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Reading rubbish : using object assemblages to reconstruct activities, modes of deposition and abandonment at the Late Bronze Age Dunnu of Tell Sabi Abyad, Syria
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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.

4.2.3.2 *The problem with 'roomfill'*

A characterization of all the layers on top as a 'fill' of the room is an oversimplification of a variety of events which in fact led to the depositional sequences observed at Tell Sabi Abyad. Often, a large variety of layers were deposited in a room, sometimes even containing features, indicating that the spaces were very much in use, rather than being 'filled up'.

Also, to describe these various layers and objects in a room as 'fill' is conceptually rather awkward. From an excavator's point of view, the rooms were indeed filled. The job of the excavator was to empty the room from the top, down layer by layer, keeping the walls in place. The understandable focus was put on reaching the floor levels, contexts which are more clearly reflecting life in the past. This focus however presumes that there is one particular moment in the past which is the most important to reconstruct. All events which are characterized as roomfill however are just as much events in the past and should equally be reconstructed for their own merit.

The notion of a room fill implies that the room was viewed much like a barrel or tank which was purposefully filled up. But in fact the associated deposits were left in this space for their own reasons. In this sense, a refuse layer denotes the discard of refuse, not the filling of the room. Also the levelling layers in a room put in place to ready the room for a new floor should be considered to be part of the construction of the new floor, not to 'fill the room'.

To counter this issue, in the current research all events which are reflected by the objects and deposits from the 'roomfill' are presented in the Sequence of Events models on equal footing with activities which are denoted by floor level objects.

4.2.3.3 *Identifying modes of deposition*

Many processes are of influence on the location and state of artefacts in an archaeological excavation. Not taking these into account may lead to inaccurate interpretations of the archaeological record. Recognizing these processes can be complicated however and it is often tempting and seemingly reasonable to assume that objects which are located on a floor were used, and simply left, in that space. This so-called Pompeii premise, the notion that everything in the archaeological context is a direct reflection of the original, or systemic, context, has been successfully problematized by many researchers (Schiffer 1972; Binford 1981; Schiffer 1985). In an attempt to identify the manner in which archaeological sites were formed several scholars have presented research specifically concerning processes of discard (Murray and John 1980; Hayden and Cannon 1983; Needham and Spence 1997) and abandonment (Stevenson 1982; Cameron and Tomka 1993; Inomata and Stiver 1998; Inomata and Webb 2003). Many other studies related to households and the reconstruction of activity areas (Savelle 1984; Verhoeven 1999; Milek 2012; Diehl 1998; Müller 2015) have tried to relate the knowledge of deposition processes to archaeological sites. Others (Otto 2015; Pfälzner 2015) have attempted to create a formal methodology for the identification of deposition processes, but unfortunately do not specify which characteristics were used to assign deposits to a certain category.

To investigate the degree of representativeness of deposits at Tell Sabi Abyad, as part of this research project a method was devised in which, based on the work by Schiffer (1987), several types of deposits were characterized. Subsequently several characteristics of deposits relating to its location and content were used to define an 'ideal' signature. Comparing the characteristics of these ideal deposits with the actual deposits from the site has made it possible to attribute every deposit at the site to a mode of deposition with a certain degree of probability. In turn this signifies the extent to which artefacts from the deposit are located where they were once used. The technique has yielded a systematic framework for assessing the manner in which archaeological assemblages relate to activities in the past. The technique proved exceptionally helpful in the current research. However, the technique can be applied to a variety of archaeological sites and may therefore be a valuable addition to the general archaeological toolset.

4.2.3.4 Limitations of the methodology

Two main limitations of the method which was used in this research must be mentioned. Firstly the method implies that a deposit is a single and inclusive entity, in other words it is clearly delineated from other deposits and everything it contains is an integral part of it. Unfortunately, in reality archaeological deposits are not always so clear cut. It may be very difficult to define the border between two deposits. Particularly notorious is the problem of palimpsests. Especially on house floors, but also in other deposits, palimpsests occur when artefacts related to separate activities end up in the same context.

Disentangling these deposits is difficult and in this research mainly based on the different activities which are associated with the artefacts from the deposit. If for instance one part of the assemblage is strongly linked to pottery production while other objects in the same deposit relate to administrative activities, it can be deduced that these originate from separate processes. In other cases it may not be possible to divide the deposit into separate types of activities. Therefore it should be taken into account that in theory all deposits described in this work may be palimpsests.

A further complicating factor for the data from Tell Sabi Abyad is that only a subset of the excavation data could be used for analyses. Only the objects which were recorded as 'small finds' or 'objects' were taken into account for the formal characterization of deposits. Officially all objects from the site, except for pottery shards and unworked animal bones were collected as objects. If ceramic vessels were found in a complete state, or reconstructable from base to rim, they were also registered as objects. However, large ceramic containers for instance were often left behind in a complete state on floors but were fragmented after deposition. It was often very difficult to ascertain their reconstructable state during excavation, therefore these were excavated as a collection of shards and not registered as objects.

It is assumed that the overall picture which has emerged from the analyses presented here will not have been strongly affected by this bias, partially because also other lines of evidence such as photographs and descriptions of the pottery by Kim Duistermaat (2008) were used in the interpretation. Some deposits may nevertheless have been interpreted incorrectly because of this issue.

4.2.3.5 Conclusion

In many cases the critical reassessment of the depositional history of object assemblages has led to convincing new interpretations. In these cases also the relationship between the objects and the space they were found in is therefore altered.

Several contexts for instance, in particular those containing cuneiform tablets, had been interpreted as ‘primary’ or ‘undisturbed’ contexts (Wiggermann 2000: 175; Akkermans 2006: 206). At many of these locations however, a critical reassessment of the deposition processes has indicated that the objects were not simply left in the room during abandonment or a catastrophic event, but that they were discarded here as secondary refuse. This new understanding of the way in which the objects came to their final resting place indicates two things. Firstly, the objects were not necessarily used in the room they were found in – they were only discarded here. Second, the collection of tablets which was found does not constitute a complete archive but is a conscious selection of texts which, according to the person who discarded them, could (or should) have been destroyed. Obviously this has major implications for the interpretation of these artefact assemblages and for how contexts are dated.

Another example from Tell Sabi Abyad illustrates the opposite outcome of a critical contextual analysis. It demonstrates the potential of the technique in locating activity areas. In the north of the *dunnu*, area 2 of the north-eastern sector, a lot of pottery was discovered on the floor of a room. The assemblage was quite structured as all items could be related to food related activities. In particular, a large number of items seemed to fit very well with the process of beer brewing. As the assemblage was consisting of large and complete items, it was interpreted as abandonment stage (*de facto*) refuse. This type of deposit commonly contains items which were originally also used at that location. Consequently the main activity which is indicated by the assemblage, beer brewing, most likely was carried out in that very room.

4.2.4 Reconstructing the Sequence of Events

Through time a lot of different activities have taken place in the *dunnu*. The historical subdivision of the *dunnu* as proposed by Akkermans and Wiggermann (2015) consists of three main phases of occupation. According to this periodization, the entire settlement underwent certain major renovation phases, more or less simultaneously throughout the *dunnu*. The archaeological remains from the site have however indicated that the chronology of the *dunnu* is composed of a complex sequence with many diachronic changes in function and use. Unfortunately, this constant changing nature of a settlement is difficult, if not impossible, to plot in discrete phase plans. The most prominent problem with the original periodization for this research was the amount of separate events which could be charted within one phase. The large amount of activities which were carried out within one phase made it impossible to define one single use or function for a space in a given time period. Room A in area 1 of the north-west sector for instance was used for both pottery production as well as food production. Additionally, the room was first part of a larger courtyard.

For this research the main periodization of Tell Sabi Abyad was put aside, and a choice was made to chart all events which could be elucidated from the archaeological remains in a flow chart model which I termed a Sequence of Events. A Sequence of Events is created encompassing the events which could be charted within one Area. These are the largest spatial units in which the general sequence could be reconstructed. The method which was employed parallels that of a Harris matrix (Harris 1979), which presents the stratigraphic sequence of a site in a similar way. The Sequence of Events however highlights the activities that generated archaeological remains and displays the related features and deposits.

The Sequence of Events approach has aided in the understanding and documenting the complex order in which activities have taken place. It has highlighted several interesting phenomena in the *dunnu*. What is immediately clear from every diagram is that a large amount of activities were carried out in every space through time. Additionally, the activities vary widely, even within single spaces. The most dramatic example of a change in function can be found in the monumental residence. The building once must have been an imposing structure, housing the grand vizier and his guests. The end of the sequence is however represented by the burnt remains of a grain storage facility. Other spaces also have undergone dramatic changes, clearly illustrated by their Sequence of Events. For example the rooms which were once determined to be the “steward’s office” (Akkermans and Wiggermann 2015: 99) were established to also have been used for diverse purposes. Perhaps at some point it was used as an office but the remains which were found point towards a burial being interred in the area before the main layer of tablets was deposited here. Afterwards the area was turned into a workshop zone, providing space for pottery production first, and food preparation later.

Another interesting result from charting the events in a diagram is that the relationship between the different types of evidence becomes clearer. From nearly every flowchart the features such as ovens and floors which were found in a space seem to relate strongly to the use of a space at the beginning of a sequence and the majority of deposits relate to the later events. It could be argued that the features and other architectural elements are a stronger indicator of the intended function of a space while the majority of finds from the same area are more determinative of its final use.

The straightforward layout and application of the Sequence of Events unfortunately is slightly prejudiced towards change in favour of continuity. As every separate event is charted, it visualizes every event with equal weight, be it a short occasion of the construction of a floor or the repeated act of pottery production in a space. The charts may therefore be somewhat biased to showing the variety in events and activities rather than displaying a time sensitive narrative.

4.2.5 Relating finds with activities by using a *chaîne opératoire* approach

Among the Tell Sabi Abyad dataset a long object list was present which per object described several physical characteristics as well as an interpretative notion which was headed with the term “Designation”. This is an umbrella term for how the object should be interpreted. In some cases the field would designate an object functionally (‘hammer stone’), in other it was

the material category it belonged to ('piece of bronze'). As all objects had to be investigated in detail for this research anyway, it was decided that a new approach should be sought for the description of objects. This approach would be used later to relate the objects to activities.

In concert with the previous, in order to reveal which activities are represented by the excavated objects, I have tried to determine and record all activities an object was part of. In practice this meant that for every object the processes in which it was produced, used and discarded were determined. In some cases it was also possible to determine a process in which the object was re-used. Additionally, in case an object could be considered to be part of a production process, it was possible to determine the stage of the process the object was from. Three main stages were distinguished: raw material, waste products and by-products. Unfortunately the data quality was such that it cannot be stated that the objects' full *chaîne opératoire* (cf. Leroi-Gourhan 1943) was charted as was planned at the outset of this research. Rather, the few cases in which an object were part of a production process this was recorded in detail. For most objects however it was only possible to crudely determine the processes in which the object was produced and used. For a large grinding slab for instance it could be agreed that it was produced in 'stone working' and used in 'grinding'.

During the analyses surprisingly few artefacts could be related to production processes, possibly, these processes were mostly carried out outside of the *dunnu* walls. Raw, waste, and by-products were scarcely documented as 'small finds'. Only in the case of small fragments of bronze and large misfired ceramic vessels could a determination of waste- or by product be assigned. The focus on describing the related activities has in fact led to a relatively simplified description of the investigated objects. Ironically, during the research it appeared that, although 'conceptually ambiguous', the description which was placed under the heading designation was the most useful for understanding the overall nature of the objects.

Nonetheless the procedure of describing the related processes was consistently applied which has resulted in a dataset which is quantifiable. It enables quantified comparisons between different areas and the plotting of the spatial distribution of certain categories. The results of these analyses are described in paragraph 3 of this chapter.

4.3 EVIDENCE FOR ACTIVITIES IN THE *DUNNU*

4.3.1 Introduction

Using the method discussed above numerous activities were recognized in the archaeological remains. The activities were identified based on the tools which were used in these activities. Figure 4.1 illustrates the number of tools per activity which were registered as object in the Level 5 deposits. The graph clearly illustrates the bias of the object assemblage toward the find categories which are well preserved at the site, in particular stone and ceramic objects. The tools for grinding for instance are mostly grinding stones and pestles and the tools for consumption are mainly carinated bowls. However, although 95% of the objects relate to only seven activities, a total of 18 activities were recognized.

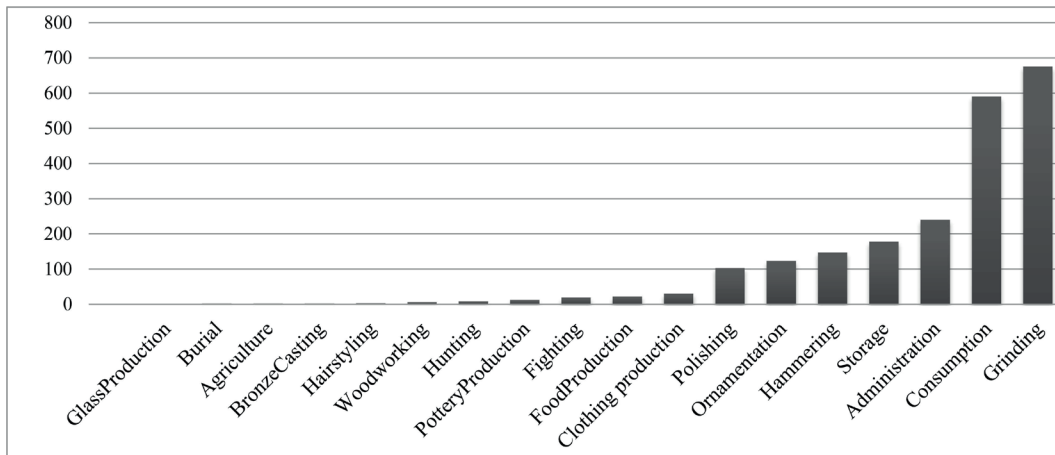


Fig. 4.1: Amount of tools which could be attributed to a specific activity.

In addition, the assemblage of cuneiform tablets from Tell Sabi Abyad is comprised of a rich corpus of documents. The assemblage contains letters, administrative documents and contracts. Although the tablets have not been published in detail yet, a large amount of information was published before by Wiggermann in several newsletters (Wiggermann 2005; 2006a; 2007; 2009; 2012) and articles (Wiggermann 2000; 2008; 2010; Akkermans and Wiggermann 2015).

In addition to the archaeological evidence, in these paragraphs the textual perspective on activities in and around the *dunnu* as it was published thus far is discussed. The aim is to get an overall understanding of the type of evidence this source offers. Ultimately, the combined sources of information, literature and archaeology, are discussed. In some cases themes are particularly clearly demonstrated by one type of evidence. In the paragraph dealing with the workforce of the *dunnu* for instance only textual information is used.

4.3.2 Workforce

Approximately 25 tablets from the site are personnel lists or lists of produce or objects given out to personnel. These have helped Wiggermann to calculate the total of dependant unfree workers, so-called *silublu*, to have numbered about 400 (Wiggermann 2000: 186). Among these were probably forced labourers from other parts of the empire and beyond, such as from Assur, Sahlalu and Harran (Wiggermann 2000: 187). One envelop was found which contained a list of possessions of Subareans from Sadikanni. These people were perhaps also put to work in or around the *dunnu*. In addition to these, the workforce was partly made up of a group of free farmers who owned a stretch of land themselves, the so-called *alaju*, bearing Assyrian names, also numbering about 400. These fields were a necessary addition for their livelihood as these workers did not receive rations, which the *silublu* did. Finally, a group of specialist craftsmen, administrators and their families were employed by the *dunnu*, estimated to total about 60. In addition an unknown number of slaves were employed by some families (Wiggermann 2000: 191).

The executive manager of the *dunnu* is the steward. The Assyrian organisation of the workforce was hierarchal in nature and consisted of a subsequent level of so-called ten-men, or *rab esarte*. These ten-men headed groups of workers in all available fields of expertise. Wiggermann mentions the following list of professions which were present in the *dunnu* at some point: farmers, shepherds, gardeners, builders, potters, smiths, dress-makers, leather-workers, perfume-makers, oil-pressers, bakers, brewers, scribes, merchants, priests, hair-dressers, and singers (Wiggermann 2000: 190).

That the workforce was multi-cultural in nature is best illustrated by one of the main stewards, Tammitte. Considering his non-Assyrian name, he is possibly from Anatolian or Kaska descent (Düring et al 2015: 48). That even a high official could be of non-Assyrian roots could indicate a relaxed attitude to the issue of ethnicity. In some cases however, the local Assyrians were rather belligerent towards other populations. A treaty signed with a clan of local pastoralists indicates that the Assyrians were in the habit of demanding payment from random Suteans if they were owed a sum by any other member of that group (Wiggermann 2010: 55-6; T04-37). One of the paragraphs in the treaty states that the Assyrians and Suteans will exchange stolen goods with each other. Clearly some conflict occurred for which the treaty was set up, in order for the two groups (Assyrians and Suteans) to live harmoniously in the Balikh region.

4.3.3 Subsistence

4.3.3.1 Textual evidence for agriculture

As is obvious from the distribution of the workforce of the *dunnu*, the main function of the *dunnu* estate was in the agricultural sphere. Of the circa 900 people, 800 worked in agriculture. As Tell Sabi Abyad lies at the edge of the region in which rain-fed agriculture is possible, crop yields may vary significantly from year to year. Irrigation is the best solution to this problem and was practiced around the *dunnu* to an extensive degree according to Wiggermann (2000: 178), which resulted in an impressive crop yield. However, among the botanical evidence there are no conclusive indications found for irrigation (Fantone 2016).

Apart from barley, the staple crop, many other foodstuffs were available in the *dunnu*. From the texts from Tell Sabi Abyad Wiggermann (2000: 178; 192) identified wheat, cress, sesame, 'fruit', terebinth nuts, 'vegetables', onions, fennel, chick peas, coriander, black cumin, cumin and 'bark of the kiskanii tree'. In another publication it is mentioned that the steward of a princess borrows 40 litres of sesame oil (Wiggermann 2010: 21), undoubtedly also grown and pressed at or in the vicinity of the *dunnu*.

The agricultural work was headed by chief farmers, each controlling about 50 workers. Some of these chief farmers may have been in charge of specific fields or crops. This is indicated by the differential yields they produced and the number of sickles which are disseminated among them (Wiggermann 2000: 188). The distribution of a total of 434 bronze sickles indicates the extent and the strict organization of the agricultural work around the *dunnu*. Many of

the people working for a head farmer will have been part of the *silublu* workforce. In one case it is attested that a head farmer employs a charioteer from the Lands of Alzi, held hostage in the *dunnu*, to help out on his land (Wiggermann 2007).

On the basis of a text from Tell Sabi Abyad, Wiggermann (2000: 179-80) calculated the probable extent of the agricultural lands of the *dunnu*. The text describes the process of the 'dissolution of the grain heap'. This process entails the collection of the grain harvest, the weighing and threshing of these heaps and the consecutive division into separate quantities. First the costs of the upcoming year (seed corn, rations for serfs, and fodder for oxen) are deducted from the harvested grains. The remaining grains constitute the yield of that year. According to the Tell Sabi Abyad text the total harvest consisted of 4873 homer, and 663 homer was kept as seed corn for the next year.

The total amount of agricultural land in *ikû* (ca. 0.36 hectares) is calculated on the basis of the amount of seed corn which was mentioned in the text (Wiggermann 2000: 181). Wiggermann uses a ratio of 0.30 homer barley for 1 *ikû* of agricultural land. Consequently, allowing for bi-annual fallow, the result is 4420 *ikû*, or 1591 hectares of arable land worked by the *dunnu*². After adding land for substance fields for employees of the *dunnu* and space for woodland and pastures, Wiggermann (2000: 183) concludes that the total catchment area may have equalled 10,000 *ikû* or 3,600 hectares. These numbers, both the yield and the acreage, underline the importance of agriculture for the *dunnu*.³

4.3.3.2 *Archaeological evidence for subsistence activities*

Although the *dunnu* has regularly been interpreted mainly as an agricultural centre (Wiggermann 2010; Akkermans and Wiggermann 2015; Düring 2015a; Fantone 2015; Klinkenberg and Lanjouw 2015), within the Level 5 deposits inside the *dunnu* walls only two objects were found which were tools in agricultural activities (figure 4.2). A large bronze hoe was discovered in a corner of the large elongated courtyard in the north-west of the *dunnu* and a bronze sickle was discovered in a room west of the central courtyard. The presence of the hoe was interpreted as the remains of a collection of tools which were given out here to agricultural workers. Perhaps the bronze sickle was owned by a chef who was responsible for the cooking activities in the room it was found. Other bronze sickles which were found in other chronological levels of the *dunnu* (Akkermans and Wiggermann 2015: 114) were perhaps more strongly related to the large scale harvesting which must have taken place at certain moments in the environment of the *dunnu*.

³ In his calculations, Wiggermann (2000: 181-3) inadvertently multiplied the amount of seed corn by 3, resulting in a *ikû* number of 1989. The seed corn number was supposed to be divided by the number 0.3, resulting in 2210 *ikû*. The result presented here is therefore 11% higher than published by Wiggermann. However, because an estimated number is used for non-arable land, the subsequent calculations for the catchment area can still amount to 10,000 *ikû*.

