the need to accommodate other types of data. Thus, each chapter has taken a thematic approach to analysing the evidence as this has made it possible to consider common elements within each data set. Chapter 2 looks at the archaeological evidence for granaries at eleven sites dating to the Middle Kingdom. The sites range from the Delta region to Elephantine and settlements from long-established areas as well as purpose built settlements. Chapter 3 presents an examination of three different Egyptian words for storehouse as found in 26 texts across a number of genres. Chapter 4 examines 9 wall scenes and 50 funerary models in order to assess the evidence for granaries in a burial context.

However, it is the consolidation of this information, through comparing and contrasting the different interpretations, which has formed a significant part of this project as it has helped

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<sup>25</sup> This approach has been based on the method devised by Di Teodoro in a 2018 study of labour organisation in the Middle Kingdom.

provide a comprehensive overview of granaries from the Middle Kingdom. This integration has approached the results from Chapters 2-4 in four ways by considering both the difference and similarities; looking at where one type of data adds to the information provided by another type; and by noting the occasions where certain types of information about granaries can only be found in one type of evidence. By using this method in Chapter 5 it was possible to assess different types of data in conjunction with each other, and still allow for the differences to be acknowledged.

This project is limited both by the breadth of the evidence being surveyed and the availability of preserved material. The wide-ranging approach has been an integral part of developing a comprehensive overview of the place of granaries in ancient Egyptian society. However, it has also meant that some areas have received a less detailed examination than others. Furthermore, as evidence is preserved by chance and cannot be regarded as representative of all aspects of the area being investigated, this study is qualitative rather than quantitative. An additional aspect which limits the use of the available material is the calibre of excavation techniques, the manner in which finds were recorded and the quality of any subsequent reports. The information lost through earlier, less rigorous excavations cannot be replaced.

Of all the evidence remaining, it is tomb wall scenes which retain the most information as to physical contextualisation through the preservation of their placement within the decorative program of the tomb. However, while physically their context is relatively intact, the cultural context of these images is elusive. How did those who were behind their creation understand these representations? What was their purpose? How should they be interpreted. Archaeological remains are affected not only by weathering and erosion, but also the pattern of settlement in Egypt over extended periods of time in which buildings were demolished in order to construct new ones on top. While some settlements were only occupied for brief periods of time, the reason behind their existence was often specialised and it is difficult to know how typical they were of settlements at the time. Textual evidence is often fragmentary and may require a certain amount of educated speculation in order to interpret what was written. The written evidence in this project is also limited not only by the amount of text which has survived, but also by the fact that many are accountancy documents, making it difficult to interpret the place of granaries outside the administrative system.

However, the greatest limitation on this project is perhaps the 4000 year gap between the modern, industrialised world of the 21st century and the agricultural society of ancient Egypt.

## **Chapter 2 Mudbricks and Grain Remains**

### **The Archaeological Evidence**

This chapter looks at the archaeological evidence for granaries from the Middle Kingdom period. Evidence from a total of 11 settlement sites, as listed in Table 2.1. is surveyed in several sections, in order to highlight some of the different aspects of the building remains which still exist today in the archaeological record.<sup>26</sup> These aspects include simple components such as structural shape and evidence for the original contents of the granaries. It also includes a consideration of the placement of granaries in a settlement, their use over a period of time and some of the methods designed to protect the contents from spoliation. Brief reference is also made to some of the administrative evidence, in the form of seals, associated with granaries. A short discussion on the granaries at the settlement site of Lahun has also been included as this site plays such an important role in much of the discussions about Middle Kingdom settlements in general and granaries in particular.

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<sup>26</sup> As the focus of this survey is on settlement sites in the Nile valley, the chain of fortresses built during the Middle Kingdom in the cataract section of the Nile are not part of the discussion. This is partly due to the constraints on a project of this size, but also because these series of buildings represent a highly specialised form of settlement and therefore may not necessarily be an accurate reflection of the role of granaries in more general settlement contexts.

Site (Appendix Figure/s)	Date	Storage facility shape
Tell el-Dab'a F/I East Delta (Fig.s 1-3)	Dynasty 12 Förstner-Müller (2010: 103) Moeller (2016: 252, 256)	Rectangular and circular Czerny (1999: 22-23) Moeller (2016: 255)
Tell el-Dab'a R/I East Delta (Fig.s 1, 4)	Dynasty 12 Förstner-Müller (2010: 107) Moeller (2016: 259)	Circular Czerny (2010: 71, 75)
Tell el-Dab'a A/II East Delta Fig.s (1, 5, 6)	Late Dynasty 12 on Bader (2018: 109)	Circular Bader (2018: 137)
Abu Ghalib Western Delta (Fig. 7)	Late Dynasty 11- Early Dynasty 12 Bagh (2002: 44)	Rectangular, multi-chambered (Bagh 2002: Fig. 2)
Kôm Rabi'a Memphis (Fig. 8)	Late Middle Kingdom Giddy (2012: 2)	Circular Giddy (2012: Pl.s 4-7)
Lahun Fayum (Fig. 9)	Dynasty 12 - Late Middle Kingdom Moeller (2016: 272)	Rectangular Kemp (1986: 121-122) Circular Petrie (1890: 24)
Kom es-Sultan (Level I) Abydos North (Fig. 11)	FIP - early Middle Kingdom Adams (2007: 1)	Rectangular and circular Adams (2007: Fig.3)
Wah-Sut Abydos South (Fig. 12)	Mid-Dynasty 12 on Wegner (2001: 281, 306)	Rectangular Wegner (2001: 290) Circular Wegner (1998: 31)
Karnak East of the Sacred Lake (Phase 5A-5C) (Fig. 13)	Early Dynasty 12 - Late Dynasty 13 Millet (2007: Table 3)	Circular Millet (2007: 686-688)
Tell Edfu (Zone 3) Southern Egypt (Fig. 14)	Dynasty 11 - early Dynasty 12 (Moeller 2011-2012: 161)	Rectangular (Phase 2) Moeller and Marouard (2013: 119) Circular Moeller (2018: 175)
Elephantine Aswan (Level XII-IV) (Fig. 15,16)	Dynasty 12 - 13 von Pilgrim (1996: Tab. 1)	Rectangular Circular E.g H84/86 von Pilgrim (1996: 77 -97, Abb. 22-27)

Table 2.1 Overview of Sites with Granaries

## 2.1 Structure: Shape and Size

The primary definition in this study for a granary is an aboveground structure in which grain is stored in an aerobic environment for the short to medium term.<sup>27</sup> The archaeological evidence during the Middle Kingdom indicates that a variety of different shaped structures served this purpose.<sup>28</sup> Table 2.2 illustrates that not only were the structures of different shapes, there was also a variety of sizes constructed, with wall structure varying between single bricks laid end to end and more substantial buildings with bricks laid side by side. This suggests that granaries were constructed so as to best suit the context for which they were required.

Most sites had circular granaries and of the 11 sites surveyed, only one site was without circular facilities, in comparison to 4 sites which only had circular installations; 10 sites had evidence for both rectangular and circular structures. A number of sites such as Tell el-Dab'a R/I, Tell el-Dab'a A/II and Karnak all have evidence for multiple examples of this type of circular granary and the pattern of re-building at Kom Rabi'a suggests a preponderance towards this structure, at least at this site.<sup>29</sup> While little evidence remains as to the shape of these buildings, some granaries still have enough brick courses left intact to indicate that they were dome-shaped.<sup>30</sup> Such a structure is ideal in the Egyptian environment as the mud from the Nile provides excellent insulation, while the dome shape serves to expel heat.<sup>31</sup> While circular structures seem to be the dominant form, most sites in fact had a mix of both types of structures. Rectangular structures came in a variety of sizes, some examples being constructed with multiple chambers. Tell el-Dab'a and Elephantine both have examples in which rectangular and circular structures of similar size existed alongside each other at the same time.<sup>32</sup> Abu Ghalib and Kom es-Sultan have evidence of triple-chambered structures, of similar sizes, which may have been used to store grain.<sup>33</sup> It is possible that the similarity in

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27 Dachy (2014: 35).

28 There was little evidence in the sites surveyed for this project of underground silos which have an anaerobic environment. House 86b at Elephantine had a below ground storage area but it is not possible to say whether or not it was sufficiently enclosed to create an anaerobic environment. von Pilgrim (1996: 88).

29 Appendix Figs 4, 5, 13a and 13b. For Kom Rabi'a see Appendix Figs 8b and 8a. A total of 12 round granaries were identified in Level VI a,b,c and e at the Kom Rabi'a site. Giddy (2012: 119-148).

30 See for example Millet (2007: 687) and Wegner (1998: 31).

31 It does this by "maximizing the surface area swept by wind, and minimizing the area receiving direct radiation from the sun." Mills (1992: 30).

32 See Appendix Figs 2 and 16. Such a distinction would rest on evidence for the items stored. This evidence is unclear from the excavation reports.

33 Larsen does not identify the rectangular structures as granaries, but suggests that storage may have been in the large courtyard. See quadrants I Ib3, I Ib4, I Ic3, I Ic4 and I Id4. Larsen (1941: Abb. 3). The plan of the site published by Bagh identifies these structures as granaries based on their similarity to similar structures at Lahun and the Middle Kingdom fortresses of Buhen and Askut. Bagh (2002: 36, n. 31 and Fig. 2). Adams makes his identification on the similarity with funerary models. Adams (2007: 3).

Site	Circular	Rectangular dimensions (approximate)	Multi-chambered (if rectangular)	Bricks laid end to end	Bricks laid side by side
Tell el-Dab'a F/I	1m diam. Czerny (1999: 25, Abb. 7)	1m <sup>2</sup> Czerny (1999: 25, Abb. 7)	N	Y	-
Tell el-Dab'a R/I	< 2.5m diam. Czerny (2010: 75, Fig. 6)	-	N	Y	-
Tell el-Dab'a A/II	1m - 2m diam. Bader (2018: Fig. 4)	-	N	Y	-
Abu Ghalib	-	4m x 1.5m Bagh (2002: Fig. 2)	Y		Y
Kôm Rabi'a	1.55m - 3.2m diam. Giddy (2012: Pl.s 6-7)	-	N	Single	Y
Lahun	1.7m - 1.9m diam. Petrie (1890: 24)	15m x 7m 12m x 12m Kemp (1986: Fig. 2)	Y	Circular structures	Rectangular Structures
Kom es-Sultan	2m diam. Adams (2007: Fig. 3)	5m x 2m Adams (2007: Fig.s 1-6)	Y	Circular structures	Rectangular Structures
Wah-Sut	3.2m diam. Wegner (1998: 31)	25m x 10m Wegner (2001: 290, Fig. 6)	Y	Circular structures	Rectangular Structures
Karnak	1.5m - 2m diam. (Millet 2007: Pl.s IV, XI, XII, XVII)	-	N	Y	-
Tell Edfu (Zone 3) Fig. 14	3.5 - 4m diam. Moeller and Marouard (2012: 160)	Various sizes Moeller (2016: Fig. 7.10)	Y	Circular and rectangular structures	N
Elephantine	2.5m diam. (H86/H84) von Pilgrim (1996: Abb. 25-27)	2m <sup>2</sup> (H86/H84) von Pilgrim (1996: Abb. 22-26)	N	Rectangular and circular structures (H86/H84)	-

Table 2.2 Shape and Size

size, despite the distance between the two sites, may represent an ideal structure for a particular storage method, such as produce contained in bags or pottery jars.<sup>34</sup> Two sites, Lahun and Wah-Sut, have spectacularly large structures which have been interpreted as granaries based on their similarity to funerary models of granaries from the Middle Kingdom.<sup>35</sup> Only one such building has been uncovered at Wah-Sut, however, it is believed that each of the 10 large houses at Lahun may have had a similar large structure.<sup>36</sup>

It is generally accepted that these structures were accessed from the top, however, there is some debate as to how they were roofed, an important consideration as this may be indicative of how goods were stored within.<sup>37</sup> While Kemp assumes that they were roofed, Wegner believes that they may have been open.<sup>38</sup> However, an unroofed building would not have been conducive to the longterm storage of grain which surely would have been detrimentally affected by elements such as dust and insects.<sup>39</sup> An additional problem is also apparent in the internal layout of the buildings. The evidence indicates that the chambers were all interconnected and this must have presented some difficulties with managing the grain if it was in a loose form. However, it may have been that grain was prevented from flowing from one chamber to the next by blocking the doorways between each unit.<sup>40</sup> It is perhaps possible that items which were already packaged in smaller containers may have been stored in these rooms. Indeed, it seems that the large structure at Wah-Sut may not have been entirely suitable as it did not remain in use as a storage facility for long. Built during the initial construction phase of the settlement for servicing the mortuary cult of Senwosret III in mid-Dynasty 12, by late Dynasty 12 it had been converted into a residential unit.<sup>41</sup>

These rectangular structures at Lahun and Wah-Sut are an important part of the evidence used to discuss the process of redistribution in ancient Egypt whereby elite households provided smaller households with grain supplies and thereby maintained control over the smaller households.<sup>42</sup> The identification of the building at Wah-Sut as a centre for

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34 This is speculative. A more detailed examination of the artefacts found in the structures may provide further information on this point. However, it is not entirely clear from the reports what was exactly found in the chambers themselves.

35 Kemp (2018: 215). This interpretation is discussed further in Chapter 5.

36 See Appendix Fig. 9a. Kemp (2018: 215).

37 Kemp (1986: Fig. 2), Wegner (2001a: 290), Adams (2007: 3).

38 Kemp (1986: 130), Wegner (2001a: 290).

39 Adams (2005: 5).

40 Wegner does not indicate that there was any evidence of this, although such blockages may not have left a significant enough mark on the building to have made an impression in the archaeological record.

41 Wegner (2001a: 281, 291).

42 “The Kahun granaries are a key piece of evidence for regarding Kahun as a town not only created by administration but also maintained by administration, with much of the population dependent upon rations held in store by the chief officials.” Kemp (2018: 216).

redistribution rests on its resemblance to similar structures at Lahun.<sup>43</sup> Much of the argument for the redistribution of grain from central granaries at Lahun relies upon the lack of smaller granaries within the settlement. Kemp identifies only 13 of such structures, from Petrie's plan, in the western block out of 150 houses and writes that "a significant proportion of the Kahun [sic.] population was dependent on the large houses for rations."<sup>44</sup> Moeller suggests that the round granaries in smaller houses may have been secondary additions after the town was first constructed and that their small number "seems to confirm the economic role of the larger mansions in relation to the majority of inhabitants."<sup>45</sup> There are, however, problems with the evidence from Lahun which may affect these interpretations.

## 2.2 Lahun: Model Middle Kingdom Town?<sup>46</sup>

The discussion about granaries at Lahun far outweighs the amount of published evidence for these structures.<sup>47</sup> Three reports were published for the five excavation seasons overseen by Petrie from 1889 to 1921; within the written part of these reports there are only four specific references to granaries. A more recent report on the late 20th century excavations by the Royal Ontario Museum discusses the structures in Houses 2, 3 and 5 which have been identified as granaries apparently after Petrie's initial reports.<sup>48</sup> This ROM report identifies three sets of stairs on the exterior of the northern enclosure wall which gave access to Houses 2, 3, and 5 near the location of the granary structures, but did not identify any new granaries in the town.<sup>49</sup> However, for the most part it is Petrie's earlier reports which form the focus of much of the discussion, particularly as his two plans are still the only published plans of the site.<sup>50</sup> The first reference to granaries is in the 1890 report in which Petrie describes the circular structures in the western town. The 1891 report contains the second reference to granaries in the description of the large houses of which Petrie writes that five of these

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43 Wegner (2001a: 290)

44 Kemp (2018: 216-217).

45 Moeller also notes that the inhabitants of Lahun may have engaged in agricultural activities and kept animals nearby. Moeller (2017: 203).

46 Appendix Fig. 9a. The numbering of these houses is after Moeller (2017: 198, Fig. 12.7).

47 This site was originally referred to as Kahun by Petrie. See Petrie (1923: 1). More recently the convention is to call it Lahun. For a further explanation of this usage based on the etymology of the word see Luft (1998: 1). Willems has written a concise discussion of the granaries at Lahun which outlines current thinking on their supply role within the settlement. See Willems (2013: 356-358).

48 Frey and Knudsted (2008). Work has continued at Lahun into the 21st century and the concession for this site is now with the Museum of Fine Arts in Budapest under the directorship of Zoltán Horváth. Their work has centred on producing an archaeo-topographic map of the entire area, with field research concentrating on Senwosret II's mortuary temple. See Horváth (2010: 188-189).

49 Frey and Knudstad (2008: 42ff).

50 The western town plan was published in Petrie (1890: Pl. XV). A more comprehensive plan of the entire town was published in Petrie (1891: XIV). This plan forms the basis for most discussion of Lahun.

houses are “all on one plan, with such very slight modifications that we may ignore them”.<sup>51</sup> He then writes that “the rooms along the north wall were probably long store-rooms and granaries”.<sup>52</sup> However, his description of the houses is a compressed analysis and it is possible that the granaries to which he refers are the circular structures indicated at the back of House 5 and rather than a description of the block of interconnecting chambers apparent in House 2.<sup>53</sup> This possibility is strengthened by Petrie's description of similar structures in Houses 9 and 10. He writes of “a compact mass of nine store-rooms forming a square block, three each way.”<sup>54</sup> He makes no indication that he interpreted them as granaries.

The final report by Petrie on Lahun has two references to granaries. The first is a description of “three granaries, two with an additional enclosure of a curve wall.” While Petrie does not give a specific location for this structure, he writes of it being “on the eastern side of the street which runs south from the east of the acropolis.”<sup>55</sup> It is therefore clearly not part of any of the large houses. The final comment on granaries at Lahun is by Brunton who briefly mentions “turning out the contents of one of the many circular granaries in the eastern portion of the town...”<sup>56</sup> There is no depiction of granaries on Petrie's 1891 plan of this part of the town and this plan was never subsequently revised.<sup>57</sup> Therefore, there is no published information as to granaries in this part of the site. However, it must be stated that it is not so much that the blocks of interconnected chambers are not granaries as that only circular structures are specifically identified as granaries in these reports.<sup>58</sup>

### 2.3 Granary Use and Lifespan

The evidence from a number of sites, as outlined in 2.1, suggests that once an area was allocated for storage structures within the footprint of a house it continued to be used for this purpose, even as the house plan altered and granaries were demolished and replaced. For

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51 Petrie (1891: 6).

52 Petrie (1891: 6).

53 Appendix Fig. 9a, House 5, highlighted in green.

54 Petrie (1891: 7).

55 Petrie (1923: 39, Pl. XXXVIA).

56 Brunton in Petrie (1923: 40).

57 The accuracy of the published plan should be questioned. Diagrams of the town in Petrie's notebooks suggests that the layout of the buildings may not be quite so rigidly orthogonal as suggested by the published plan. See for example Doyen (2010: 83, Fig. 2).

