

READING RUBBISH

USING OBJECT ASSEMBLAGES TO RECONSTRUCT
ACTIVITIES, MODES OF DEPOSITION AND
ABANDONMENT AT THE LATE BRONZE AGE
DUNNU OF TELL SABI ABYAD, SYRIA

(Consolidating Empire Project, Volume 2)

by

Victor Klinkenberg



NEDERLANDS INSTITUUT VOOR HET NABIJE OOSTEN

LEIDEN

2016

Copyright 2016 by
Nederlands Instituut voor het Nabije Oosten
Witte Singel 25
Postbus 9515
2300 RA Leiden, Nederland

NinoPublications@hum.leidenuniv.nl

www.nino-leiden.nl

*All rights reserved, including the rights to translate or
to reproduce this book or parts thereof in any form*

*Cover image: Man excavating a house floor covered with sherds in the Tell Sabi Abyad dunnu
(photo by P.M.M.G. Akkermans).*

Reading Rubbish. Using Object Assemblages to Reconstruct Activities, Modes of Deposition and Abandonment at the Late Bronze Age *Dunnu* of Tell Sabi Abyad, Syria. Consolidating Empire Project, Volume 2 / by Victor Klinkenberg. — Leiden: Nederlands Instituut voor het Nabije Oosten.

PIHANS = Uitgaven van het Nederlands Instituut voor het Nabije Oosten te Leiden
(ISSN 1571-5728; 129)

(voorheen Uitgaven van het Nederlands Historisch-Archaeologisch Instituut te Istanbul)
= Publications de l'Institut historique-archéologique néerlandais de Stamboul)

ISBN 978-90-6258-340-9

Printed in Belgium

TABLE OF CONTENTS

Summary	IX
Acknowledgments	IX
List of figures	XI
List of tables	XVIII
Chapter 1. Introduction	1
1.1 Tell Sabi Abyad – research history	3
1.2 Excavation and documentation procedures	3
1.3 Chronology and stratigraphy of the <i>dunnu</i>	5
1.3.1 The original periodization	6
1.3.2 Relating the stratigraphy with the textual sources	7
1.3.3 The revised periodization	8
1.3.4 A revised relationship between the texts and the archaeology	9
1.3.5 Implications for the current research.	11
1.4 The <i>dunnu</i>	11
1.5 The Assyrian Empire.	12
1.6 Research aims and questions	15
Chapter 2. Methodology	17
2.1 Introduction	17
2.2 Digital model of the material remains	18
2.3 Site formation processes	19
2.3.1 Modes of deposition	21
2.3.2 Characteristics of deposits.	23
2.3.3 Properties of modes of deposition.	27
2.3.4 Post-depositional processes	34
2.3.5 Problems with this approach.	38
2.4 The “Sequence of Events” approach	39
2.5 Conclusion	41

Chapter 3. Results	43
3.1 Introduction	43
3.2 The north-western sector.	45
3.2.1 Introduction.	45
3.2.2 Two outside spaces (area 1).	46
3.2.3 The central courtyard (area 2).	51
3.2.4 “Tammitte’s office” (area 3).	54
3.2.5 The entrance hall and bathroom (area 4)	62
3.2.6 Conclusion: function and use of the NW sector.	67
3.3 The north-eastern sector	69
3.3.1 Introduction.	69
3.3.2 Pints and pottery (area 1)	69
3.3.3 Brewery and office (area 2)	77
3.3.4 Residential spaces and a kitchen (area 3).	85
3.3.5 A residential corner (area 5)	94
3.3.6 A courtyard and ephemeral structures (area 4)	97
3.4 The monumental residence	100
3.4.1 Introduction.	100
3.4.2 Front courtyard (area 1)	100
3.4.3 Central hall and eastern rooms (area 3 & 4)	104
3.4.4 Western rooms and additional bathroom (area 2).	107
3.4.5 Function and use of the monumental residence	111
3.5 The central building	113
3.5.1 Introduction.	113
3.5.2 The first construction	114
3.5.3 The extended building	116
3.5.4 Further renovations	117
3.5.5 Function and use of the central building.	120
3.6 The south-western sector.	122
3.6.1 Introduction.	122
3.6.2 On the grind (area 1)	122
3.6.3 The corner rooms (area 2).	127
3.6.4 Many ovens (area 3)	131
3.6.5 The corridor along the central buildings (area 4).	137
3.6.6 Domestic architecture (area 5)	140
3.6.7 A bakers’ residence? (area 6)	144
3.6.8 Structures along the wall (area 7)	149
3.6.9 Corner rooms (area 8)	153