The absence of large amounts of artefacts relating directly to agricultural activities such as ploughing, sowing, harvesting and threshing may have several reasons. Firstly, the objects were probably not used within the walls of the *dunnu*, they were perhaps located elsewhere. In particular items which were used on a daily basis and objects which were too heavy or inexpensive to bring from the fields into the enclosure for storage were probably kept near their place of use. Secondly, objects with a high replacement cost are likely to have been taken along during abandonment.



Fig. 4.2: Tools related to agriculture and hunting.

Additionally, bronze objects such as the examples which were found, could easily have been recycled. Other objects may simply not have survived processes of degradation. Objects such as wicker baskets or linen sacks may completely decay as they are constructed of organic materials. In some cases the objects have survived partly by charring or as impressions in other materials such as clay, gypsum or bitumen. This is, however, particularly known from Neolithic examples (Berghuijs 2013).

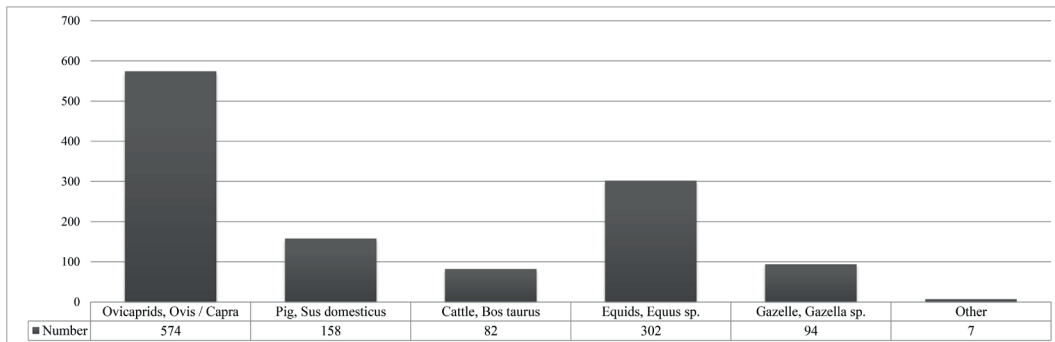


Fig. 4.3: Number and proportion of species among the identified faunal bone material (after Cavallo 2002: 229).

Archaeological evidence for hunting is offered by two sources. Firstly, the faunal bone material discussed below indicates that at least gazelle was hunted. Secondly, eight sling missiles were found in deposits of Level 5 of the *dunnu*. These were perhaps used to hunt small game. Possibly however, these clay objects should be dated to the Neolithic (Verhoeven 1999).

In and around the *dunnu* also many animals were kept for their meat, skin or services. The majority of identified animal bones from a sample analysed by Chiara Cavallo (2002) are sheep/goats (47), followed by equids and pigs (figure 4.3). A relatively high amount of ovicaprids was documented for many contemporary settlements (Berthon 2015: 194). The percentage of pigs is also in concordance with other similar sites. The preponderance of equid remains is however unique to the Tell Sabi Abyad assemblage (Berthon 2015: fig. 10.3). These animals were probably not bred to be eaten but used as beasts of burden, in the case of mules, or to pull chariots, in the case of horses (Cavallo 2002: 235). The overall meat production at the *dunnu* was therefore in concordance with other Late Bronze Age sites (Berthon 2015).

4.3.3.3 *Textual evidence for animal husbandry*

Although many remains of gazelle were found in the *dunnu* (Cavallo 2002; Berthon 2015), in the text hardly any mention is made of hunting practices. The only hunted animal mentioned in the texts is wild boar, used for their fat, skin and meat (Wiggermann 2000: 199).

Animal husbandry however was widely attested in the documents. The sheep herds owned by the *dunnu* were calculated to have totalled at least 2800 animals. The animals were taken out to graze by herdsmen, who were also organized with ten-men, and who, “if they do not come back at the moment indicated to them by Tammitte, they will receive 100 blows (with a rod)” (Wiggermann 2000: 200).

For food, pork was mentioned as part of a list of foodstuffs in the *dunnu* (Wiggermann 2000: 199), sheep and goat meat was ‘always present’ (Wiggermann 2010: 23), and, additionally, ostriches were probably kept at the *dunnu*, for their eggs and meat (Wiggermann 2000: 200).

Many animals were kept for their skin. Although sheep were mainly kept for their meat and milk (Cavallo 2002; Wiggermann 2010: 23), it should also be assumed that their wool was used for cloth making. At least the skin of oxen, donkeys and ovids were used for leather workshop as is attested in texts T98-14 and T98-124. According to these documents the final products are used by the chariot makers apparently (Wiggermann 2000: 198).

Finally, a large population of equids was housed in or around the *dunnu*, comprising of donkeys, mules and horses. The donkeys and mules were probably kept here to be used in caravans which left from, and passed by, the *dunnu* en route to Assur. It has also been suggested that mules were actively bred in the *dunnu* for this purpose (Wiggermann 2000: 199; Cavallo 2002; Düring 2015a: 61). Horses were kept in the *dunnu* for the army probably, for chariots, as it was not customary to ride them (Wiggermann 2006b: 96). At some point the *dunnu* has imported 15 horses (Wiggermann 2000: 196), which, because they are costly to maintain and not suitable for agricultural work, were most likely kept for military purposes, possibly to be used with the chariots which were produced in the *dunnu*.

4.3.4 Food preparation

Although not many artefacts were discovered within the *dunnu* walls which directly indicate agricultural activities, the processing of the resulting produce has in many instances been identified. In particular the vast amount of grinding stones is striking.

Many of the tablets from Tell Sabi Abyad speak about food in one way or another. Baker Paya for instance has left us a large number of lists which speak of flour, grain and grain products (Wiggermann 2010, 22; Akkermans and Wiggermann 2015, 100). From the north of the *dunnu*, several documents tally the amount of beer issued to personnel (Wiggermann 2010, 33; Akkermans and Wiggermann 2015, 100). Also many ingredients for the dinner table of Ili-pada are discussed in letters he sends his steward (Wiggermann 2009).

Several dinner parties were held in the *dunnu*, some of which were hosted by Ili-pada, other by the chief steward (Wiggermann 2008; 2010). Surprisingly however, not a single chef is mentioned among the known tablets. Nor are there recipes. However, the dinners must have been large and lavish, and some of these occasions were perhaps ceremonial in nature (Wiggermann 2008: 560).

For these occasions and for other, the process of beer brewing was often attested in the documents, obviously an important subject for the inhabitants of the *dunnu*. Not just because of its taste and potential effect, but beer was much more hygienic than water, and could be kept for a longer time (Zarnkow *et al.* 2006b: 5).

4.3.4.1 Grinding and hammering

Grinding tools are medium to large sized coarse stones which were made into a shape which could rest on the ground, or be used to rub or grind with. This roughly resulted in two major types, which are here called a 'grinding slab' and a 'grinder' (figure 4.4). These main shapes are considered to belong to each other as toolset for grinding of grains and other foods.

Other shapes of ground stone which were found are mortars (cup shaped or with concave depression) and pestles (conical shaped) (figure 4.5). These objects are commonly considered to have been used for hammering or pounding rather than grinding. Pounding is particularly used to de-hull certain grains. This technique has been attested at Tell Sabi Abyad for dehulling hulled wheat (Fantone 2016).

The majority of grinding and hammering stones was found in rubble layers and refuse heaps but still almost 250 grinding stones were found on floors. However, many of these can also be considered refuse, especially the large complete ones were probably left where they were used as *de facto* refuse. The spatial distribution of this subset of the finds shows a concentration of objects in the south-western and south-eastern parts of the *dunnu* (figure 4.6). Also in several structures in the east and in the central building some complete and large grinding stones were found. The north-west of the *dunnu* is conspicuously empty. Possibly grinding was not carried out in this area at all.

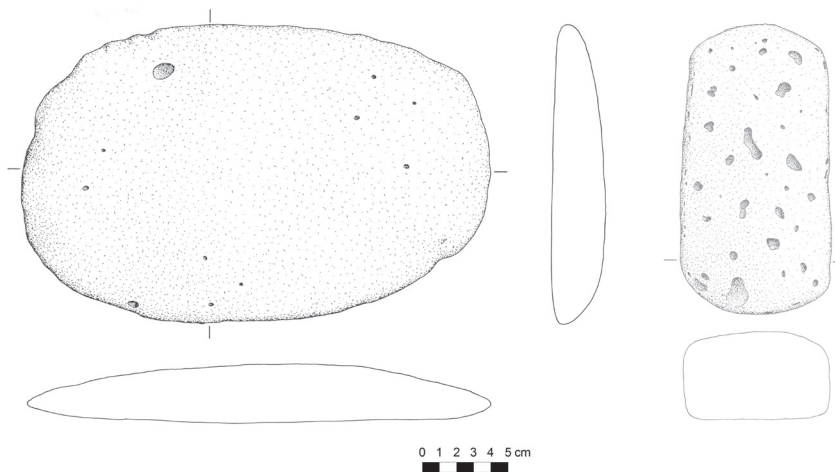


Fig. 4.4: Grinding slab (left) and grinder (right) from Tell Sabi Abyad.

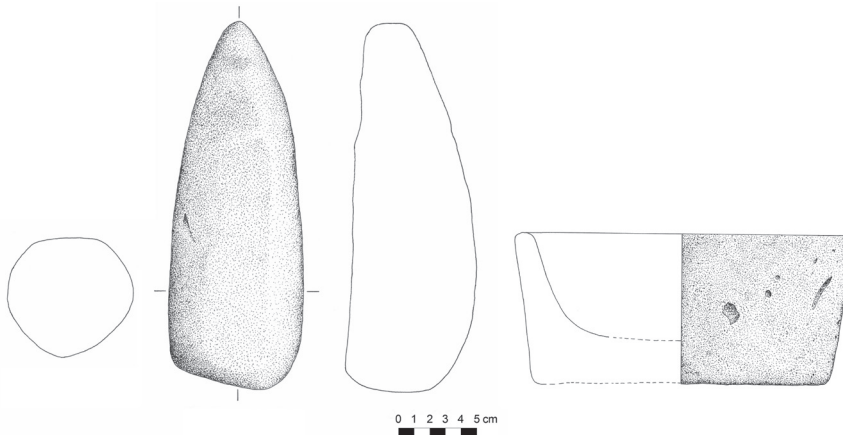


Fig. 4.5: Pestle (left) and mortar (right) from Tell Sabi Abyad.

The enormous amounts of grinding stones which were found among the deposits of Tell Sabi Abyad indicate the importance of this activity for everyday life. Despite the fact that the tools had to be imported from a large distance (Huigens 2011) the objects do not seem to have been used until exhaustion. Although the objects were found nearly everywhere within the *dunnu* walls, a clear spatial pattern can be observed in figure 4.6. These objects were most likely left behind during abandonment as *de facto* refuse and therefore were probably used in the space they were found in. The distribution of these objects indicates that particularly the south and the south-west of the *dunnu* was used for the process of grinding. It should be noted that the large, complete grinding stones which were found in the central building were located in the Level 7 deposits. This may signify that after level 7, the location of grinding activities moved to the south and south-west of the *dunnu*.

As was discussed in the related paragraphs, especially in the south-west of the *dunnu* grinding was probably a communal effort. Possibly dependant workers were allowed to process their grain here after receiving it as rations. As this function was retained after the sector was renovated this was probably not a short term event but a persistent function. To this purpose the required tools were perhaps centrally stored in the storage room in the south of the *dunnu* (figure 4.6).

The distribution of pestles is rather even throughout the *dunnu* (figure 4.7), although there is a preponderance of these tools in the south. Mortars, possibly used in conjunction with the pestles, have a slightly different distribution. Some of the mortars which were found in the *dunnu* were however probably used for different activities. The two examples from the residence for instance were probably used as pivot stones and the item in the east of the *dunnu* may have functioned as the pivot of a potters-wheel (see paragraph 3.7.2).

Pestles could easily be used in combination with other containers such is suggested by the concentration of these next to ceramic bins in the structure set against the central building (paragraph 3.7.2; figure 3.109). Interestingly, in this structure evidence was found for the processing of hulled wheat, a type of wheat which needs to be pounded with pestles before it can be processed further (Fantone 2016). Although at the site as a whole the number of grinding tools far exceeds the pestles, it is clear that grinding certainly was not the only method for processing grains, seeds and other hard foodstuffs.



Fig. 4.6: Distribution of large, complete grinding stones in the *dunnu*.

4.3.4.2 Baking and cooking

To process the ground grains and other foods, numerous ovens and fireplaces were built inside the *dunnu* walls. These, together with a small amount of cooking pots are the only direct indications of the practice of food production.

The majority of these ‘fire features’ are of a type known as *tanur* or *tabun* (Tkáčová 2013; De Groene 2015; Fantone 2016). The word *tanur* is mostly predominant in the modern Arabian world while the word *tabun* is used often in the Levant and southern Egypt. Both words literally mean ‘bread oven’ (Tkáčová 2013: 9). As both types denote the same function and overall appearance, they cannot be distinguished from each other in the archaeological record and are often used interchangeably. Therefore simply the term *tanur* is used here to describe the features which are interpreted as bread oven. It should be noted however that often only the bottom half of the ovens was preserved and that the upper part may have revealed a different function such as that of heat source for grilling, frying or cooking. The features are constructed of clay, are circular in ground plan and were fired on the inside. Usually they are constructed detached from other structures but in some rare cases the ovens are built into a wall. Whether this is indicating a functional difference remains unclear, it could also have been done to provide additional support to the structure.



Fig. 4.7: Distribution of mortars and pestles in the *dunnu*.

The spatial distribution of ovens in the *dunnu* has remained largely the same throughout the sequences described here. Particularly striking is the large amount of ovens which were constructed in the south and south-west of the *dunnu*. Obviously this area was allocated for this use, probably because the area was located in the back of the *dunnu*, away from the representative function which was present in the north. By concentrating these activities in one area it was probably easily controlled by the authorities. Perhaps this was also a reason to cluster the ovens in the south and southwest.

In these spaces therefore, after the processing of grains (see previous paragraph), also bread could be baked. Many of the ovens were constructed next to each other but also in several cases the ovens are constructed on top of each other. How many ovens were used at the same time is hard to assess but it is likely that the whole area could be used at any time, providing space for at the very least ten ovens simultaneously.

One particular different cooking structure was found just north of the central building. Here, in a room measuring three by four meters, at least six large fireplaces were built in one construction (room D, area 3, north-eastern sector; paragraph 3.3.4). The room has aptly been described as kitchen, as the structures were clearly used for cooking purposes. The unusual occurrence of these fire features, and the seemingly short time span of their existence, suggests this room fulfilled a function which was normally not practiced in the *dunnu*. Several cooking pots were discovered in this area as well. These were large enough to be held by the fire features, inferring that they were indeed used here. As an added exceptional element to this cooking structure, the main large pot which was found here was apparently imported from Ugarit (Duistermaat 2008: 546). Additionally a large number of extraordinary ceramics were found here, including serving vessels and decorated bowls.

The cooking structure was constructed in one building effort. Therefore this kitchen was meant to be used in its entirety, or at least provide the possibility to use this many oven structures. Interestingly, the individual fire places of the kitchen were fairly large. The pots which were used on top of them had a volume of 40 litres (Duistermaat 2008: 546-7). Therefore, the use of a single fire place would have already resulted in a large amount of food. At least these are amounts for groups larger than a single family or household. It follows that the kitchen must have been constructed and used for the preparation of food for large groups of people.

Two possible functions for this kitchen are the most apparent. First, the kitchen may have functioned as a communal kitchen to feed the employees of the *dunnu* on a daily basis. This is in line with the suggestion of Akkermans and Wiggermann (2015: 100) that the general area was used to house the *dunnu* staff. A second interpretation is that the kitchen sporadically to prepare large meals, feasts, for large groups of guests in the *dunnu*.

If this kitchen was indeed used as a daily communal kitchen, it is assumed that this was an integral part of the organisation of the settlement. However, the kitchen is a unique occurrence in the excavated architecture of the site. Also the construction of the room appears to be a late addition to the existing layout and may have hampered the flow of people, not a characteristic

one would expect from a central space in the settlement. Additionally, if communal dining was the norm, this would also be reflected in the Level 6 and later level 4 architecture. In these levels however, no similar structure was discovered (Lanjouw 2016). Additionally, it appears that the kitchen was in use for a relatively short period of time. The fire places were constructed on top of a pre-existing Level 5 floor and were therefore probably placed in a room which originally had a different function. The fire places have not been repaired or adapted through time. This may indicate that they were in use for a short time. The end of use of the kitchen is indicated by large scale fire damage, and a vast amount of objects which were deposited on the floor and on the fire places. The presence of several objects with a seemingly high replacement cost suggest that the end of use may have been caused by a catastrophic conflagration. Significantly, the structure was not rebuilt after this unplanned event. In conclusion, it is more likely that the kitchen structure was constructed for the preparation of one or more large meals within the *dunnu* walls. These feasts may for instance have occurred during the visit of the owner of the *dunnu* and his party. Another occasion for a feast was perhaps a meeting with representatives of local tribes which are also documented in textual sources from Tell Sabi Abyad (Wiggermann 2008). Following the departure of these groups the room was reused as a storage space and eventually burned down in an accidental fire.

One other area should be noted in this regard. In the west of the *dunnu*, south of the 'office of Tammitte', in a room which was first used as a pottery workshop, several very large pots were semi-dug into the ground (see paragraph 3.2.2). The large corpus of pottery from the floor of the room, most of which could be refitted into complete objects, revealed a high proportion of cooking pots. These objects, large and difficult to carry along, were most likely part of an abandonment stage refuse deposit and were therefore probably used in the room. Following the interpretation of the room as a make shift kitchen, the large semi-dug in vessels were probably used for storage and the cookpots from the room for cooking. The occurrence of remarkably high quantities of herbs such as coriander in this room (Fantone 2016) underscores that the room was probably also used for the preparation of spiced food. Possibly, this kitchen also functioned for the preparation of large meals, although not in the scale which was attested in the kitchen structure.

If these kitchens were not used to feed the general population of the *dunnu* in a communal effort, the question remains where and how these people normally prepared their food. It follows from the absence of communal food preparation that families must have prepared food within the household. Aptly a large number of solitary ovens and fire places were excavated in the *dunnu* in areas which may have functioned as apartments (see paragraph 4.3.9). Perhaps the residents of the *dunnu* were handed rations of food which could be prepared within the household. Additionally a family may have owned some livestock such as a goat to supplement their diet with milk, cheese and meat. Similarly, the agricultural workers of the *dunnu* were allotted a plot of land to provide in their own subsistence.

In conclusion, the *dunnu* was home to a large number of fire features which were used for the preparation of food. The baking of bread seems the most prevalent, but *tanurs* may have been used in a larger variety of ways, also for the grilling or cooking of other food. The use of cooking pots is very rare at Tell Sabi Abyad, only 0,4% of the pots described by Duistermaat

(2008: 458-9) were cooking pots. However, many additional cooking pots may have been made of metal and may have been taken along at abandonment. Other manners of food preparation such as soaking, grilling, drying, pickling (Duistermaat 2008: 458), could have been performed which left no archaeological imprint.

In addition to the common manners of food preparation in the *dunnu*, at a few rare occasions large scale kitchens were constructed for the preparation of very large meals. Instead of communal kitchens, these are interpreted as purpose built structures for the preparation of feasts. Although the *dunnu* staff was sizeable enough to consume a large amount of food, the exceptional occurrence of the kitchens and several appealing ingredients such as herbs and molluscs suggest that a meal was prepared which was 'fit for a king'. Or at least fit for a grand vizier.

4.3.4.3 Beer brewing

In the ancient Near East beer was not only brewed for the purpose of enjoyable evenings, it constituted an important staple food for many people in the past (Katz and Voigt 1986). Beer was brewed using a different process than today, soaking grains rather than boiling them (see paragraph 3.3.3). The associated pottery such as strainers and large pots was found in several places in the *dunnu*. In particular the assemblage from a room in the north of the *dunnu* (see figure 4.9: 'brewery') is indicative of beer brewing locally. Whether the entire process was carried out in this room or only a part of it cannot be distilled from the remains. Probably at least a large part of the process was carried on top of the roofs of the surrounding buildings as was for instance suggested for Tell Bazi (Zarnkow *et al.* 2006a; Zarnkow *et al.* 2006b). The drying of the germinated grains must have occurred on large surfaces such as the roofs of the adjacent buildings, especially if beer was produced for a large amount of people.

A vessel which can probably be identified as a fermenting vat or namzittu (Duistermaat 2008: 460) is P97_221 (figure 4.8, lower right). The vessel was constructed with a small up-turned strainer covering the centre hole in the bottom. It is the only discovered vessel from the site which had been constructed in this way. Other large pots with a hole in the bottom were found but these lacked the addition of the upturned strainer. If the strainer was an important functional element of the vessel, one would expect that this would occur more frequently.

Interestingly, in the vicinity of most large pots with bottom-holes, small sized strainers were found as well (figure 4.9). Five examples of these large pots were registered as objects in the Level 5 deposits. Possibly these pots were used together with the strainers. A large pot with a bottom hole can easily be converted into a namzittu vessel simply by placing a strainer on the bottom of the vessels. Because these large pots were easily fragmented into shards, in many cases the pots were probably collected in pottery lots. Perhaps therefore the strainers which were found in the west of the *dunnu* were also in the company of large pots. If this is the case, beer production was perhaps present in more places than previously assumed. It should be noted however that the process of straining and soaking is not necessarily reserved only for beer production. Strainers could also be used in cheese production and soaking could also be used for the preparation of lentils for instance (Fantone personal communication).