58 It is surprising that Petrie did not make a connection between the multi-chambered structures he observed and funerary models as others have done. Certainly information on these models had been published prior to the time in which Petrie excavated Lahun. See for example Budge (1887-8: 38). The answer may lie in Petrie's unpublished papers. Gallorini has demonstrated that Petrie's Journal and Notebooks can provide further information on find locations which is not available in the published reports. See Gallorini (1998). Brunton's brief comment offers a tantalising glimpse into the possibility that there may be as much to unearth in Petrie's notes on Lahun as there is in the desert sands of Egypt.

example, at Karnak, granary SI2 was used during Dynasty XII and then, at the end of Dynasty XII, granary SI1 was constructed nearby, the first granary no longer being in use.<sup>59</sup> A similar pattern can be observed in the NW sector at Kom Rabi'a.<sup>60</sup> In this sector, 7 structures identified as granaries on the basis of their circular shape, were constructed during Level VIb and VIa.<sup>61</sup> In one instance a new granary, feature 821 was constructed almost directly over the top of feature 884 indicating that the earlier granary was demolished prior to the construction of the new one. On other occasions, at both Kom Rabi'a and other sites, new structures were built next to the older ones rather than over the top, thus indicating that a granary may have remained in use while a new one was constructed.

This pattern of extended use of a structure is also evident at other sites. At Kom es-Sultan a rectangular structure was used continuously throughout Level 1 and was probably built during the initial construction phase of Level 1b.<sup>62</sup> At Level Ic two additional circular granaries were excavated, although evidence for these did not continue into the next stage, Level Id.<sup>63</sup> Perhaps one of the best examples of the extended use of an area is at Elephantine in Area BIV.<sup>64</sup> Initially a single square unit was constructed as part of House 86 in the early Middle Kingdom, feature 0231.<sup>65</sup> This unit continued to be used for the following three stages, only disappearing from the archaeological record in the last stage of the house, H84a. However, during this time first one circular granary, feature 0202 in H84c was built and then another, feature 0201 in H84b, was constructed. In this last phase the square structure was separated from the circular granaries by a wall and was re-designated by the excavators as feature 0221.<sup>66</sup> The example of this house demonstrates that within the context of a site a specific area was allocated for storage and continued to be used for an extended period of time even as new structures were built and the surrounding house changed in layout.

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59 Appendix Fig. 13a and b. The drawings from the excavations also show evidence of partial curves which may be interpreted as granaries, thus emphasising the fact that this area was used for storage over an extended period of time. See Millet (2007: Pls IV, XI, XII and XVII).

60 The site was occupied during the late Middle Kingdom, probably during Dynasty 13. Giddy (2012: 2). It was abandoned at the end of the Middle Kingdom possibly due to frequent flooding from the Nile inundation as silt and sand had spread over the entire area of the site marking the end of its occupation phase. Giddy (2012: 10).

61 Appendix Fig. 8b and 8c. For the identification of a granary based on wall shape see for example the identification of feature 835 as a granary even though only a small remnant curve was left. Giddy (2012: 114).

62 Adams (2007:9). Level I was identified by the excavators as belonging to the FIP and MK periods (c. 2130-1650 BC). Adams (1998: 24) and (2007: 1).

63 Appendix Fig. 11a which shows Level Ia/b and Fig. 11b which shows the earlier Level Ic with extra storage facilities.

64 Appendix Fig. 15 for a site plan of Elephantine, showing Area BIV in green. Fig. 16 shows the development of the storage facilities in H86/H84.

65 H86b, von Pilgrim (1996: 76, Abb. 22).

66 von Pilgrim (1996: 92, Abb. 26).

It is difficult to know why a granary ceased to be used and what reasons lay behind the demolition and reconstruction of granaries. Unfortunately, as little remains of granaries in the archaeological record, other than their foundations, it is not possible to ascertain to what extent repairs may have been carried out on the buildings. It is also difficult to know if granaries were subject to collapse after a period of use or if they were deliberately demolished. At Karnak SI2 was completely clean with no evidence of plant remains. Instead it was found to have been used as a dump for pottery suggesting that the demolition may have been deliberate prior to the space being re-purposed. However, at Elephantine a granary which had collapsed in on itself was excavated at Area HGS in House 14e, the cover of which was found in the remains.<sup>67</sup> The excavators described the structure as being completely destroyed by termites.<sup>68</sup> Unfortunately, it is not possible to know if this infestation caused the granary to be demolished, or if it happened at a later date. Certainly other evidence indicates that pest control was employed in the construction of some granaries indicating that insect infestation could be a problem.

#### 2.4 Pest Control

Stored produce is subject to invasion and spoliation by pests such as insects and rodents and the structure of a number of granaries at different sites, summarised in Table 2.3, indicates that active measures were taken to deter pests and to exterminate them in order to minimise the affects of pests on stored goods.<sup>69</sup> Two methods were used: one actively deterred the pests by creating a barrier, the other acted as an insecticide. Pests such as rodents could be deterred by creating a barrier against pest invasion in the construction of the granary. This involved building a cavity brick wall and then filling the space with a loose material such as sand. This type of structure was found at both Kom es-Sultan and Elephantine, although it appears that rather than building a special cavity brick wall, the wall of the granary was built just off an existing wall, thus creating the cavity. The loose mixture within the cavity would make it difficult for animals to tunnel in as the material would collapse back in on itself. In order to gain access to the stored produce the animals would have to try and gain entry from the top of the structure where they could be more easily

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67 von Pilgrim (1996: Abb. 9 and Taf. 3c) for the cover.

68 von Pilgrim (1996: 45).

69 Insects in particular were able to adapt to the stable microclimates provided by granaries. Ancient evidence of pest species include a sample of barley from Lahun which contained a specimen of *Rhizopertha dominica*, "...[which] can cause serious damage to stored crops. It is a usual pest on grain in warmer countries..." Panagiotakopulu (1998: 232).

observed.<sup>70</sup> Square structures were particularly suited to this method of construction. However, a similar idea was employed in the construction of a circular granary at Karnak in which the foundations were constructed with a double wall filled with a mix of material.

Site	Granary shape	Double wall construction	Material
<u>Kom Rabi'a</u>	Round	N	Ash
<u>Kom es-Sultan</u>	Square	Y	Sand
Karnak	Round	N	Material and Ash
<u>Tell Edfu</u>	Both	N	Ash
Elephantine	Square	Y	Sand and Ash

Table 2.3 Pest Control

The second method involves eliminating pests by using ash as an insecticide. Ash works effectively to eliminate insects by destroying the waterproof layer on their exoskeleton; effectively death by dessication.<sup>71</sup> The elimination of insects has two benefits: it reduces food loss and it prevents the unpalatable quality of insect-infested produce.<sup>72</sup> Table 2.4 shows the sites which had evidence of pest control and most included the use of ash, although the method of using it varied. At Kom Rabi'a one granary was found with an ashy fill laid over a compact clay floor.<sup>73</sup> This suggests that loose ash may have been placed in the granary with the grain. Winnowing would then remove the ash, suggesting that grain was placed in the granary in spikelet form prior to threshing.<sup>74</sup> However, the evidence from the other sites indicates that ash was most commonly used on the outside of the granary, either within a specially created cavity, or placed between the structures as at Tell Edfu.<sup>75</sup> Karnak and Elephantine have evidence that both methods were employed as ash was mixed with the loose material used as a deterrent. The fact that both square and circular granaries had these features indicates that the choice of square over circular granary was not necessarily dictated by the need to control pests. It is also an important piece of evidence to note as it may be an

<sup>70</sup> A similar technique is used to deter termites in Australian houses, as an alternative to pesticides. A layer of crushed granite is placed in a cavity around the perimeter of the building. The density and hardness of the particles means that termites are unable to chew or push their way through. "Granitgard particle barrier works by being too dense and hard for termites to push or chew their way through. This forces any termite activity into the open where it can be visually detected." granitgard.com.au Accessed 5//10/19.

<sup>71</sup> "Insects survive by reducing water loss with the aid of a thin waterproof waxy epicuticle." "Ash is particularly effective because it not only adsorbs the wax of the insect epicuticle, but also attacks it chemically by saponifying the wax." Miller (1987: 14, 15).

<sup>72</sup> Infestations reduce storage life and add "unpalatable ingredients to the human foods prepared from weevily flour." Insects use quinones to harden their exoskeletons, partly in order to reduce water loss. The crushed quinone would have produced a bitter flavour. Miller (1987: 14).

<sup>73</sup> No evidence of burning therefore assumed related to function as granary. Giddy (2012: 53).

<sup>74</sup> Grain at Tell Edfu was found in spikelet form. Moeller (2018: 175).

<sup>75</sup> At Tell Edfu the ash was placed between the square and round granaries built during Phase 3. Moeller and Marouard (2012: 160).

additional archaeological marker as to the purpose of structures which have been excavated in settlement contexts.

## 2.5 Grain Remains

The presence of botanical remains is, in theory, an ideal way of establishing the use to which a structure may have been put. Unfortunately, the way in which evidence is preserved has meant that it is not always easy to ascertain to what degree a sample represents an item that was in storage, or a plant that was in the process of being stored or used in food production. Additionally, the information is complicated by the fact that not all areas in a site can be, or have been, sampled and nor is it always clear that the samples have been taken exactly from the place where the granary was located. For example, a survey of botanical remains from quadrat F/I-I/20 Tell el-Dab'a indicated the presence of both emmer and barley.<sup>76</sup> It also contained legumes, grapes, figs and dates.<sup>77</sup> Unfortunately, it is not clear where exactly in the remains of the house these plant samples were located.

Site	Grain remains from site	Other plant remains
Tell el-Dab'a F/1	Emmer and Barley <u>Czerny</u> (1999: 119)	Grapes, figs and dates <u>Thanheiser</u> (2006: 304)
Tell el-Dab'a R/I	Not stated	-
Tell el-Dab'a A/II	Not stated	-
Abu Ghalib	Emmer and Barley <u>Schiemann</u> (1941: 59)	Legumes <u>Schiemann</u> (1941: 59)
<u>Kôm Rabi'a</u>	Hulled emmer and barley Giddy and Jeffreys (1990: 5)	-
<u>Lahun</u>	Barley Newberry in Petrie (1891: 50)	Dom palm, sycamore fig, carob, legumes, cucumber Newberry in Petrie (1891: 49-50)
<u>Kom es-Sultan</u>	Barley and emmer Adams (1992: 6) and (1998: 25)	Pea and fig Adams (1992: 6)
<u>Wah-Sut</u>	Not stated	Unspecified <u>Wegner</u> (1998: 21)
Karnak	No remains Millet (2007: 686)	-
Tell Edfu	Barley and emmer Moeller (2018: 175)	Not stated
Elephantine	Unclear	Unspecified

Table 2.4 Grain Remains

<sup>76</sup> Czerny (1999: 119). Samples from this building may be considered indicative of the usage of grain in other dwellings as this building is one of the most complete examples of a residence uncovered in F/I.

<sup>77</sup> Thanheiser (2006: 304).

Abu Ghalib is another site at which the samples of plant remains do not necessarily match the interpretation of the archaeological evidence. In his reports, Larsen refers to the storage of grain in his discussion of the large courtyard.<sup>78</sup> He locates a group of storerooms in the north-west corner of this space as a place for storing grain and suggests that the processing of the grain was done in this large courtyard.<sup>79</sup> Six probes were made in the 1936/1937 season in order to gather archaeobotanical evidence.<sup>80</sup> Subsequent analysis of this evidence indicated the presence of a number of food types, including both emmer and barley.<sup>81</sup> Two of these probes were made in quadrants which have the installations referred to as granaries by Bagh and three were made in the courtyard. Yet, the quadrant which contained the greatest number of grains was in neither of these areas, but located in a northern quadrant on the edge of the excavated area.<sup>82</sup> This quadrant had three ovens and this may account for the high number of grain specimens. Two other probes also contained a high number of grain specimens, although half the amount in the aforementioned quadrant. One was located in quadrant with a multi-chambered structure, the other in the courtyard.<sup>83</sup> This information demonstrates the difficulty in identifying areas for grain storage based solely on one type of archaeological evidence. It may be that only a comprehensive analysis of various types of archaeological information from multiple sites may provide a wide enough range of data which would enable a more accurate identification of a building's use.

The evidence from plant remains does not only provide information as to what was stored in granaries. At the sites in this survey which were reported to have archeo-botanical material, both barley and emmer were found. However, at Lahun the only cereal grain found was barley.<sup>84</sup> Unfortunately, it is not possible to explain why this might be the case. The state in which the remains were found is also important additional information as it gives an indication to the storage processes involved. For example, at Kom Rabi'a a wide range of botanical samples have been recovered from the site, including hulled barley and emmer wheat.<sup>85</sup> As the grains grown in Egypt at this time were not free-threshing, this may indicate

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78 See quadrants IIb3, IIb4, IIc3, IIc4 and IId4. Larsen (1941: Abb. 3).

79 Larsen (1941: 11-13).

80 Appendix Fig. 7. The quadrants where probes were made are highlighted in green.

81 Larsen (1941: 50). These finds were assessed by Elisabeth Schieman.

82 Probe II in quadrant IIIId 1 contained 120 specimens of barley and 60 of emmer. Larsen (1941: 59). This quadrant also contained three ovens.

83 Probe III in quadrant IIIId 3 contained 55 specimens of barley and 18 of emmer. This quadrant contained one oven. Probe IV in the courtyard in quadrant IIb 3 contained 52 specimens of barley and 18 of emmer. There were no ovens in this courtyard. Larsen (1941: 59).

84 Newberry in Petrie (1891: 50).

85 Giddy and Jeffreys (1990: 5).

that the grain was stored as clean grain, prior to being processed for beer or bread.<sup>86</sup> However, at Tell Edfu, the opposite is in evidence as the grain was found in spikelet form suggesting that it was stored in this condition.<sup>87</sup> This would then suggest that the final processing at this site, in which pounding would have been used to free the grain from the glumes of emmer and fused hull of barley, may have been directly part of the bread and beer making process.<sup>88</sup>

## 2.6 Administrative Impressions

A number of artefacts are regularly associated with storage facilities and one such is seal impressions which have been excavated at most sites in this survey. This evidence can provide much information on administrative organisation and titles associated with administrative positions. The corpus is large and therefore beyond the scope of this project, however, two small points are worth considering. The first is the location of seals within the settlement as they are often taken as an indicator of the location for administrative activities, particularly those associated with grain storage.<sup>89</sup> It is therefore interesting to note some of the evidence from Wah-Sut and Elephantine as to where large deposits of seal impressions have been found. At Wah-Sut, Wegner identified a large deposit near the back of the building termed the Mayor's residence.<sup>90</sup> That is, on the other side of the building from where the granary complex was located. A similar discrepancy can be observed at Elephantine in House 84 where a total of 38 seal impressions were uncovered in the square feature 0231 next to the circular granaries.<sup>91</sup> However, the overwhelming majority of seal impressions found in this house were located on the other side of the building where 1221 seal impressions were uncovered.<sup>92</sup> It may be that the link between seal impressions, grain storage and administration may be more complex and that administrative practices did not necessarily occur directly next to grain store-rooms.<sup>93</sup> The second area of interest is the markings on the

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86 Murraray (2000: 512).

87 "Various sources of evidence suggest that cereal grain was deposited in granaries ... in spikelet form and not as clean grain." Murraray (2000: 512). For information regarding grain at Tell Edfu see Moeller and Marouard (2018: 175).

88 Murraray (2000 :527).

89 See for example Adams (2007: 6).

90 Wegner (2001b: 80) This location is on the south side of Building A in the Appendix Fig. 12a.

91 von Pilgrim (1996: Abb.110)

92 von Pilgrim (1996: Abb. 110). See also Appendix Fig. 16. The area where most seal impressions were found is in the top right hand corner of H84 Stage 4.

93 Additionally, the understanding of the location of seal impressions within the archaeological record is further complicated by the fact that the find spots may be indicative of a dumping site, rather than the direct result of administrative activities.

other side of the seal impressions which can give some indication as to what type of container the seal was attached to.<sup>94</sup> A comprehensive study of this information in conjunction with the find location of seals impressions may give a more complex understanding of the goods deposited in and around granaries and other storage facilities.

A granary is a structure used to store grain in an environment which is aerobic for the short to medium term. In ancient Egypt during the Middle Kingdom, these structures were constructed in a variety of styles. Many were circular in design, others were rectilinear either a single square unit, or larger with multiple compartments and size and construction techniques were varied accordingly. Evidence from sites indicates that some of the units were constructed in such a way as to deter pests, while others had ash added into them as further proof against pests. Evidence from most sites indicates the presence of both barley and emmer which was so essential for the ancient Egyptian daily diet. However, while grain was the main purpose for which a granary was constructed, it may be that these buildings were used to store other food types as suggested by the presence of other plant remains as well as grain. Some of the identification of granaries at the sites discussed here has been based on interpretations of the funerary models by the excavators. This interplay between the evidence outlined here and other forms of evidence for granaries is discussed in Chapter 5.

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<sup>94</sup> Wegner identified four main back types indicating that the seal had originally been attached to a papyrus document, wooden box, door bolt or wickerwork container. Wegner (2001b: Fig. 2).

## Chapter 3 Attestations and Excerpts

### The Textual Evidence

There are a number of ancient Egyptian terms for storage buildings. During the Middle Kingdom the terms commonly used were *šnw.t*, *mḥr* and *šn<sup>c</sup>*,<sup>95</sup> These terms are usually translated as 'granary' (*šnw.t*), 'storehouse' or 'barn' (*mḥr*), and 'storehouse' or 'labour establishment' (*šn<sup>c</sup>*).<sup>96</sup> This chapter analyses attestations of these terms in a series of excerpts within a variety of genres. However, the size of the project has meant that only limited attention has been given to the discussion of genre. Where possible genre is briefly discussed, however for the most part a thematic approach has been taken in which different aspects such as ownership, produce types and quantities are considered. Some consideration of the possible distinctions between the terms has been given and abstract concepts of the term *šnw.t* have also been examined.

Each section contains an overview of excerpts accompanied by a series of tables with those excerpts in them. This table has the hieroglyphic phrase accompanied by its transliteration and translation in bold. Occasionally, extra phrases are included, as an aide to contextualisation, which are not part of the hieroglyphic transcription in the table and these are not in bold. At the end of the chapter a series of tables provides the catalogue numbers for the excerpts used in this chapter and lists details such as the date of the texts and their museum accession numbers. These tables are arranged according to the term in the excerpt rather than by theme. Images of the original texts are included in the Appendix with the different terms highlighted in colour.<sup>97</sup> Attestations where the images have been not been located, or are of poor quality, have not been included.

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95 Based on a search of the TLA for attestations dating to the Middle Kingdom Accessed 15/07/2019.