3.7	The south-eastern sector	156
3.7.1	Introduction	156
3.7.2	Courtyard and small building (area 1)	156
3.7.3	The servant's entrance and pottery workshop (area 2)	162
3.7.4	An apartment (area 3)	168
Chapter 4. Discussion		173
4.1	Introduction	173
4.2	Reconstructing activities at Tell Sabi Abyad	173
4.2.1	Introduction	173
4.2.2	A digital approach	173
4.2.3	Reconstructing modes of deposition	174
4.2.4	Reconstructing the Sequence of Events	177
4.2.5	Relating finds with activities by using a <i>chaîne opératoire</i> approach	178
4.3	Evidence for activities in the <i>dunnu</i>	179
4.3.1	Introduction	179
4.3.2	Workforce	180
4.3.3	Subsistence	181
4.3.4	Food preparation	185
4.3.5	Production processes	194
4.3.6	Administration	200
4.3.7	War and peace	205
4.3.8	Storage	208
4.3.9	Domestic life	211
4.3.10	Abandonment	220
4.4	The function of the <i>dunnu</i>	221
4.4.1	Introduction	221
4.4.2	The local function of the Tell Sabi Abyad <i>dunnu</i>	223
4.4.3	The function of the <i>dunnu</i> in the empire	229
4.4.4	Conclusion	234
Chapter 5. Conclusion		237
5.1	The representativeness of objects	238
5.2	The textual sources	239
5.3	Activity patterns in the <i>dunnu</i>	240
5.4	The function and use of the <i>dunnu</i>	242
	Literature	245

SUMMARY

Around the year 1230 BC Assyrian forces conquered the area of modern North Syria. To consolidate power in the region and to make use of the agricultural potential of the region, numerous agricultural settlements were founded, so called *dunnu*. One such a settlement, was found and excavated at Tell Sabi Abyad, Syria. The settlement was relatively large and appears to have been heavily fortified. In this research the settlement was investigated to reveal what activities were played out inside. This was achieved by analysing the objects which were left behind inside the various rooms and courtyards at the site. Also the way in which these objects were deposited was subject to rigorous investigation: were the objects for instance dumped as garbage or were they left behind during rapid abandonment following some catastrophe?

The research resulted in a re-evaluation of the nature and use of the Tell Sabi Abyad *dunnu*. It has been revealed that the settlement was used largely for domestic, household activities and that it was slowly abandoned. This interpretation is in contrast with the historical view of this type of settlement. Historical sources have yielded an image of military forts which served to produce agricultural surplus for the empire and to oppress the local population. This research has aided in altering the understanding of how the Assyrian Empire consolidated its power in newly conquered areas. It illustrates how an occupying power cannot achieve hegemony with military might alone. Instead, it requires positive stimuli too.

ACKNOWLEDGEMENTS

Research into the activities within the Tell Sabi Abyad *dunnu* would not have been possible without the support of my promotor and the head excavator of the site professor Peter Akkermans. Thank you for this opportunity and for the freedom we experienced in interpreting your site anew.

During my research I shared an office and the workload with the members of the ‘*dunnu* team’: Frans Wiggermann, Merel Brüning, Federica Fantone, Tijm Lanjouw and Hannah Plug. Thank you all very much for the countless discussions and lovely dinners!

I am grateful to my family and friends who have supported me during my PhD years. In particular my friends at the Faculty of Archaeology, Arjan Louwen, Eduard Pop, Stijn van As, it is incredible to be able to work with such good friends in the same institute for so long. I hope I will be able to enjoy your friendship for many years to come!

1.3.5 Implications for the current research

The research presented here was based on the original periodization of the site. Because the level 5 deposits from that sequence covered the majority of activities carried out in the *dunnu* and because it was a horizon which could easily be followed through the settlement, it was decided to focus only on this time-slice. From the detailed analyses mentioned above it has appeared that the ‘level 5 architecture and finds’ belong to several different levels in the new periodization. Importantly, the new subdivision has indicated that the original Level 5 deposits should be assigned to younger levels in the north-west and to older levels in the south-west. Within single sectors (see below) the stratigraphy has remained largely the same but the correlation between sectors described in this research should therefore be taken with caution, for an up to date interpretation Brüning and Plug 2016 should be consulted.

Level	Dates
3	...
4	...
5	1184-... BC
6A	...-1184 BC
6B	1209-... BC
6C	...-1209 BC
7	...

Table 1.3: Possible dates of the architectural Levels of the revised periodization of Tell Sabi Abyad.

1.4 THE *DUNNU*

Within its short life span, ca. 1225-1125 BC, the *dunnu* underwent many architectural modifications, most notably, the filling up of the moat and apparently an increasing complexity of its internal structure. At its apex in level 5 the *dunnu* housed a large number of workshops and residential structures. By contrast, there were a number of moments the *dunnu* had seemingly lost its importance and buildings had fallen into disrepair. The frequency of building activities at the *dunnu* has led to a high-resolution archaeological imprint. Some walls were preserved more than three meters in height with vaulted doorways sometimes still in place. Newly laid floors were often placed on top of old ones and a great number of seemingly *in situ* finds originated from these successive floors in all of the buildings. The short-term and high-resolution chronology from the site is rarely available in archaeology. Rather than large-scale processes which are usually the object of archaeological research, the archaeological remains of the Tell Sabi Abyad *dunnu* offer insight into short-term events (Braudel 1966; Murray 1999; Lucas 2008).

Reconstructing the architecture of the *dunnu* is facilitated by the well preserved architectural remains. During and after abandonment large amount of objects were deposited on the floors of these houses and other structures. With the collapse of architecture in the *dunnu*, these objects were trapped inside the debris. Judging from some excavated contexts, objects may have been left on the floors of some structures during abandonment of houses in the *dunnu*. A grand total of almost 10,000 Middle Assyrian objects were excavated at Tell Sabi Abyad. Due to the speed with which objects and architecture were covered by collapsing architecture and sediments, later, natural processes which influence the state, location and

be viewed as having created the *blue print* for successive empires such as the Neo-Babylonian and Achaemenid empires (Liverani 1987; Postgate 1992; Liverani 2001; Düring 2015b: 1).