4.3.4.4 Textual evidence for beer brewing and consumption

About ten tablets specify the brewing, drinking and distribution of beer in the *dunnu*. Most fascinating is the treaty which was settled between the local pastoralist Suteans and the Assyrians of the *dunnu* which must have followed from a drunken brawl. In this treaty it is specified that the Suteans are not to drink their beer in the *dunnu* but

should go back to their own camp after buying it. The Assyrians on the other hand are summoned not to seize money from just any Sutean when a sum is owed to them by another Sutean (Wiggermann 2010: 55-6). The tablet reads: “If a Sutean has gone to the town, he [may

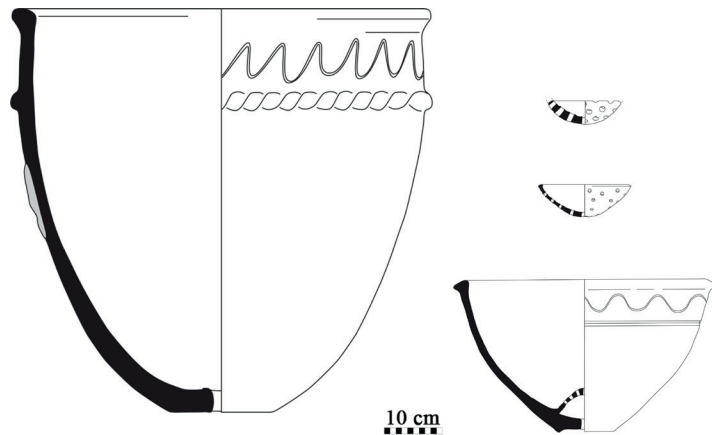


Fig. 4.8: Vessels which may have been used for beer brewing, from Duistermaat 2008: Fig. IV.106f; V.58; IV.91ah; IV.59a.

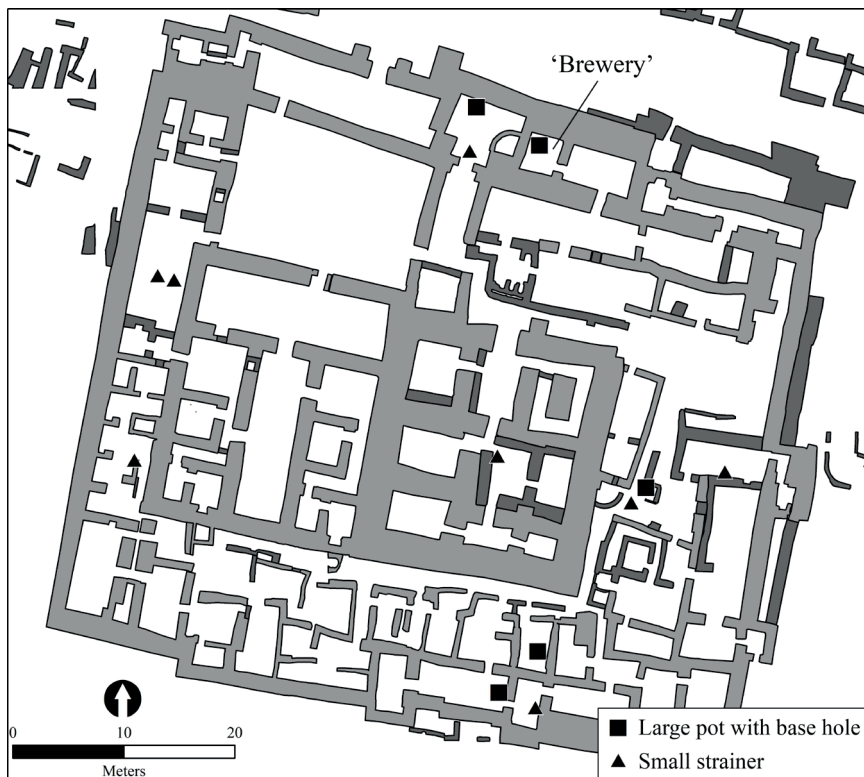


Fig. 4.9: Distribution of strainers and pots with bottom holes in the Level 5 *dunnu*.

not drink his beer] at the brewer's; has he taken the beer with him to the tent camp, he [can drink] his beer (there); they may sell his beer to him, but he shall not [take it with him] without payment.” (T04-37; Akkermans and Wiggermann 2015: 119).

From the treaty it follows that in the *dunnu* beer was not just produced but also consumed. This could be done in the local café, the ‘house of the brewer’ (Wiggermann 2010: 33), or during feasts such as the occasion for which Ili-pada orders 40 litres of the drink (Wiggermann 2010: 19). This was not a one-off order however, records held by head brewer Silli-Istar-Nabula, responsible for ten other brewers, show that at one point a total of 320 litres of beer was delivered (Wiggermann 2010: 32-3).

Also in other cases large amount of beer are provided for official occasions as for instance is chronicled in Tablet T93-3: “*Say to Mannu-ki-adad, thus (has spoken) Mudammeq-Assur: what is this, that you do not follow my orders as I have commanded you to? Why have you not ordered your brewer to send a potter to Dunni-Assur? Have a written command go forth to your brewer in Sahlalu, that he may provide beer and drinking vessels for when the Suteans dine with me. To whom else can I ask this, who could provide me with this? Send your tablets (with instructions) quickly!*” (Wiggermann 2010: 27).

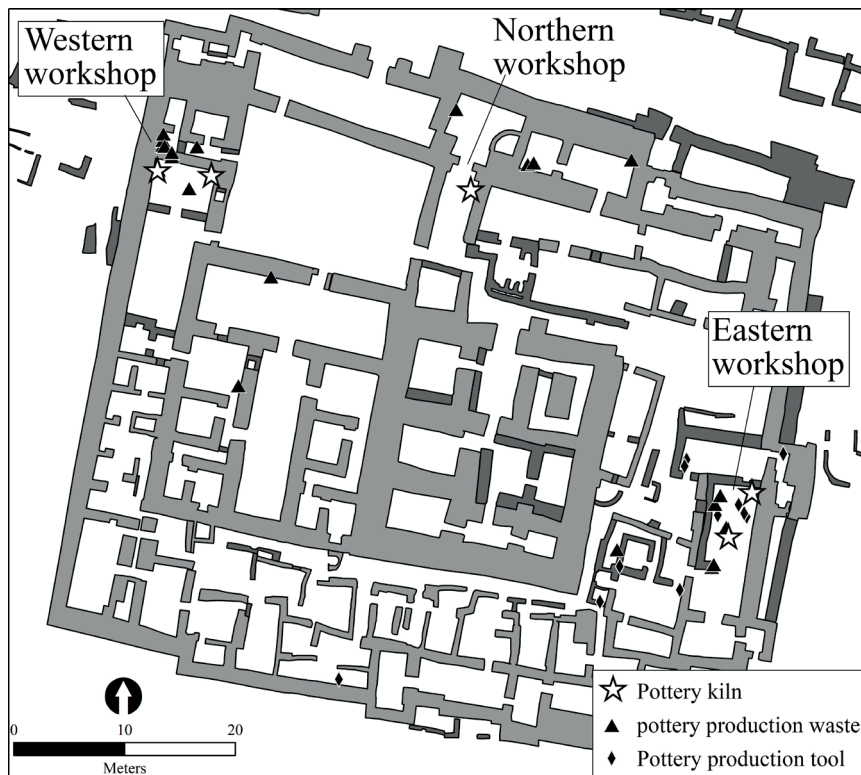


Fig. 4.10: Kilns and distribution of pottery production waste and tools within the walls of the Level 5 *dunnu*.

4.3.5 Production processes

4.3.5.1 Pottery

4.3.5.1.1 Introduction

There is ample evidence for the production of pottery in the *dunnu* of Tell Sabi Abyad. As this was described in great detail before by Kim Duistermaat (Duistermaat 2008; Duistermaat 2015), the discussion below will be brief and focusses on the production centres which were part of the sequences described in the chapters above.

Three main workshops were found, one in the east, one in the west and one in the north (figure 4.10). In every area they were constructed on floors which were used for a different purpose before. It is not clear whether these spaces were completely abandoned or derelict but they certainly were not constructed specifically for pottery production.

The pottery which was produced in these workshops was the typical Middle Assyrian pottery (Pfälzner 1995). The uniformity in shapes of many similar ceramic assemblages has led Peter Pfälzner (1995) to suggest that the pottery must have been made on a large scale in so-called 'manufactories'. Duistermaat (2015: 127) suggests that at Tell Sabi Abyad pottery was produced in 'individual workshops'. Although the ceramic assemblage is fairly uniform, small variation in rim size of carinated bowls may suggest that there was no explicit attempt at standardization of size or shapes of ceramic vessels (Duistermaat 2015: 136). In turn this suggests a certain degree of autonomy for the potters at Tell Sabi Abyad.

4.3.5.1.2 The western workshop

After the representative function of the monumental residence and the central courtyard had gone, the north-western sector fell into disrepair. The area was still in use however with amongst other activities the start of pottery production in area 1 (paragraph 3.2.2). Although the original activities which were carried out before the start of pottery production are unknown, it is likely that the activities were more in line with the monumental and official character of the adjacent areas during that time. The pottery production probably commenced after the floor of the courtyard was demolished and the 'office' to the north was closed and a thick layer of soil with administrative documents was deposited there (see paragraph 3.2.4). After the closing of the office, its bathroom was joined with area 1 to its south. This former bathroom was now used to shape pottery, although the proper workshop was probably located somewhere else (Duistermaat 2008: 365). Two kilns were constructed in room A of area 1, probably one after the other, although simultaneous use cannot be excluded. Much production waste ended up on the floor of this room and the former bathroom. A large courtyard due south (space B of area 1) was possibly also used during the work. Duistermaat (2008: 367) has suggested that fire damage to its walls were the result of the open air firing of large vessels there.

4.3.5.1.3 *The northern workshop*

In the north of the *dunnu* the earliest known gate of the settlement was closed off and used as either a brewery or a café (see paragraph 3.3.2). After this use, refuse accumulated on top of the floors and a kiln was constructed in a corner against the former gate. The kiln was awkwardly placed with its mouth towards the north, making it complicated to fuel. Not many kiln wasters or raw material was found in the vicinity of the kiln which may indicate that the workshop was located elsewhere.

4.3.5.1.4 *The eastern workshop*

The sequence of events which led up to the construction of pottery kilns in the east of the *dunnu* is less well known than for other pottery related areas. It is for instance not clear what the use of the rooms was before the advent of pottery production. As at least one kiln was positioned in the middle of the area, obstructing the movement of people, it was possibly constructed when the area was no longer in active use. The evidence for pottery production is much more extensive in this area compared to other areas. Not only were kilns and waste material found, also a large number of tools were discovered which were probably used for the shaping and scraping of vessels (see paragraph 3.7.3). It indicates that in the rooms where the kilns were situated the full production process was performed. A large amount of stone rings, interpreted as bases for unfired pots, were found in the northern part of the area (room G of area 2). The first stages in the production process were therefore probably carried out there, while the final part, the firing of pots, occurred in the southern courtyard (space D of area 2).

Duistermaat (2008: 360) identifies the house attached to the pottery workshop (area 3 of the south-eastern sector) as a storage room for pottery. Analysis of the finds from the house however (see paragraph 3.7.4), indicate that there is no clear connection between the apartment and pottery production. The few artefacts from the house which are related to pottery production may have entered the house in a different way, particularly as later secondary refuse.

4.3.5.1.5 *Textual evidence for pottery production*

From the letter from Mudammeq-Assur to the steward of the *dunnu* (T93_003; see above), it appears that potters could be sent to a certain location to produce pottery for that settlement. The same was probably the case at Tell Sabi Abyad, where large scale pottery production probably occurred on an incidental scale (Duistermaat 2008; Duistermaat 2015). Two tablets contain information about pottery. One is the letter described above and the other is a list of pottery vessels which were probably used in a ritual or ceremony of sorts.

The list in this tablet (T98_131) contains the following vessel names: *šapputu* (a container), *huruppu* (a dish), *makkusu* (a bowl), *kukkubu* (a small container), *agannu* (a large bowl), *kallu* (a bowl), *hapaltu* (a container), *namzītu/nazzītu* (fermenting vat), *pursītu* (a bowl), *sahharru* (a small bowl) (Wiggermann 2008: 559). The interpretation of the list as a list of ceremonial utensils is based on its similarity to a tablet from Assur which, amongst other things, also lists a censer. The number of objects and their functional properties were taken to indicate a cultic use (Wiggermann 2008: 560). Probably many tablets specifying orders for pottery have simply been lost.

4.3.5.1.6 Conclusion

Pottery production in the *dunnu* was undertaken on a significant but incidental scale. In the area within the *dunnu* walls and during the time span covered by the sequences described here (Level 5), five different kilns were constructed which could have been used for a number of firing events. The construction of multiple kilns in one area may suggest that the area was used for a long period of time for the same purpose. However, the fact that kilns are placed in areas which were originally constructed for other activities indicates that the location of kilns should be considered to be opportunistic use of space (cf. Duistermaat 2008: 369). Interestingly several kilns were also constructed outside the walls. Unfortunately, analysis of these areas was beyond the scope of this research.

An explanation for the variety of locations for kilns offered by Duistermaat is that the prevailing winds in this area change per season and that therefore kilns may be located in areas which caused the least smoke problems. This may be highlighted by the fact that although the locations of kilns vary, the shaping of pottery may have remained in place in the east of the *dunnu*.

The presence of such large pottery workshops in the *dunnu* indicates the importance of the products for the *dunnu*. It is conceivable that the workshops also supplied the surrounding villages with ceramics, but the main consumer must have been the *dunnu* itself. As is clear from tablet T93_003, in which a high official orders the steward of the *dunnu* to send a potter to another settlement (Wiggermann 2010: 27), the craftsmen were not only located in a single settlement. The changing location of the pottery workshops can also perhaps be viewed as a result of different potters who worked in the *dunnu* at different moments in time. The production of pottery may in some cases have been in parallel to other events such as large scale beer brewing or the preparation of large meals.

4.3.5.2 Metal work

Among the objects which were analysed for this study, only two damaged moulds and several very small bronze fragments attest to the local production of metal objects (figure 4.11). The small bronze fragments or lumps, were interpreted as the waste material from bronze casting and were all found in refuse layers. Also the two moulds were found in refuse layers. One of the moulds was probably used to produce small ornamental items while the other was perhaps part of a mould for tools such as axes (figure 4.12). The items indicate that bronze production must have been carried out in or around the *dunnu* at some point. The evidence is however so scarce that it cannot be said to what scale this was carried out.

The distribution of bronze fragments is wider than that of the moulds but yields no clear patterns. The only concentration which is evident from the spatial distribution is present in the 'office' in the south-eastern sector (see figure 4.11: 'office'). Here, the secondary refuse deposit on top of the floor has yielded a concentration of bronze fragments, one of which was a 'fluid' shape, indicating that bronze casting indeed took place nearby. The lack of more significant evidence for bronze production among the otherwise rich find assemblage from Tell Sabi Abyad indicates that the location of this activity must be found further away from the excavated remains.

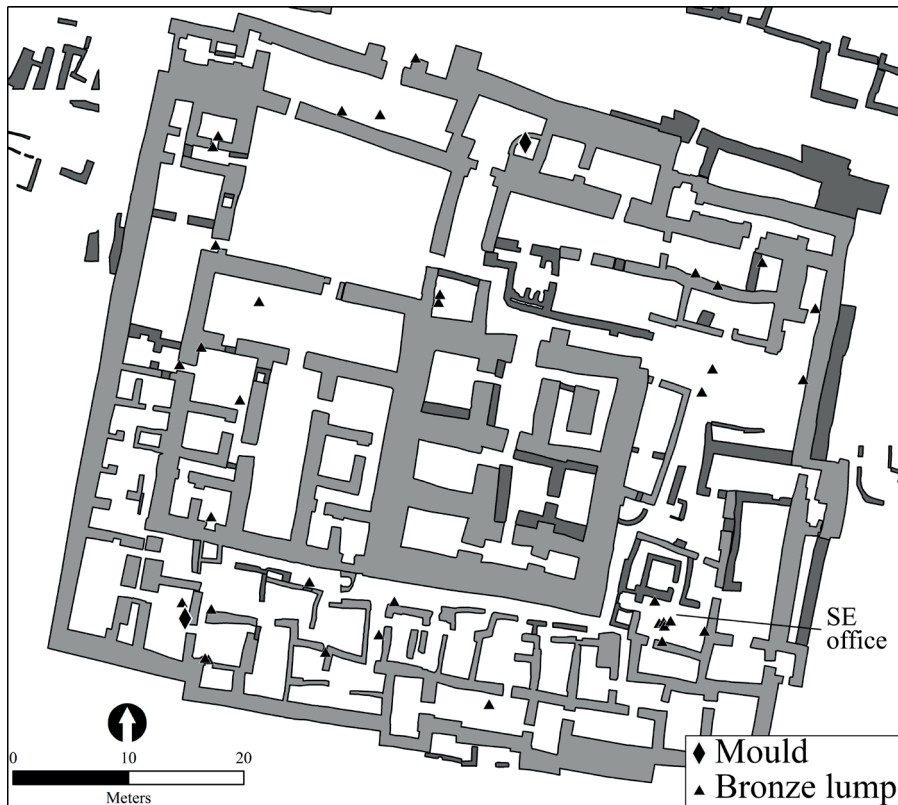


Fig. 4.11: Distribution of objects relating to metal working (moulds and bronze lumps) in the Level 5 *dunnu*.

Also in the tablets not much evidence about metal work in the *dunnu* was found. In one instance (T98_080) a merchant was recorded to receive 405 kilogram of “bark of the kiskanii tree” in return of the same weight in tin (Wiggermann 2000: 198). Although this means that large amounts of metal was available at the *dunnu*, it is unclear whether the material was transformed into tools and ornaments here as well.

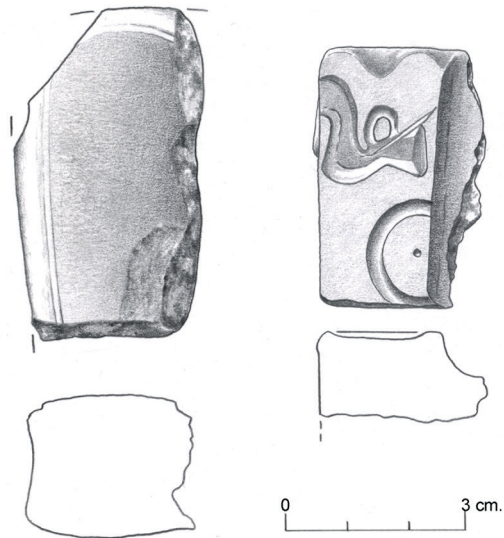


Fig. 4.12: Two damaged stone moulds from Level 5 of the *dunnu* (fig. by R. Timmermans).

4.3.5.3 Clothing

Unlike other production processes, the creation and repair of clothing has perhaps not been undertaken on a substantial scale. Several objects which were found could be associated with the process of clothing production or repair. However, these objects could also be used in different processes. The majority of these finds for instance are bronze needles which could also be used as hair or cloth pins. Also so-called loom weights, perforated clay balls, could be used to serve as weight for other things.

It is expected however, that the *dunnu* was largely self-sufficient and that the production and repair of clothing took place here to some extent. In line with this notion Cavallo (2002: 233) has noticed that although most of the sheep remains from the site indicate that they were bred for their meat, some were probably used for wool as well. This may have occurred in the domestic sphere however, rather than being centrally organized.

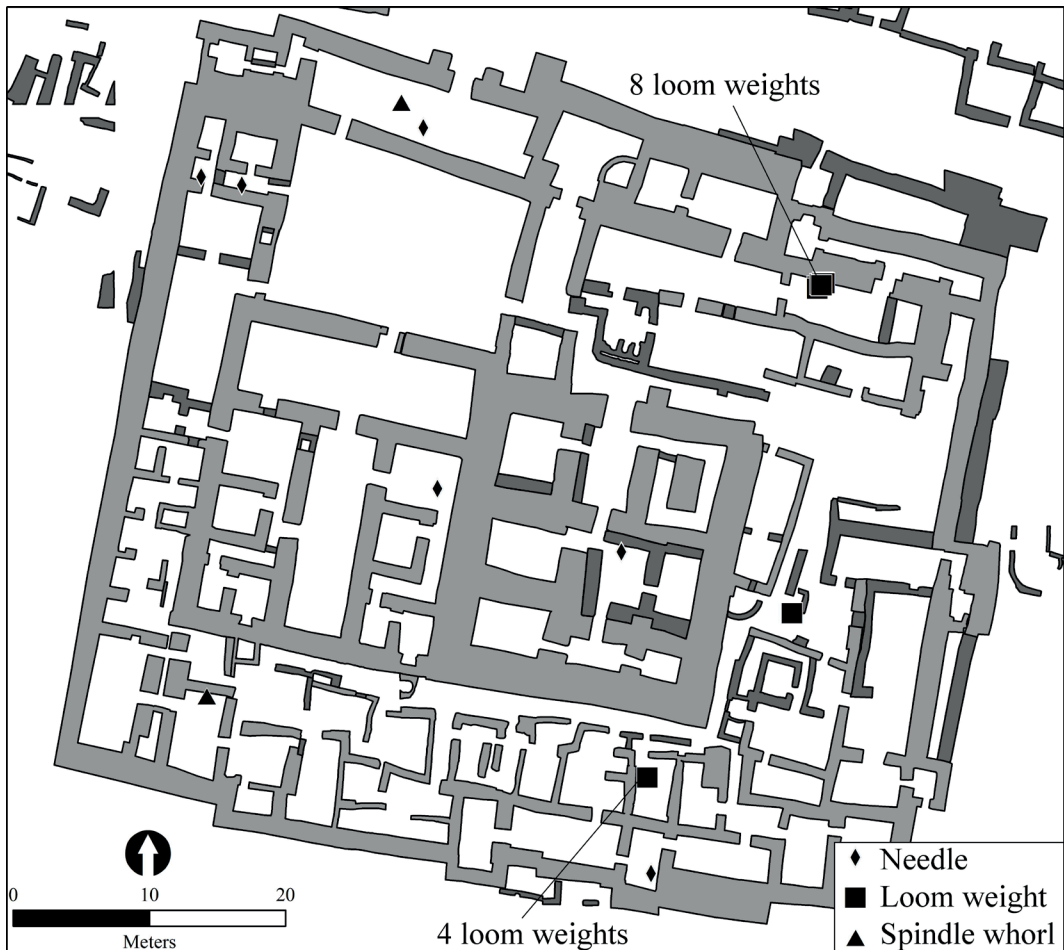


Fig. 4.13: Distribution of clothing related tools from floor level deposits in the *dunnu*.