96 For translations of *mḥr*, *šn<sup>c</sup>* and *šnw.t* see Faulkner (1962: 115, 269).

97 *šnw.t* is highlighted in red, *mḥr* in blue and *šn<sup>c</sup>* in green. Additionally, Excerpt 20 a and b has the term *ḫ(w)* highlighted in yellow as this term is also discussed in 3.3.

### 3.1 Districts and Estates

Excerpt	Hieroglyphic Transcription	Transliteration and Translations
1 (šnw.t)		<i>ir.y-ʿ3 n šnw.t n.t ḥbsw sw n ḥr.y-ib n ḥnt-mnw</i> “...a doorkeeper of the granary of the ploughlands of the district which is in the midst of Akhmin...” <sup>98</sup>
3 (šnw.t)		<i>inw šnw.t tn n im.y-r3 ʒḥ(w)t?</i> “deliveries of this granary to the overseer of fields” <sup>99</sup>
4 (šnw.t)		<i>šnw.t ntt m sp3t X</i> “The granary which is in the district... amount filled by [...]” amount filled by mayor [...] amount filled by lector priest amount filled by pure priest...” <sup>101</sup>

Table 3.1a

The excerpts in Table 3.1a indicate that a *šnw.t* could be identified as belonging to a specified district and that certain fields, and presumably their produce, could also be assigned to it. For example, Excerpt 3 can be broken into two stages: the allocation of produce from a specific granary and the destination of this produce to a specified position of responsibility, the overseer of the fields. It is interesting to note the plural for the fields under the overseer's responsibility as this intimates that a number of fields could be linked to one *šnw.t*. It is interesting to note the demonstrative 'this' in association with the field and the plural for the fields under the overseer's responsibility as this intimates that a number of fields could be linked to one *šnw.t*. The link between people with positions of responsibility, rather than private people, is also apparent in Excerpt 4 which refers to a mayor (*ḥ3.ty-ʿ.w*), a lector priest (*ḥr.y-ḥ3b(.t)*) and a pure priest (*w3b*). In this instance it seems that there is an obligation on their part to supply the *šnw.t* with produce and possibly set amounts of goods according to rank.<sup>102</sup> The links between fields, executive positions and the *šnw.t* demonstrated in these texts hints at a complex arrangement for the movement of goods.

This complexity is also indicated in a number of other examples. The title doorkeeper of

98 Line 4. Hieroglyphic transcription and translation by Hayes (1955: 25 and pl. I). Transliteration my own based on Hayes' transcription.

99 Hieroglyphic transcription, transliteration and translation by Collier and Quirke (2002: 138-139), except for *m-r*, which I have transliterated as *im.y-r3* after Ockinga (2012: 148).

100 Limited information on the verso of this papyrus has been published and so it has not been possible to include a hieroglyphic transcription of the text.

101 Transliteration and translation after Quirke (1990: 190).

102 For a discussion of the role of mayor, or nomarch, see Pardey (2005). For different categories of priests and their roles see Doxey (2005).





### 3.2 Produce and Quantities

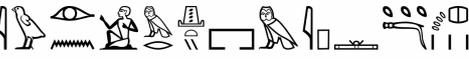
Excerpt	Hieroglyphic Transcription	Transliteration and Translations
8 (šnw.t)		<p><i>rḥt ʒptpw ini [...]</i>  <i>m šnw.t ḥr hw.t mʒty (?) šm<sup>c</sup></i></p> <p><b>“Amount of cargo brou[ght...] from the granary for the domain of .. of Upper Egypt (?) [...] in sailing north to lower Egypt [...] Processed barley, double barrel 15,18, 25[...] Malted grain, double barrel 5 Dates, double barrel 5 loaves, various...150...”<sup>109</sup></b></p>
9 (šnw.t)		<p><i>iw iri.n=i im.y-rʒ šnw.ty m ip it-mḥw</i></p> <p><b>“I was an overseer of the Double granary at the count of Lower Egyptian/full barley.”<sup>110</sup></b></p>

Table 3.2a

Excerpt 14, in Table 3.1c above, makes a clear link between barley and emmer, and the *šnw.t ʕ3.t* of Thebes. Of the 7 excerpts in this section, more than half make reference to grain in connection with a *šnw.t*. In Table 3.2a Excerpt 8 refers to two different types: processed barley and malted grain. Excerpt 9 also makes a specific reference to a type of barley, indicating that there was some differentiation within the different types of the cereal, although perhaps not in the way that modern agriculture identifies strains according to species and subspecies types.<sup>111</sup> Excerpt 8 also indicates that grain was not the only produce associated with a *šnw.t* as it includes dates and loaves among its list of produce. In fact, of the four items listed, three are of already processed products rather than grain in an unprocessed form.<sup>112</sup>, as in Excerpt 22a and b in Table 3.3a below. Additionally, dates and malted grain were possibly used in the brewing of beer suggesting that part of this shipment may have been intended for this purpose.<sup>113</sup> This indicates that a *šnw.t* was not only involved in the distribution of unprocessed grain, but that other produce was also associated with it. The sophisticated movement of a variety of goods indicated here hints that a *šnw.t* may have had a

<sup>109</sup>Hieroglyphic transcription, transliteration and translation after Collier and Quirke (2006: 107).

<sup>110</sup>Lines 5-6. Hieroglyphic transcription, transliteration and translation after Landgràfovà (2001: 130-131).

<sup>111</sup>See Germer (1998) for a discussion on ancient Egyptian terminology for plants.

<sup>112</sup>The shipment of loaves may be an indication of payment for something unknown, rather than simply a supply of food, as bread was used for this purpose. As in Excerpt 22a, Table 3.3b.

<sup>113</sup>For further information on the use of malted grain for brewing including the identification of *bš<sup>c</sup>* see Samuel (2000: 551-553). For a discussion of the possible use of dates in making special beers see Samuel (2000: 556-557).



private individual.<sup>119</sup> This reinforces the idea that a *šnw.t* was connected to the public sphere, either through district administration or through a link to the State as represented by the pharaoh. This means that the distinction between *šnw.t* and *mhr* may not lie so much in different types of buildings, but in their context within daily life and the purpose for which they were used. This idea is further reinforced by the industrial setting for Excerpt 17 and 18 as they are from the accounts for state building yards and dockyards respectively.

The excerpts in Table 3.2a and b also give some idea as to the quantities being moved or managed both for a *šnw.t* and a *mhr*. Two different size measures are referred to: the *ḥk3.t* which had a volume of 4.45 L and the *h3r* which measured 20 times the *ḥk3.t* or approximately 90L.<sup>120</sup> Excerpt 23a is the only example which could be considered to refer to domestic quantities of barley as used by a family. In the lines immediately following this excerpt, 20 *ḥk3.t* are set out for a family and 6 *ḥk3.t* are made into bread and beer for one person.<sup>121</sup> This stands in contrast to the reference to approximately 2700L of emmer on the private estate of Heqanakht in Excerpt 16 and the immense quantity of cereals in Excerpt 15, over 36,000L, which was supplied to the temple. These three examples clearly demonstrate the difference in scale between the domestic sphere, the storage capabilities on a private estate and the vast quantities involved with state organisations such as temples.

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119 Excerpt 16 comes from the Heqanakhte Papyri which detail aspects of private estate administration. Excerpt 23a comes from the Eloquent Peasant in which the peasant refers to his private supplies of barley.

120 For *ḥk3.t* see Faulkner (1962: 178). For *h3r* see Wortdiskussionen aegyptologie.philhist.unibas.ch, s.552. Accessed 3/10/2019.

121 Tobin (2003: 26). Unfortunately, there are two problems: the text is fictional and there is no indication as to the length of time for which these rations were intended to last. While it is not unreasonable to suppose that the text is a reflection of daily life and that 26 *ḥk3.t* are indicative of a quantity of produce used in a domestic situation, the lack of a timespan makes it impossible to be accurate as to the daily consumption of these products.

### 3.3 Provisions and Payments

Excerpt	Hieroglyphic Transcription	Transliteration and Translations
22a ( <i>šnw.t</i> )		<i>m šnw.t n.t nb ʕnh wd3 snb</i>
		“ <b>from the granary of the lord L.P.H</b> ” <sup>122</sup>
22b ( <i>šnʕ</i> )		<i>dpw.t m if 3pd m šnʕ n nb ʕnh wd3 snb</i>
		“ <b>meat and poultry from the storehouse of the lord L.P.H.</b> ” <sup>123</sup>

Table 3.3a

As well as *šnw.t* and *mhr*, another term, *šnʕ*, is also translated as a type of storage building and the excerpts in this section help to denote some of the different purposes of a *šnw.t* and a *šnʕ*. Excerpt 22a and b, in Table 3.3a, demonstrate a clear distinction between what was supplied by a *šnw.t* and what was supplied by a *šnʕ*: the *šnw.t* provided grain products; the *šnʕ* provided meat products. The *šnw.t* in this example is similar to that in Excerpt 8, Table 3.2a, in that the grain products have already been processed into beer and bread. The bread and beer listed in Excerpt 22a are described as *ʕk.w* which are to be distributed from the *šnw.t* on a daily basis to the members of the mining expedition, according to rank. The translation of *ʕk.w* affects the interpretation of the granary in this context: Obsomer translates it as 'provisions'; Spalinger suggests that it may be translated as 'income'.<sup>124</sup> If the translation 'provisions' is accepted this implies that these are the foodstuffs for daily consumption. However, those of a higher rank received very large quantities making it difficult to believe that they personally consumed such a volume of food each day.<sup>125</sup>

Two alternatives are possible: either these large quantities of bread and beer were supplied on a daily basis and were then distributed to members of staff not referred to in the text; or, if the translation 'income' is accepted, this is a record of payment for the work being undertaken. This latter interpretation would suggest that the *šnw.t* was part of the revenue system for workers. The fact that the meat products from the *šnʕ* were not specifically quantified in the text may give some weight to this, as it may have been deemed more important to record the payments under Ameny's control than the provision of food for the

<sup>122</sup>Line 19. The previous lines list the quantities of bread and beer which the various members of the mining expedition were entitled to daily, based on rank and occupation.

<sup>123</sup>Line 20. Hieroglyphic transcription, transliteration and translation after Obsomer (1995: 695-696).

<sup>124</sup>Obsomer (1995: 695, line 16). Spalinger (1985b: 189, footnote 6) and Spalinger (1986: 228-230).

<sup>125</sup>For example, Ameny who lead the expedition received 200 loaves of bread and 5 jugs of beer.

expedition. There are, however, problems with this interpretation in that only meat products are linked to the *šn<sup>c</sup>* and no other types of food are mentioned, although it is possible that this simply reflects a limited diet for those on an expedition of this type. Indeed, the text is quite clear that beer and bread come from the *šnw.t*, meat from the *šn<sup>c</sup>* and equipment from the *pr-ḥd*. Thus, only the *šnw.t* and the *šn<sup>c</sup>* are connected to food distribution.

Excerpt	Hieroglyphic Transcription	Transliteration and Translations
20a ( <i>šn<sup>c</sup></i> )		<i>mnt nt šn<sup>c</sup></i>
		“fixed portion of the provisioning-quarters” <sup>126</sup>
20b ( <i>šn<sup>c</sup></i> )		<i>m šn<sup>c</sup></i>
		“from the provisioning-quarters” <sup>127</sup>
23c ( <i>šn<sup>c</sup></i> )		<i>iw<sup>c</sup> k.w=k m šn<sup>c</sup></i>
		“You have provisions in the storehouse” <sup>128</sup>

Table 3.3b

Excerpts 20a and b, in Table 3.3b, also deal with the provisioning of those in service to the state, that is, those in service at the palace. This demonstrates that a *šn<sup>c</sup>* was intimately connected with the daily running of the palace and it may also indicate that this type of storage facility was associated with the elite.<sup>129</sup> There is, however, some debate as to what type of storage facility a *šn<sup>c</sup>* may be as there are two alternate translations for *šn<sup>c</sup>*: 'storehouse'

<sup>126</sup>The full text for this excerpt reads: “delivered to the palace at the arrival of the cupbearers of the Outer Palace, fixed portion of the provisioning-quarters given to the people of the house of nurses, fixed portion of the provisioning-quarters given to the ordinary entrants”. Hieroglyphic transcription, transliteration and translation after Quirke (1990: 36-37).

<sup>127</sup>This variation reads: “fixed portion of the ordinary entrants regularly supplied (?) from the provisioning-quarters”. The account with this variation is S12, Quirke (1990: 47, note 5).

<sup>128</sup>B1 332. Hieroglyphic transcription by Parkinson (1991: 42). Transliteration my own. Translation by Tobin (2003: 41). The attestations for storage facilities from this text have been separated as each offers different types of information for interpreting the different terms. See also Tables 3.2b and 3.4b.

<sup>129</sup>Quirke links the location of the *šn<sup>c</sup>* to archaeological evidence by suggesting that the three groups of palace residents who received provisions represented three areas of the palace building. He places the official area at the front and the private rooms at the back; both areas surrounded by the storerooms or provisioning quarters (*šn<sup>c</sup>*). However, only a closer examination of artefact assemblages at palace site could confirm this. Quirke (1990: 39). For a schematic layout see Fig. 1 Quirke (1990: 41). Quirke also writes that a tripartite division is seen in the archaeological record in which “the 'official' front of the house represents the male domain, whereas the 'private' back of the house is the family, predominantly female, domain.” Quirke (1990: 48). See also Spence (2015) for a discussion on the ordering of houses according to social practices rather than activities.

or 'labour establishment'.<sup>130</sup> Spalinger prefers the term 'workhouse'.<sup>131</sup> Following this interpretation the implication is that a *šn*<sup>c</sup> in this context was a place not just for the storage of goods, but also a production area. This idea that a *šn*<sup>c</sup> stored a range of goods, possibly more than foodstuffs, is also reflected in Excerpt 23c. Earlier in this text a reference is made to a *mhr* in Excerpt 23a, Table 3.2b, and it is made clear that barley was stored there. By comparison, most attestations of *šn*<sup>c</sup> are unclear as to what was stored and this may indicate that a much wider range of products was stored there. The nature of the role of the *šn*<sup>c</sup> is complex. Analyses of the titles associated with *šn*<sup>c</sup> and *pr-šn*<sup>c</sup> have indicated that it should be identified as a provisioning sector where not only storage occurred, but also the processing of products.<sup>132</sup> A possible example of this complexity may be found in Excerpt 25, Table 3.4a, as the phrase suggests that not only was the *šn*<sup>c</sup> involved in the storage of goods, but also in the production of beer. Additionally, the provision of meat and poultry in Excerpt 22b, Table 3.3a, also implies that a certain amount of processing may have occurred as the generic term meat is used, as opposed to specifying the type of animals supplied for later consumption.

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130Faulkner (1963: 269).

131See Spalinger (1985a: 13, n. 24) for a list of references discussing this definition.

132A discussion of evidence for titles associated with the *šn*<sup>c</sup>/*pr-šn*<sup>c</sup> can be found in Quirke (2004: 64-66). This discussion lists studies which helped expand the nature of this institution. As titles were not included in this thesis it was not possible to go into the role of the *šn*<sup>c</sup> in any detail.



wider range of goods than a *mhr*. This suggestion, that a variety of goods were stored in a *šn<sup>c</sup>*, can also be seen in a number of other examples with attestations of this term. Of the eleven attestations discussed in this chapter only two are concerned with food: Excerpts 22b and 25. Furthermore, Excerpt 25 refers to the “storehouse of the chamber of beer”. According to Spalinger's translation of *šn<sup>c</sup>* as 'workhouse' the phrase could be interpreted as referring to an area dedicated to the production of beer rather than the storage of grain for beer.<sup>137</sup>

Excerpt	Hieroglyphic Transcription	Transliteration and Translations
19 ( <i>šn<sup>c</sup></i> )		<i>r šn<sup>c</sup> n ḥ3.ty-<sup>c</sup>.w</i>
		<b>to the storehouse of the nomarch</b> <sup>138</sup>
21 ( <i>šn<sup>c</sup></i> )		<i>mḥ šn<sup>c</sup>.w ntr.w</i>
		<b>“one who fills the magazines of the gods”</b> <sup>139</sup>
23b ( <i>šn<sup>c</sup></i> )		<i>m=k tw ḥr.y-tp šn<sup>c</sup></i>
		<b>“Behold, you are the supervisor of the storehouse”</b> <sup>140</sup>
26 ( <i>šn<sup>c</sup></i> , <i>mhr</i> , <i>šn<sup>c</sup></i> )		<i>r šn<sup>c</sup> n ḥtp-ntr ḳd.n=i šnw.t šṯ3 mhr=s smn sb3=s</i> <sup>141</sup>
		<b>“...to the storehouse of divine offerings; I have built a granary, its storehouse is hidden, its door is fastened”</b> <sup>142</sup>

Table 3.4b

The one distinction which is apparent between all three terms is that, when stated, *šn<sup>c</sup>* is consistently linked only to edible produce. This contrasts with the *šn<sup>c</sup>* which is linked to a

<sup>137</sup>See Spalinger (1985a: 13, n. 24) for a list of references discussing this definition.

<sup>138</sup>The full text for this section reads: “That which he gave to them in return was a sack of coals for every bull, and a basin (basket?) of coals for every goat, which they give to the store-house of the nomarch when a bull or a goat is offered to the temple, in payment of that which they owe to the store-house of the nomarch”. Col. 292-293. Hieroglyphic transcription after Griffith (1889: pl.7). Transliteration my own. Translation after Reisner (1918: 84).

<sup>139</sup>Line 3. Hieroglyphic transcription, transliteration and translation Landgràfovà (2001: 138-139).

<sup>140</sup>B1 2014. Hieroglyphic transcription by Parkinson (1991: 30). Transliteration my own. Translation by Tobin (2003: 35). Parkinson uses re-numbered lines according to the restoration of the beginning of B1. Parkinson's line 204 was originally 173 and line 332 was 301. See Parkinson (1991: xiv and xxxix-xliii).

<sup>141</sup>Transliteration after Kubisch (2008: 305). Kubisch doesn't include *šṯ3* which is in the hieroglyphs and is indicated in the translation by Vernus (1986: 141). Vernus also comments on the form of the sign U30. See Vernus (1986: 143, note m).

<sup>142</sup>Line 5. The line before begins “I have brought” before breaking off so that, unfortunately, it is not possible to know what was brought. Translation after Vernus (1986: 141).



13 (šnw.t)		<i>šhn.n=i mi r r3 šnw.ty</i>
		<b>“I collected [amethyst] like for the mouth of the two granaries”<sup>148</sup></b>

Table 3.5

The four excerpts presented in Table 3.5. represent attestations for *šnw.t* as an abstract concept and so stand in contrast to many of the other Excerpts in this chapter which are more of an administrative nature. While Excerpt 23 and 24 are also of a literary nature, the context for the attestations are more indicative of the place of the *mhr* and the *šn<sup>c</sup>* in daily life. By comparison, the examples here all convey the idea of a metaphorical association between *šnw.t* and concepts of abundance and generosity. They demonstrate that *šnw.t* could be employed in contexts other than those of perhaps a more mundane nature.