The historical account of Mesopotamia has been described as an alternating sequence of imperial domination and relative independence (Barjamovic 2013). This may be a simplified view of the past as, for local communities at least, life was not only determined by the actions of the imperial powers. Additionally, this historical perspective focusses on the events and themes which were important to the ruling elite. The population which was present in these areas was however not solely directed by the empire. Life in these communities was for a large part not concerned with the topics which appear in the historical documents. By default, the historical perspective is biased towards an elite view of society. It could, therefore, be argued that a different approach is required in order to investigate the impact of imperial strategies on populations in conquered territories. It is believed that the material remains which are analysed in archaeological research offer a perspective which is less biased towards the ruling elite.

As a formal element of Assyrian imperial strategy in a peripheral zone of the empire, the Tell Sabi Abyad *dunnu* can inform us about the way Assyria attempted to impose its rule on local communities and which effects this had. Whereas historical accounts are largely concerned with the elite and the messages they wanted to convey, the material remains provide a perspective of activities and individuals in the *dunnu*, impartial to social or economic standing. This study may therefore be seen as yielding a bottom-up perspective of Assyrian imperialism (Klinkenberg and Lanjouw 2015).

1.6 RESEARCH AIMS AND QUESTIONS

The aim of this research is to better understand the intended function and actual use of the *dunnu* of Tell Sabi Abyad for the local society and in the Assyrian Empire at large. A thorough understanding of its function and use will help in clarifying which imperial strategies were undertaken by the Assyrian Empire in order to control the region. Additionally, it will illustrate how local society was influenced by these imperial practices.

To achieve this the architecture and finds of the site are examined using a comprehensive and systematic methodology. How the finds were deposited and how they relate to activities will play a central role in this research. One of the aims is therefore to set up a framework for the reconstruction of deposition processes in order to reconstruct past activities.

An additional theme is that the activities in the *dunnu* have changed through time and space. Some activities were performed more in one phase than in another and the location of activities within the *dunnu* also changed through time. The diachronic changes within the Level 5 *dunnu* will be charted to reveal the changing role of the *dunnu* in the local society and in the empire at large. The interpretations based on the archaeological evidence from this study will be compared to the information which derives from textual sources. The combined evidence will be used to explain the function and use of the *dunnu*.

In short the main research questions are:

- What was the function and use of the *dunnu*?
 - What activities were carried out where in the *dunnu*?
 - What are the diachronic changes of these activities?
 - How do these activities reflect the position and function of the *dunnu* in the local society and in the Assyrian Empire?
- To what extent is the archaeological evidence representative for reconstructing activities in the past?
 - How do the objects from the Tell Sabi Abyad *dunnu* relate to ancient activities?
 - How does the information from the archaeological evidence differ from the textual sources?

CHAPTER 2. METHODOLOGY

2.1 INTRODUCTION

Reconstructing the activities in the Tell Sabi Abyad *dunnu* is achieved through examining the material remains which were left behind at the site in antiquity. This is however not a straightforward exercise; there are three main problems with the interpretation of this large dataset which need to be addressed.

Firstly, the dataset is composed of a daunting 10,000 objects and numerous architectural elements. All these objects and features were part of densely packed stratified deposits in which their relationships are sometimes hard to identify. This large and complex dataset requires a fast and reliable data management system. With this, it should be possible to manage and visualize all finds and features. Also the numerous characteristics of, and relationships between, finds and features should be included in this system.

Secondly, the objects found during the excavation do not always represent the activities which were carried out at the location where they are found. Processes such as the cleaning of houses and natural processes such as decay influence the state, location and presence of objects and features. Also, some activities might have left behind very clear traces while other activities leave no traces at all. The processes which have occurred between the activities in the past and the excavation of the material remains are considered to have *formed* the archaeological record and are consequently known as (site-) formation processes (Ascher 1961; Schiffer 1983). Interpreting material remains requires an accurate reconstruction of these formation processes. The identification of formation processes can subsequently help in understanding the functional relationship between the object and the space in which it was found.

The third issue is one of temporality: in the past a large number of activities may have taken place in a certain location, which together express the changing meaning and function of that space. The number of activities which are consecutively carried out is often higher than the number of phases which are recognized in stratigraphic reconstructions. The periodization then does not reflect the detailed changes which in fact occur in that settlement. These small events which make up an archaeological phase are, however, important for a thorough understanding of the history of a site. Therefore, a method should be in place which records all activities which were carried out in a given space.

The methodology which is presented in this chapter is concerned with systematically investigating the material remains from Tell Sabi Abyad with regard to the problems outlined above. To this end a largely digital workflow is employed which ensures the adequate handling

of large amounts of data (paragraph 2.2). By critically evaluating the formation processes for every deposit the depositional history of all objects is determined, aiding the functional relationship between objects and space (paragraph 2.3). Ultimately, the reconstructed activities are charted in a temporal framework, visualizing the order in which activities were carried out in each area (paragraph 2.4).