Many fragments of pin-shaped bronzes were found in refuse layers but it is impossible to attest their original shape and function. The distribution of clothing related tools in the *dunnu* from floor contexts demonstrates that only a small amount of these objects were deposited (figure 4.13). This can mean either that pins and needles were curated and taken good care off, or that the objects were simply not used as much inside the *dunnu* walls. It can be assumed that small needles and pins were easily lost on house floors if they had been used there frequently, but the evidence suggests that this has not occurred. This might be an indication that the spaces within the *dunnu* walls were not often used in the domestic sphere.

Two concentrations of loom weights suggests that some clothing production however did occur within the walls of the *dunnu*. The clustered occurrence of the loom weights indicates that they were most likely used in the particular room they were found in or on a higher storey (see paragraph 3.3.6 and 3.6.7). It is however also possible that the objects were merely stored here.

All in all, evidence for cloth production and repair is limited to small groups of objects inside the *dunnu* walls. Several needles which were found in the deposits described here could also be used for personal ornamentation as hair or clothing pin. It is plausible that clothing was created and repaired within the domestic sphere. This evidence suggests that residential areas were located outside the *dunnu* walls.

The textual evidence does not offer much additional information. From a letter from Ili-pada to Tammitte in which the vice-roy demands new clothes and fresh linen for his bed, we can deduce that these articles were either produced or stored at the *dunnu* (Wiggermann 2000: 173). This is however the only textual attestation of this practice. Wiggermann assumes flax was imported, wool was not used so much and that leather work was probably used mainly for the production of war chariots (Wiggermann 2000: 175; 198; 200).

4.3.5.4 *Stone working*

Although the majority of objects from the *dunnu* are made of stone, not much evidence exists that these objects were also produced here. It seems that at least the large objects such as grinding stones were mainly produced at their place of origin. Small objects were produced in the *dunnu* however. As was published before (Akkermans and Wiggermann 2015: 94) outside the *dunnu* walls a bead production workshop was excavated with hundreds of unfinished and damaged beads. Although this area was unfortunately not part of this research, a small subset of evidence for bead production was found within the walls as well. In a ceramic container which was found in one of the ovens in the kitchen structure in the north a bead maker's toolset was discovered (see paragraph 3.3.4). The toolset consisted of several unfinished beads of colourful stone and some small flint and bronze implements with which to carve and perforate them. Why they were deposited here is not clear, especially since the associated finds in the room seem completely unrelated.

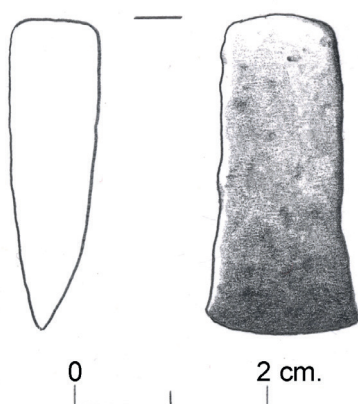


Fig. 4.14: Small bronze axe or wedge from Level 5 of the *dunnu* (fig. by R. Timmermans).

4.3.5.5 Woodworking

Although only five objects were recorded which were probably tools for wood working, it stands to reason that this activity was very important. Much of the architecture such as the roof beams and doors as well as furniture was probably constructed of wood and many tools were constructed of this material or hafted with it. Also the five woodworking tools were probably hafted in wood. The assemblage consists of two chisels, an adze and three axes (figure 4.14). One chisel and one axe were made of bronze, the other objects are made of stone. Unfortunately, none of the objects were found in primary contexts so not much can be said about the location of use. It could be expected however that in many locations in the *dunnu* woodworking may have taken place. Whether this also occurred in specialized workshops has for now not been attested yet.

4.3.6 Administration

To the delight of the excavators of Tell Sabi Abyad a large number of cuneiform tablets were discovered in the *dunnu*. Especially the deposits which were related to the ‘office of Tammitte’ (Akkermans and Wiggermann 2015: 99), containing some 137 tablets, were mentioned often in this regard. Although this constitutes by far the largest concentration of tablets, other tablets were found throughout the *dunnu* in a variety of contexts (figure 4.15). In this section I will discuss only those contexts which were part of the research at hand, from Level 5. Some tablet contexts are therefore disregarded here.

4.3.6.1 Archaeological issues concerning administration

As discussed in detail in paragraph 3.2.4 the area known as the ‘office of Tammitte’ has yielded a large amount of tablets which were mostly discarded there as secondary refuse. This is most clearly demonstrated by the spatial distribution of refitted fragments of some tablets. These fragments were widely scattered throughout the deposit. Additionally, the objects were located in a soil layer which was deposited to level the area for a new floor higher up. Therefore it is implied that the objects were deliberately discarded to be gone permanently.

At least two other contexts are very similar. In the south-west of the *dunnu* a large corpus of small tablets belonging to baker Paya were found. Although the area was probably indeed used by this man, the deposit they were found in indicates that they were discarded as part of a levelling layer on top of a floor. The second similar context is found in the ‘east office’ (see figure 4.15). A number of tablets were discarded in this area which was interpreted as an office or residential space. Also here a large number of tablets were found on the floor. Although the space may have been used for administration purposes, the deposit represents the purposeful discard of the objects, not necessarily their use.

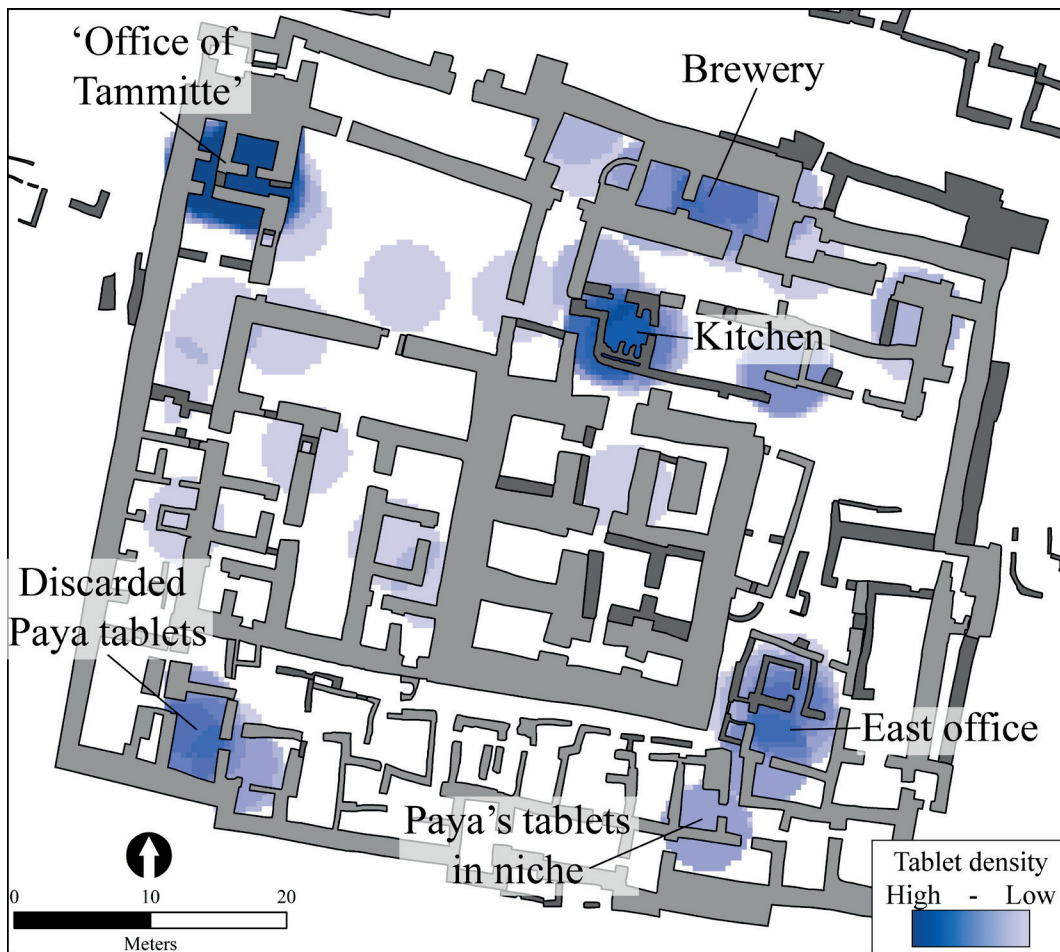


Fig. 4.15: the main tablet contexts from the Level 5 *dunnu*.

Tablets were however also found in other deposit types. In the north of the *dunnu* two main concentrations of tablets were recognized. The first is a large collection of objects in what is known as the kitchen. In this room a number of fire places were constructed along the walls which could be used to cook large meals. The tablets were found among a large collection of artefacts such as pottery vessels but also some remarkable objects such as spear heads and a bead maker's toolkit. The concentration of tablets may have ended up here as secondary refuse but also may have fallen from a higher storey, although the latter interpretation is less likely given the presence of fire places in this room because these suggest that it was an open space.

Due north of the kitchen three rooms were once used by a local brewer and contained tablets in several separate contexts (the 'brewery'; figure 4.15). The first space was located in front of the former entrance (area 1 of the north-eastern sector). The two other rooms were located to its east, and form a small apartment or office (area 2 of the north-eastern sector). The former gate was probably used as a place to distribute and store beer and the two connect-

ed rooms for brewing, storage and administration. Most of the tablets which were found in these rooms were part of refuse deposits but some tablets were considered to be deposited in a different manner. Most notably several small complete tablets which were found in the middle of the office or apartment may have been part of an abandonment or catastrophe deposit (see paragraph 3.3.3).

Almost all smaller concentrations and single occurrences of tablets in the *dunnu* can also be ascribed to processes of discard. In the southern part of the *dunnu* however some tablets, also dealing with Paya the baker, were found in a niche in a wall (see figure 4.15). This context is part of area 5 of the south-western sector which consist of two rooms which were interpreted as the office or apartment of Paya (see paragraph 3.6.6). Extensive fire damage to the floor and features in these rooms seems to indicate that the abandonment of the rooms is correlated to a large conflagration. It could be argued that the fire was the cause for abandonment and that the objects in the rooms were deposited as a catastrophe deposit. The tablets from this context were discovered in a niche in the wall which was interpreted as a wall safe. Whether this means that the objects were kept here behind lock is not sure however, it may have been a simple open niche in the wall similar to the examples from the central building (see paragraph 3.5.2). In both the kitchen and the office of Paya the objects were apparently left in the space they were used.

As follows from the many tablet-rich contexts from the *dunnu*, the vast majority of recovered tablets was deposited as refuse, often as part as levelling layers. A few examples suggest an unintentional deposition process such as the catastrophe deposit in the wall safe.

The deliberate discard of tablets in the *dunnu* is in contrast with the previous interpretations of these contexts. It was assumed that the tablets in the 'office of Tammitte' for instance were left behind during rapid abandonment. It was inferred that a sealing which was discovered in the same area was used to seal a box which would have contained the tablets (Wiggermann 2010: 22). The resulting interpretation of the assemblage as an 'archive' can therefore be considered essentially erroneous. The objects which were discarded most likely represent a carefully chosen selection of tablets from a larger archive which endured.

This new interpretation of many tablet contexts does not only affect the interpretation of the cluster of objects itself. It also means that the buildings they were found in do not necessarily equate to the location of their use. The term 'office' is therefore not a viable interpretation if it is solely based on the presence of tablets. However, in the *dunnu*, many large tablet concentrations are related to buildings with a seeming residential or official function.

Additionally, many large tablet concentrations seems to possess a certain degree of internal coherence. The 'office of Tammitte' for instance only yielded tablet related to Tammitte. The same applies to the concentrations in the south, which are solely the property of baker Paya. This indicates that the tablet concentrations were deliberately discarded by their owner, probably in a space in which they lived or worked. Also, it can be assumed that an administrator would not carry the tablets to a remote location for simple discard.

It is therefore likely that these rooms were indeed used for administrative purposes in concord with the tablets. The presence of at least three ‘offices’ may therefore be postulated within the *dunnu* walls. The original ‘office of Tammitte’, the former brewery in the north and the residential structure in the east.

A last potential ‘office’ is that of Paya. Although the majority of texts dealing with this baker were found in a levelling layer in the west of the bread baking area, the few tablets which were located in the niche in the wall can be considered to be a more secure context. As this location was also interpreted as an office or residential space based on other finds, it is likely that this was the location where also other administrative dealings of Paya were carried out.

4.3.6.2 *Textual evidence*

From the tablets from the *dunnu* a large variety of administrative practices is revealed. Many documents speak of internal matters such as the amount of available workmen or distributed bronze sickles. Other documents are more formal in nature and detail contracts and treaties between groups and individuals, or deal with customs. These are grouped below under the heading legal issues. The final category of tablets are letters between officials in the Assyrian system.

Many of the internal business documents were discussed above in paragraphs of the themes they deal with such as agriculture or production processes. To elucidate some of the administrative practices which were common in the *dunnu*, a selection is made here. Among the internal documentation, several small receipts, written by chief baker Paya, were found in the southern spaces of the *dunnu*. As these detail day to day transactions with the baker, in the past, hundreds of these documents must have existed (personal communication F. Wiggermann). The same issue was demonstrated for the brewer, who would keep track of daily deliveries (Wiggermann 2000: 175). Although the vast majority of the original documents are missing from the archaeological record, the indication for these practices is sufficient to assume that during their lifetime, the administrators of the *dunnu* were in constant check of what was going in and out of the *dunnu*. The fact that the local brewer and baker were able to keep track of business themselves would suggest that they were an integral part of the bureaucracy. It has been argued before that many people outside of the elite were literate to a certain extent (Charpin 2010a; 2010b). For the brewer and the baker of the *dunnu* this may have been limited to knowledge of a small corpus of cuneiform signs which were required for their administration. They were not proficient enough to read and write complex letters and literature, but could read and write inventory lists and receipts, a level of literacy known as functional literacy (Veldhuis 2011). This is, however, more than sufficient for the day to day dealings and, in turn, indicates that they had a certain degree of autonomy. However, as a letter from Nāsir-Nabû to Tammitte shows (see below), with autonomy comes responsibility. And poor performance may result in severe punishment.

Other internal issues are mainly tallies of people, animals and crop yields. A Tell Sabi Abyad text listing various types of dependent personnel shows that several of them served the administration of the *dunnu* (Wiggermann 2000: 190). Among these were probably at least a number of scribes.

4.3.6.3 *Legal issues*

In many cases it seems that the *dunnu* was not only a ‘home away from home’ for the grand vizier but it also served as an ‘office away from office’. People would travel to Tell Sabi Abyad, sometimes for hundreds of kilometres, for matters concerning justice, inheritances or help with other cases. At one point a widow from Suadikanni on the Habur beseeches the vice-roy to let her retain the slaves of her deceased husband and that they are not given away to others. In return she offers the king a bearded (uncastrated) slave (T97-2; Wiggermann 2010: 38).

In another case a princess is bribed in an equal way: “*1 male donkey three years of age, owed to Princess Epirat-As[sur] by Sin-u[...], son of Eriba-Assur of Suadikanni. This donkey is the gift; (when) she (the princess) has settled his case, she may take her gift into possession. (Contract settled) in the presence of: Gelzu, son of Alahu, Asiru son of Siniy[a], Bel-ahisu, scribe, son of Assur-Dameq. Month Muhur Ilani, day 6, limu Sunu-qardu.*” (T97_005; Wiggermann 2010: 20; translation from Dutch by author).

Other issues which were dealt with in the *dunnu* concerned customs. As the *dunnu* was located along a caravan route, in the settlement many items were cleared and sealed before they continued their journey into Assyria proper. This work was usually the responsibility of the steward of the *dunnu*. That this job should be taken serious is apparent from the following letter steward Tammitte received: “*Speak to Tammitte, thus says Nāsir-Nabû: (react) as soon as you have read my tablet. Earlier I gave you the following instruction: ‘caravans which come to me from Karkamiš may not pass without your consent and (I added) seal all wares.’ Now I have heard that caravans have (in fact) set out towards me (and I repeat) ‘whichever caravans come to me, be they of Ilī-padâ, of the princess, or of the nobles, seal everything.’ I have also heard that they are carrying balsam; (if) any balsam is missing, you [...] to be executed.*” (T93_020; Akkermans and Wiggermann 2015: 120).

Merchants from many foreign countries visited or passed the *dunnu* on their way to the Assyrian heartland. On these occasions sometimes the locals would also do business with these traders: “*a healthy woman [...], who Zikkar-Kakke, servant of Abu-Izzan, is owed by Ili-rabi, [merchant?] from Canaan. When he returns from Assur, he shall bring the woman and hand her over, and [then he can keep] his cleared goods. When he does [not] bring the woman, then [his] cleared goods will be kept [as] deposit. (Contract settled) in the presence of Abu-izzani the governor, [and] Ellati, the en[voy] of Emar; Belu-rabi, son of Hanuma; Eriba-Marduk, scribe.*” (T93_020; Wiggermann 2010: 33; translation from Dutch by author).

A large proportion of tablets from the *dunnu* concerns the correspondence between the vice-roy and the steward and between the steward and subordinates. In nearly all cases the letters contain orders from superior to subordinate.

4.3.6.4 *Conclusion*

From both the archaeological as well as the textual evidence it seems that administration was an important aspect of daily life in the *dunnu*. Not only the highest officials were literate but also the brewer and main baker kept a careful administration. When at some point in time a part of the archive had to be disposed of, considerable care was taken to discard the objects permanently in construction layers.

Clearly the work in the *dunnu* was closely controlled by the authorities. Tallies of people, rations and tools indicate that the people in command kept close check on the income and out-goings of the *dunnu*. Perhaps the administrative duties were not carried out by every individual but it did affect the life of every person in and around the *dunnu*.

4.3.7 War and peace

Because of its moat and high thick walls, the *dunnu* of Tell Sabi Abyad has often been termed a fortress or fortified settlement, highlighting the military aspect of the site. Additionally, the conflagration which occurred in the monumental residence was viewed in the same vein. That the *dunnu* was no stranger to violence is evidenced by the discovery of a mass grave containing five adults who were unceremoniously buried in a shallow pit. The exact cause of death of the interred individuals is not clear but the manner in which they were buried suggests that they were either executed or died in combat (Akkermans and Rossmeisl 1990: 23-24; Düring *et al.* 2015: 34).

If military actions were indeed played out here, one would suggest that many finds would corroborate this notion. In contrast, among the registered objects not many violence-related items were found. The textual evidence on the other hand does offer important insight to this matter.

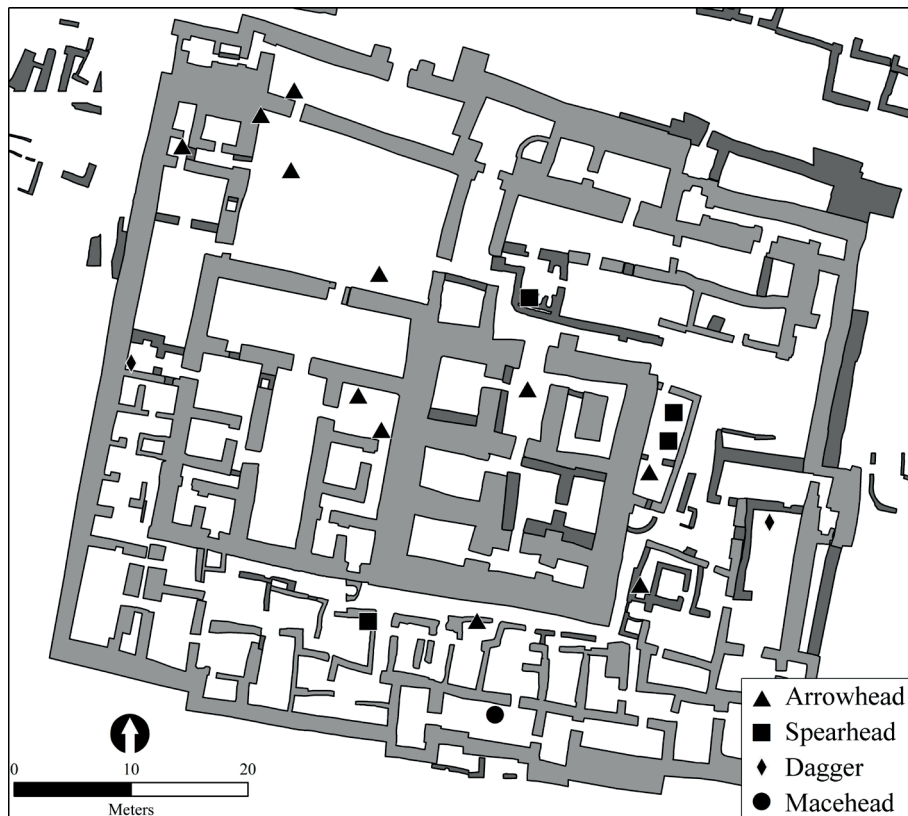


Fig. 4.16: Distribution of weaponry in the Level 5 *dunnu*.