The first two excerpts, 10 and 11, are almost identical, perhaps unsurprisingly given their proximity to each other at Hatnub. They are strongly reminiscent of the phrases found in biographical inscriptions in tombs which list the virtues of the person being commemorated in a form of mortuary prayer.<sup>149</sup> Thus the opening of a granary is something to be seen as commendable and therefore worthy of commemoration in an inscription. There are two possible interpretations for these excerpts depending on an understanding as to whether or not the biographies of ancient Egyptians are perceived as idealised narratives or accounts of actual events.<sup>150</sup> If taken at a literal level then it may be that these texts indicate that the provision of sustenance was of particular importance to those who lived in the area at that time.<sup>151</sup> However, a more abstract interpretation of these examples is that they were intended to signal the generosity of the writer. This implies that a *šnw.t* was linked not only to the supply of grain, but also to concepts of abundance.

<sup>147</sup>Hieroglyphic inscription after Anthes (1928: 70). Transliteration and translation my own.

<sup>148</sup>This section of the text reads: “A troop was given to (lit. behind) me to do what his *ka* (Senwosret I) wished with this amethyst of Nubia, (14) which I had brought from there in great quantity, and which I collected like for the mouth of the two granaries, it being dragged on a sledge and loaded upon a stretcher.” Hieroglyphic transcription, transliteration and translation after Landgräfová (2001: 256, 258).

<sup>149</sup>For further comments on the similarity between these inscriptions and those in tombs see Franke (2005). This catalogue of virtues developed out of Old Kingdom autobiographies and continued into the Middle Kingdom. Lichtheim (2006: 4). For a more detailed exploration of epithets used in the Middle Kingdom see Doxey (1998: 1-28).

<sup>150</sup>For a discussion on the development of biographies and their verisimilitude see Lichtheim (1988: 1-3).

<sup>151</sup>Landgräfová suggests that biographical inscriptions, as well as presenting the ideals of ancient Egyptian society, “may also encode specific happenings”. (2001: 130-131). These examples may be evidence for a scarce food supply during this period. For example, there is evidence of food shortages during year 25 of Amenemhat I's reign, Dynasty 12. See Obsomer (2005).

Excerpt 12, also from Hatnub, can likewise be interpreted in two ways, depending on the translation of the verb *iri*. At a concrete level it may be understood that a *šnw.t* was built by those referred to in the inscription. Certainly this would make sense if they were linked to granaries in an official capacity. However, it is also possible to translate *iri* with an abstract sense as in to make something prosperous.<sup>152</sup> In this sense the *šnw.t* is connected to ideas of abundance and, as in the collocations above, this concept of abundance when associated with a granary was a way of expressing the good character of the owner of the inscription. This apparent connection between *šnw.t* and abundance may explain why the term *šnw.t* was employed as a metaphor as opposed to using other storage facility terms.

Excerpt 13 is the clearest example of *šnw.t* used as a metaphor in order to express a great quantity. In this instance the image of countless particles of grain is conjured in order to indicate the great quantity of amethyst collected during the mining expedition of which Hor was in charge. In the earlier part of the inscription, Hor lists his titles, among which was the Overseer of the Double Granary. It therefore seems entirely appropriate, not to say poetic, that the metaphor he should choose should be linked to his position. This image of grain also conveys the idea that his mining expedition was so successful that the mining of the amethyst was more like harvesting grain than the much more strenuous activity of mineral extraction. It reinforces the concept that *šnw.t* was associated with abundance.

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<sup>152</sup>Faulkner *iri* definition (7) 'make prosperous, maintain', (1962: 26).

The collocations analysed in this chapter demonstrate that the buildings termed *šnw.t*, *mhr* and *šn<sup>c</sup>* were used to store food in the Middle Kingdom. It is also evident that there was a distinction between the three, although it is no longer always entirely clear exactly what that distinction was. Yet the examples discussed above indicate that the term *šnw.t* was consistently used with grain products and foodstuffs. The use of *mhr* was also linked to foodstuffs, but included other non-edible items. However, *šn<sup>c</sup>* seems to have been associated with the widest range of products as it was not only linked with food and other items but, unlike the other terms, was also linked to the wide-ranging, generic term 'property'. An understanding of the usage of *šn<sup>c</sup>* is further complicated by the additional interpretative possibilities which link the word not only to storage but also to places of production.

Part of the differences seems to lie in how the different establishments were used: principally the link between *šnw.t* and the public or state administrative domain. Many of the attestations for *šnw.t* indicate that there was a complex association between districts, produce, ownership of produce and lands, and the responsibility of supply to and from a granary. In contrast to this the attestations for *mhr* and *šn<sup>c</sup>* suggest that they were more related to private estates and personal property. Thus it seems that part of the distinction between the terms lay in the context which they occupied within the workings of society. Additionally, it seems that the terms can also be divided into levels of significance. The title Overseer of the Double Granary makes it clear that a position associated with a *šnw.t* was a prestigious one, however, it also seems that there was a distinction between *šn<sup>c</sup>* and *mhr* in that a *šn<sup>c</sup>* was linked to property and the prominent position of nomarch while *mhr* was only associated with household storage or an industrial type warehouse.

Some of the excerpts in this chapter have also hinted at the quantities of produce associated with a *šnw.t* and a *mhr*. Unfortunately, it is only possible, within the scope of this project, to note the amounts and to observe that among the limited information available here there are distinct differences between the daily provisions of a family, the agricultural wealth of a private estate and the demands on general agricultural production necessitated by the need to supply produce to the temples. Nor has it been possible to examine in any depth the use of a *šnw.t* as a source of income for those employed by the state.

Several of the excerpts have also demonstrated that *šnw.t* was not only a term used for practical purposes, but was used in a metaphorical sense with a close link to concepts of abundance. This underlines the significance of a *šnw.t* within the psyche of all who depended on grain at an everyday level. This significance seems to indicate an additional distinction between *šnw.t* and the other terms at an abstract level, as there does not seem to be evidence

for a similar use of *mhr* and *šn<sup>c</sup>*.

This chapter has analysed the evidence for storage in textual evidence and demonstrated that the study of the same term in a variety of text types can help in exploring the context for a term. The use of *šnw.t* in these excerpts demonstrates how it can be used in a variety of contexts and was not simply a label for a building. However, a broader contextualisation for *šnw.t*, *mhr* and *šn<sup>c</sup>* is not possible without consideration of the archaeological and visual evidence for storage buildings. This contextualisation is further explored in Chapter 5 in which the discrepancies and similarities across the different type of evidence are analysed.

Excerpt	Text	Date	Genre
1	pBrooklyn 35.1446 <sup>153</sup>	Dynasty 12	Administrative
2	UC32205 <sup>154</sup>	Dynasty 12	Administrative
3	UC 32212 <sup>155</sup>	Middle Kingdom	Administrative
4	pRamessum E verso (EA 10753) <sup>156</sup>	late Middle Kingdom	Administrative
5	BM 10371 and BM 10435 verso <sup>157</sup>	late Dynasty 12	Administrative
6	UC 32109 C <sup>158</sup>	Middle Kingdom	Administrative
7	UC 32145 D verso <sup>159</sup>	Middle Kingdom	Administrative
8	UC 32177 (XIII.1) recto <sup>160</sup>	Middle Kingdom	Administrative
9	MMA 12.184 <sup>161</sup>	Dynasty 12	Biographical
10	Hatnub Gr. 23 <sup>162</sup>	Dynasty 11-12	Biographical
11	Hatnub Gr. 24	Dynasty 11-12	Biographical
12	Hatnub Gr. 35	Dynasty 11-12	Biographical

Table 3.6 Excerpts with Attestations of *šnw.t*, cont. over

153Hieratic judicial text on papyrus detailing workers who have absconded. It includes information on employee obligations and land types. Hayes (1955: 19), Quirke (2005). Possibly originating in Thebes it may date to Dynasty 12, reign of Amenemhat I. (Hayes 1955: 11, 16-17). Appendix Fig. 17.

154Petrie lot III.4. Hieratic letter on papyrus from Lahun, Dynasty 12, reign of Amenemhat IV, Year 6 I pr.t 2. Written to the overseer of the chamber concerning the estate Khemem, the part of the text with *šnw.t* is written at right angles to the main text. See Collier and Quirke (2002: 120-123). Appendix Fig. 18.

155Petrie lot V.1. Hieratic letter on papyrus from Lahun. Hieratic letter on papyrus from Lahun. Collier and Quirke (2002: 139). Collier and Quirke do not indicate a date but Griffith suggested that the seal may have the cartouche of Amenemhat. although it is not possible to say which one. Griffith (1897: 80). Appendix Fig. 19.

156Hieratic accounts on a very fragmentary papyrus, late Middle Kingdom. Quirke (1990: 188, 190). The papyrus was discovered by Quibell in a late Middle Kingdom tomb at the Ramesseum. Quirke (1990: 187, n. 1). Limited information on the verso of this papyrus has been published and so it has not been possible to include a photo in the appendix of the papyrus showing the relevant section nor a hieroglyphic transcription of the text. The most extensive analysis of this section is that provided by Quirke (1990: 190).

157Hieratic letters on papyrus. Quirke (1990: 207).

158Hieratic account on papyrus from Lahun. Collier and Quirke (2006: 129). Appendix Fig. 20.

159Hieratic account on papyrus from Lahun, Middle Kingdom. Collier and Quirke (2006: 213). Appendix Fig. 21.

160Hieratic account on papyrus from Lahun. Middle Kingdom. Collier and Quirke (2006: 107). Appendix Fig. 22.

161Hieroglyphic inscription on a stele originally from Abydos. Dynasty 12, reign of Senwosret I. Landgráfová (2001:131). Appendix Fig. 23.

162Excerpt 10-12: Hieratic graffiti in ink on a rock face, located near the calcite quarries at Hatnub. Franke (2005). Appendix Fig.s 24-26.

Excerpt	Text	Date	Genre
13	JE 71901 Wadi el-Hudi no. 143 <sup>163</sup>	Dynasty 12	Commemorative
14	JE 51911 <sup>164</sup>	mid-Dynasty 13	Commemorative
15	Annals of Amenemhat <sup>165</sup>	Dynasty 12	Commemorative

Table 3.6 Excerpts with Attestations of *šnw.t*

Excerpt	Text	Date	Genre
16	MMA 22.3.522 Account VII <sup>166</sup>	early Dynasty 12	Administrative
17	Reisner I <sup>167</sup>	Dynasty 12	Administrative
18	Reisner II <sup>168</sup>	Dynasty 12	Administrative

Table 3.7 Excerpts with Attestations of *mhr*

Excerpt	Text	Date	Genre
19	Contract IV, Tomb of Hepzefa, Assiut <sup>169</sup>	Dynasty 11-12	Administrative/ Commemorative
20	pBoulaq 18 <sup>170/171</sup>	early Dynasty 13	Administrative
21	Louvre C167 <sup>172</sup>	Dynasty 12	Administrative

Table 3.8 Excerpts with Attestations of *šn<sup>c</sup>*

- 163Hieroglyphic inscription on a round-topped stela made of imported limestone, Dynasty 12, reign of Senwosret I. Originally located in the amethyst mining region of Wadi el-Hudi, it commemorates a mining expedition overseen by the official Hor. Galan (1994: 65-67). Appendix Fig. 27.
- 164Hieroglyphic inscription on a round-topped stele in sandstone found in the Hypostyle Hall of Karnak, mid-Dynasty 13, reign of Khaneferre Sebekhotep IV. (Helck 1969:194, Taf. XVII).
- 165Hieroglyphic inscription on red granite found in the Temple of Ptah, Memphis, Dynasty 12, reign of Amenemhat II. Altenmüller and Moussa (1991: 1).
- 166Hieratic letters and accounts on papyrus concerning the estate of Heqanakht. Allen (2002: xv). Appendix Fig. 28.
- 167 Senwosret I, Years 24-25. For a detailed discussion on the dating of the text see Simpson (1963: 19-21).
- 168Hieratic accounts on papyrus, Dynasty 12, Senwosret I, Years 16-18. Simpson (1965: 16). Appendix Fig. 29.
- 169Hieroglyphic inscription incised and painted. Assiut, Tomb I of Hepzefa, Great Hall, East wall, north side of the door. Griffith (1889: 10, pl.7). Early Dynasty 11 (Spalinger 1985a: 8). Reign of Senwosret I, Dynasty 12 (Breasted 1906: 264). Appendix Fig. 30.
- 170Day Summary Accounts S12, 21, 25, 28, 31, 41, 43 and 49 on the recto and S58 and 64 on the verso. Quirke (1990: 46, note 1). Hieratic accounts on papyrus concerning provisioning of the palace at Thebes during a twelve day period. Quirke (1990: 17). Early Dynasty 13, probably the reign of Sobekhotep II. Quirke (1990: 13, 124, 141).
- 171The hieroglyphic transcription by Scharff (1922: Taf. 9) shows the determinative O51 in S30. However, this appears to be an error on Scharff's part and the hieroglyph should be N27. This is based on Spalinger and Quirke who transliterate the hieroglyphs as *šht*, which Quirke translates as 'stillroom'. See Spalinger (1985b: 217) and Quirke (1990: 41). While neither comment on the apparent error in Scharff, it is assumed that they are correct and so the discussion of this text only concerns the term *šn<sup>c</sup>*.
- 172Hieroglyphic biographical inscription of Antef on a stele, Abydos. Dyn. 12, Senwosret I. Landgráfová (2001: 139).

Excerpt	Text	Date	Genre
22 a, b	Goyon No. 61 <sup>173</sup>	Dynasty 12	Commemorative
23 a, b, c	pBerlin 3023, 3025 10499 and BM 10274 “The Eloquent Peasant” <sup>174</sup>	End Dynasty 12 - lated Dynasty 13	Literary
24	“Admonitions of a Sage” <sup>175</sup>	Late Middle Kingdom	Literary
25	pBoulaq smaller <sup>176</sup>	early Dynasty 13	Administrative
26	CG 20764 <sup>177</sup>	Dynasty 13	Biographical

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173Hieroglyphic inscription on a rock face at Wadi Hammamat, commemorating a mining expedition overseen by Ameny, reign of Senwosret I. Obsomer (1995: 693-694). Appendix Fig. 31.

174Hieratic literary text on four fragmentary papyrii. Dated end Dyn. 12 to late Dyn. 13. Parkinson (1991: xxvi-xxviii).

175Hieratic text on papyrus. Possible date of the original composition is late Middle Kingdom. (Tobin 2003: 188).

176Hieratic accounts on papyrus found in the tomb of Neferhotep, Dra abu el-Nega, west bank of Thebes. Quirke (1990: 196). Probable date early Dynasty 13, reign of Sobekhotep II. Quirke (1990: 13, 124, 141).

177Hieroglyphic inscription on a fragment of stele from Gebelein (Kubisch 2008: 304). Appendix Fig. 32.

## Chapter 4 Wall Scenes and Funerary Models

### The Visual Evidence

This chapter examines the visual evidence for granaries found in depictions on wall scenes and in three-dimensional models. This provides examples from both the three-dimensional and the two-dimensional catalogue of representations. Given that the wall scenes already provide two-dimensional information it was decided that in order to keep the amount of data analysed manageable within a project of this size, depictions of granaries on the interior of coffins would be omitted. The visual evidence for granaries from the Middle Kingdom, as expressed in tomb scenes and funerary models, seems to offer contradictory images of the buildings. While for the most part two-dimensional representations indicate dome-shaped buildings, the three-dimensional counterparts are almost overwhelmingly rectilinear in configuration.<sup>178</sup> Additionally, the models depict buildings with both roofed and open magazines and have walls with peaked corners, a detail missing in all but one of the tomb scenes surveyed here. While the differences may be an indication of different types of granaries in everyday life, they may also be as a result of the conventions of Egyptian art and the need to convey symbolic meaning to the images.<sup>179</sup> Several features are common in both types of evidence: measuring equipment, carrying bags, storage chambers and, perhaps most importantly, grain. These features all serve to heighten the potency of images which were meant to ensure that the deceased was well-provided for in the afterlife, by emphasising concepts of abundance associated with the storage of grain.

The primary context for the depiction of granaries in both wall scenes and funerary models is funerary and thus the interpretation of their representation discussed in this chapter emphasises the symbolic aspects in the depictions. Paintings on tomb walls from the Middle Kingdom depict a variety of themes, among which is the portrayal of granaries in association with the representation of the agricultural cycle.<sup>180</sup> Nine tomb wall scenes from the First Intermediate Period to the Middle Kingdom are analysed in order to consider the interplay between the principles of Egyptian art and the symbolic elements of a scene in order to

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<sup>178</sup>The discrepancy may also be the result of the material still available. Of the evidence considered in this chapter there are 50 models, but only 9 wall scenes. This disparity has meant that a somewhat greater part of the discussion has been devoted to models over wall scenes.

<sup>179</sup>Thanheiser notes that “the role of the representations, namely that of making the tomb-owner's after-life easier with abundant crops [may make] us think that we might be dealing here with an iconographic tradition rather than with a true picture...” Thanheiser (2006: 305).

<sup>180</sup>For a summary of scenes see Barker (2018: 7).

elucidate the primary, funerary function of these scenes.<sup>181</sup> The selection of scenes was dependent upon the availability of evidence and the detail with which the evidence has been recorded.<sup>182</sup> Table 5.1 shows the elements of the scenes which were examined in this analysis. The survey of models in this chapter examines 50 examples of granary models from the same period. This figure is different to the number of models surveyed by Tooley (1989) who also examined models in a fragmentary state. Only whole models have been included in this study in order to provide a consistent range of elements for comparison. The decision to include a model has also been based on the amount of information available for the object and access to an image depicting the model - an important consideration in an analysis of visual details. All the surveyed models have a provenance, often the tomb in which they were found. This has been an important consideration as the information gained from a model's original location is an important part of understanding its funerary context. The analysis looks at different architectural elements, as summarised in Table 5.2, for their potential symbolism as a way of highlighting the symbolic role of granaries in the funerary context. The focus of the examination is on key common elements rather than variations across time and space and thus regional variation and chronological development are not considered in the discussion. The evidence is arranged according to site and the sequential numbering of tombs, where applicable.