2.2 DIGITAL MODEL OF THE MATERIAL REMAINS

The archive of the Tell Sabi Abyad excavations consists of large amounts of folders with paper forms and drawings. Also hundreds of A0-sized field drawings were created in the course of the excavations. To ensure that the archive will remain intact in the future and to make the archive more accessible for research a large scale digitization campaign was set up at the start of this study (Klinkenberg 2014). The work included making an inventory of and classifying all the available data. Subsequently every document was provided with a unique file name which included information about the document and processed by a scanning company. The file name was recorded physically on the documents as well as in the digital files to ensure that they could be related with one and another in future if needed. The resulting digital files were archived in a straightforward folder structure which enables users to easily locate certain documents. Additionally, a database was created which contains a wealth of information about the documents. This database can, for instance, be used to search for all object forms which describe figurines. Also it can be used to locate all documents, forms, drawings or photographs, which are related to a certain trench. The entire archive was deposited for long-term online and open access storage at the Data Archiving and Networked Services institute of the Royal Dutch Academy of Science².

Interpreting the material remains from Tell Sabi Abyad is undertaken using this digital archive in combination with a three-dimensional GIS (3D GIS). GIS and 3D reconstructions are widely applied in archaeology (Renfrew and Bahn 1991; Burrough and McDonnell 1998; Wheatley and Gillings 2002) and can shed light on many question regarding the spatial distribution of objects or architectural remains. While they are often considered to be separate techniques, in some research like the current, they are explicitly combined (Losier *et al.* 2007; Katsianis *et al.* 2008; Klinkenberg in press). There is a marked difference between 3D reconstructions which are made for publications and reconstructions created for use in conjunction with 3D GIS. Most 3D reconstructions of archaeological remains focus on specific (monumental) buildings from a site, such as a single temple building. Furthermore, most archaeologically inspired 3D models are focussed on the reconstruction of architecture as it may have looked in the past.

The 3D reconstruction of the Tell Sabi Abyad excavations is different as every archaeological feature will be reconstructed as it was found during excavation: in their ruined state. The model is used by Tijm Lanjouw (2016) to reconstruct the construction history of the

² The digital Tell Sabi Abyad archive can be found at <http://dx.doi.org/10.17026/dans-294-p94z>.

CHAPTER 3. RESULTS

3.1 INTRODUCTION

This chapter deals with the analysis of finds and architectural remains from the Tell Sabi Abyad *dunnu* using the methodology set out in the previous chapter. Due to time restrictions for the research it was not possible to include all Late Bronze Age phases and all material remains from the site in this study. A subset of the data was therefore selected. As the spatial extent for the research it was decided to analyse all spaces within the outer *dunnu* wall (figure 3.1). This was done because it comprises a coherent spatial unit according to the architectural layout of the *dunnu*. Also it was believed that these spaces would yield a representative selection of data about the function and use of the *dunnu*. As a temporal framework for this study it was decided to focus on Level 5 (from the original periodization, see paragraph 1.3). Unlike the preceding and succeeding phases, Level 5 was clearly recognized in every trench of the site and has yielded abundant finds and architectural remains. Additionally, it was clear from the outset of this research that the *dunnu* both flourished and deteriorated during this Level. It was therefore believed that this would yield a comprehensive view of the changing function and use of

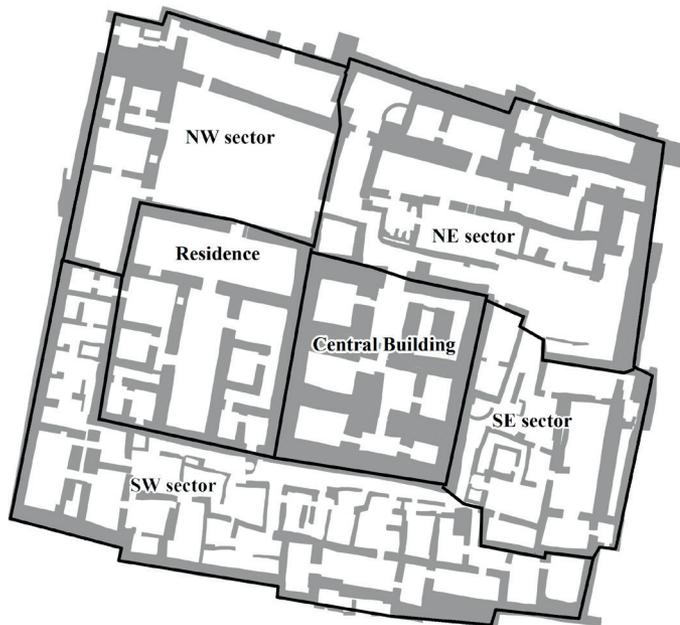


Fig. 3.1: The architecture of the Tell Sabi Abyad *dunnu* with indication of the location of the sectors within the walls.

the settlement at the end of its fully functioning life span. From the analyses described below it is indeed clear that within the relatively short time-span which is discussed, a large variety of activities were carried out, signalling a constantly changing use of the *dunnu*.

For the sake of clarity the architectural layout of the *dunnu* was divided into several sectors. These sectors have in their turn been subdivided into separate areas (figure 3.1 and 3.2 below). This subdivision of the architecture in sectors

and areas was used in all studies which were undertaken in the framework of the ‘Consolidating Empire’ project (Brüning and Plug 2016; Düring 2016; Fantone 2016; Lanjouw 2016). The extent of the sectors was determined by the architectural layout and functional characteristics of the general areas. It was for instance decided to group together all spaces in the south-west which were all in some way related to food preparation. Additionally, the spaces are well connected to one and another but are somewhat isolated from the rest of the *dunnu*. Therefore, as the spaces seemed to form a coherent whole, they were defined as the south-western sector.