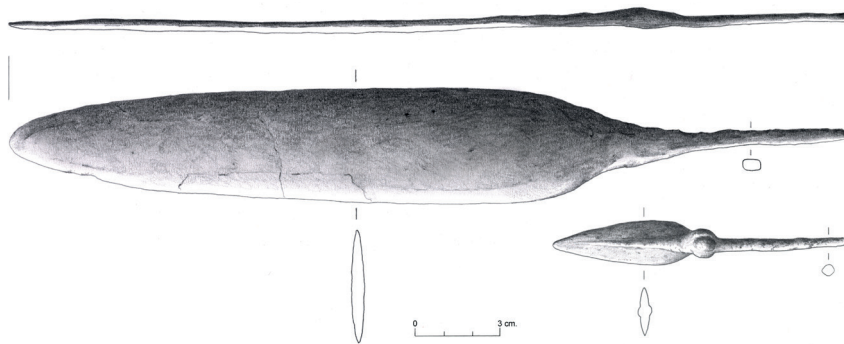


Fig. 4.17: Spearhead and arrowhead from the Level 5 *dunnu* (fig. by R. Timmermans).

4.3.7.1 Archaeological evidence

Four types of weaponry were discovered among the horizons discussed here. 11 arrowheads, four spearheads, two daggers and a possible stone mace-head were found (figure 4.16). Most arrowheads are very alike, on average they measure 7.9 centimetres in length, and are winged with a slight bulge at the convergence of blade and shaft (figure 4.17). Spearheads are longer blades, two of them are 13 and 14 centimetre in length, the two others are longer and measure 24 and 28 centimetre in length. Their width varies from one to two centimetres (the smaller ones) up to four centimetres for the larger individuals.

The two daggers which were found in the *dunnu* differ significantly from each other in shape and size. They are however both long blades which probably served a military purpose. The longer of the two measures 28.6 centimetres in length and 2.5 in width, the shorter 15.7 by 2.5. The shorter blade was broken in the past and may have originally been significantly longer. The daggers would have been hafted with for instance wood or ivory which would have left a blade of slightly over 20 centimetres. Another weapon which was found at the site is a possible mace head. It is made of stone, is largely spherical and used to have to protuberances on either side (figure 4.18). Although it is possible that the mace head is Neolithic in date, there are Middle Assyrian bronze parallels known as well (Curtis and Ponting 2013: fig. XCVI, no. 1195).

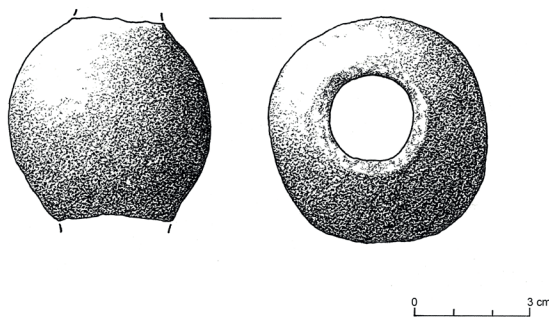


Fig. 4.18: Mace head from the Level 5 *dunnu* (fig. by R. Timmermans).

The spatial distribution of arrowheads throughout the *dunnu* does not indicate clear patterns, it is rather uniform. As most of these small arrowheads were found in refuse deposits, it is likely that they have been lost. This is a far less plausible explanation for the presence of the larger metal objects, the spear heads and the daggers. The contexts of the spearheads are quite uniform, they have all been found in the corner of a small room, where they were probably kept. The objects have therefore probably been left behind at abandonment, which suggests that they were not owned by any individual and perhaps were part of the *dunnu* ‘furniture’. The two daggers, as well as the mace head, were found close to the outer wall of the *dunnu* and are suggesting of their role in defence of the settlement. Possibly the weapons were left on the battlements by guards patrolling the wall.

All in all the weapons which were left behind in the *dunnu* suggest that the settlement was well equipped with weaponry. People living inside the *dunnu* possibly possessed their own set which could be taken up in the case of a local violent dispute.

4.3.7.2 Textual evidence

As mentioned above, the leather produced at the site was mostly used in conjunction with the production of chariots (Wiggermann 2000: 198). There were also many horses kept in the settlement, undoubtedly for use by the military. The *dunnu* also serviced armies on the move in other ways, according to text T98_119 Tammitte is owed 164 sheep by the “governors of the land Harran” after he supplied the passing army of Ili-pada with food (Wiggermann 2000: 200).

In some sense the *dunnu* could find itself in the middle of the fray. Many hostages were recorded to be kept in the *dunnu* (Wiggermann 2000: 185) and much of the intelligence work performed by local pastoralists was passed on within the *dunnu* walls before being dispatched to the grand vizier (Wiggermann 2015: 119). A letter to Ili-pada will serve as an example: “To Ili-pada my lord, a notice from Ahu-Illaka, your servant. I obediently kneel before you and put my life in the hands of my lord. The stronghold, the troops and the sons of my lord are all in good order. The Suteans who from (the hills of) Hanigalbat have descended (south) I have questioned, (and they said): ‘all (of our permanent) settlements are in good order’. No Assyrian has descended (south), therefore I could not ask anyone for news. Month Sin, 13th day, *limu* Adad-ban-kala” (T04_013; Wiggermann 2010: 38; translation from Dutch by author).

The dispatches apparently did not come often enough according to the vice-roy: “Have you forgotten me, or have you left? (...) News about the Hittite empire, the surrounding lands, and all (other) news you hear, send me at once a dispatch about these; and also send me some fruit” (fragment from T98_034, a letter from the grand vizier to Tammitte; Wiggermann 2010: 39; translation from Dutch by author).

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*.

4.3.8.2 *Artefact evidence for storage in the dunnu*

Other types of storage have also been attested in the *dunnu*. In particular the presence of large jars and the clay jarstoppers which would have sealed them are indicators of storage of liquids and foods. Because large storage jars could not stand on the ground by themselves, so-called pot stands were used to support them. These circular ceramics were positioned on the floor and jars or pots could be placed on them. Their presence in a room may therefore indicate that also large storage jars were present once. The distribution map below indicates a concentration of jars in two areas in the south and in the central building (figure 4.19). Also the location of pot stands is indicated. The density map which is plotted in the background indicates the amount of jarstoppers which were found in the settlement. Only one clear cluster of pot stands is visible. This cluster is located in the north. Other pot stands were found in a wide distribution, mainly in the eastern half of the *dunnu*. Interestingly, the largest cluster of jarstoppers was found in between the two jar concentrations in the south. Additionally, none of the recorded clusters have a spatial overlap with each other. In other words, the three discussed artefact types were not deposited in the same places.

This evidence is not without problems however. Storage jars were fairly large, and their size means they are easily fragmented in the archaeological record. Most of the jars which were deposited in the *dunnu* were therefore probably not recorded as object. Many have been reconstructed during pottery processing post excavation, but their exact location and context was not recorded. Another problem is in relating the presence of jar stoppers with local storage. Although this artefact class does clearly relate to the closing and sealing of storage jars, their (broken) presence in the local context indicates *de facto* that sealings were broken, and conse-

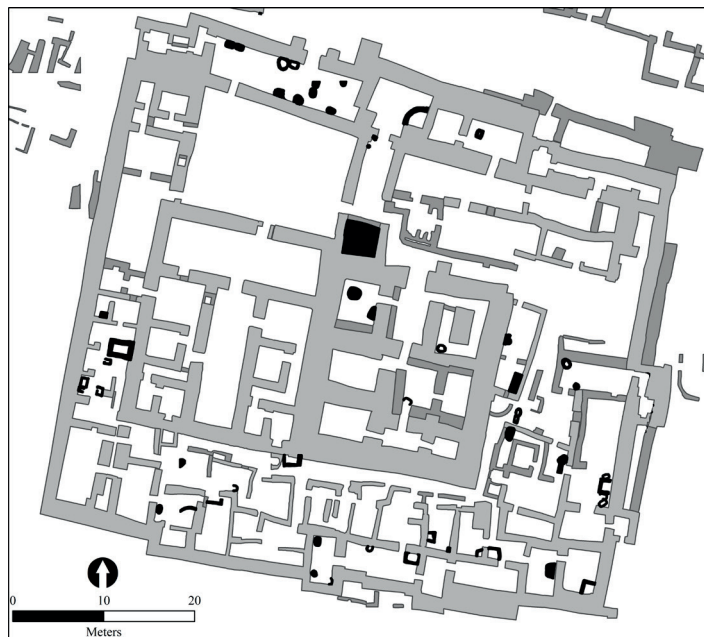


Fig. 4.20: Distribution of bins in the Level 5 *dunnu*. The bins are indicated in black.

quently, jars were opened, not closed. Therefore, the presence of jar stoppers perhaps indicates that a certain space was used for the inspection of imported goods. Perhaps, considering their location in a bread baking area, ingredients which were used for bread baking were received and opened here.

As mentioned above, because of the rounded or pointed bottom of jars it was hard to stand them up straight. Potstands were used to be able to position them in any given location. For the bulk storage of many jars however, they could also have been placed against a wall. In room 6 of the central building a large amount of storage jars were found, probably set in a shallow trench which was dug along the wall (see paragraph 3.5.4). Likewise, the largest concentration of potstands was found in a context in which they are related to the process of beer brewing. In area 3 of the NE sector these objects were thought to have held the jars which contained beer. The most likely destination for the jars is the adjacent room where evidence for beer consumption was indeed found. Not indicated in the distribution maps below are a number of fragmented jars which were found in this “café”. These were not recorded as objects unfortunately but clearly visible on photographs (see paragraph 3.3.3).

Another form of local storage can be deduced from the presence of clay and mudbrick bins. These features were constructed throughout the *dunnu*, often in the location of ovens. In a short study by Jachvliani (2015), all bins from the Tell Sabi Abyad *dunnu* were mapped and discussed. In this study two bin types were discerned: standard and non-standard. The standard bin is constructed of loam or mudbricks and has an oval or rectangular ground plan. The standard bins on average measure 100 by 72 centimetre with a probable height of 70 centimetre.

Non-standard bins are those which deviate from this general classification. Some walled structures, measuring up to three metres in width, were called a bin for instance. An example of these is the quarter-round structure in the north of the *dunnu* (see figure 4.20). But also other large and uniquely shaped bins fall into this category. There are therefore numerous shapes and sizes represented among the non-standard bins. It stands to reason that some of these bins which are much larger than the standard size, served a different function. Although all these features may have been used for short term storage, the larger examples were perhaps used for the storage of other containers such as storage jars or sacks of grain.

The standard bins were found predominantly in the vicinity of ovens. Some have however also been found in spaces which are empty of other features. Their function can therefore be found in the realm of food production but it is not restricted to this.

In a practical sense, the standard bins may have been used to temporarily store grain or flour during bread baking or milling. Some may have contained fuel (dung or wood) to build the fire inside the ovens. Other bins, such as the examples found in the entrance court in the north-west of the *dunnu* may have been used to distribute drinks or food to guests. Other interpretations may include that they were used as drinking places for animals such as horses as was suggested for the bins near the entrance gate in the north west (see paragraph 3.2.5; figure 4.20).

4.3.8.3 Conclusion

As mentioned above there is textual evidence for large scale grain storage in the *dunnu*. This was probably kept here to feed passing army groups or tradespeople who travelled along the caravan route which possibly led past the *dunnu* (Düring 2015a: 61). Also locally the harvest revenue may have been used for trade and to feed employees. Lastly, the crops may have been used to feed cattle and equids at the site which seem to have been kept in large numbers, perhaps for breeding purposes (Cavallo 2002).

Both long term and short term storage is attested at Tell Sabi Abyad. Long term storage was possibly carried out in the higher storeys of the central building while short term storage was aided by the large amount and variety of bins within the *dunnu* walls. Additionally many ceramic storage vessels were produced and used in the settlement. Although the standard bins had a volume of about 500 litres, they were not easily closed off and rather crudely built. Therefore these were probably used mostly in conjunction with activities around them. In some cases for instance bins would have held the grain which needed to be milled. In other cases the bins may have contained fuel for ovens and hearths.

The fact that the *dunnu* potentially contained so much foodstuffs perhaps indicates that the settlement was in part a 'warehouse' (Düring 2015a: 60), but, following the archaeological evidence from within the walls, a large part of the storage facilities in the *dunnu* (the bins) were mainly used for local production and consumption.

4.3.9 Domestic life

Apart from work, there was also time for rest and pleasure in the *dunnu*. Several structures in the analysis in chapter 3 were interpreted to have functioned as domestic areas at some point. In particular areas which included a bathroom were considered to be apartments or offices. Traces of activities such as sleeping are however difficult to find, and most identified residential areas were probably inhabited by high officials. The layout of the *dunnu* has in some cases however revealed the possible presence of smaller apartments. Perhaps these were used by staff members and their families (see below).

4.3.9.1 Sleeping and general living

Including the monumental residence, five clear residential structures were found. These could be recognised based on their clear spatial structure and the presence of bathroom facilities. Because of their formal layout and the presence of administrative documents in many of these areas, these apartments have probably been used for official business. This does not exclude the possibility that the family of the official resided here as well however.

The apartments which were found in the *dunnu* were all laid out with a similar pattern. All apartments included a room which could be used for sleeping and reposing, with a hallway attached which lead to a small room which in turn led to a bathroom (figure 4.21).

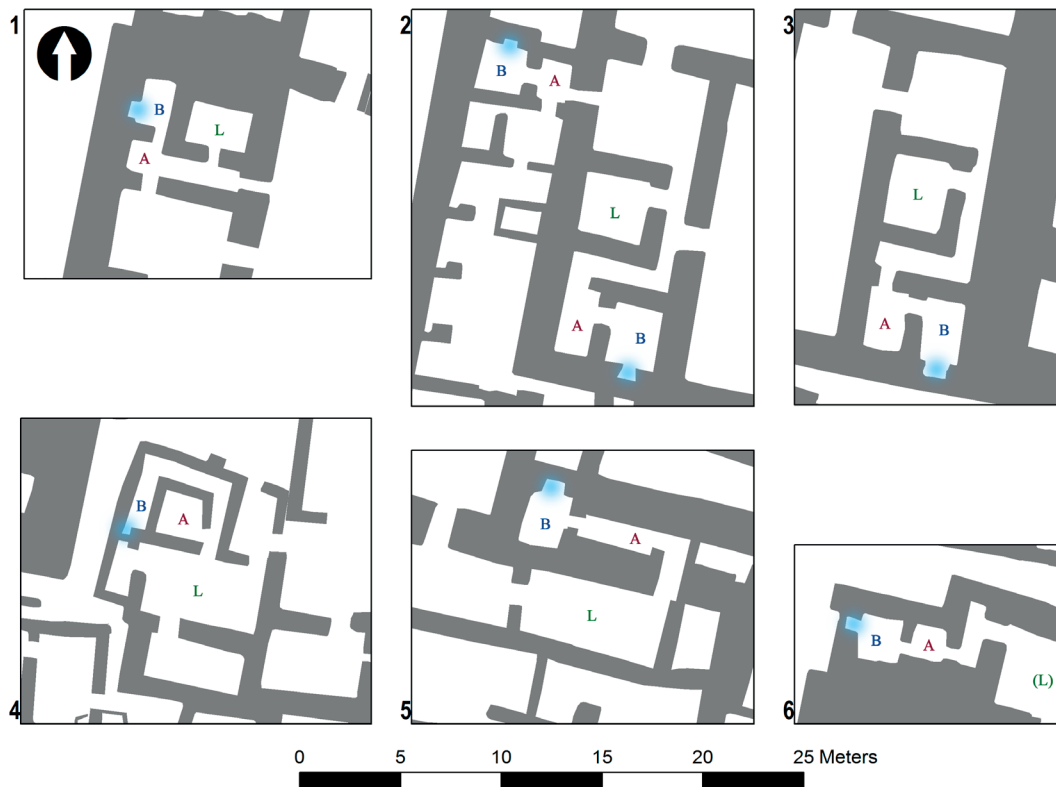


Fig. 4.21: The apartments inside the *dunnu*. 1: The 'office of Tammitte' (area NW 3); 2: the western apartment of the monumental residence (area residence 2); 3: the eastern apartment of the residence (area residence 4); 4: the office/apartment in the south east of the *dunnu* (area SE 3); 5: the bathroom structure in the north east of the *dunnu* (area NE 5); 6: the bathroom structure associated with the entrance court in the north west (area NW 4). The letters indicate the functional characteristic of the room: A = anteroom, B = bathroom, L = living room.

Six apartments were identified in the *dunnu*. Two were located on either side of the monumental residence and had very similar constructions (figure 4.21: 2 and 3). These two apartments were particularly large compared to the other examples at the site. Interestingly, the layout of the bathroom structure was apparently so important that when a new bathroom was constructed for the western apartment, its new construction also was comprised of an ante room and a bathroom.

The area which is often called the 'office of Tammitte' is a much smaller structure (figure 4.21: 1). Although it also consists of a living room, a corridor, an ante room and a bathroom, all these rooms are constructed on a smaller scale. This is possibly due to the fact that it was constructed in between pre-existing walls, restricting the available space. Also the bathroom structure in the north-east of the *dunnu* was constructed using existing architecture. This perhaps explains the extensive length of the hallway which leads to the bathroom (figure 4.21: 5).

The apartment in the south-east is slightly different from the other apartments in layout, in that it does not contain an ante room through which the bathroom is reached but an extra-long corridor to distance the bathroom from the ‘living room’ (figure 4.21: 4). In every apartment a bend was present in the route from living room to bathroom. This would have provided extra privacy in the bathroom probably. What the ante room was exactly used for is unclear. In some cases it seems like this may have been used to change clothes.

The bathrooms were fitted with waterproof floors, plinths, a toilet feature constructed with mudbricks as footrests and a pipe running through the wall out of the room. In some bathrooms, next to the toilet, a vessel was dug in or placed on the ground. This would undoubtedly have contained water with which people could clean themselves. The sewage ran into a cesspit located on the other side of the wall, except for the ‘office of Tammitte’ where the sewage pipe ended in the moat outside the walls.

One extra bathroom structure was located next to the entrance court in the north. This structure was also arranged in the order room – ante room – bathroom (figure 4.21: 6), but was significantly smaller than other apartments in the *dunnu*. It was suggested this was used as a place for refreshment for the administrator or guards who were on duty in this courtyard (Wiggermann 2010: 22).

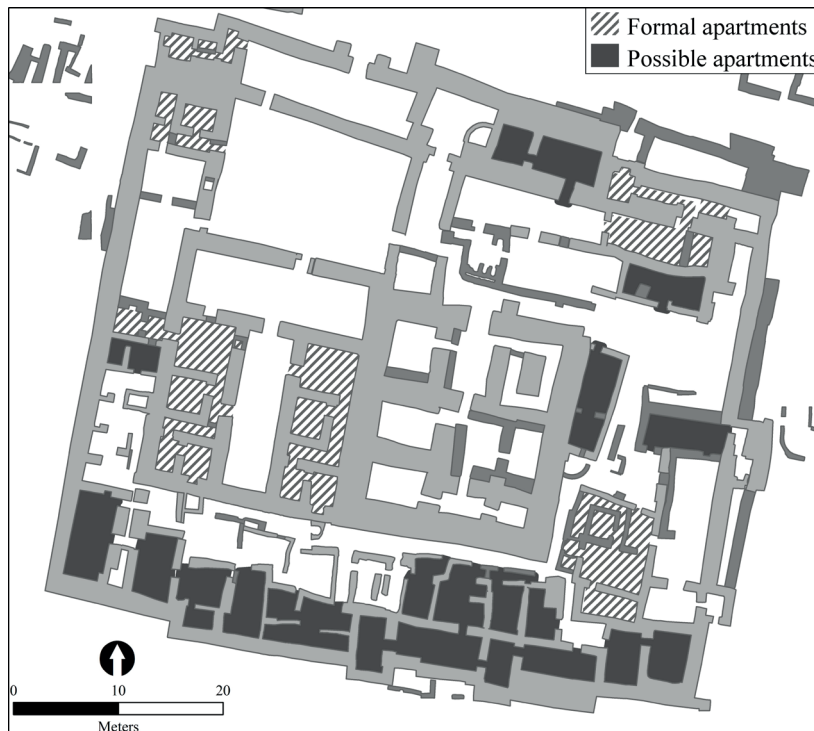


Fig. 4.22: Location of domestic spaces in the *dunnu*. The ‘formal’ apartments are described before, the ‘possible apartments’ are the spaces which may have functioned as domestic space.