#### 4.1 Context: Registers and Burial Assemblages<sup>183</sup>

Context is an important consideration in any interpretation of funerary representations, be it for wall scenes or models, as it provides evidence for key symbolic features. The placement of granary scenes within the overall scheme of wall paintings is primarily located in representations of the agricultural cycle. Scenes 2, 3, 6 and 9 all have agricultural themes in the registers which form the scene of which the granary is part.<sup>184</sup> However, other non-agricultural themes are also depicted in association with granaries. For example, in Scene 3 the granary occupies the register above the sowing and harvesting grain, yet, if the use of

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181“The Egyptians believed that the deceased dwelled eternally in the afterlife, and had the same material needs as the living, which included food, drink, clothes, entertainment - all of which were supplied by offering rituals, by representations of desired activities, as well as by written references to food on the walls of the tomb.” Teeter (2015: 329).

182Two scenes of granaries are located in the tombs of Ankhtifi and Sebekhotep at Mo'alla. However, the recording of these scenes is somewhat stylised and it is not possible to ascertain how close to the original scenes the images are. See Vandier, J. (1950), *Mo'alla: La tombe d'Ankhtifi et la tombe de S'ebekhotep*, Caire, Fig. 55 and 97.

183For depictions of the scenes discussed below see Appendix Fig.s 33-41.

184Appendix Fig.s 34, 35, 38 and 41.

registers is understood to be a way of linking ideas, then the granary is most closely linked to the tomb provisions as the image directly next to the granary depicts burial goods such as tables, boxes and linen. Likewise, Scenes 1 and 2 depict granaries not only linked with agricultural activities, but also with ideas of counting items other than the counting and storing of grain.<sup>185</sup> In Scene 2, in the same register directly next to the scribes counting grain, is a depiction of the measuring of gold. In Scene 1 it is the counting of stock which occupies the same register. It is clear from these examples that the depiction of granaries is more than the mere representation of the role that these buildings played in the agricultural cycle; they are intimately connected to concepts of wealth and abundance, thus indicating that their primary purpose was the provision of everything that a tomb owner needed in the afterlife. Furthermore, the depiction of a slaughtering event in the register directly above the filling of granaries in Scene 4 also hints at the ritualistic aspect of wall scenes.<sup>186</sup>

The context in which the models were found is important as it indicates the nature of their role in funerary beliefs. That they were all found in cemeteries is a palpable indicator of their association with burial practices. But, more than that, when found in situ, it is clear that they were a part of the burial assemblage and not just associated with funerary rituals; they were a key part of provisioning the dead for the afterlife. That they played an important role is further emphasised by their placement within the tomb itself, as the evidence suggests that they were often carefully located in a prominent position in association with the coffin. Tooley, in her survey of granary models, included an analysis of 63 models for which the exact location within the tomb is known. She found that 47 were placed either on top of the coffin or on the floor beside it.<sup>187</sup> Of the 23 granaries placed on the floor most were found on the eastern side, "a position significant because of the placing of the eye-panel in the coffin".<sup>188</sup> This suggests that there was a desire to establish a link between the dead person and the granary. Of the 24 granaries placed on the coffin nearly half were located in or near the centre.<sup>189</sup> Such a prominent position may indicate that granaries occupied a central role in the organisation and distribution of the burial assemblage in the tomb.

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185For Scene 1 see Appendix Fig. 33.

186Appendix Fig. 36. Arnold notes that depiction of slaughtering in New Kingdom temples "must have been predominantly ritualistic and symbolic in nature." Arnold (2005: 13).

187See for example Appendix Fig.s 44, 45 and 54a which show the models lying in their original position on the coffin.

188Tooley (1989: 126).

189Tooley (1989: 127, Fig. 1).

## 4.2 Wall Scenes and the Principles of Egyptian Art

An essential part of interpreting a two-dimensional scene is a recognition of the aspective nature of Egyptian art by which every part of an image can be viewed separately.<sup>190</sup> Thus, there needs to be a recognition of the different parts, or aspects, presented in an image in order to interpret the multiple layers being conveyed by the artist in a single depiction; layers that occupy both space and time. For example, in Scenes 5 and 8 the scribes and the pile of grain are depicted on a platform apparently perched on top of the buildings.<sup>191</sup> However, following the principles of Egyptian art, this arrangement can be divided into two parts and may therefore be understood as the scribes and the pile of grain being located beside the granary buildings. Thus, the labourers are ascending steps to the top of the granary rather than to a platform on top of the building. The construction of this scene emphasises the idea that in Egyptian art the focus is on presenting the aspects of something which most clearly indicate its identity. Focus is not on conveying a sense of perspective in the modern sense and so, both plan and elevation can be incorporated into the one image.<sup>192</sup> Nor are the depictions only concerned with representing the physical world but seek to impart symbolic meaning associated with the afterlife.

There are a number of features in a granary scene of which two are recurring elements: the granary building and the pile of grain.<sup>193</sup> A granary in these images is understood to be a compartment for storing grain as indicated by the depiction of a shutter. All the scenes presented here in this analysis have more than one granary, and most representations show clear divisions between the buildings.<sup>194</sup> The layout of the scenes can be further divided into: architectural elements associated with the building, the people associated with the activities and the equipment used as part of the grain storing process. The architectural features and the people engaged in grain-storing activities are clearly representations of physical occurrences. However, the portrayal of people in motion suggests that the aspect of time can also be applied to the image, thus symbolically ensuring that the granary is always being filled. The following analysis looks at the key elements outlined above as a way of understanding both

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<sup>190</sup>Brunner-Traut (2002: 431).

<sup>191</sup>Appendix Fig.s 37 and 40.

<sup>192</sup>“The ancient Egyptian artist's intention is to depict an object or a being by the elements that define it most clearly and unmistakably. Every representation combines a number of frontal and profile aspects of the given object or being. It is not an image true to what the artists see but true to what they *know* about the physical world.” Binder (2000: 29).

<sup>193</sup>All the scenes presented here have more than one granary. While Table 5.1 indicates that Scene 6 has only two granaries this is because the scene is now missing the part where more granaries would have been depicted.

<sup>194</sup>Only Scene 3 and 5 do not show clearly separate sections as marked by the shutters. Appendix Fig.s 35 and 37.

the representation of the physical structures and the communication of beliefs associated with the afterlife. The steps and shutters are the focus of the physical depictions and the portrayal of measuring scoops and bags are examined as a way of exploring the symbolic purposes of the scenes.

The one architectural feature that all the scenes have in common is the shutters on the granary walls. Their somewhat surprising location at the midway point of the granary wall hints at the aspective principles at play in the scenes. This position, if located on a physical building, is neither suitable for easy access to store the grain, nor is it an efficient means of extracting the grain, as half the contents would remain below the shutter door. In order to extract the remainder of the grain it would need to be dug out; a door at the base of the structure would allow gravity to do the work.<sup>195</sup> Additionally, only one shutter is depicted per compartment suggesting only a single point for both entry and exit. It seems unlikely that in reality one access point would suffice. However, in Egyptian two-dimensional representations, “aspective art allows the artist to show what in reality would be hidden to the eye.”<sup>196</sup> A solution to the single opening may be proposed: it may be that the representation of shutters located in the middle of the structure serves for two access points: one at the top, the other at the bottom. This dilemma posed by the location of the shutters is an important point as it underlines the difficulties involved for modern interpreters of these scenes. It emphasises the fact that any interpretation needs to be multi-layered in its approach.

Likewise, another simple architectural feature which also demonstrates the complexity behind the scenes is the portrayal of steps, as several different forms are represented. Of particular interest are those which seem to be suspended over a space as in Scenes 1, 2, 4 and 9. The tensile qualities of sun-dried mudbrick mean that it would have been difficult to achieve such a structure without support. Scene 4 offers one possibility in that the double line may indicate a support on which the steps were constructed.<sup>197</sup> However, the depiction of the curve under the stair in Scenes 1 and 2 suggests that the artist may be conveying multiple aspects of the building and is presenting both plan and elevation.<sup>198</sup> Thus while the steps ascend the building, the curve beneath indicates that they do so in such a manner that they go

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<sup>195</sup>There are tomb scenes which depict doors at the base of the granaries. See for example, Siebels (2001: Fig.5). However, unlike in this scene where the labourers scoop up the grain from the exit point, none of the scenes discussed here show the grain being removed. Perhaps this is symbolic of an emphasis on retaining rather than extracting grain.

<sup>196</sup>Binder (2000: 31).

<sup>197</sup>Appendix Fig. 36. At Amarna stairs were erected on beams laid at an incline. See Spencer (1979: 94).

<sup>198</sup>Appendix Figs 33 and 34.

around the circular granary.<sup>199</sup>

There are also aspects of symbolism at play in these wall scenes, although it is subtle. While the steps and shutters demonstrate the complexity of perspective art in representing the physical world, the depiction of multiple granary buildings indicates that not only are the scenes conveying elements of daily life, they are also expressing concepts of plenty which were so essential for the wellbeing of the deceased in the afterlife. Of particular note too are the measure used to scoop the grain from the pile and the bag used to transport it to the granary. There are two possible interpretations for these objects: a literal interpretation in which the measure and bag are functional aspects of the grain storing process or a symbolic interpretation in which they enhance funerary beliefs. This second interpretation accentuates the main purpose of the depiction of granaries in tomb paintings: the provision of eternal sustenance in the afterlife.<sup>200</sup> Functionally, the scoop and the bag are used to move the grain, however, both objects are also hieroglyphic symbols associated with quantities. The *ḥk3.t* scoop is a measure of approximately 4.5L and the *ḥ3r* bag is equal to twenty *ḥk3.t* or approximately 90L.<sup>201</sup> The presence of these in the scenes may be seen to represent the continual provision of quantities of grain, thus demonstrating the power of the images on tomb walls; a power which was meant to ensure that the tomb owner had all that was necessary to ensure a satisfactory life in eternity.

#### 4.3 Funerary Models: Structure and Symbol<sup>202</sup>

Funerary models depict both domed and square granaries and can be broadly divided into two types, those with walls and those without. Those with walls can be further divided into examples with granaries on either side of a central courtyard or the more common type in which the granaries are placed along one side of the courtyard. Two elements identify a model as being a granary: either the activities which are being depicted are clearly linked to the storing of grain or the exterior wall of the model has peaked corners; often both elements occur together.<sup>203</sup> The peaked corners on the exterior wall are a feature which, among the

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199This aspect is further discussed in Chapter 5 in which this depiction is compared with a number of archaeological examples of curved granaries with steps.

200Teeter writes that “another fundamental principle of Egyptian art was its potency. Images were far more than decoration - they were functional substitutes for what was represented. ... Images of food on the walls of tomb chambers functioned as eternal sources of those provisions for the deceased.” Teeter (2015: 328).

201The *ḥk3.t* is U9 on Gardiner's sign list, measuring 4.54 litres. See Faulkner (1962: 178).

The *ḥ3r* sack or leather bag is U112 and measures 20 times a *ḥk3.t*. See Wortdiskussionen aegyptologie.philhist.unibas.ch, s.552. Accessed 3/10/2019.

202For depictions of the models discussed here see Appendix Fig.s 42-91.

203Of the 50 models surveyed for this project 41 had peaked corners, 3 were without peaked corners and 6 were domed models and therefore without walls. The walled models without peaks had other activities depicted in them as well as grain storage.

different varieties of funerary models, are only found on granary models. Indeed, this feature is so closely associated with granary models that it is generally assumed that the physical buildings were constructed with this detail.<sup>204</sup> However, domed models are also identified as granaries, even though they are without the exterior wall with peaked corners and often appear as single domes and without accompanying figures engaged in grain storing activities. These models have been identified as granaries based on observations of traditional grain storing methods in Egypt in more recent times.<sup>205</sup>

Domed granaries fall into two categories: those without a surrounding wall and those with a wall - although the evidence for the latter is rare.<sup>206</sup> In this survey those without walls usually consist of a single hollow dome with an opening approximately halfway up the wall.<sup>207</sup> Where the model is complete, the evidence suggests that the opening was covered by a door.<sup>208</sup> Domed models seem to have been made for the most part in clay, although there is an example of a wooden model with several domes from Gebelein.<sup>209</sup> There are few provenanced examples of domed granaries, walled and unwalled, and it would seem that this type of model was not common among the burial assemblage. However, Garstang's discussion of the walled model from Beni Hassan is somewhat ambiguous as it seems that he is only referring to the one example.<sup>210</sup> Yet, it is possible that Garstang has included this model as a representative example of other domed granaries found at the site which were not included in his publication. He writes that "many of these little models of grain bins were made separately, and their tiny doors were fitted with the peg by which they were made fast and sealed".<sup>211</sup> While this comment seems to be in reference solely to Beni Hasan 15, there are only six bins in this model, a little less than "many" and at least two of the bins don't have

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204Arnold suggests that the "striking peaked corners ultimately derive from an Upper Egyptian type of building." Arnold (2005: 28).

205See for example Garstang's comments when discussing the domed granaries depicted in Appendix Fig. 68: "Large pottery bins for storing the grain are a familiar sight in all country houses of the people of Upper Egypt. In Nubia they are often domed..." Garstang (1907: 194).

206Beni Hasan 15 is the only example of a model with domes and a wall. See Appendix Fig. 68. However, it may be that Gebelein 3 was also once a walled model, the walls having crumbled by the time the tomb was excavated. See Appendix Fig. 89.

207el-Tarif 1 has a double dome. See Appendix Fig. 80.

208For domed models with doors see for example Hiw 1 and 2. Appendix Figs 78 and 79.

209Gebelein 3. See Appendix Fig. 89. Information on this model is reliant on a photo taken during the excavation of the tomb of *Ikr* at Gebelein and field notes. See Montonati (2018). This model appears to have suffered considerably from insect damage. However, it seems to have more in common with the walled models than with the other domed granaries. It has been noted that this model is most similar to a model now kept at Norwich Castle Museum and Art Gallery, acc. no. NWHCM:1921.37.1. Montonati (2018: 9). This model was not included in the survey as the provenance does not seem sufficiently secure. See Blackman (1920: 206).

210Garstang (1907: 194). This model is Beni Hasan 15, Appendix Fig. 68.

211Garstang (1907: 194).

doors.<sup>212</sup> It is therefore possible that the model depicted is in fact representative of a much larger corpus of similar artefacts not included in the publication. Thus, while much of the provenanced evidence still remaining today indicates that tomb models were primarily associated with elite burials it may be that these simpler structures were commonly associated with other, less complex, burials. While this is a speculative point, if this were the case it would demonstrate the importance of granaries in the burial assemblages of people at all levels of society.<sup>213</sup>

All of the examples of square granaries included in this survey are walled. The key difference is that some have open chambers, while others have roofed storage. Of the 50 models included in this survey, 22 have roofed chambers and 20 have open bins; the roofed examples often featuring holes for letting the grain in on top and shutters on the wall of the chamber for extracting the grain.<sup>214</sup> It is difficult to speculate why there is a difference other than to note that neither form seems dominant and to suggest that the main focus of the model was on grain storage rather than what type of structure stored it. This may indicate that the importance of the model lay in its religious purposes rather than in the style of granary represented. Whether the magazines are roofed or not, most models have stairs by which access can be gained either to the open chamber or the roof. There are 3 models which have no chambers thus indicating that this structural detail was not necessarily an essential component of the depiction.<sup>215</sup> Instead, other elements are used to convey the meaning and these three examples all have peaked corners and figures engaged in grain storing activities who are scooping the grain into bags which are then carried up the stairs. This suggests that certain elements of a granary model had greater symbolic significance than others. These details are important as they are evidence that elements of the models which may be presumed to come from daily life were combined in such a way not so much as a direct imitation, but so as to convey key ideas associated with granaries and thus to construct the

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<sup>212</sup>It is not possible to see in the photo if the other bins have doors and there is no more detailed description available.

<sup>213</sup>A larger survey of models which included unprovenanced domed models would give some indication as to the volume of evidence remaining and thus some indication as to whether or not it is possible that these simple models may have been associated with less complex burials. Unfortunately such a survey is beyond the scope of this project.

<sup>214</sup>Abusir 1 had both roofed and open chambers. It is the only example to do so. See Appendix Fig. 42. Sedmant el-Gebel 3, has one large open bin. However, the shutters depicted on the wall appear to be broken at the top and there may have been upper part to the model which originally roofed the bin. See Appendix Fig. 51.

<sup>215</sup>Sidmant el-Gebel 2, Deir el-Bersha 1 and 2. Appendix Fig.s 50, 71 and 72. These last two models came from the same tomb, Tomb 10A of Djehuty-nakht. A total of eight models were found in this tomb, all of which were similar in style to the two included in this survey. See Tooley (1989: 101).

concept of a granary in the abstract.<sup>216</sup>

While the shape of granaries seems to be primarily concerned with structure over symbolism, the interpretation of walls shows how these are not mutually exclusive and can instead be combined into a single three-dimensional representation. The walls on models may be interpreted in several ways: as a practical device, a narrative device or as a representation of the walls of a physical building.<sup>217</sup> Initially, models of granaries were simple, domed structures sometimes attached to a base plate and without an exterior wall.<sup>218</sup> However, during the First Intermediate Period the models became increasingly elaborate and often contained both figures and equipment being used by the figures.<sup>219</sup> Thus, a wall offered a practical way by which the model and its contents could be easily transported and placed in the tomb. As well as this practical purpose, a wall may be seen as a narrative device, physically enclosing the scene and linking all the activities depicted within under one idea: the storage and supply of grain.<sup>220</sup> As well as this, the wall may be interpreted as a representation of the building in real life.<sup>221</sup> Yet, the peaked corners which are such a feature of granary models are a surprisingly ornate architectural detail for a building which was essentially utilitarian. It may therefore be that the walls of the model were not intended to represent a building but had an alternate purpose more closely associated with the funerary context of the model.

Walls are not the only feature of granaries in which the structural element of a building is utilised for symbolic purposes. The inclusion of doors is an intriguing element as, within a funerary context, doors can be interpreted as having religious significance as they allowed the deceased person access into the world of the living; an important feature of ancient Egyptian funerary beliefs. This particularly evident in false doors which allowed the deceased access from the burial chamber to the offerings placed in front of the false doors.<sup>222</sup>

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<sup>216</sup>“The ultimate function of all these (“enriching”) elements may have been symbolic or ritual, but the narrative details are taken from the real world.” Arnold (2005: 47).

<sup>217</sup>An example of an enclosing courtyard wall in the archaeological record may be apparent in Building 4 at Kom es-Sultan. See Adams (2007: Fig. 2).

<sup>218</sup>See for example a model of twelve domed silos resting on a base plate from Dynasty 4. Tooley (1995: 37, Fig. 34).

<sup>219</sup>Arnold (2005: 26).

<sup>220</sup>In discussing the grouping of figures engaged in a common activity on a board, Arnold writes that “this intensified the narrative character of these models and created a three-dimensional space that encompassed the whole group and the objects that belonged to its “story””. Arnold (2005: 26). A wall performs a similar narrative function.

<sup>221</sup>Winlock writes “one of the characteristics of the present-day Egyptian granary is that it usually has the outer walls peaked up with slightly rounded crenelations at the four corners.” Winlock (1955: 25). Arnold notes that she was unable to verify this remark. Arnold (2005: 28, n.91).