Within the outer *dunnu* wall six sectors were defined. Four of these are located in the corners of the *dunnu* (north-west, north-east, south-west and south-east) and two are defined as the two structures which stood in the centre of the settlement (the residence and the central building). The further subdivision of these sectors into areas was also achieved by looking at the functional and architectural relationship between spaces. The areas are designated with numbers, for instance ‘area 1 of the SW sector’.

Within areas one last subdivision was applied. To be able to easily refer to individual spaces (rooms or courtyards) in areas, they were assigned a letter in alphabetical order (see for instance figure 3.3 below). This system was adopted from the work of Brüning and Plug (2016). In their work, naming of spaces commenced with the architectural layout of level 6 of the *dunnu*. After a significant change in architectural layout, new names were assigned to newly constructed spaces. Therefore the names of spaces in the Level 5 architecture do not always start with the letter ‘A’. In area 5 of the NE sector for instance, rooms ‘A’, ‘B’ and ‘C’ were present in the preceding Level 6 but not anymore in Level 5. The spaces which are discussed in the current study are therefore labelled with the letters ‘D’ until ‘H’. Although this may seem confusing in the light of the current study, it ensures that the interpretations from the different publications can be easily compared.

A notable exception to this subdivision is the central building in which every room was assigned an area number (see paragraph 3.5). This numbering corresponds with earlier publications about this structure (Akkermans *et al.* 1993; Klinkenberg and Lanjouw 2015) and is therefore maintained.

The discussion below follows the same subdivision into sectors and areas. Each sector is introduced, and all areas within are discussed in separate paragraphs. For each area a plan is presented which includes the space numbering, all relevant features and the floor level finds which are discussed in the text. Additionally, for every area a ‘Sequence of Events’ model is presented which illustrates the chronological order in which events have taken place in that area. This model also includes references to features such as ovens and bins and deposits from that area (see paragraph 2.4). Where relevant these feature names and deposit numbers are indicated in the text between brackets, for instance ‘oven AM’ and ‘deposit 27’.

A general trend which is observable in the discussion below is that the architectural layout and the construction of features are the most informative lines of evidence for the reconstruction of the earliest use and the intended function of spaces. Most objects, even those from

3.2.4.3 A rich cremation burial

On top of the floor in room B a layer of brown soil was deposited. Through this soil layer a small pit was dug in its south-western corner. In this pit a ceramic jar was buried containing the cremated remains of two individuals (Akkermans and Smits 2008). The jar was sealed with a cloth, which was covered with a clay sealing. Why this was done remains unclear. Apart from the two individuals, the jar contained a wealth of personal ornaments and other objects (figure 3.17). Apart from the personal ornaments, also the remains of animals were found, most interestingly the third phalanx of a lion. It was suggested this might have belonged to a lion-skin cloak (Akkermans and Smits 2008: 253).

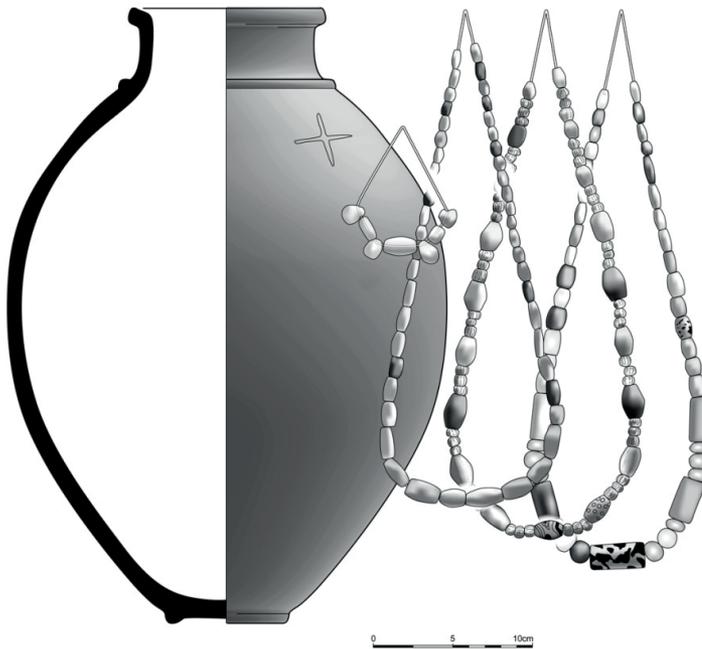


Fig. 3.17: Vessel from room B in area 3 of the north-western sector with several necklaces which were found within (from: Akkermans and Smits 2008: fig. 2).

These valuable items may be indicative of the high status of the interred individuals. As cremating the deceased was considered a non-Assyrian custom (Tenu 2005), it is implied these individuals originated from a different cultural background. As the main administrator of the *dunnu*, the steward Tammitte, bears an Anatolian name, Düring *et al.* (2015: 44) have suggested that this burial could be his. Perhaps the other individual was his wife. If this burial can indeed be equated with Tammitte it is tempting to suggest that he was interred in what used to be his residence or office.