Apart from the few identified apartments, the amount of evidence for production processes in the *dunnu* indicates that the ground floor of the settlement was mostly used for labour activities. Particularly in the south however, several areas could be used for domestic purposes. Perhaps these areas were used as apartments in conjunction with the use of ovens and bins in this area. Figure 4.22 indicates the potential areas which could serve as an apartment. The total amount of floor space from the domestic structures indicated as 'possible' apartments is 400 square metres.

In addition to the domestic structures on the ground floor, also the higher floors and roofs of the settlement could be used for domestic purposes. Taking the probable extent of roofed structures in the *dunnu* as a basis (Lanjouw 2016), approximately half of the area between the outer wall and the two central buildings, more than 1000m² was available. With an estimated 60 people inhabiting the enwalled precinct of the *dunnu* (Wiggermann 2000: 191) a maximum of 23 m² would be available per person, or with an average family size of four, around 93 m² per family. These rather high numbers may indicate that either the original calculated amount of people inside the *dunnu* was too low or that not the entire roofed area of the *dunnu* was used for habitation. Additionally, probably not all of the areas which could be used for domestic purposes were used as such simultaneously.

4.3.9.2 *Eating and drinking in the dunnu*

The people who lived inside the *dunnu* walls must have consumed the locally produced food and drinks at some point. Pinpointing the location where this happened is difficult for two reasons. Firstly, the location where people ate and drank may have varied through time and secondly, these activities do not necessarily leave many traces in the archaeological record. In fact, if a room was often used for eating and drinking, it is likely that the space was kept clean as well. The central hall of the residence for instance was most likely used to hold large feasts, however, no traces of these dinners were found in the archaeological record.

The evidence for consumption could be deduced from the presence of broken bowls and goblets. Unfortunately, it is often unclear if the pottery with a seemingly clear function also had this use. Carinated bowls for instance may have been used in a large variety of ways. They may have been used in serving out rations, as scoops, or simply indeed to eat food from. Some carinated bowls were discovered with burn marks on one side, suggesting they had been used as oil lamps. It is likely that the bowls were seen as a multifunctional object, which could be used as lamp, porridge bowl, grain scoop, and whatever other use was needed of the object at any given moment. Unfortunately this is a complicating issue in reconstructing activities.

Goblets which have been found in the *dunnu* are less multi-functional due to their restricted shape. Compared to carinated bowls, goblets are also a much less common occurrence in the pottery assemblage of Tell Sabi Abyad. In the deposits which were analysed for this research, 602 bowls and 61 goblets were found. Other drinking-related objects which were found are fragments of bronze straws, filters and small ceramic jugs. The spatial distribution of these drinking-related objects is however also not without problems. The largest concentration

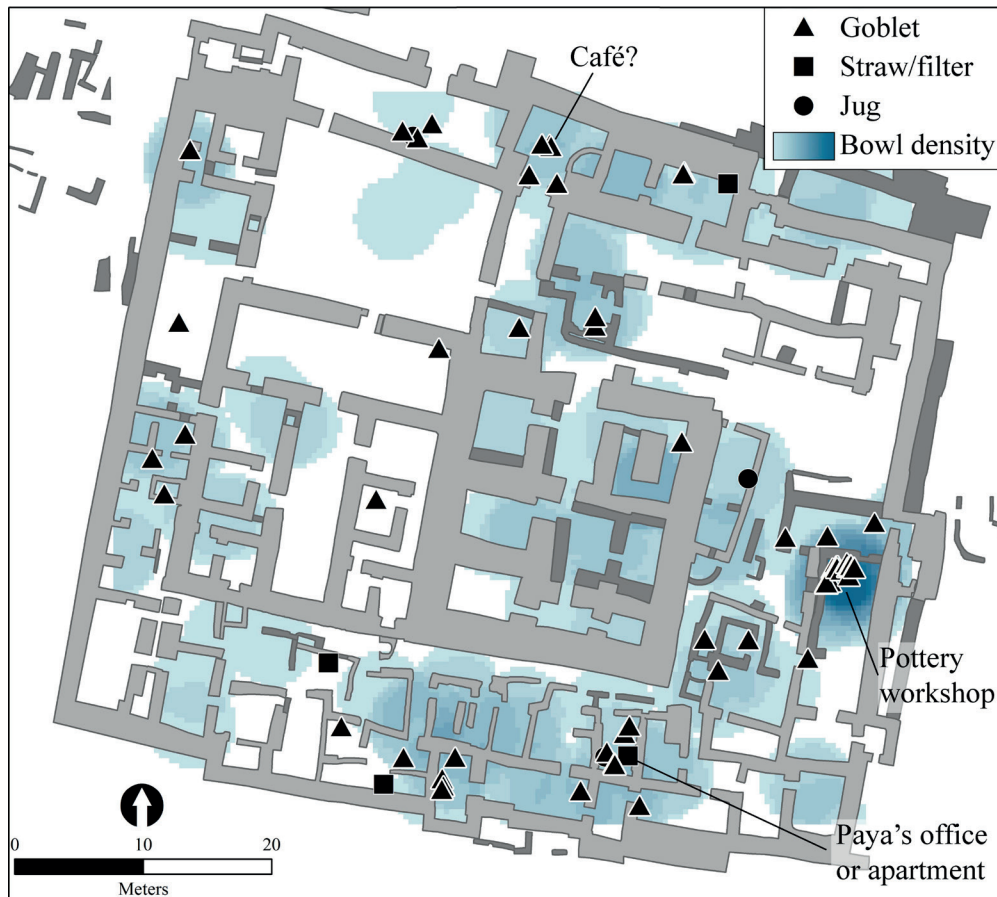


Fig. 4.23: Distribution of drinking related objects.

of goblets is located in a pottery workshop in the east (figure 4.23). These were most likely not used in that location, but they were merely produced or repaired there (see paragraph 3.7.3). Another cluster of drinking-related objects was found in the south of the *dunnu*, in a room which was interpreted as part of the office or apartment of Paya the baker (area 6; see paragraph 3.6.7). These objects were deposited in a complete state on the floor of the room, possibly during a catastrophic fire. It seems therefore likely that the objects were indeed used in that room. Perhaps this was the location where baker Paya drank a beer with his family and friends after a hard day's work. Interestingly, in the area which was interpreted as a café earlier (area 1 of the north-eastern sector; paragraph 3.3.2), only four goblets were registered. Unfortunately, in this space a large number of ceramics were not registered as objects but photographs from the area have suggested numerous drinking and serving ceramics were present there.

In conclusion, although the largest concentration of drinking related objects were found in a pottery workshop, some other areas may still be identified drinking location. Whether all these areas were used as cafés remains unclear. The main concentration of drinking related objects in the south for instance was located in what was previously interpreted as a private apartment.

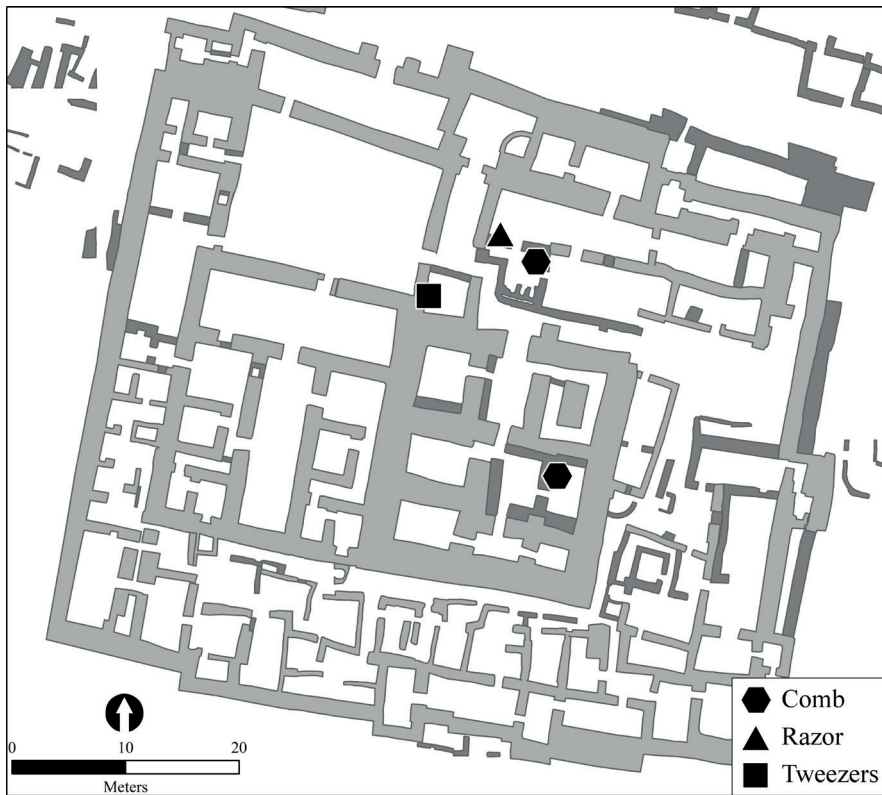


Fig. 4.24: Distribution of combs, razors and tweezers in the *dunnu*.



Fig. 4.25: Bronze razor/tweezers tool from the *dunnu* (fig. by R. Timmermans).

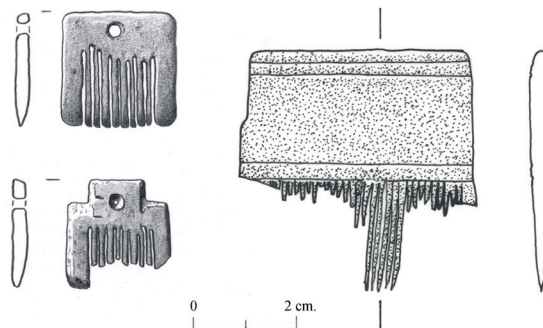


Fig. 4.26: Two bone combs/pendants from the central building (left) and a bone comb from the kitchen (right) of the *dunnu* (fig. by R. Timmermans).

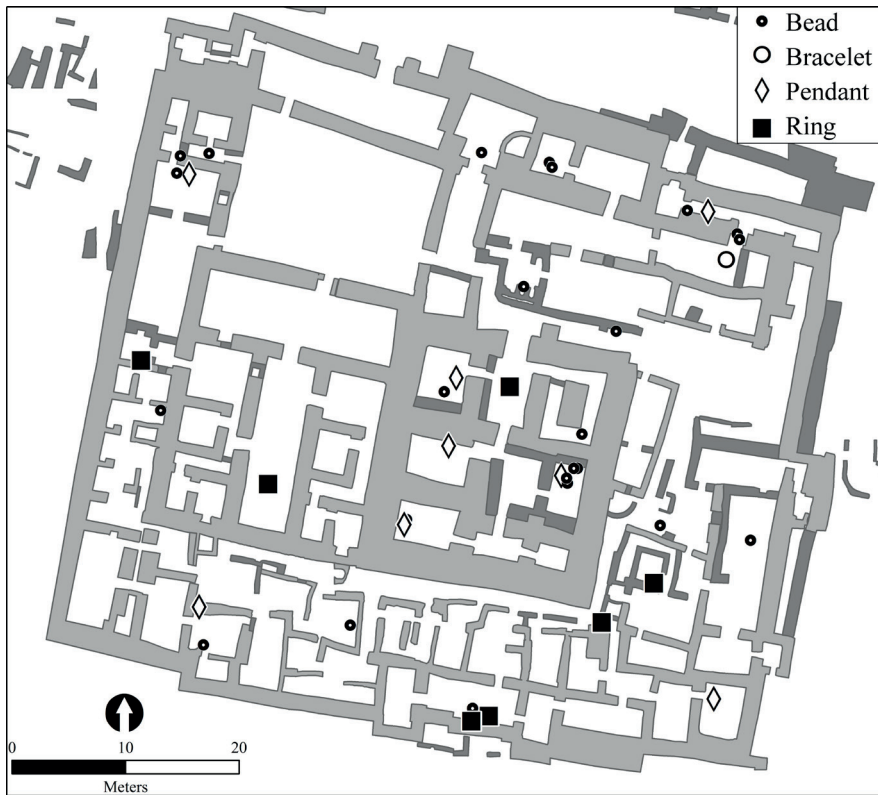


Fig. 4.27: Distribution of jewellery in the *dunnu*.

4.3.9.3 Other aspects of daily life

Although the majority of finds from the Tell Sabi Abyad *dunnu* are related to food production or production processes, several objects hint at the personal life of some of the inhabitants (figure 4.24). Two pairs of tweezers were found, one of which was also fitted with a razor (figure 4.25). Perhaps these were used to epilate facial hair. Three other hairdressing tools were found nearby. In one of the fire places in the kitchen a bone comb was found, and in room 6 of the central building two combs were found (figure 4.26) (Van Hattum 2012).

The occurrence of these objects inside and to the north of the central building may indicate that a barber's workshop was nearby. However, the bone combs from the central building may have had a different use than hairdressing. The combs from this area were quite small and had few but wide teeth, in effect they were unusable. The presence of the two combs was related to the presence of a large number of beads and pendants, some of which were phallus shaped. This has led Wiggermann (2010: 54) to interpret the assemblage as belonging to the official attire of prostitutes. Perhaps therefore these combs should be regarded as pendants. The bone comb from the kitchen does however resemble other known combs (see Wicke 2010: Tafel 31-2 for functioning examples from Assur).

Other objects which were used in personal ornamentation were pieces of jewellery. In all sectors of the *dunnu* beads and pendants were found (figure 4.27). Similar to other objects these objects may have been produced, used or only discarded in their location of discovery. The objects which are indicated in figure 4.27 were all found on floor levels of Level 5 and were therefore probably not part of secondary refuse. Additionally, although a bead making workshop was discovered outside the *dunnu* walls (Akkermans and Wiggermann 2015: 94), nearly no finds inside the *dunnu* walls are raw material, waste, or by products of bead production. Only in the kitchen a grain measure vessel was found which contained tools and raw material for bead production.

All other beads, pendants, rings and bracelets from floor level deposits discussed in this research were therefore probably used as personal ornamentation inside the *dunnu*. It should be noted however that some of these objects were perhaps used for clothing, not necessarily as necklaces. Although it is difficult to indicate the exact mode of deposition of every bead, most of the items indicated in figure 4.27 were probably accidentally lost or caught in a catastrophic event. Of one group this is clearly demonstrated. In room 6 of the central building a large amount of beads were deposited on the floor together with a lot of pottery and burnt remains. These beads and pendants were most definitely part of a catastrophe deposit. However, these objects were most likely stored in that room, not worn (see paragraph 3.5.4).

The single occurrences of beads are more interesting in that respect. These objects were probably deposited through loss. Therefore it is likely that the objects were worn in the location of discovery. A variation in bead distribution through the *dunnu* could for instance signify that certain people were not allowed access to certain parts. The distribution pattern of floor level beads however indicates that there is no significant clustering present. A general emptiness is visible in the north-western sector, in particular in the courtyards of this sector. Perhaps this is related to the notion that this area was not used for a long period of time (see paragraph 3.2.5).

4.3.9.4 *Burial*

During habitation of the *dunnu*, several people were interred within its confines. A total of 40 Late Bronze Age graves were excavated, which contained the remains of 47 individuals (Düring *et al.* 2015). Of these burials not many were located within the *dunnu* walls. It appears that the burial of dead was particularly undertaken in areas which were not intensively used. During the timespan which is described in this study, Level 5, hardly any people were interred within the walls of the *dunnu*.

The exception to this rule is the cremation burial in the area which was dubbed the ‘office of Tammitte’. Düring, Visser and Akkermans (2015: 44) speculate on the idea that the jar may in fact contain the remains of Tammitte himself, a notion which is hinted at by its rich grave goods and location. It is also stressed by the authors that cremation was considered non-Assyrian, so perhaps indicating that a ‘foreign’ dignitary was buried here. As the name ‘Tammitte’ is probably Anatolian in origin (Düring *et al.* 2015: 48), he is indeed a clear candidate.

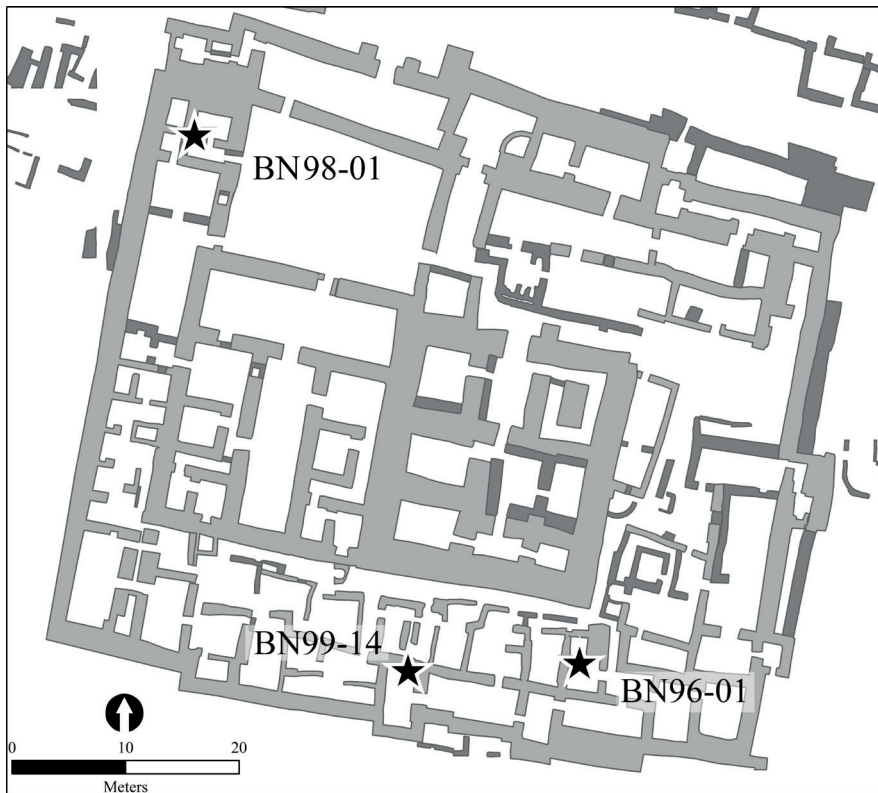


Fig. 4.28: Burials in the Level 5 *dunnu*. BN98-01 is the cremation burial, BN99-14 and BN96-01 are both inhumations dug into deposits covering the level 5 floors.

Other burials which were present in the deposits of Level 5 within the walls of the *dunnu* were buried either before the Level 5 architecture was constructed or after an area was abandoned. In the south of the *dunnu* two burials were discovered which were interred in the deposits which covered the Level 5 architecture (figure 4.28).

Clearly, the spaces inside the *dunnu* walls were not used to bury people during the use of the floors of Level 5. However, both before and after the use of these floor levels in particular the area south was used for burials. As mentioned in paragraphs 3.63 and 3.64, several burials were interred in the southern part of the *dunnu* during Level 6. It was suggested that during that time the south-western sector was largely an open space. In figure 4.28 two burials are indicated which were interred into the deposits which covered the Level 5 architecture. This suggests that after the Level 5 architecture was no longer in use, the southern part of the *dunnu* was an open space again, considered suitable for burials.

The lack of burials among the level 5 architecture indicates that the rooms within the *dunnu* walls were most likely in use at the same time for food processing, production processes and domestic use. At least, none of the spaces were used for the burial of deceased people.

4.3.9.5 *Textual evidence of domestic life*

The evidence about domestic life from the cuneiform tablets from the site is mostly concerned with the Grand Vizier. It can be assumed that the general conditions under which Ili-pada and other royals lived were very comfortable. In a letter to Tammitte he asks for clothes and good linen for his bed in his residence in the capital (Wiggermann 2000: 173). Whether the conditions in the apartments in the *dunnu* were as comfortable as in his main residence is unlikely. However, the apartments which flank the monumental residence are fitted with bathrooms and it seems that entertainment is also provided for by the steward. In a broken letter (T93_033) two female dancers and a hairdresser are summoned to the *dunnu*, apparently “in a matter of life and death” (Wiggermann 2012). Perhaps these were invited to perform at one of the large feasts which must have been held here by the grand vizier.

Drinking was attested in a large number of documents as was described above in paragraph 4.3.4.4. As this was the largest settlement in a large area, the *dunnu* must have fulfilled a central role in the social life of many. The presence of a place to drink beer with other locals must have been attractive in this sense. It could even be suggested that the government was able to keep people in check by providing this service.

4.3.10 **Abandonment**

The history of the Tell Sabi Abyad *dunnu* has often been described as a sequence of discrete phases, each ending with a period of decline and starting with a renovation event (see for instance Akkermans and Wiggermann 2015). Detailed stratigraphic analysis performed during this research has however indicated that the sequence in which architectural changes took place in the *dunnu* should be considered more fluid and transient in nature (Lanjouw 2016; Brüning and Plug 2016; see also paragraph 1.3.3). Interestingly however, several major renovations did probably take place through time. These therefore do indicate that a certain subdivision in phases is justifiable. Additionally, within phases, such as Level 5 which was described here, many different activities have taken place. Consequently, houses and courts may have been abandoned and re-used within a phase, before a major renovation phase occurred. Additionally, derelict structures were most likely used in conjunction with other, freshly renovated buildings. In a sense, the *dunnu* architecture was constantly changing. The manner in which buildings were abandoned was therefore often slow and planned (cf. Schiffer 1987).