<sup>222</sup>Müller (2005).

All of the domed models, except one, have a door opening, sometimes with a door still in place.<sup>223</sup> Of the other square, walled models, doors can be highly detailed, often with functioning hinges. Of the 50 models surveyed, approximately 3/4 had door openings, often still with the door in place. Most of the others had painted doors and only one was without a door of either type. In contrast to this, most shutters are painted onto the wall of the storage magazine. This may have been for purely practical purposes as crafting fully functioning shutters would have required some technical skill.<sup>224</sup> However, it may have been that the entry door into the entire scene may have had greater significance than access to the individual storage bins. For example, Beni Hassan 1 has a highly detailed door crafted into the exterior wall, yet the shutters are only painted on.<sup>225</sup> This level of realism may have been intended to heighten the magico-religious properties of the model and so increase its efficacy in the afterlife. It can be seen then that the feature of a door on a model highlights the tension between reality and symbolism which is evident in the models.

The presence of plant materials in several of the walled models also highlights the symbolic purpose behind these structures. Table 5.2 shows that 14 of the 50 models in this survey contained grain when they were first found. Given the probability that grain in other models was consumed by insects and other animals, or that it may not have been retained post-excavation, it is possible that grain may have been commonly included in funerary models of granaries.<sup>226</sup> Nor was it only grain which was present in these examples as several excavators noted that seeds other than grain were included; juniper berries were identified in Beni Hassan 13 and currants in Sidmant 3.<sup>227</sup> The inclusion of a range of food types suggests

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223Gebelein 3 is without doors, Appendix Fig. 89. However, it may be that this model more closely resembles Beni Hassan 15 Appendix fig. 69, which has a wall with a door in it, rather than the other domed models and that the original wall had crumbled away. See footnote 31. For examples of domed models which still have doors see Hiw 1 and 2, Appendix Fig.s 78 and 79.

224Of the 22 models with roofed chambers, 20 have painted shutters. Gebelein 1 has openings where shutters might once have been attached. Appendix Fig. 87. Qubbet el-Hawa 1 is the only square model with functioning shutters. Appendix Fig. 91.

225Garstang describes the door as follows: "The door, however, is a real model, working in sockets... The wooden pin on the outside may be intended to suggest that the closed door could be tied and sealed from without. The door is closed from the inside by a beam of wood, which rests against the main building within." Garstang (1907: 57).

226Some models show clear indications that they have been affected by damage from pests, such as Gebelein 3, Appendix Fig. 87. An example of a model which had originally contained grain, but now no longer does, is Sidmant el-Gebel 3. In the published report grain can be seen to be present in the photo of the object and Brunton notes that the granary was "filled up with wheat and currants". Petrie and Brunton (1924: 11). However, the subsequent photo of the model shows that the grain is no longer present. See Appendix Fig. 51.

227For a description of the contents of Beni Hassan 13 see britishmuseum.org. Appendix Fig. 66. Beni Hassan 4 contained "several different kinds of grain, chiefly wheat and barley". (Garstang 1907: 87) Appendix Fig. 57. Beni Hassan 9 contained "several distinct varieties of grain, two of which may be recognised as barley and wheat." (Garstang 1907: 125) Appendix Fig. 62. Sidmant el-Gebel 3 was "filled up with wheat and currants". Brunton and Petrie (1924: 11) Appendix Fig. 51. The photo of Saqqara 4 in the original report

that the model granary was associated not just with the storage of grain but also with a more general concept of an abundant food supply for the afterlife. It may be that it was not only the contents which convey this idea, but the very structure of these walled models may also have been associated with this concept.

A prominent feature of the model granaries is the peaked corners and, of the 50 models surveyed, 41 have walls with peaked corners. Many of these depict figures engaged in grain-storing activities and while 6 are without figures, their structure, particularly the peaked walls, is sufficiently similar to the other models to indicate that they were intended to depict a grain storing narrative.<sup>228</sup> As noted earlier these walls with peaked corners are often interpreted as being representative of the walls of ancient Egyptian granaries, yet, an alternate, symbolic interpretation may be suggested. When the exterior wall of the models is examined from a side elevation it can be seen to bear a striking resemblance to the bottom half of the hieroglyph  O51.<sup>229</sup> This hieroglyph consists of two parts: the bottom depicts a threshing floor; the top a pile of grain.<sup>230</sup> Although the hieroglyph does not depict a building, as an ideogram it conveys the idea of a place associated with the processing of grain; its definition as a building used to store grain is clarified by the O1 determinative which often accompanies the word.<sup>231</sup> Hornung refers to “the close relationship of Egyptian writing to the visual arts”.<sup>232</sup> He writes that “whereas a written character should have a single, clear meaning, a symbol is essentially polysemic and complex; it stands for concepts and insights that individual words in a language can intimate but never fully capture.”<sup>233</sup> He concludes by stating that “ultimately, the Egyptians used the power of the image as a means of describing and constructing their world in a way that went well beyond the possibilities offered by the written word alone.”<sup>234</sup> Given that the evidence suggests that grain was usually placed within the models, it may be that granary models are an elaborate hieroglyph; a three-dimensional representation of the word *šnw.t* and its associations with grain and the supply of daily provisions. Such an interpretation emphasises the symbolic role of the models in the

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shows that grain covered every horizontal surface. Firth and Gunn (1926: Pl. 30). This is no longer apparent in Appendix Fig. 47.

228The 6 models without figures are Beni Hasan 2, 8 14 and 15. Appendix Fig.s 55, 61 a and b, 67 and 68., Deir el-Bahri 4 Appendix Fig. 84. Gebelein 1 Appendix Fig. 87. Four other models probably had figures, but they are not apparent in the images. Abusir 2, Saqqara 1 and 2 and Gebelein 3. Appendix Fig.s 43, 46, 47, and 89.

229For example see Abusir 2 and Beni Hasan 1. Appendix, Fig. 43 and 54a.

230Gardiner (1982: 498).

231See for example Faulkner (1962: 269).

232Hornung (1992: 27).

233Hornung (1992: 33).

234Hornung (1992: 34).

burial assemblage.

This chapter has examined two types of visual evidence depicting granaries: tomb wall scenes and funerary models. It has focussed on an exploration of the funerary nature of both wall scenes and models by considering not only the physical appearance of the visual evidence, but also the potential significance of the role of both scenes and models in afterlife beliefs. Thus the importance of recognising the fundamental principles of ancient Egyptian art has been one area of focus in this chapter. This has enabled a discussion of the complexity of the symbolic aspect of wall scenes of daily life. This discussion has emphasised the way in which the granaries are depicted in order to convey concepts of abundance through two-dimensional representations. Likewise, the discussion in this chapter has explored the physical aspects of the funerary models in order to better understand the potential symbolism within the depictions of granaries in this three-dimensional form. Interpreting this potential symbolism is an important part of understanding the way in which the funerary context has shaped the depiction of granaries in the visual evidence. However, both models and wall scenes are not wholly symbolic and the element of real life replication in their creation may help to clarify the appearance of granaries in reality. In order to help establish to what extent this funerary evidence can be merged with other types of information, an integrated interpretation of the visual evidence, in combination with the archaeological and textual evidence associated with granaries, is presented in Chapter 5.

Scene No. # (Tomb details)	Date <sup>#</sup>	No. of granaries	Domed/ Flat roof	Steps	Shutters centred	Grain pile	Columns	Doors	Measures <i>hk3.t</i> & <i>h3r</i>
1 Fig. 33 (BH2 of Amenemhat)	Senwosret I	4	Both <sup>++</sup>	On curve over space	Y	Y	Y	Y	Y
2 Fig. 34 (BH3 of Khnumhotep II)	Amenemhat II - Senwosret II	4	Flat-roof	Integrated into building	Y	Y	Y	Y	Y
3 Fig. 35 (BH17 of Khety)	Senwosret I	20 <sup>+</sup>	Domed	On curve over space x 1 On line over space x 1	Y	Y	N	Y	Probably both
4 Fig. 36 (Tomb of Antef, Asasif)	Dynasty 12	2	Domed	On line over building	Y	N*	Y	N	Unclear
5 Fig. 37 (TT60 of Antefoker)	Senwosret I	8	Domed	On line over building	Y	Y (on roof)	N	N	Y
6 Fig. 38 (TT386 of Antef)	Mentuhotep II Nebhepetra <sup>###</sup>	6	Unclear <sup>+++</sup>	On line over space	Unclear	Y	N	N	Y
7 Fig. 39 (Tomb of Ity & Neferu)	Early Dynasty 11	4	Domed	On line over “hoops”	Y	Y	N	Y	Y
8 Fig. 40 (QH 36 of Sarenput I)	Senwosret I	5	Domed	On line over space	Y	Y	Y	N	<i>hk3.t</i> only
9 Fig. 41 (QH110 of Seti Kai)	Dynasty 9/10	9	Domed	No steps	Y	Y (on roof)	Y	N	Y

# Tombs are arranged according to site and then by date within that site. BH is Beni Hassan, TT is Thebes and QH is Qubbet el-Hawa. The tomb of Antef is located at Asasif, that of Ity at Gebelein.

## Dates according to Meketre Repository, meketre.org, accessed 2/10/19. Tomb of Antef at Asasif dates according to Porter and Moss I.2 (1964: 616).

### Before reunification. See Jaroš-Deckert (1984: 118).

+ Depicted in two rows of ten.

++ One dome, three with a flat roof.

+++ The top of the building is missing and it is not possible to determine the shape of the roof or whether or not the shutters were centrally located.

\* A number of elements in Scene 6 are similar to that in Scene 5 and it may be that a pile of grain was shown on the roof where the image is now broken.

Table 4.1 Breakdown of elements in wall scenes.

Site	Model No.	Chamber Roofed/Open	Peaked Corners	Door Opening	Chamber Shutter	Grain Present	Tomb Details	Date	Museum & Acc. No.	Measurements <sup>#</sup>
Abusir	1 Fig. 42	Both	Y	Y	Painted	-	MR6 ( <i>Hri-šf-htp</i> )	Dynasty 11	Leipzig 33	H.33 x W.40 x L.53 cm
	2 Fig. 43	Roofed	Y	Painted	Painted	-	MR42 ( <i>Tpy</i> )	FIP - Dynasty 11	Rostock (lost)	H.18 x W.27 x L.34 cm
Saqqara	1 Fig. 44	Roofed	Y	Y	Painted	Y	<i>K3rnn &amp; Nfr šmdt</i>	Late Dyn. 11- Early Dyn. 12	Location unknown	-
	2 Fig. 45	Roofed	Y	Y	Painted	Y	<i>K3rnn &amp; Nfr šmdt</i>	Late Dyn. 11- Early Dyn. 12	Location unknown	-
	3 Fig. 46	Roofed	Y	Y	Painted	Y	2757 ( <i>Ḥnpw-mḥšt &amp; Wst-mwt</i> )	Dynasty 11	Location unknown	H.47 x L.52 cm
	4 Fig. 47	Roofed	Y	Y	Painted	Y	HMK30 <i>Gmn-m-ḥšt</i>	Late Dyn. 11- Early Dyn. 12	Copenhagen AEIN1630	H.40 x W.48 x L.62 cm
el-Lisht	1 Fig. 48	Open <sup>^^^</sup>	Y	Y	None	-	Mastaba of <i>Dḥwty</i>	Dynasty 12 Senwosret I	MMA 32.1.125	-
Sidmant el-Gebel	1 Fig. 49	Roofed	Y	Y	Painted	-	Tomb 374	Dynasty 11	Brussels E5798c	H.23 x W.31 x L.32 cm
	2 Fig. 50	None	Y	Y	None	-	Tomb 2105	Dynasty 11-12, Senwosret I	Chicago 11494	H.19 x W.21 x L.25 cm
	3 Fig. 51	Open <sup>+</sup>	Y	Y	Painted	Y	Tomb 2106 <i>W3dt htp</i>	Probably Dynasty 10/11	Copenhagen AEIN1572	L.22 cm
	4 Fig. 52	Roofed <sup>^^^</sup>	Y	Y	Painted	Y	Tomb 2111 ( <i>Ḥnty-ḥty</i> )	Dynasty 11-12, Senwosret I/ Amenemhat II	Philadelphia E14259	-
	5 Fig. 53	Roofed	Y	Y	Painted	-	Tomb 1525	Dynasty 11	Manchester 6601	H.18 x W.28 x L.35 cm <sup>#</sup>

Beni Hassan	1 Fig. 54	Roofed	Y	Y	Painted	Y	BH1 ( <i>3ntf</i> )	Dynasty 11 or earlier	Liverpool 55.82.2	H.27 x W.37 x L.37 cm
	2 Fig. 55	Open	Y	Y	-	-	BH53 ( <i>Ntr-nht</i> )	FIP-DYNASTY12, Senwosret II	Oxford AN1896-1908.E.2002	H.11 x W.31 x L.27 cm
	3 Fig. 56	Roofed	Y	Y	Painted	Y	BH116 ( <i>Nfry</i> )	Dynasty 11-12, Senwosret II	Cairo JE37563	H.33 x W.25 x L.61 cm
	4 Fig. 57	Open	Y	Y	-	Y	BH186 ( <i>T3wy</i> )	Dynasty 11-12, Amenemhat II	Cairo JE37564	H.22 x W.37 x L.43 cm
	5 Fig. 58	Roofed	Y	Painted	Unclear	-	BH366 ( <i>Hty</i> )	Dynasty 11-12, Amenemhat II	Cambridge Fitz.E.71e.1903	H.25 x W.24 x L.29 cm
	6 Fig. 59	Roofed	Y	Painted	Painted	-	BH394	FIP-Dynasty12 Amenemhat II/Senwosret II	Oxford AN1896-1908.E2311	H.35 x W.26 cm
	7 Fig. 60	Open	Y	Painted	-	Y	BH500 ( <i>M3</i> )	Dynasty 12 Senwosret II-Amenemhat III	ABDUA 22166	H. 12 x W. 30 x L.30 cm
	8 Fig. 61	Open	Y	Moulded	-	-	BH531-532	MK	Oxford AN1896-190.E808	H.8 x W.23 x 24 cm
	9 Fig. 62	Open	Y	Y	-	Y	BH575 ( <i>Hty-i</i> )	Dynasty 11-12, Senwosret I	Oxford AN1896-1908.E2310	H.35 x W.30 x L.52 cm
	10 Fig. 63	Roofed	Y	Painted	Painted	Y	BH585 ( <i>Hnm-hiti</i> & <i>Ntr-nhti</i> )	Dynasty 11-12, Amenemhat II	London BM 63838	H.24 x W.26 x L.35 cm
	11 Fig. 64	Open	Y	Painted	-	-	BH585 ( <i>Hnm-hiti</i> & <i>Ntr-nhti</i> )	Dynasty 11-12, Amenemhat II	Location unknown	-
	12 Fig. 65	Roofed	Y	Y	-	-	BH707 ( <i>Ipi</i> )	Dynasty 11-12, Senwosret I	Location unknown	-

Beni Hassan	13 Fig. 66	Open	Y	Painted	Functional <sup>xx</sup>	Y	BH723 ( <i>šbk-ḥtpi</i> )	Late Dynasty 11	London EA41573	H.21 x W.30 x L.36 cm <sup>#</sup>
	14 Fig. 67	Open	Y	No door	-	-	BH774/775 ( <i>Nb-ḥwt-ḥtp</i> )	MK	Liverpool SAOS E6359	H.8 x W.30 x L.36 cm
	15 Fig. 68	Domed	Y	Y	Functional	-	Unknown	MK	Liverpool SAOS E6929	H.9 x W.33 x L.32 cm
el-Sheikh 'Ibada	1 Fig. 69	Open	Y	Unclear	-	-	Tomb A ( <i>Mr-šnt</i> )	FIP	Brussels E785:2	H.21 x W.25 x L.25 cm
	2 Fig. 70	Roofed <sup>^^</sup>	N	Painted	Painted	-	Tomb A ( <i>Mr-šnt</i> )	FIP-DYNASTY 12, Senwosret III	Brussels E785:27	J.26 x W.35 x L.35 cm
Deir el-Bersha	1 Fig. 71	None <sup>#</sup>	Y	Painted <sup>++</sup>	-	-	Tomb 10A ( <i>Dḥwtj-nḥt</i> )	Late Dyn. 11- Early Dyn 12	Boston 21.808	H.21 x W.25 cm <sup>#</sup>
	2 Fig. 72	None	Y	Painted	-	-	Tomb 10A ( <i>Dḥwtj-nḥt</i> )	Late Dyn. 11- Early Dyn 12	Boston 21.409	H.29 x W.29 cm <sup>#</sup>
	3 Fig. 73	Open <sup>^^</sup>	N	Y	Unclear	-	Tomb E14 ( <i>Spi III</i> )	Dynasty 12, Senwosret II-III	Cairo JE32831 <sup>###</sup>	W.26 x L.36 cm
Asyut	1 Fig. 74	Roofed	Y	Y	Painted	-	Tomb of ( <i>Hp-df</i> )	Early Dynasty 11	Turin S.08651	H.33 x W.41 x L.42 cm
	2 Fig. 75	Roofed	Y	Y	Painted	-	Tomb 7 ( <i>Nḥti</i> )	Late Dynasty 11	Paris E11938	H.32 x W.44 x L.41 cm
	3 Fig. 76	Roofed	Y	Y	Painted	-	Unknown	Dynasty 11- mid Dynasty 12	New York 11.150.3	H.18 x W.31 x L.38 cm <sup>#</sup>
	4 Fig. 77	Dome, single	-	-	Functional	-	Hogarth Tomb IX	Dynasty 11	London BM 47347	H.11 cm