Division of the area

After the deposition of the tablet-rich soil a new loam floor was constructed in all rooms. On top of this floor the function of the apartment seems to have changed completely. The bathroom could not be used anymore; it was buried under the soil deposit. Additionally during or after the construction of the floor the area was divided in two by the blocking of the doorway (P) between room C and D. A new doorway (B) was constructed on the southern side of room C. It is unclear what the function was of rooms B and D in this new phase. In room D only a dug-in cremation jar, supported by two smaller vessels, was discovered. No other objects indicate the function of these spaces.

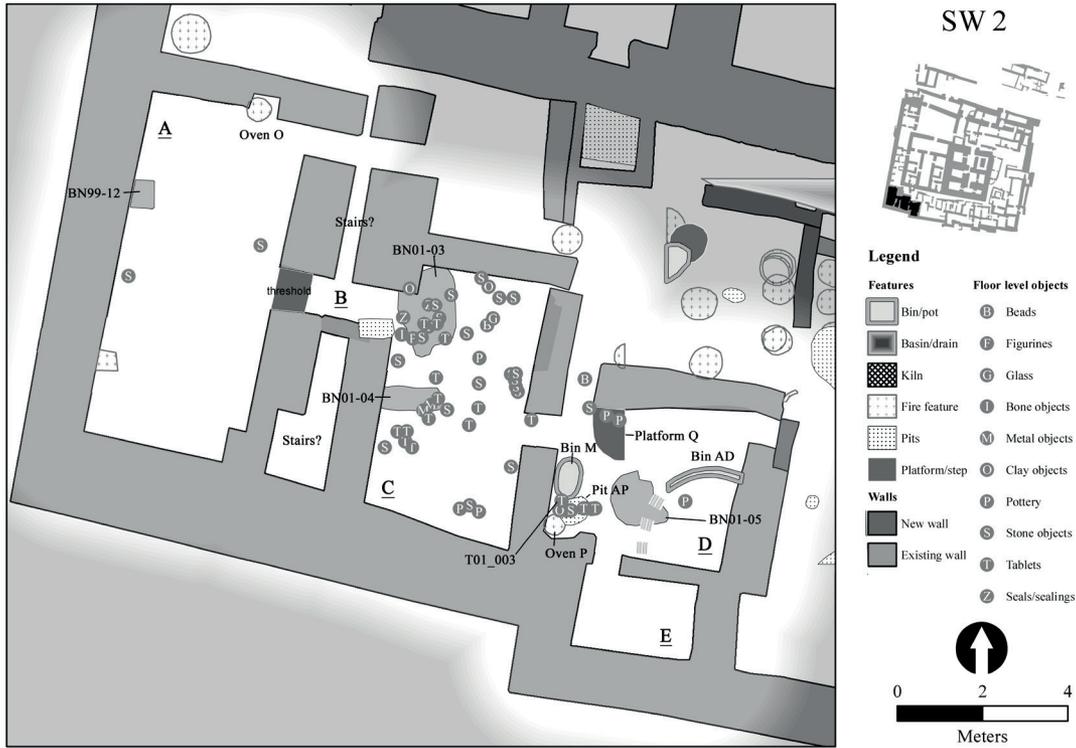


Fig. 3.77: Architecture and floor level finds from area 2 of the south-western sector.

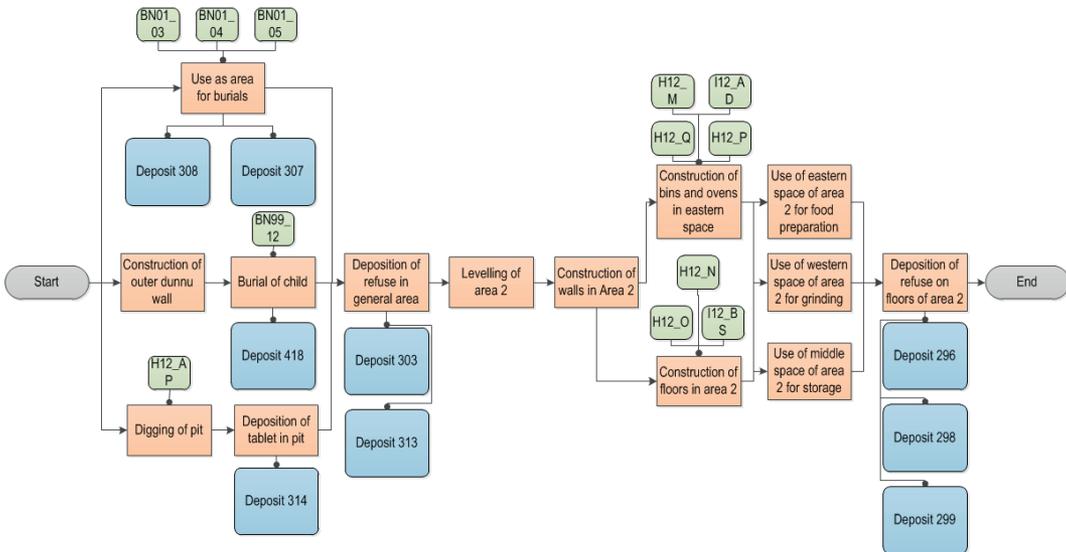


Fig. 3.78: Sequence of Events of area 2 of the south-western sector.