In some occasions, buildings seem to have been lost to fire. In previous publications these remarkable events were taken to illustrate the end of a phase such as Level 5. The most dramatic indication for a large fire comes from the monumental residence and the central building. Both buildings were caught in a violent conflagration which demolished the residence and also destroyed parts of the central building. As a consequence large heaps of grain were burned down in the residence and collapsing walls in the central building buried significant amounts of complete and precious objects. Also the ‘apartment of Paya’ in the south and the kitchen in the north of the *dunnu* were probably victim to a violent conflagration.

Despite a lack of extensive archaeological remains from later periods due to erosion, it is unsure whether the function of the *dunnu* changed significantly. Cuneiform tablets have been found in later deposits, indicating a certain degree of local administration. And the areas which were certainly in use were extensively renovated through time (Akkermans and Wiggermann 2015: 118). Also some rich burials are known from these later times (Düring *et al.* 2015).

4.4 THE FUNCTION OF THE *DUNNU*

4.4.1 Introduction

Following Kolinsky (Kolinski 2001: 32), *dunnus* are the likely successor of the similar *dimtu* settlements from earlier periods. These precursors, literally dubbed ‘tower’, were small agricultural settlements which controlled a certain district they were the centre of. In some cases these were owned by the crown, in other they were family-run. How the later *dunnus*, such as our own example, may be interpreted in light of its predecessor, remains problematic. In some cases, the two terms were used next to each other, signifying that despite apparent similarities, there was at least a conceptual difference between the two institutions (Kolinski 2001: 31). The term *dimtu/dunnu* was used to denote a variety of institutions through time (Kolinski 2001: 125-6; Düring 2015a: 51).

As a part of the infrastructure in newly conquered areas by the Assyrian empire, *dunnus* have been viewed in mainly two ways. Either as military strongholds in previously hostile terrain (Kolinski 2001: 32; Düring 2015: 61) or as agricultural centres to provide surplus for their private owners and the empire (Wiggermann 2000; Radner 2004). Another, underlying reason for the construction of these settlements was to populate and consolidate the new territories under imperial control (Tenu 2015: 82).

Investigating the texts from Tell Sabi Abyad, Wiggermann considers farming to be the “sole purpose” of the *dunnu* (Wiggermann 2000: 174). An understandable opinion considering the vast crop yields which were recorded for the site. Kolinsky (2001: 32) however has characterized the site as mainly military in nature due to its location in the western outback of the empire. Düring (2015a: 61) agrees and states that the agricultural yield from Tell Sabi Abyad was probably used to feed the army. In conjunction with the construction of many other settlements along trade routes and boundaries (Tenu 2015: 81), this fits with the general notion of the *dunnus* as nodes in an imperial network of settlements (Liverani 1988).

In the following paragraphs the function and use of the *dunnu* of Tell Sabi Abyad is discussed both from the perspective of the archaeological remains as well as the texts from the site. Subsequently, the results from both perspectives are compared and combined with each other. From these discussions it appears that the archaeological perspective mainly yields information about the local function of the *dunnu*. The objects and the architecture from the settlement relate mostly to the activities which were carried out their from day to day. In contrast, the textual evidence speaks about both the day-to-day dealings of the *dunnu*, as well as the connections with other settlements and with the central authorities in Assur. Combining the two lines of evidence would consequently yield a comprehensive view of the local situation of the *dunnu* with an added historical background of the imperial network. However, it appears that the texts from the site were not deposited directly after being written. Therefore also the chronological relation between the deposits and the tablets is discussed in detail below.



Fig. 4.29: Distribution of activity categories in the Level 5 *dunnu*. The dark polygons indicate that during Level 5 activities related to the category were carried out there. The use of the space was however not restricted to that single function.

Subsequently, six contemporaneous settlements are shortly discussed and compared with our *dunnu*. From this discussion, it appears that many of the settlements from this period contained a large storage building with several rectangular rooms in a row, which is often characterized as ‘similar to building P of Dur Katlimmu’ (Kühne 1983a; figure 4.34; for the full discussion see see paragraph 4.4.3). In contrast, at Tell Sabi Abyad despite extensive excavations, this building type was not discovered. However, many functional characteristics of the discussed settlements were also present at the Tell Sabi Abyad *dunnu*. This *dunnu* was therefore probably an anomaly among other contemporary settlements and embodied an aggregation of functions, which are discussed below.

4.4.2 The local function of the Tell Sabi Abyad *dunnu*

Compared to other contemporaneous sites from the region, the evidence from Tell Sabi Abyad is by far the most rich and detailed. In the presence of such quantities of evidence, it becomes difficult to pinpoint a single or most prominent function of the settlement, as it was used in a variety of ways for a variety of reasons. Additionally, the archaeological imprint of the settlement is quite different from the notions which are put forward by the textual evidence from the site. In the paragraphs below the function and use of the *dunnu* are discussed, first based on the archaeological remains, subsequently based on the textual evidence and finally these are compared and combined.

4.4.2.1 The archaeological evidence

The activities which were reconstructed in the previous chapter fit in five categories: administration, production of various artefacts, processing of food stuffs, storage and domestic activities (figure 4.29). These activities were carried out in specific areas in the *dunnu*. The location of activities did however change through time. For instance the monumental residence was initially used for domestic purposes and was in a later phase used for storage and processing of barley.

Administration was carried out in all sectors of the *dunnu*. The map in figure 4.29 indicates that administration was carried out in the known offices or apartments of the *dunnu* and in the main courtyards. Although these courtyards did not yield much direct evidence for administrative practices, it is reasonable to assume that the administrators performed their business there, just outside the office. Nearly all spaces which have been indicated for administrative activities in figure 4.29 were interpreted as ‘formal’ offices. Only in one area in the south-west two rooms are highlighted which were not interpreted as office. These have been highlighted because of the large amount of tablets which were found there. Because these tablets were found in a layer of secondary refuse it is however unclear whether they were written and dealt with in that location or only discarded. The spatial distribution of administrative activities in the *dunnu* illustrates that this was an important part of everyday life.

Among the archaeological remains of the *dunnu* there is a lot of evidence for short term storage. In many rooms mudbrick or clay bins were placed which probably held foodstuffs. Long term storage is however less well-represented in the *dunnu*. At the end of Level 5 the monumental residence is apparently used for this purpose, hence its indication in figure 4.29,

but no other long term storage of significant size was attested. In a recent article Klinkenberg and Lanjouw (2015) argue that the top floor of the central building was probably used for this purpose. Interestingly, at many other settlements a large storage building, similar to building 'P' from Dur Katlimmu was found. In the absence of such a structure at Tell Sabi Abyad, perhaps the central building fulfilled that role.

The monumental residence was originally constructed to serve as a domestic structure for high ranking officials, probably the owner of the *dunnu*. This was however not the only domestic space. In many other spaces evidence was found for domestic use. In particular the presence of toilet structures was considered indicative of this function. The associated domestic structures were dubbed offices, or formal apartments. In other places however domestic use was also possible. Despite a lack of a formal layout and plumbing in these areas, they may have served as apartments for people who worked in the *dunnu*. Remarkably, if the areas which are indicated on figure 4.29 were indeed all used as domestic space, used for sleeping, eating and reposing, this appears to have been an important aspect of the function and use of the *dunnu*.

Although at the outset of this study it was assumed that many production processes would be attested, this only occurred in three instances. In the west, north and east of the *dunnu* pottery kilns and associated workshops were found. These were probably all constructed in areas which were abandoned for some time. This suggests that production processes were not initially planned to be performed inside the *dunnu* walls. Why these workshops were constructed there is unclear. Other kilns were also attested outside the *dunnu* walls (Duistermaat 2008). The evidence from Level 5 inside the *dunnu* walls suggests that production processes were not a central part of the function of the *dunnu*.

In many parts of the settlement ovens and grinding stones were found. In nearly every space at some point a small oven or fire place was constructed. This probably constituted incidental use of these spaces for this activity. Therefore in figure 4.29 food processing is indicated in rooms and courtyards which were used for this purpose to a larger degree. Two formal kitchens were identified among the architecture. Additionally, the south-western sector was for a large part in use as food processing zone. While the kitchens have yielded a variety of pottery shapes and food remains, the south-western sector was used primarily for the processing of barley to bake bread. The large amount of tools and ovens which were found in this zone indicate that large amounts of food could be processed. Additionally, in several spaces vessels related to beer brewing were found. Some of the grinding activity in these areas was therefore probably related to brewing.

4.4.2.2 *The textual evidence*

The textual evidence from Tell Sabi Abyad contains rich accounts of the activities which were carried out there. Wiggermann (2000: 190) distinguishes a vast number of professions which must have been carried out in the *dunnu* at some point. Obviously, for many of these professions, it is hard to find archaeological evidence. On the other hand, some professions are not mentioned in the texts, because they were not of interest to the people writing them or because a large part of the original corpus is missing.

The textual evidence suggests that the Tell Sabi Abyad *dunnu* was a very large settlement considering its type. The lands surrounding the *dunnu* were calculated to encompass 4,000 iku (1440 ha) (Wiggermann 2000: 183) compared to 10-100 iku (3.6-36 ha) documented for other *dunnus* (Postgate 1982: 308-311). Additionally, the *dunnu* was the possession of one of the most powerful men on the Assyrian empire, the Grand Vizier and King of Hanigalbat. As such, it was a state institution which was strictly different from a self-governed settlement (cf. Kolinski 2001).

The *dunnu* housed a number of guests through time, ranging from nobility to military troops, indicating its role in local politics and the military. In this sense the *dunnu* could be understood as an outpost in which all manner of official business could be performed. The visit of a princess and her party including her steward and the regular visits of local merchants can be mentioned in this regard. The military presence at the site can be understood in terms of provisioning. The *dunnu* played an important role in the fabrication of chariots and could provide passing cavalry with food, drink and fodder.

The facilitative role of the *dunnu* was also present for other passing groups of travellers such as merchants. On a caravan route close to the border of Assyria the *dunnu* also played an important role as customs office, checking and sealing goods sent to the capital. In this sense the *dunnu* can be interpreted indeed as an important state institution, serving the needs of the empire in the western margins of the conquered areas.

In conclusion, the textual evidence indicates that the *dunnu* was an important node in the imperial network for the military, politics, and customs. Although its main day-to-day activities were aimed at agriculture, the settlement was also used to welcome high ranking guests, and to host meetings between Assyrian officials and local groups. In this sense it could be suggested that the settlement fulfilled a facilitating role for the empire.

4.4.2.3 *Comparing and combining the evidence*

The objects and architecture which were analysed for this research have suggested that the *dunnu* itself can be characterized as a settlement in which many people lived and worked. The activities which were reconstructed inside the *dunnu* walls are centred around food processing and administration. Additionally, many people lived inside the *dunnu*, both high ranking officials as well as lower ranking employees. Although the archaeological remains indicate that the inhabitants relied on agriculture for their subsistence, the extent to which this was performed is explained in more detail by the textual evidence. These sources indicate the large scale to which the *dunnu* and its surrounding agricultural lands were used for the production of agricultural surplus. This in turn is indicative for its role as a state institution. In this role the *dunnu* has to feed more people than its inhabitants, but also for example passing army groups. The texts further indicate that the settlement was an important node in the imperial network (see above). How this status of the *dunnu* affected life within its walls is however not directly clear from the textual evidence.

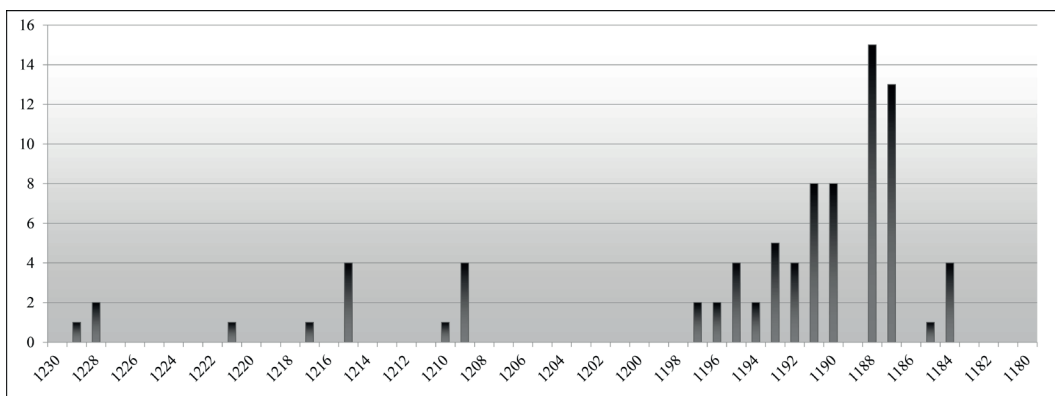


Fig. 4.30: Amount of tablets per year which is attested with *limus* from Tell Sabi Abyad, based on a preliminary unpublished report by F. Wiggermann. The vertical axis indicates the amount of tablets, the horizontal axis indicates the year BC the tablets are attested to.

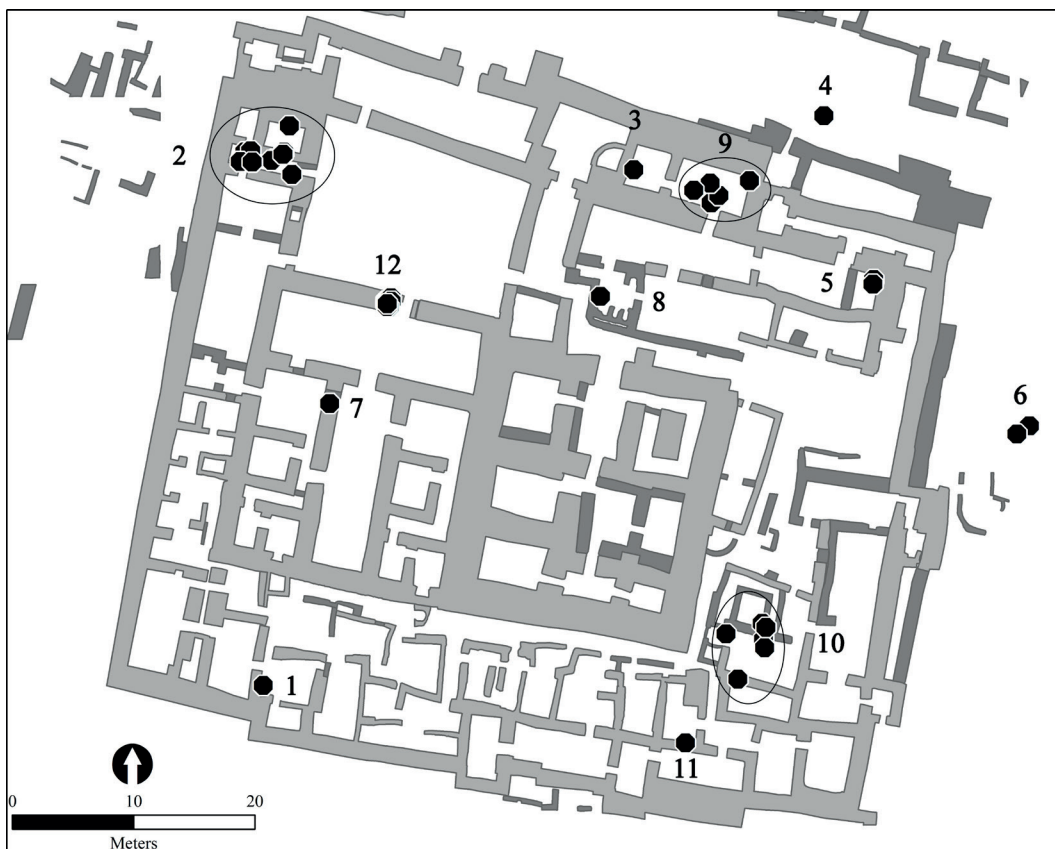


Fig. 4.31: Location of tablets with *limu* dates in the *dunnu*. The context numbers which are indicated relate to the numbers in Fig. 4.32.

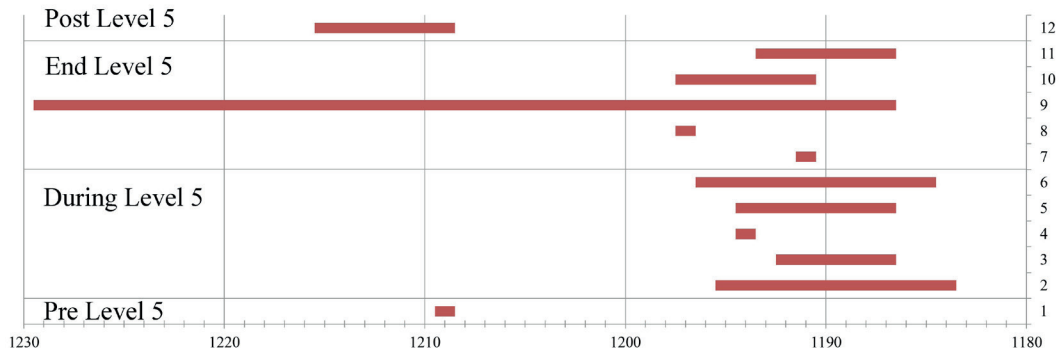


Fig. 4.32: Date ranges for the deposits which are indicated in Fig. 4.31. The range is based on the oldest and youngest *limu* in a deposit. The horizontal axis indicates the years BC.

Also in the archaeological remains there is evidence for banquets. The large kitchen which was excavated in the north of the *dunnu* is interpreted as a structure for short term use (see paragraph 3.3.4). A second kitchen was found in the north-west of the *dunnu*, this was also not used for a long period of time (paragraph 3.2.2). Interestingly, although these kitchens corroborate the suggestion that banquets were held in the *dunnu*, they also indicate that these were sporadic occasions. Similarly, the large monumental residence was probably not used intensely by the owner of the *dunnu* himself. Most of the evidence for activities and remodelling in the building date after the apparent demise of the structure (see paragraph 3.4). Therefore it is likely that although the monumental residence had a palatial function, its use was limited to a few infrequent visits of the owner. The textual evidence is biased towards these official moments in the life in the *dunnu*. The archaeological remains however indicate that for most of the time, the *dunnu* was a settlement in which people lived, prepared their food and worked in agriculture.

To be able to relate the interpretations from the two lines of evidence, it is imperative that they speak about the same time period. One cannot combine the evidence from historical sources with archaeological remains if the documents speak about a different context than the objects or architecture. At first glance this seems unproblematic at Tell Sabi Abyad. The historical documents were discovered within the archaeological deposits. The documents were however probably preserved in an archive for some time before discard. To understand the processes of tablet deposition it is important to combine the archaeological evidence with the textual information.

Combining the two disciplines in this case is done through comparing the stratigraphic chronology with the chronology of calendar dates which are recorded on some documents. The Assyrians used a year calendar with named years, eponyms (Van de Mieroop 2004: 102). These eponyms, which were called *limu*'s by the Assyrians, have been associated with modern calendar years BC. There is debate about the exact correlation of the Assyrian system with the modern calendar which has resulted in several different chronologies for the Ancient Near East. Following Akkermans and Wiggermann (2015) in this research the Middle Chronology is used (Boese and Wilhelm 1979; Boese 1982; Freydank 1991).

Documents are sometimes deliberately dated with a '*limu*', the name, or eponym, of a year. At the end of a contract set up between Tammitte and a farmer for instance a date is given, exact to the day: "(...) month Hibur, day 8, *limu*: Umu-lirik". In total 82 tablets from Tell Sabi Abyad were dated to a single *limu* (figure 4.30; Wiggermann in prep.). The eponym years range from 1184 until 1229 BC. Remarkably, most of the *limu* dates fall within the fourteen years between and including 1184 and 1197. The sharp rise in *limu* attestations in the later years of that period could indicate that around the year 1184 one or more archives were cleaned up and many tablets were discarded. It should be noted that the precise dating of the *limu*'s associated with years 1184-1188 is putative and possibly subject to future change.

The figure above is based on all the available *limu*'s from Tell Sabi Abyad. These tablets were however found in twelve separate deposits in the *dunnu* (figure 4.31). Consequently, these were probably deposited at different moments in time. When exactly these objects were deposited can perhaps be deduced from the dates on the tablets. Therefore the contexts which have yielded *limu* bearing tablets were correlated to the stratigraphy. In figure 4.32 the date range for every context is illustrated by a horizontal bar.

It should be stressed that what is dated by the *limu*s is the year of writing, not the moment of deposition. The objects do however date the moment after which the deposit must have been formed. A tablet from 1197 for instance cannot be deposited in the year 1200. They therefore offer a date post-quem for the deposit. Most tablet contexts in figure 4.32 have an end date between 1184 and 1191. Additionally, the start date of most of these deposits falls around 1197.

Three contexts however have different date ranges. Deposit 1, in a pit under the first floor of the southern architecture, yielded a single large tablet which can be securely dated to 1209 BC. Interestingly, this pit was covered by a floor which is associated with the construction of the main architecture of the south, as well as the residence. It could therefore pre-date the residence. Another deposit, number 12, was found in a pit which was dug into rubbish layers on top of the residence. In other words, this context post-dates the residence. The *limu* dates of this deposit however places it in an early phase, similar to deposit 1. This illustrates one of the complexities of these documents. They were most likely brought along in archives and could be discarded decades after the moment they were written. The most poignant deposit in this regard is context 9. In this context both documents dating to this early phase and to the phase where most documents are from were found.