Hiw	1 Fig. 78	Dome, single	-	-	-	Functional	-	Cemetery Y*	MK	UCL 18515	H.21 x Diam.14cm
Hiw	2 Fig. 79	Dome, single	-	-	-	Functional	-	Cemetery Y	MK	Cambridge Fitz.E.98.1899	H.19 x Diam. 12 cm
el-Tarif	1 Fig. 80	Dome, double	-	-	-	Functional	-	Cemetery N	Late Dyn.12- Dynasty 13	UCL 19077	H.11 x L.15 cm
Deir el- Bahri	1 Fig. 81	Roofed	Y	Y	Y	Painted	-	Pit 3	Dynasty 11	YPM ANT6743	H.24 x W.44 x L.41 cm
	2 Fig. 82	Open	Y	Y	Y	-	-	Pit 14 Tomb of <i>Neb-hepet-Re</i>	Dynasty 11, Nebhepetre	No. 689**	H.17 x W.35 x L.54 cm
	3 Fig. 83	Open	Y	Y	Y	-	-	Pit 14 Tomb of <i>Neb-hepet-Re</i>	Dynasty 11, Nebhepetre	ROM 982x2.1	H17 x W,37 x.53 cm
	4 Fig. 84	Roofed	Y	Y	Y	Painted <sup>+++</sup>	-	Pit 14 Tomb of <i>Neb-hepet-Re</i>	Dynasty 11, Nebhepetre	ROM ON (A)	H.25 x W.34 x L.43 cm
	5 Fig. 85	Open	Y	Y	Y	-	-	Unknown	MK <sup>***</sup>	Manchester 13.12.99.1	H.20 x L.26 x W.32 cm <sup>#</sup>
Sheikh abd el-Qurneh	1 Fig. 86	Open <sup>x</sup>	Y	Y	Y	-	Y	TT280 ( <i>Mkt-R</i> )	Dynasty 11, Nebhepetre & Seankhkare	MMA 20.3.11	H.36 x W.58 x L.75 cm <sup>#</sup>
Gebelein	1 Fig. 87	Roofed	Y	Y	Y	Functional	-	Tomb of <i>Ini</i>	Dynasty 8/9	Turin S.13279	H.37 x W.37 x L.36
	2 Fig. 88	Roofed <sup>^^^</sup>	N	Y	Y	Painted	-	<i>Hnw</i>	Dynasty 11	Berlin 13758	H.26 x W.42 x L.54 cm
	3 Fig.89	Dome, triple <sup>^</sup>	-	-	-	Painted	-	<i>Ik</i> <sup>^</sup>	Late Dyn. 11- Early Dyn 12	Turin <sup>^^</sup> C0631	-
Esna	1 Fig. 90	Dome, single	-	-	-	Functional	-	102E	MK	Location unknown	-

Qubbet el-Hawa	1 Fig. 91	Roofed	Y	Y	Functional	-	QH98 ( <i>St-k3</i> )	Dynasty 8/9	London EA21804	H.28 x W.46 x L.43 cm <sup>#</sup>
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Table 4.2 Breakdown of Elements of Funerary Models

Notes:

- # Measurements according to the website of the museums which house the model. All other measurements are from Tooley (1989, Vol. I).
- ## Tooley notes that eight models like this were found in Tomb 10A. Tooley (1989: 101). Only two examples have been included in this survey as their images were readily available.
- ### There is some uncertainty about the correct accession number for this model. It is either JE32831 (Tooley 1989: 114) or JE32832 (Tooley 1995: 41).
- \* Tooley writes that this model came from Cemetery Y but was marked as coming from Cemetery W. Tooley (1989: 120).
- \*\* There is no museum number for this. This number is from Arnold (1981: Taf. 22e).
- \*\*\* Date according to liverpoolmuseums.org.uk. Accessed 19/9/2019. All other dates are from Tooley (1989, Vol. I).
- ^ The location of this model is unknown. However, it was felt that there was sufficient information to indicate that it came from this tomb and so it was included in this survey. See Montonati (2018).
- ^^ This is the number for the plate from the Museo Egizio's photographic archives. It is possible that the actual model was left in the tomb or crumbled when the excavators tried to move it. Montonati (2018: 9).
- ^^^ These five models all depict extra activities as well as storing grain. El-Sheikh 'Ibada 2, Deir el-Bersha 3 and Gebelein 2 are the only models surveyed that don't have peaks. The implication is that there is a strong link between peaked corners and specifically grain storage activities as it was only those engaged in extra activities which were without peaks. It should be noted that while the activities in el-Sheikh 'Ibada 2, which is without peaks, are unclear in Fig. 70, Tooley notes that it contained an oven and three beer mash jars. Tooley (1989: 115).
- + Fig. 51 shows Sidmant el-Gebel 3 as unroofed. However, there appears to be a shutter painted on the wall, the top half of which is missing. This would suggest that the model originally had a roof.
- ++ It is not clear in Fig. 71 whether there was a painted door on Deir el-Bersha 1. However, its similarity to Deir el-Bersha 2 makes it likely that there was originally one.
- +++ While not evident in Fig. 84 that shutters were painted on the wall of Deir el-Bahri 4, Arnold notes this detail in the description of the model. See Arnold (1981: 27).
- x The layout of Sheikh abd el-Qurneh 1 shows that access was possible between the chambers, unlike any of the other models. The model with the closest layout is Beni Hasan 2 which shows a separate entry into each of the two chambers.
- xx A model which has an opening from which grain may have been extracted is defined as having a functional shutter, even if the door is no longer present. This is why both domed and square models are listed as having functional shutters.

## Chapter 5 Building an Interpretation

### A Discussion of the Evidence

This study has demonstrated that there is a variety of evidence for granaries from the Middle Kingdom period and that while there is consistency between the different types of evidence, there is also some differences. Additionally, there is some information about these buildings and their use, in both daily life and after life, which can only be found in one source. This chapter examines the evidence outlined in the previous chapters in order to provide an overall assessment of the context for storage facilities in ancient Egyptian society. It does this by gathering the different strands together and providing an interpretation which seeks to not only match similar details from different types of evidence, but also to explain some of the discrepancies in the information previously examined. There is, unfortunately, a bias in the discussion towards archaeological and visual evidence as these areas have provided more information than the textual evidence. This is due to the fact that not only are there few attestations for the terms once used for storage facilities, they also often appear in fragmentary contexts where it is difficult to establish a detailed interpretation of the evidence. As well as this, the breadth of evidence considered has meant that only some key areas are highlighted in the following discussion.

All three types of evidence, archaeological, textual and visual, indicate a clear association between grain and granary, be it in word or building; image or structure. Botanical remains of emmer and barley were found at sites such as Kom es-Sultan and Tell Edfu.<sup>235</sup> References to emmer and barley also appear in administrative texts such as Excerpt 8, the royal commemorative text Excerpt 14, and other texts such as Excerpt 23a from the literary work *The Eloquent Peasant*.<sup>236</sup> While it is not possible to identify specific grain types in wall scenes it is clear that grain was depicted awaiting storage. Funerary models are also linked to grain via the inclusion of grain in the model, for example in Saqqara 4 and Beni Hasan 9, while words for different types of grain are still visible on the actual model Qubbet el-Hawa 1.<sup>237</sup> However, this evidence also reveals that the use of storage facilities was more complex than the simple statement that grain was stored in granaries in ancient Egypt, as there is evidence that these buildings were not solely associated with grain, but with other foodstuffs. Sites such as F/I at Tell el-Dab'a have produced evidence of other organic materials located

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<sup>235</sup>Table 2.4.

<sup>236</sup>Tables 3.2a, 3.1c and 3.2b.

<sup>237</sup>Appendix Fig.s 47, 61 and 91.

near granaries, such as grapes, figs and dates, while legumes were also found at F/I and at Abu Ghalib.<sup>238</sup> Excerpt 8 also makes it clear that dates were exported from the granary.<sup>239</sup> Qubbet el-Hawa 1 lists a type of fruit among the labels on its granary wall and Sidmant el-Gebel 3, had currants, as well as grain, deposited in it when it was placed in the tomb. The words written on the wall of Qubbet el-Hawa 1 are *w<sup>c</sup>h*, *išd*, *bš3* and *sw.t*, being a type of fruit, carob bean, malted barley and wheat respectively.<sup>240</sup> These last two match the archaeological evidence from sites outlined in Table 2.4. This means that storage facilities, which are today interpreted as granaries, had a much wider use than is implied by the narrow, modern definition of a granary as being solely a place for storing grain. Perhaps a suitable modern analogy is a cupboard which, while the term remains the same, is used to store a wide range of items, including non-edible goods. Furthermore, there were alternate terms for storage facilities which were associated with grain in some contexts and with other goods, not always edible, in other cases: a *mhr* was used to store grain in Excerpt 16 and 23a, yet Excerpt 18 refers to leather products while in Excerpt 19 the *šn<sup>c</sup>* was associated with both meat and coals.<sup>241</sup> This indicates that associations between products and storage went beyond strict delineations which matched produce type to storage facility and thus occupied a broader definition within the vocabulary of daily life. It suggests an approach to language in which the definitions of words were not solely reliant on the spoken or written word and that other markers indicated what needed to be stored where. Although, it should also be noted that it is not possible to tell if the granaries excavated so far were referred to as *šnw.t*, *šn<sup>c</sup>* or *mhr* by the ancient Egyptians.

One such marker may have been the shape of the building, as the archaeological and the visual evidence indicate that both circular and square granaries were used.<sup>242</sup> Of the sites surveyed only one had no circular granaries, 6 sites had both shapes and 4 sites had only circular storage facilities. This suggests that the dominant form of structure for granaries was circular, even in state-planned settlements with an orthogonal layout, such as Lahun.<sup>243</sup> While shape may have been a marker for the type of product stored, the archaeological record does not provide any more detail about the various uses of different structures. Likewise, the visual evidence also depicts both shapes, although the evidence is skewed the other way in

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238Table 2.4.

239Table 3.2a.

240Faulkner translates *išd* as an unspecified fruit and *w<sup>c</sup>h* as a carob bean. See Faulkner (1962: 31, 58). Sidmant el-Gebel 3 see Appendix Fig. 51, Qubbet el-Hawa 1 Fig. 91.

241Table 3.2b and 3.4b.

242Table 2.1.

243Appendix Fig.9a.

favour of square buildings, as most of the examples contained within the model corpus are primarily square. As discussed in Chapter 4, the bias towards square models may be for a number of reasons including manufacturing techniques and the preservation of evidence. A square shape is easier to craft, especially in wood which is the main material of surviving models.<sup>244</sup> An additional discrepancy lies in the representation of granaries in wall scenes, as these are almost always circular, whereas of the 50 models surveyed only 7 are circular, dome-shaped granaries.<sup>245</sup> So, while both types of visual evidence indicate the use of circular and square granaries, they are not consistent in their depiction of which granary shape may have been the most prevalent form.

This difference may rest upon the underlying difference between the purpose of an actual granary for daily life and a funerary model designed for the afterlife. The square shape of a model enables the composition of a narrative structure which is irrelevant for daily life. For wall scenes, in which circular granaries are the dominant shape, this narrative structure is created by the use of registers. It is therefore possible that the religious need to convey the symbolic association of plenty with a granary meant that this dictated the shape of a model. In the wall scenes abundance could be conveyed by depicting multiple buildings, as in Scene 3; in the model corpus this could be conveyed by creating a three-dimensional hieroglyph of the term for granary, *šnw.t* and then filling the model with grain and other produce.<sup>246</sup> While there are discrepancies between the different types of evidence, an interpretation which relies on recognising the different purposes of the models, wall scenes and physical buildings allows for these differences to sit alongside each other rather than need to be integrated. Such an interpretation sees a model not as a replica of an existing building, but rather as a funerary object whose primary function was symbolic. The textual evidence supports this somewhat as while administrative texts, such as the excerpts in Table 3.1, refer to the concrete concepts of grain movement, other texts, such as those in Table 3.5, indicate that granaries were also associated with more abstract concepts such as ideas of plenty.

Another aspect which is found in both visual and archaeological evidence is the grouping of granaries into one location, although this clustering is more obvious in tomb scenes than funerary models; spectacularly so in the case of the aforementioned Scene 3 which shows 20

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<sup>244</sup>Preservation of the corpus may also be the result of the choice of early excavators in favour of the more elaborate square models over the less complex pottery models of circular structures. However, this is speculative.

<sup>245</sup>Table 4.2.

<sup>246</sup>Scene 3, Appendix Fig. 35.

granaries arranged in two rows of 10 each.<sup>247</sup> In the wall scenes this grouping of multiple granaries can be seen as an expression of the purpose of the depiction in ensuring an abundance of supplies for eternity. Yet, this clustering is also corroborated by the archeological evidence, where sites such as Kom Rabi'a and Elephantine indicate that a particular part of a residence was set aside for storage facilities and that a number of structures were built in this area and used at the same time.<sup>248</sup> Additionally, the example from Elephantine indicates that both round and square buildings could occupy the same area concurrently. This matches the image in Scene 1 in which both square and round granaries are depicted.<sup>249</sup> The differences and the similarities between archeological and visual evidence demonstrate that a range of shapes were constructed to serve as storage facilities for grain and other produce.

The textual evidence complements this by indicating that *šnw.t* was not the only term used for storage facilities. The other terms, *mhr* and *šn<sup>c</sup>* can be translated as storehouse or barn and storehouse or labour establishment respectively.<sup>250</sup> A number of interpretations can be offered: either the terms applied to specific building shapes or they applied to the usage of a building, regardless of shape. The number of attestations available is limited, making it almost impossible to clarify the application of certain terms to the evidence in the visual and archeological record. However, the analysis of the excerpts in Chapter 3 suggests that there is a blurring in the usage of terms and that while different terms are used in different situations it does not seem that one term is exclusively used in one situation. Thus, the latter interpretation, in which the use of the building determines the term applied to it seems to be most apt. For example, grain was found in both the square storage facilities at Lahun and the circular units at Elephantine.<sup>251</sup> Thus, both could be a *šnw.t*. Yet, if one facility was used to store grain for transactions, while the other was used to store grain for consumption, then perhaps the former was a *mhr* and the latter a *šnw.t*.<sup>252</sup> Ultimately, however, it is not possible

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247Appendix Fig. 35.

248Fig.s 8b and c and 16.

249Appendix Fig. 33.

250Faulkner (1962: 115, 269). For a brief discussion of the translation of *šn<sup>c</sup>* as a labour establishment see Chapter 3.3.

Excavations at South Abydos have provided extensive evidence from sealings on the way in which the Sna 'Production Area' functioned. Information on this can be found in the unpublished dissertation of Smith see <https://repository.upenn.edu/edissertations/190/>. Additional discussion can also be found in Wegner, J. (2007), *The Mortuary Temple of Senwosret III at Abydos*, New Haven and Philadelphia; Wegner, J. Smith, V. and Rossell, S. (2000), "The Organization of the Temple *Nfr-K3* of Senwosret III at Abydos", *Ägypten und Levante/ Egypt and the Levant* 10, 83-125; Smith, V. "Food Fit for the Soul of a Pharaoh: The Mortuary Temple's Bakeries and Breweries", *Expedition* 48 (2), 27-30.

251Table 2.4.

252There is some indication among the attestations for *mhr* that it is associated with business transactions. See Chapter 3.4. However, the text of a very recently published stela would seem to indicate that a *mhr* can be

to match the textual evidence with the other types of evidence with any certainty and it is only possible to state that several terms were used for storehouses, including granaries.

While the visual evidence demonstrates that both round and square structures were used to store grain, it is not able to provide information as to the location of granaries within the settlement and its dwellings. This information is provided solely by the archaeological evidence which not only shows where granaries were constructed within a settlement, but also offers the opportunity to provide an interpretation which considers the workings of the society. Firstly, the evidence of a dedicated space within a building's footprint which was then used for an extended period of time, as at Kom Rabi'a, Karnak and Elephantine suggests that once an area was set aside for storage it continued to be utilised for this purpose even as the building with which the granary was associated changed around it.<sup>253</sup> Secondly, many sites demonstrate that not all houses had granaries; a fact which is particularly noticeable at Tell el Dab'a F/I and Lahun.<sup>254</sup> Lahun and Wah-Sut both have large capacity units which may have been used for the redistribution of grain to the residents within the settlement.<sup>255</sup> However, no such large unit has been found at the other extensively excavated sites of Tell el Dab'a and Elephantine. Perhaps a large unit has yet to be exposed at these sites, or perhaps the archaeological evidence indicates a certain level of interdependency between the occupants within a settlement which cannot be seen in the textual and visual record. Sites such as Elephantine, where not all houses had granaries, indicate that the supply of grain within a settlement may have rested upon a system of redistribution. This system may have been based on familial links between houses, whereby one or more main dwellings supported dependent families with grain supplies. It may also be evidence of an exchange system whereby the main income of certain houses was grain with which they bought products manufactured by other inhabitants. This suggests a society in which not all labour was devoted to agricultural activities.

While the textual evidence does not likewise indicate the interdependency between residents within a settlement, it does hint at a complex network which managed the movement of grain and other produce around Egypt. While the presence of scribes in the visual record indicates that accountancy was an aspect of grain storage, it is only written examples such as Excerpt 8 which details the quantities of produce moved in and out of

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linked to the storage of seed corn for planting the next harvest. See Florès (2019: 3, Fig.2). Unfortunately, its very recent publication meant that it was not possible to include this text in Chapter 3.

<sup>253</sup>Appendix Figs 8a, 13 a and b and 16.

<sup>254</sup>Appendix Fig. 2 and 9a.

<sup>255</sup>Figs 9a and 12b.

granaries or the other excerpts in Table 3.1b which indicate that granaries were not only localised to specific settlements, but were also linked to set districts. It is, however, difficult to state that the excerpts collected in this study indicate a national distribution system. Overall, there is perhaps more evidence that the distribution of grain was more localised and regionalised than nationalised.

Yet, the textual evidence is unable to provide details as to the mechanics of storing grain. While it is not possible to determine from the archaeological record exactly how the grain was stored, the use of both round and square granaries suggests that grain may have been stored in two forms: either loose in structures such as the dome-shaped beehive granaries, or bagged in spikelet form, or fully threshed, which would also enable it to be easily moved from one location to another. Nor does the depiction of grain storage in the visual evidence contradict this supposition. Both wall scenes and funerary models depict figures emptying bags of grain into the chambers below and therefore storing loose grain; the depiction can also be given another interpretation whereby the bag of grain itself is also intended for storage. Such an interpretation is not impossible given the fact that Egyptian art can convey multiple aspects in one image, including aspects of time. Thus, for example, in both Scene 5 and the model Sheikh abd el-Qurneh 1 the building is being filled with grain for storage at a set point in time, but also, at another level, the granary is being continuously filled.<sup>256</sup> The scribes likewise are recording the amount of grain being stored on the one occasion and are also symbolising the continuous filling of the granaries by the fact that their task cannot be depicted as completed. To express the scene grammatically, as it were, is to locate it neither in the past nor the present but in the imperfective, whereby an action can be continuously engaged in without an endpoint. Thus the scene depicts not just a single event, but the continual filling of the granary for eternity. The depictions of the measures for scooping grain and the bags used to carry it help emphasise the symbolic aspects of the scenes by serving a dual purpose as they are both the image of an object, the scoop and the bag, and the word for that object: hieroglyph U9, the scoop and hieroglyph U112, the bag.<sup>257</sup>

The archaeological and visual evidence has some similarities in regards to the internal division of the granaries, particularly the multi-chambered structures at Lahun and Wah-Sut.<sup>258</sup> While most tomb scenes clearly depict separate granaries, albeit directly next to each other, two tomb scenes may suggest an internal division comparable to the buildings at

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256Appendix Fig.s 37 and 86.

257See Chapter 4.2.

258Appendix Fig. 9 and 12b.