CHAPTER 4. DISCUSSION

4.1 INTRODUCTION

In this chapter an evaluation is made of the methodology which was conceived and employed for this project. Both the advantages and limitations of the dataset, the digital approach and the method of determining depositional processes at the site are presented. Following this, the results from the analyses which are derived from the methodology, described in the previous chapter, will be discussed. These results, the activities in the *dunnu* during Level 5, are categorized around the themes of subsistence, food preparation, production processes, administration, war and peace, storage, domestic life and abandonment of the houses in the settlement. This general subdivision is also used in the subsequent paragraph which deals with an examination of the textual evidence which was found at the site. As most of this material has not been published yet, the discussion is limited to those fragments which were published in several articles and book chapters. Lastly, the evidence for the function and use of the Tell Sabi Abyad *dunnu* is discussed in the context of the Middle Assyrian empire. A short description of several analogous sites is given which is compared to the combined archaeological and historical evidence from the Tell Sabi Abyad *dunnu*.

4.2 RECONSTRUCTING ACTIVITIES AT TELL SABI ABYAD

4.2.1 Introduction

For this research a number of methodological issues were addressed, the 3D spatial nature of the evidence, the large quantity of data, depositional processes and the complexities of relating the objects to activities. Several methods were successfully devised to counter the problems with interpreting the large, complex dataset of Tell Sabi Abyad. In particular the systematic analysis of depositional processes has yielded fascinating results. In this paragraph the advantages and limitations of these methods are discussed.

4.2.2 A digital approach

To be able to work with the large amount of data which was generated by the excavations at Tell Sabi Abyad, it was decided at the outset of this research to convert all the documentation to digital files. A major project was launched to scan all the excavation documentation. This has resulted in a digital archive which is available online. A database was created which aids in searching the vast dataset of the Tell Sabi Abyad excavations. To improve accessibility, the archive was deposited online in open access (Klinkenberg 2014). This project was unique in its scope and outreach for Near Eastern excavations and has proven to be instrumental for the research of the Tell Sabi Abyad excavations.

For the current research the resulting digital archive was used to create large GIS files containing all spatial information, and databases containing information about the architecture and objects from the site. All these data were combined in a 3D GIS model of the settlement which was used to perform the analyses described above. Although the use of 3D models and 3D GIS in archaeological research has been widely applied and discussed before (Wheatley and Gillings 2002; Katsianis *et al.* 2008; Klinkenberg 2014; Smith *et al.* 2014), it is worth mentioning some of the advantages and limitations which are particular to the current research.

There are two main advantages to the approach which was employed here. Firstly, the 3D GIS system enabled the use and accessibility of large amounts of data. The data, such as object forms, photos and excavation plans could be retrieved and visualized in the 3D GIS, making it easy to combine several types of evidence when trying to resolve an archaeological issue. Secondly, the system allowed for the visualization of 3D spatial relationships between features and finds. This has on multiple occasions been central to reconstructing the mode of deposition of certain deposits.

Unfortunately, the 3D visualizations only contain information which was added to the digital dataset, and it disregards other potentially important elements. In the case of Tell Sabi Abyad, only the items which were recorded as ‘small finds’ were taken into account as the remaining material was not fully available for study. In some cases this has led to the situation where a house floor was considered almost empty according to the database while photographs of the area revealed a floor littered with broken artefacts. Because these broken artefacts were not registered as objects there was no information available about for instance their damage pattern and size classes. This means that the object could not easily be included in the quantified analysis of deposits. The presence of large quantities of damaged objects is however important for the interpretation of these deposits. Therefore the information from photographs, field reports and trench sketches were also included in the final interpretation of a deposit. The presence of non-objects is however not visible on for instance the 3D visualizations which were used in this research. Ironically, although the 3D model is a mere schematic representation of certain elements of the excavated situation, it is often easily taken as ‘whole truth’ because of its attractive appearance. This paradox should therefore be kept in mind when viewing such visualizations.

4.2.3 Reconstructing modes of deposition

4.2.3.1 Introduction

When excavating large ruin mounds like Tell Sabi Abyad often the remains consist of a sequence of buildings or courtyards. The floors of these structures have, in favourable conditions, revealed large amounts of seemingly *in situ* finds which were covered with thick layers of soil, artefacts and rubble on top of them, so called ‘roomfill’. However, both of these hypotheses concerning artefact contexts are problematic. First and foremost, the degree to which the floor level artefacts can be related to the use of that house is questionable; this is discussed below.

4.3.8 Storage

4.3.8.1 Large scale grain storage

Products which were imported or produced in the *dunnu* had to be stored somewhere before use or export. Several architectural features such as the ‘silo’ built against the north wall of the central building (Akkermans 2006: 204; Fantone 2015: 224) were interpreted to have stored large amounts of grain. The agricultural yield of the lands surrounding the *dunnu* was estimated at 1 million litres (Wiggermann 2000: 195). This amount would have far exceeded the storage capacity of the known silos from the ground plan of the *dunnu*.

Clear evidence for the storage of grain was found in the residence, where large quantities of charred grain were found in the courtyard. Although this constitutes the most dramatic evidence for storage, it is unlikely that it was the main function of the building. The residence most likely did function as a residential structure in the first stages of its existence and can therefore not be viewed as the main storage facility of the *dunnu*.

In a recent publication it is suggested that the higher floors of the central building would have perhaps carried the weight of agricultural surplus (Klinkenberg and Lanjouw 2015: 172-3). In this article it is argued that the extreme thickness of the walls of the central tower must have carried a large weight. As this thickness is not necessary for additional floor levels on top, the 3D model which was created illustrated the roof of the structure as the main storage space of the *dunnu*. Although the open character of the reconstruction of the top structure should perhaps be reconsidered, the notion of the building as central storage facility remains viable.