From the graph in figure 4.32 it appears that most tablet contexts have a similar end date. This could suggest that these deposits were formed around the same time. It could even be taken to suggest that the administration came to a complete halt throughout the settlement. Interestingly however, the stratigraphic evidence indicates that these deposits were created through time. These tablets were therefore discarded long after they were written. It implies that through time there were still administrators working in the *dunnu*, but these people were either not writing new documents or they were simply not using *limu*'s anymore.

Then what does this tell us about the relationship between the archaeological remains and the textual information? First of all, the tablets from the *dunnu* were all part of a continuously kept archive. This suggests continuity in habitation of the settlement, beyond the destruction of the residence. The relationship also indicates that the textual information contains a chronological lag. In other words, the texts which are found in a Level 5 deposit often describe events which took place in an earlier phase of the settlement. If the tablet in context 1 indeed pre-dates the residence, the advent of extensive agricultural work around the *dunnu* took place well before this construction. As this is unfortunately the only tablet from this stratigraphic phase, this interpretation should be taken with caution.

Interestingly, the end of active administration in the *dunnu* falls in the same period as the attacks of the so-called Sea Peoples in the Mediterranean, which instigated the general period of decline known as the Bronze Age collapse (Tainter 1988; Cline 2014). Whether the history of the *dunnu* was directly influenced by these events is not evident but imaginable. It is important however to note that despite an apparent administrative decline, the settlement was still in use for decades after the last *limu* was written.

In this sense the settlement has followed the same path as is suggested for the settlement at Tell Fekheriye (Bonatz 2013: 225). At this site the tablet contexts were also discovered under Middle Assyrian architecture, implying that also this settlement was still in use after its administrative function had declined. A similar sequence has also been attested at Dur Katlimmu after the fall of the Neo-Assyrian empire (Tenu 2009).

4.4.3 The function of the *dunnu* in the empire

In a recent article dealing with the question of the function of *dunnus* in the imperial system of the Assyrians, Düring (2015: 53-4) postulates that for most sites which were proposed to have been a *dunnu*, this cannot in fact be established. Only two excavated sites are considered to indeed be a *dunnu*, Tell Sabi Abyad and Giricano (*dunnu-sa-Uzibi*; see figure 4.33). Their positive identification is based on the presence of undisputable textual evidence. Interestingly, these two settlements are very different from each other in size and layout and illustrate that the term *dunnu* is in fact an administrative expression, rather than indicating a particular functional settlement type (Schachner 2004a: 5). It should also be noted that the two settlements are located in strictly different environments, separated from each other by the massive Tur Abdin mountains. Therefore there may also be regional differences in the function of these *dunnus*.

For a better understanding of the function of the *dunnu* and its role in the local society, a comparison is made with not only the above mentioned *dunnu* of Giricano, but also other contemporaneous settlements in the eastern part of the Assyrian empire. These sites are Qabr Abu-al 'Atiq, Tell Fekheriye, Tell Chuera (*Harbe*), Tell Umm 'Aqrebe and Tell Schech Hamad (Dur Katlimmu) (figure 4.33).

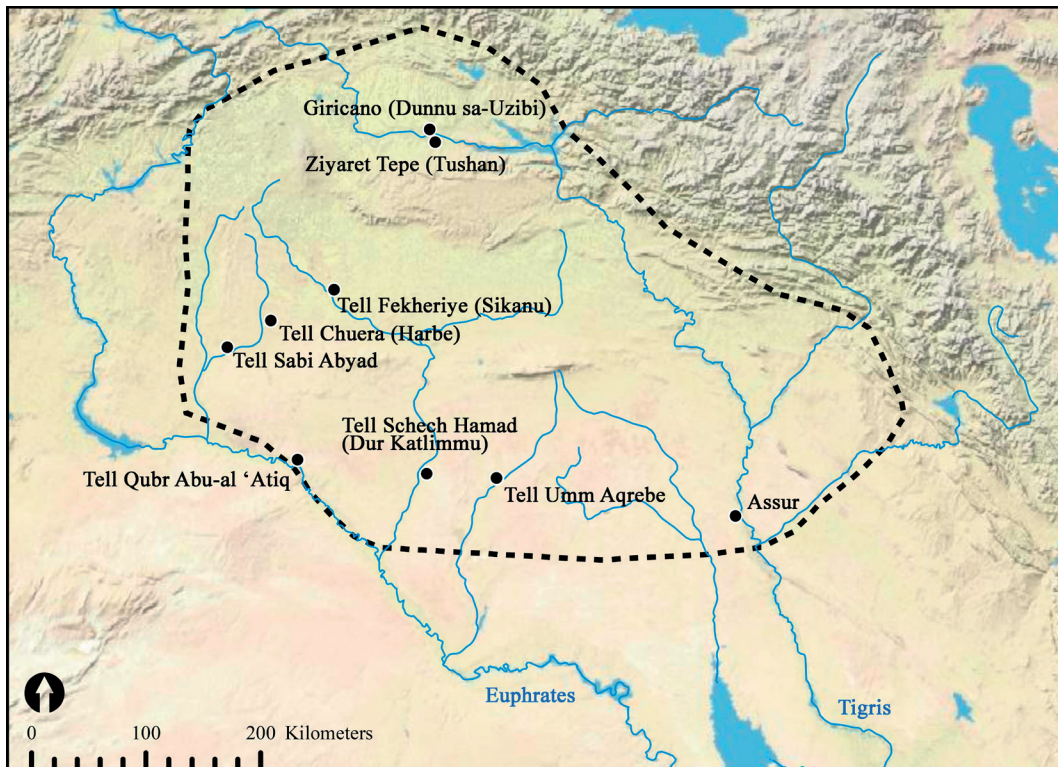


Fig. 4.33: Map of the Middle Assyrian empire with sites which are discussed in this chapter (after Düring 2015a: Fig. 2)

4.4.3.1 A selection of comparable settlements

As mentioned above, Giricano (*Dunnu-sa-Uzibi*) is the only other excavated settlement of which it is certain that it was a *dunnu* (Radner and Schachner 2004; Düring 2015a: 54). Texts which were recovered from the site indicate that the settlement was a royal gift to a certain Uzibi, hence the name *Dunnu sa-Uzibi* (Schachner 2003: 156; Radner and Schachner 2004). Due to erosion and many pits, the Middle Assyrian architectural remains at the site are fragmented and few. This makes it nearly impossible to reconstruct the Middle Assyrian architecture of the site. Interestingly however, the preceding architecture (Gebäude A) was renovated several times and consisted of a series of rectangular rooms (Schachner 2004b: fig. 12), similar to building P from Dur Katlimmu.

The find material from the site of Giricano is typical for a Middle Assyrian settlement with pottery matching known ceramic styles, including that of Tell Sabi Abyad (Schachner 2002: 33; Duistermaat 2008). Other small finds include evidence for metal work at the site (Schachner 2002: 29; Schachner 2004b: 537). Faunal remains from the site indicate that the inhabitants relied mainly on locally kept cattle and pig for food. A high amount of remains of

red deer (*Cervus elaphus*) has convincingly been interpreted as the remains of leather industry at the site (Berthon 2015: 192). Otherwise, based on the evidence, the site was interpreted as strictly agricultural in nature, in service of its owner who lived in the nearby city of Tushan (Schachner 2003: 156; Berthon 2015: 196).

Unlike Giricano, which is situated in the northern Tigris valley, the other settlements described here are all located in the lands of Hanigalbat. The settlements were inhabited in the same period as Tell Sabi Abyad. For two of these sites, Tell Chuera and Tell Qubr Abu al-‘Atiq, also an interpretation of *dunnu* was proposed (see below).

Tell Chuera, with the Assyrian name *Harbe*, is located less than 50 kilometres north-east from Tell Sabi Abyad. It is one of the largest tells in the region and may have housed an important Middle Assyrian settlement. Two trenches were excavated yielding Middle Assyrian remains, trenches 2 and 3 (Klein 1995: fig. 91; Bei. 18). Several burials dating to the Middle Assyrian period were found in trench 2, buried through the remains of a heavy walled structure. This building was interpreted as a residential structure (Klein 1995: 186). In trench 3 a larger and older area of Middle Assyrian architecture was exposed which was interpreted as a large palace or residence (Tenu 2009: 95).

Tablets from the site detail a large number of military operations in the area (Jakob 2015: 180-1). Additionally, the texts indicate that the town was home to a provincial governor and was used as a road station between the Habur and the Balikh area (Jakob 2015: 179). It follows from the texts that Harbe was a small town with several elite residences. Because it was not owned by a certain individual it was stated that it is incomparable with our *dunnu* (Düring 2015a).

The site of Tell Qubr Abu al-‘Atiq is located south of Tell Sabi Abyad, along the Euphrates River (Montero Fenollós 2015). The site yielded remains of a collapsed structure similar in layout to building P of Dur Katlimmu (Montero Fenollós *et al.* 2011: 270). Pottery from the site is characterized as homogeneous set of ‘administrative style pottery’ (Pfälzner 1995; Montero Fenollós *et al.* 2010: 76). Other sites in the region yielded assemblages which included other, local, pottery styles. The homogeneity of the assemblage from Tell Qabr abu-al ‘Atiq was interpreted as an indication that the site was founded by the Assyrians (Tenu *et al.* 2012: 145). Two tablets were found, bearing administrative texts (Montero Fenollós *et al.* 2011: 269). Unfortunately the content of the documents has not been published yet.

The area around the settlement was apparently ill-suited for agriculture, resulting in an interpretation of the site as an outpost with a primarily military function (Montero Fenollós *et al.* 2011: 271; Tenu 2015: 80). The size of the site, its location on the border of the empire and its clear homogeneous Assyrian artefact assemblage has prompted some researchers to suggest that this settlement was a *dunnu* (Montero Fenollós 2012: 137; Tenu *et al.* 2012: 148-9). This claim was questioned by Düring on the grounds of its architectural dissimilarity with other known *dunnus* (Düring 2015a: 54). As the two known *dunnus* however are also very dissimilar with each other, this argument does not necessarily hold to scrutiny.

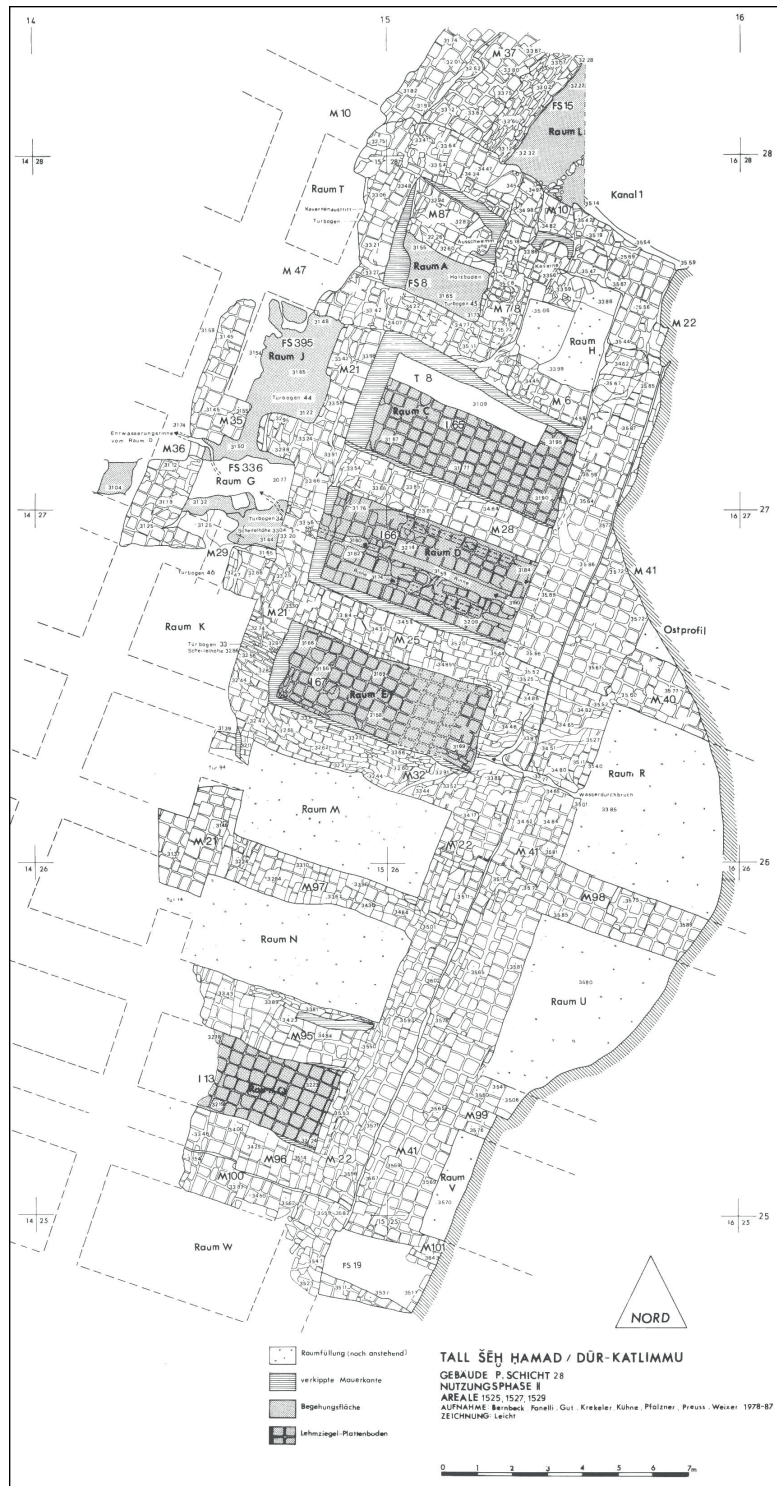


Fig. 4.34: The architecture of building P at Dur Katlimmu. From Pfälzner 1995: Abb. 81b.

Interestingly, the site of Tell Fekheriye did yield architectural remains which are very similar to that of Tell Sabi Abyad. At this site, two house plans were excavated which resemble the layout of the monumental residence of Tell Sabi Abyad. House 1 and 2 of Tell Fekheriye are slightly smaller but also consists of a courtyard, and an apartment consisting of a bedroom with a tiled bathroom and an anteroom, reached through a corridor (Bonatz 2013: Fig. 10). At Tell Fekheriye more people resided in luxurious houses, which suggests that more high ranking people lived here, perhaps on a more permanent basis.

The site also yielded a large construction with walls measuring up to 4.4 meters in width, resembling building P from Dur Katlimmu (Bonatz 2013: fig.6). Although this building was probably constructed by the Mittanni who were settled there before the Assyrians, it was also inhabited by the Assyrians (Bonatz 2013: 222).

The site of Tell Umm 'Aqrebe may have been similar to the *dunnu* of Tell Sabi Abyad because of its possible role as road station (Kühne 2011: 145). The site was not excavated but discovered in a survey. The interpretation of the site as a road station is mainly based on the notion that the pottery assemblage from the site was interpreted as 'official administration pottery' (Pfälzner 1995; Tenu 2009: 114). The lower town of Tell Umm 'Aqrebe is taken to evidence that the Assyrians deliberately established new agricultural settlements in these areas to cultivate and consolidate the newly conquered territories (Kühne 2011: 145). The main function of the settlement is therefore suggested to be both a node in the imperial network for the military and trade as well as a physical presence of the Assyrian empire in newly conquered territories. The settlement of Tell Umm 'Aqrebe is situated in between Assur and Dur Katlimmu. It was therefore probably a road station on the road between these two cities.

The city of Dur Katlimmu was the capital of the eastern part of the Assyrian empire, the Lands of Hanigalbat. Although mostly Neo Assyrian remains were found at this site, also one large storage building from the Middle Assyrian period was found, building P. According to the excavators this building may have been part of the palace of the Grand Vizier (Kühne 1983: 241; Pfälzner 1995: 106). The excavated construction consists of at least two series of a minimum of eight rectangular rooms with a height of at least 4.5 metres (Kühne 1983:241; Cancik-Kirschbaum 1996; Röllig 2004; Chambon and Kreppner 2010: abb. 4; Kühne 2010). Large quantities of burnt grain in one of the rooms of the building (room A) as well as the layout, indicate that the structure was used for the bulk storage of grain. Among the burnt grain, in room A also approximately 550 cuneiform tablets were found, these objects have been taken to indicate that the storage building was probably part of the palace complex of the site (Cancik-Kirschbaum 1996; Tenu 2009: 112).

4.4.3.2 Comparisons with the Tell Sabi Abyad *dunnu*

Compared to the Tell Sabi Abyad *dunnu*, the settlements discussed above had a different administrative status in the Assyrian empire, they were not *dunnus*. They did however have similarities with the *dunnu* of Tell Sabi Abyad in function and use. In principle, all settlements relied on agriculture for subsistence. In addition, these settlements were an active node in the

Assyrian network of the military and politics (cf. Liverani 1988; Parker 1997). The focus of the activities at a settlement may however have varied from site to site. The settlement at Dur Katlimmu for instance was probably more focussed on administration and politics than the road station at Tell Umm 'Aqrebe.

Many of the functional aspects of these settlements were also established for the Tell Sabi Abyad *dunnu*. The *dunnu* was used to agricultural produce, it functioned as a node in the imperial network and, on a local scale, numerous people were housed in and around the settlement. It is important to note however, that the status of *dunnu* is important when identifying function and use of the Tell Sabi Abyad settlement. As a consequence of its nature, the inhabitants of the *dunnu* were all employed by this state institution. At other, independent, settlements people were less bound to the local authority. It follows that at Tell Sabi Abyad many people were directly dependant on the people in charge (Akkermans and Wiggermann 2015).

The point was made several times that, despite the small size of excavated plots, nearly every site yielded the remains of a large storage building. These buildings are very similar in layout to each other and are characterized as analogous to the large storage building from Dur Katlimmu, building P. Remarkably however, Tell Sabi Abyad did not yield a similar large storage building. At first glance this could suggest that long term storage was not as important in the *dunnu* as it was in other settlements. Another explanation could be that at Tell Sabi Abyad long term storage was realized in the higher storeys of the central building (Klinkenberg and Lanjouw 2015).

4.4.4 Conclusion

As an agricultural production centre, the Tell Sabi Abyad *dunnu* provided a surplus food supply which could be used by the empire. Due to its remote location in the 'wild west' of Assyria, this surplus could most likely not be transported to all parts of the empire (Düring 2015a: 60). The settlement therefore mainly provided for the region it was situated in. When large army bands would visit the site for instance the *dunnu* could provide both men and horses with food and drink. In addition to feeding the troops, the textual evidence from the site indicates that at Tell Sabi Abyad chariots were produced (Wiggermann 2000: 198). Therefore also in more substantial practical ways the *dunnu* fulfilled a nodal function in the network of military bastions (cf. Liverani 1988; Parker 1997).

Additionally, the *dunnu* was used for meetings with local groups and Assyrian officials. To this end the settlement was probably occasionally used to host large feasts. In this sense the *dunnu* probably fulfilled a representative role. This is also indicated by the presence of the monumental residence. This building was constructed early in the existence of the *dunnu* but did not retain its grandeur throughout the settlement's life. The end of use of this building is marked by the remains of heaps of charred grain in its courtyard. At this time the building had been turned into a barn and was lost in a fire (Akkermans and Wiggermann 2015).

Although the representative function of the *dunnu* apparently diminished in time, other functions remained unchanged. In particular in the south of the *dunnu* the use of spaces for grain processing and bread baking was a continuous effort. This indicates that food processing was a function of the *dunnu* which was integral to its existence. A large part of the food processing which occurred in the south of the *dunnu* was however undertaken to feed the inhabitants of the settlement itself. Along the southern *dunnu* wall a large number of domestic structures were identified, indicating that many people were living in this settlement from day to day (see paragraph 4.3.9).

During Level 5, the *dunnu* was used as a large agricultural estate with an added role as administrative and logistic centre. In this position the *dunnu* was from time to time used to host high ranking Assyrians and organise feasts with local dignitaries. To this end, some parts of the internal architecture of the *dunnu* were adapted for the construction of large kitchens. It indicates that during this time the *dunnu* fulfilled a facilitative role for the empire. These events were however infrequent and temporary. This facilitative role is also expressed in the grinding installations which were found in the south-west of the *dunnu*. In this location many people could work simultaneously.

Interestingly, during Level 5 the spaces within the *dunnu* walls have mostly yielded evidence for three activity groups (see figure 4.29 above). Firstly, administration was carried out in many locations in the *dunnu*. Secondly, many spaces were potentially used for domestic purposes. These indicate that a large staff could be present at any time. Thirdly, food processing was an integral part of everyday life within the walls. It seems therefore that everyday life in the *dunnu* was mostly concerned with administration on one hand and subsistence on the other. Additionally, particularly domestic use and food processing appear to be a unchanging elements of the function of the *dunnu*.

The administrative work in the *dunnu* on the other hand was subject to decline in Level 5. It was suggested before that the decrease of administrative activities indicates a decrease in importance of the *dunnu* for the owner and central authorities (Akkermans and Wiggermann 2015). Interestingly however, although the administrative activities did indeed decrease, they did not stop completely. Finds of tablets in younger deposits indicate that the administration was less active but certainly still present (see paragraph 4.4.2.3). Important in this regard is that these tablets were part of the same administration as older examples from the site. They therefore represent a 'lean' continuity of this practice.

For the majority of people who lived in and around the *dunnu*, the changes in the imperial role of the *dunnu* were probably not of great influence. Within the *dunnu* walls the monumental residence and the central building lost their function, other areas however probably remained in use for decades (Lanjouw 2016). Its function as agricultural estate was retained and the work which was performed by the dependants of the *dunnu* therefore remained unchanged.