Lahun and Wah-Sut. In Scene 3 there is no dividing line between the shutters, as in most other scenes; in Scene 5 the dividing line does not extend to the bottom of the granaries.<sup>259</sup> This depiction would seem to indicate that the building is one structure with internal divisions located behind the shutters. Unfortunately, the scenes depict different roof structures, making it difficult to state with confidence that storage facilities with multiple chambers had flat roofs. Buildings with flat roofs are, however, the standard form for most tomb models. This creates a dilemma in that the most common form of granary in settlements was circular and therefore presumably dome-shaped.<sup>260</sup> A possible solution may be that what is being depicted in the model is to indicate that grain was poured into the granary from the top. Therefore what is being expressed in the model is that the top of the structure was accessible via steps, rather than that the roof was flat. Such an interpretation may seem overly complicated, however, the archaeological evidence indicates that stairs were used to access the top of circular granaries which were presumably dome-shaped.<sup>261</sup> Tomb scenes also support the idea of steps ascending around a circular granary.<sup>262</sup> What is important is that the granary can be accessed so that grain can be stored within it, not whether or not the roof is flat. It is the symbolism associated with filling the building that is the key element in the model.<sup>263</sup> This is not to say that no granaries had flat roofs, but to suggest that the reason so many models were constructed in this way was that simply such a depiction is far easier to render in wood than its domed counterpart.

There is one model which has an internal layout which matches the large storage facilities at Lahun and Wah-Sut: Sheik abd el-Qurneh 1<sup>264</sup> This granary model from the tomb of Meketre has been used to demonstrate what granaries looked like and how they functioned, in particular large multi-chambered structures.<sup>265</sup> Yet this model is the only one in the corpus of 50 models which has such an internal layout.<sup>266</sup> Additionally, it is not clear in the archaeological record that the structures at Lahun and Wah-Sut were solely used for the storage of grain, as is shown in the model. There are a number of other differences which

<sup>259</sup>Appendix Fig. 35 and 37.

<sup>260</sup>At Karnak for instance there was enough height left on one granary to indicate that the structure sloped inwards as it increased in height. Millet (2007: 687).

<sup>261</sup>Stairs were noted on the exterior of the town wall adjoining Houses 2, 3 and 5 at Lahun. Frey and Knudsted (2008: 42ff). See also Appendix Figs 10a and b for a plan and photo of a circular granary with stairs at Lahun. The layout is similar to that of Feature 821 at Kom Rabi'a, see Appendix Fig. 8c.

<sup>262</sup>See the discussion of Scene 1 and 3 in Chapter 4.2.

<sup>263</sup>Compare with Arnold's analysis of the columns in Meketre's slaughterhouse model which she interprets as not indicative of an actual building layout, but as symbolic. Arnold (2005: 58).

<sup>264</sup>Appendix Fig. 86.

<sup>265</sup>See particularly Kemp (1986).

<sup>266</sup>This difference may be the result of regional variation. Unfortunately, there are not enough surviving models from the Theban area to make this clear.

indicate that caution should be exercised when approaching this model as a realistic representation of large storage facilities. While the model depicts access between the sections, as is also evident in the archaeological record, the stairs are located within this area. At Lahun stairs are in evidence, but only on the exterior of the building, while there are no stairs at all associated with the structure at Wah-Sut. Another discrepancy between this model and the building at Wah-Sut is that the model shows that there is an external access point into the magazines. There is no such point of entry evident in the plan of the excavations at Wah-Sut.<sup>267</sup> It is also difficult to know if the depiction of scribal activity in such close proximity to the grain storing is an accurate reflection of the actual arrangement of accountancy and storage activities. If the primary purpose of the model is for the funerary context and not as a miniature replica then the interpretation of its layout must favour the symbolic, whereby the key elements of scribes, labourers, measures, bags and grain are included not only because they are associated with the storage of grain, but also because they convey the sense of abundance which is so key to the potency of the model in ensuring supplies for the afterlife.<sup>268</sup> Indeed, perhaps what is most striking about this model is not its similarity to buildings in the archaeological record but the quantity of people contained within creating the impression of a scene that is full of activity and thus symbolising the enormous quantity of grain which must be counted and stored for eternity.

The other funerary models do not depict an arrangement of rooms which match those at Lahun and Wah-Sut and the model from Sheik abd el-Qurneh. Rather, the row of magazines which are such a common feature in these other models may match the type of structure seen at Abu Ghalib and Kom es-Sultan.<sup>269</sup> There are two types of models. One type, with a central courtyard and granaries on either side, is not common.<sup>270</sup> The other type, evident in the majority of models, has a courtyard with granaries along one side and most closely resembles the layout at Abu Ghalib and Kom es-Sultan, although evidence of stairs at the two sites is limited.<sup>271</sup> Additionally, it is difficult to identify a wall in the archaeological record which was specifically built to surround the granaries. The walls which enclose the rectangular structure in Building 4 at Kom es-Sultan may be partly connected with the surrounding

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267Appendix Fig. 12b.

268Arnold refers to these realistic details as “enriching” elements. “The ultimate function of all these (“enriching”) elements may have been symbolic or ritual, but the narrative details are taken from the real world.” Arnold (2005: 47).

269Appendix Fig. 7 and 11a.

270The five examples can be seen in Appendix Figs 47, 56, 57, 60 and 91. There is a mix of open and roofed chambers.

271Adams identified stairs in Building 4. Adams (2007: 3) Bagh suggested that a space designated *serdab* by Larsen was stairs. Bagh (2002: 36). See Appendix Fig. 7, Quadrant IIa 4.

buildings and it is unclear that courtyards were associated with structures at Abu Ghalib.<sup>272</sup> This then tends to support the idea that the primary function of the wall on a granary model was not to replicate an existing building type, but was for symbolic reasons.

The evidence from Kom es-Sultan also correlates with the models in that there is an indication of activities, other than grain storage, also occurring in the vicinity.<sup>273</sup> However, models such as el-Lisht 1 are comparatively rare and only 5 of the 50 models surveyed depict activities other than grain storage.<sup>274</sup> Yet, textual evidence indicates that a *šnw.t* can be connected with activities such as brewing and baking. Excerpt 8 refers to processed barley and malted grain, both possibly associated with brewing, as were dates.<sup>275</sup> Perhaps the clearest example of a link between bread, beer and *šnw.t* is expressed in Excerpt 22a which lists the quantity of bread and beer supplied by the *šnw.t*.<sup>276</sup> Nevertheless it is unclear that the actual activities for making bread and brewing took place in the *šnw.t*. It is therefore possible that the interpretation of these models which depict multiple activities lies in the need not to replicate real life, but in a desire to compress ideas and activities associated with the supply of food into a single model in order to maximise the provision for the dead for their afterlife.<sup>277</sup> This concept of abundance is not only noticeable in the visual evidence, but is also apparent in a number of attestations for the term *šnw.t*, although not apparently for other terms. Several biographical inscriptions, such as Excerpts 10 and 11, use the idea of opening the granary to people as a way of expressing generosity.<sup>278</sup> Likewise, Excerpt 13, which describes the quantity of amethyst mined as if it was like grain, is certainly closely linked to the abundance portrayed in tomb scenes and funerary models.<sup>279</sup>

The visual record, is the only source of information as to the context of granaries within the agricultural cycle. The archaeological evidence and the textual evidence only provide information as to the processing of grain after it has been harvested: the former as to the location and types of grain storage; the latter detailing the movement of grain from place to place. Furthermore, it is only in the two-dimensional wall scenes that the agricultural cycle is

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<sup>272</sup>See Appendix Fig. 7. Indeed, Larsen only identified the large space in Quadrants IIb 3 and 4, IIc 3 and 4 and IId as a courtyard. Larsen (1941: 13-14).

<sup>273</sup>Two quartzite querns together with grinders were found in Area 1 of Building 4. Adams (2007: 6). There was also some evidence to suggest that brewing and baking occurred near the granaries at Karnak. Millet (2007: 687-688).

<sup>274</sup>See Table 4.2 note ^^^. Appendix Fig. 48.

<sup>275</sup>Table 3.1b. Samuel (2000: 547-552).

<sup>276</sup>Table 3.3a.

<sup>277</sup>A closer examination of the other models associated with these examples may help clarify this point as models with more activities depicted in them may come from assemblages which have less models in total.

<sup>278</sup>Table 3.5.

<sup>279</sup>Table 3.5.

expressed, as funerary models only depict the processing and accounting of grain post harvest. Of particular note is the threshing of grain by animals as there is no apparent evidence in the archaeological record of this activity. While threshing is closely connected to granaries as the step before storage it seems that it occurred some distance away from the place of storage. This raises interesting, but unanswerable questions, as to what was measured in the textual attestations: threshed or unthreshed grain.

Certain structural details are also only found in the visual evidence. The walls with peaked corners which are such a striking feature of granary models are not apparent in the other types of evidence. There are two possible reasons for this: the feature was only ever used in a funerary context, or the evidence for walls with peaked corners is no longer apparent in the archaeological record. This latter explanation is not unreasonable given how few courses of brickwork remain from granaries at settlement sites.<sup>280</sup> However, as noted in Chapter 4.3, it is a surprisingly elaborate architectural detail for a building whose primary purpose was to store grain. Thus the suggestion that it was only ever used in a funerary context, as the detail was of magico-religious significance and not related to the representation of granary buildings from real life.

Archaeological, textual and visual evidence all provide information as to the context of granaries within ancient Egyptian society. Different aspects are highlighted by one type of evidence more than other types. Additionally, the amount of evidence preserved affects the depth to which a discussion can occur. This is most noticeable in the discussion of the textual evidence for which there are only limited attestations for not only the term *šnw.t*, but also for *mhr* and *šn<sup>c</sup>*. The fragmentary nature of this evidence gives a tantalising glimpse into the complexity of the movement and storage of grain which is not apparent in the other types of evidence. The discussion of the archaeological evidence has focussed on the concrete uses of these buildings and while some of this has been matched to the visual representation, this analysis and discussion has demonstrated that both wall scenes and models should be interpreted with care as their primary purpose was to serve the deceased in the afterlife and, therefore, many of their aspects are essentially symbolic in nature. The place of granaries in ancient Egyptian society matches the divide that is evident in much of this society's culture as they occupied both a place in daily life and in the afterlife.

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<sup>280</sup>Arnold (2005: 28).

## Chapter 6 Completing the Construction

This project has taken a wide-ranging approach to the evidence for granaries from the Middle Kingdom period. This has been achieved through the collection of evidence from three different sources of information: archaeological, textual and visual. Such an approach has made it possible to analyse the evidence from a number of different angles, and thus present a portrayal which has demonstrated the complex role these apparently simple structures occupied in the ancient Egyptian culture. These angles have included elements such as the shape of buildings, their location through time as a settlement developed and changed around them, the context for granaries in texts and their representation in the funerary culture.

Thus it can be seen that not only were they an integral part of daily life, they were also a significant part of those funerary beliefs which ensured the provision of sustenance in the afterlife. However, the size of the project has placed boundaries on this undertaking so that additional evidence for granaries, such as at the fortresses in the cataract region and the depiction of granaries within coffins, has out of necessity been omitted. While the fortresses represent a specialised form of settlement and therefore require an analysis which takes this into account, the evidence from coffins is readily applicable to the approach taken in the discussion of the other visual evidence and therefore ideal for an expanded project. Furthermore, the breadth of the analysis of evidence taken in this project has meant that it has not been possible to examine in detail every aspect which has been revealed in the study. And so, there are still further avenues for exploring the context of granaries in this society.

The archaeological evidence indicates that both circular and rectangular structures, in a variety of sizes, were used to store grain. Only two sites, Lahun and Wah-sut, had substantially sized multi-chambered structures, potentially capable of storing very large quantities of grain. Two other sites also had sizeable rectangular structures built with 2-3 chambers, Abu Ghalib and Kom es-Sultan. Yet, every site surveyed, except Abu Ghalib, had circular granaries, suggesting that this may have been the dominant form of granary at this time. This conclusion is further strengthened by the fact that the large multi-chambered building at Wah-Sut was in use for only a very short period of time before being replaced by circular structures. Additionally, not all dwellings had these types of storage facilities implying that some residents relied on others for their grain supplies. A more detailed

analysis of the spread of smaller storage vessels in the archaeological record may help to provide a more detailed understanding of the supply of produce between residents. It may also be useful to examine site information which has not yet been published from both older and more recent excavations, looking for specific details such as botanical remains associated with structures which may potentially be identified as storage facilities.

Further investigation into archaeobotanical remains may also help give a stronger sense of where different types of food were stored. However, there are difficulties with using this type of evidence, which is often poorly preserved due to its highly perishable nature and, therefore, not always apparent in the archaeological record. Another option may be a closer examination of the evidence from seal impressions: in particular the backs which give an indication as to the type of container to which the original seal was attached. It is possible that an analysis of these, in combination with the knowledge of their find locations, could provide a more complex picture of the storage of different goods within settlements. Additionally, a more detailed examination of the link between the potential storage capacity of granaries and the textual information provided about the quantities of food associated with granaries, may help to enhance the discussion about the population of Egypt at that time. An understanding of population aids the study of the complexity of the society and the analysis of the quantity of land needed for agricultural purposes and, therefore, what percentage of the population was involved in tasks involving manual labour.

While textual evidence is scarce it does indicate that at least three terms, *šnw.t*, *mhr* and *šn<sup>c</sup>*, were used for storage facilities during the Middle Kingdom. While it seems that context may have dictated which term was applied to a building when in use, it may also be possible to understand these nuanced differences through further examination of the archaeological evidence, as outlined above. The information gained from seal impressions and their location may help to expand on the understanding of how different parts of a building were used by indicating if certain areas were consistently used for specific activities, such as business negotiations. Certainly, it seems apparent that while a *šnw.t* was solely used for food products, both a *mhr* and a *šn<sup>c</sup>* were also used for non-edible goods. Additionally, there seems to be a link between a *mhr* and business transactions, while a *šn<sup>c</sup>* had some associations with the storage of items used for religious purposes. Yet, the role of the state has been difficult to establish in the texts analysed in this study and it is difficult to be conclusive about the nature of redistribution in Egypt and whether or not it was institutionalised at a state level, or more regionalised and therefore less strictly delineated.

The attestations for *mhr* and *šn<sup>c</sup>* indicate that, according to the evidence surveyed in this project, they were only ever used in everyday contexts. By comparison, a number of texts demonstrate that not only was *šnw.t* used in administrative contexts it was also used as a metaphorical device. Thus, in a number of biographical inscriptions it was seen that someone could indicate their good character by expressing their generosity and concern for those around them through 'opening their granary'. The use of the granary in the text from Wadi el-Hudi, in which the quantity of precious stones is likened to the filling of the most important granary in Egypt, the double granary, is particularly poetic and demonstrates that the Egyptians had conceptual links to granaries which went beyond their utilitarian use.

The study of the two-dimensional evidence, as represented in wall paintings, has demonstrated the importance of appreciating the conventions of Egyptian art, particularly its aspective character, and therefore emphasised the need for careful interpretation of the evidence. Additionally, it has also been important in this survey to acknowledge the funerary context for which the wall paintings were originally created. Thus, while it is possible to observe the role of granaries in the depiction of the agricultural cycle, it is evident that they were not solely associated with this theme, but were also, on occasion, linked to scenes which had a greater emphasis on counting and measuring. The depictions of granaries in these types of scenes can be neatly linked to the concepts of plenty which are evident in some of the textual information. Additionally, the expansion of an analysis into the inclusion of the depiction of granaries on the interior of coffins may help enhance some of the points discussed in this project. For example, it may be possible to ascertain if some of the elements analysed were more important than others, as the need to provide a depiction on the confined space of a coffin wall must have necessitated that only the most pertinent details would have been included.

The randomness of preservation is perhaps nowhere more apparent than in the evidence remaining in the visual record. Few tomb wall scenes depicting granaries remain from the Middle Kingdom period compared with the comparatively large corpus of funerary models. There is also an apparent imbalance within this body of evidence as many of the funerary models with a provenance seem to be primarily rectangular representations of granaries. This may have resulted in a bias in the discussions about granaries which have perhaps over-emphasised the role that rectangular buildings played in the storage of grain. While it is unlikely that many more wall scenes will be uncovered, it may be possible to redress this seeming imbalance in the model corpus through a re-examination of the unpublished records

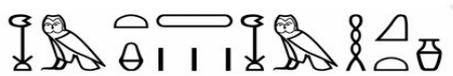
of finds from earlier excavations. Such a project may help unearth additional dome shaped granaries and so provided further integration between the evidence for granaries in the archaeological record and those in the three-dimensional visual record. However, round or square, the representation of granaries in tombs demonstrates that they played an important role in the religious beliefs of the ancient Egyptians. They provide clear evidence that grain was perceived as important, not just in daily life, but in the afterlife. Nor was it just grain that was essential for survival, but also the facilities in which to store it and thus ensure eternal sustenance for the deceased person.

The approach taken in this project has meant that while it has been possible to integrate evidence across the three strands of information, it has also been possible to note the discrepancies in the evidence and to observe that some information can only be gained from one source of information. That this project has not relied on the need to provide a completely integrated analysis of all the evidence has been one of its strengths. This has meant, for instance, that the complex links between granary and settlement and the supply and distribution of food, which is apparent in the textual record, can be recognised without the need to match it with the archaeological or visual record. Thus, while it has not been possible to achieve an entirely consistent picture of the context for granaries in the Middle Kingdom period, it has also been possible to consider why there might be apparent contradictions. For example, the apparent discrepancy in the shape of granaries between the archaeological record, two-dimensional representations and three-dimensional representations may lie not so much in whether or not one form was used in one type of settlement over another, but in the fact that it is easier to create a square shape in wood than it is a round one.

However, it seems that the fundamental reason behind the discrepancies across the different types of evidence lies not so much in whether or not it is textual, visual or archaeological, but in the fact that some evidence falls into the context of daily life, while other evidence is from a funerary context. This recognition has been an important consideration in the way in which the evidence has been examined and has shaped a number of the conclusions in this survey of the evidence for granaries. It has ultimately resulted in the categorisation of granaries not according to shape or location or the storage of specific goods, but according to the context of their basic purpose: was their use, as revealed in the archaeological, textual or visual record, for this life or the next?

Granaries were more than buildings which stored grain for making daily bread and beer.

They were an important part of the fabric of Egyptian life. Their role in the society extended from the state level, as part of the administration of the economy of the country and the management of state workers, to the very basic sustenance needs of the entire population. However, their role extended beyond the practicalities of everyday life. They also looked to the future by providing a neverending source of grain in the afterlife. It is this complex relationship between the physical construction of a building and its conception within the culture which makes the study of granaries such a rich source for modern analysis and interpretation. However, for this ancient culture their true significance lay not in the complex role they occupied within the society, but within their potential to provide what every Egyptian hoped for in life and after life: a thousand of bread, a thousand of beer.



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