Fig. 4.19: Distribution of jars, pot stands and the density of jarstoppers in the Level 5 *dunnu*.

CHAPTER 5. CONCLUSION

On the basis of the find material from the Tell Sabi Abyad *dunnu*, this study has systematically demonstrated the function and use of all spaces in the settlement. The study has revealed that within the walls, most activities in the past were related to domestic use, food processing and administration. Especially the importance of domestic use of the settlement is in stark contrast with the previously assumed imperial role of the estate. To investigate these issues, for this study a systematic approach for the identification of modes of deposition was developed. Importantly, this approach has demonstrated that the contexts in which cuneiform tablets were found, are far from straightforward. In consequence, the functional and temporal relation between texts and other archaeological remains are compellingly problematized.

In this chapter the results of this study are discussed in line with the research questions which were posed in chapter 1. The first main question was ‘What was the function and use of the *dunnu*?’ In order to answer this, three sub-questions are discussed: ‘What activities were carried out where in the *dunnu*?’, ‘What are the diachronic changes of these activities?’ and ‘How do these activities reflect the position and function of the *dunnu* in the local society and in the Assyrian Empire?’.

Answering these questions was achieved by an examination of the archaeological evidence from the site. To ascertain to what degree this was possible the second main question was posed: ‘How representative is the archaeological evidence for reconstructing activities in the past?’. This issue was tackled by answering two additional sub-questions. These were: ‘How do the objects from the Tell Sabi Abyad *dunnu* relate to ancient activities?’ and ‘How does the information from the archaeological evidence differ from the textual sources?’.

Both themes, the function and use of the *dunnu* and the representativeness of the archaeological record, were successfully addressed by this study. The representativeness of the archaeological record was investigated by a reconstruction of the depositional processes of objects which were found at the site. To this end a comprehensive methodology was devised and consistently applied to the deposits of Tell Sabi Abyad. The results from this study were compared to the literary evidence. This in turn has resulted in a critical overview of the probable function and use of the *dunnu* of Tell Sabi Abyad.

A comparison with six other settlements (Giricano (*Dunnu sa-Uzibi*), Qabr Abu-al ‘Atiq, Tell Fekheriye, Tell Chuera (*Harbe*), Tell Umm ‘Aqrebe and Tell Schech Hamad (*Dur Katlimmu*)) has illustrated that the *dunnu* was a multi-purpose settlement, used as a road station for the military and traders, and to govern the surrounding agricultural lands. Work in and around the *dunnu* was administrated in detail by the presence of local representatives of the empire who resided in the *dunnu*. On several occasions the *dunnu* was used by large groups of visiting officials for political meetings and feasts. Although during these events the *dunnu* was

transformed into a political centre, these events were of short duration and did not influence the long term use of the settlement. The enduring function and use of the *dunnu* was that of a domestic centre and for agricultural production and food processing. Its imperial role must therefore be considered not only in terms of military and political significance, but also for its central place in the local society.

5.1 THE REPRESENTATIVENESS OF OBJECTS

Many processes have had an effect on the representativeness of the archaeological record from Tell Sabi Abyad. These processes can be divided into three stages in the past. Firstly, those which occurred before the deposition of artefacts, such as cleaning, reuse and recycling are of major influence. Secondly, the manner in which objects were deposited (are they discarded as refuse or are they part of a catastrophic collapse for instance?) has clear implications for the degree to which they are representative of activities at their location of discovery. Lastly, processes which occur after deposition such as decay and erosion but also the excavation techniques at the site have an effect on the interpretation of archaeological remains. The pre- and post-depositional processes which occurred at Tell Sabi Abyad were similar throughout the site. The processes behind the actual deposition of objects are however different from deposit to deposit. In this study therefore a methodology was developed to identify the influence of these processes on the archaeological deposits from Tell Sabi Abyad.

The methodology comprised of a characterisation of typical deposits which can be recognized in archaeology (based on Schiffer 1987). Nine typical deposit types were recognized: primary-, secondary-, provisional- and *de facto* refuse, ritual caches and banking caches, human burials, catastrophe deposits and loss refuse. These deposit types were defined on the basis of eight characteristics: their context, object variety, structuring, size, use-life, damage, replacement cost and relation to space (see table 2.1). A secondary refuse deposit for instance can be characterized as containing mainly damaged or fragmented objects. Subsequently, archaeological deposits from Tell Sabi Abyad were compared to these 'typical deposits'. This allowed for a systematic interpretation of the depositional history of the objects from the *dunnu*. In turn, the interpretation of the depositional history revealed to what degree the deposit could be used for the reconstruction of activities in the area it was discovered in.

Most deposits which were analysed for this research were secondary refuse deposits. These often consisted of damaged or fragmented tools such as pieces of grinding stones. Because these objects were simply discarded, their representativeness for identifying activities in the past is often limited. In some cases however, secondary refuse deposits were discovered which displayed a remarkably homogeneous object assemblage. In particular several tablet-rich deposits which were interpreted as secondary refuse deposits, consisted of only administrative objects. These were therefore interpreted to have been deposited in proximity of their place of use. An interpretation as secondary refuse consequently does not necessarily signify a low degree of representativeness.