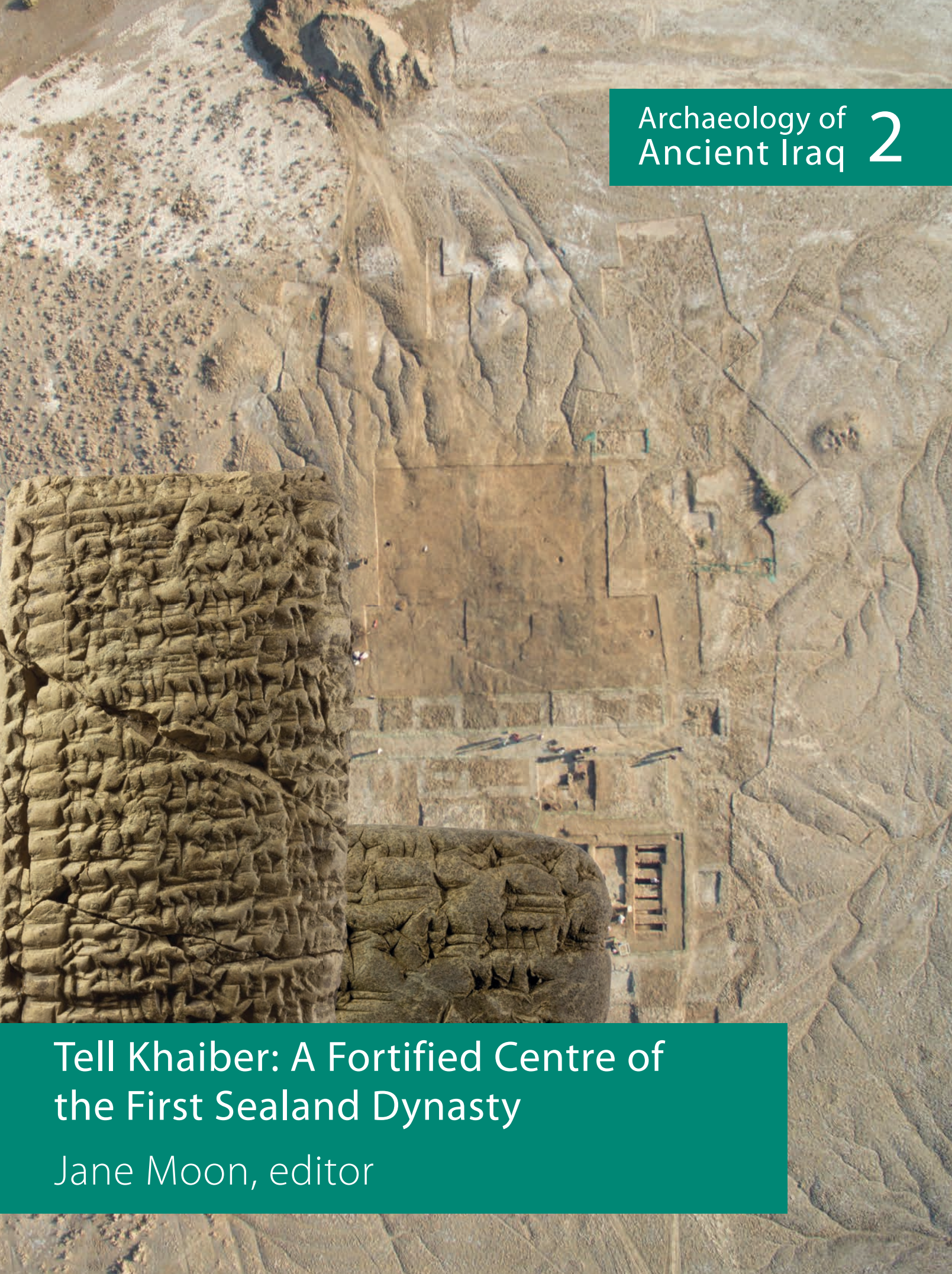

Archaeology of Ancient Iraq 2

Tell Khaiber: A Fortified Centre of the First Sealand Dynasty

Jane Moon, editor

Tell Khaiber

Archaeology of Ancient Iraq

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Tell Khaiber

A Fortified Centre of the First Sealand Dynasty

Editor
Jane Moon

Contributors
Daniel Calderbank
Stuart Campbell
Robert Killick
Jane Moon
Eleanor Robson
Mary Shepperson

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grain would have had to have been carried the entire length of these narrow (one metre wide) corridors to reach these spaces.

The problem of bulk access for goods into and out of the building is a broader issue. The single narrow entrance and narrow internal passageways are not well suited to the passage of large amounts of bulky goods, carts or pack animals. With only the single, difficult-to-access, courtyard in the southern unit, there doesn't seem to be any obvious place where goods could be loaded, unloaded or sorted.

Storage within the building is also problematic. No excavated space within the Level 2 building appears to have been used for storage, although this is obviously far from conclusive given the small sample of rooms excavated. If the arguments above for the dedication of most of the northern unit rooms to accommodation are valid, there seem to be few possible candidates for large-scale storage rooms within the walls. Some of the unexcavated rooms to which no clear function can be assigned are almost certainly for storage, but the potential storage space does not seem to greatly exceed the needs of the apparently large population. A possible solution is that the majority of processing, packing and short-term storage of the agricultural produce detailed in the text archive occurred *extra muros*, perhaps in part on the sunlit plaster surfaces on the southeast side of the building.

The other activity which is notable by its absence is cultic. Votive finds are limited to a handful of clay plaques and a single fragmentary figurine dedicated to the goddess Gula. No mention is made in the cuneiform archive of any religious personnel, despite extensive lists of other professionals, and no temple or shrine has been identified within the architecture, either through excavation or in the recovered plan. This absence is far from conclusive given the limited areas excavated, and it is perfectly possible that one of the many unexcavated structures served as a shrine. Perhaps in the need to cram as much accommodation space as possible into the building, there was no room for a dedicated religious structure and cult confined to personal practice in what seems to have been an overwhelmingly practical, functional building.

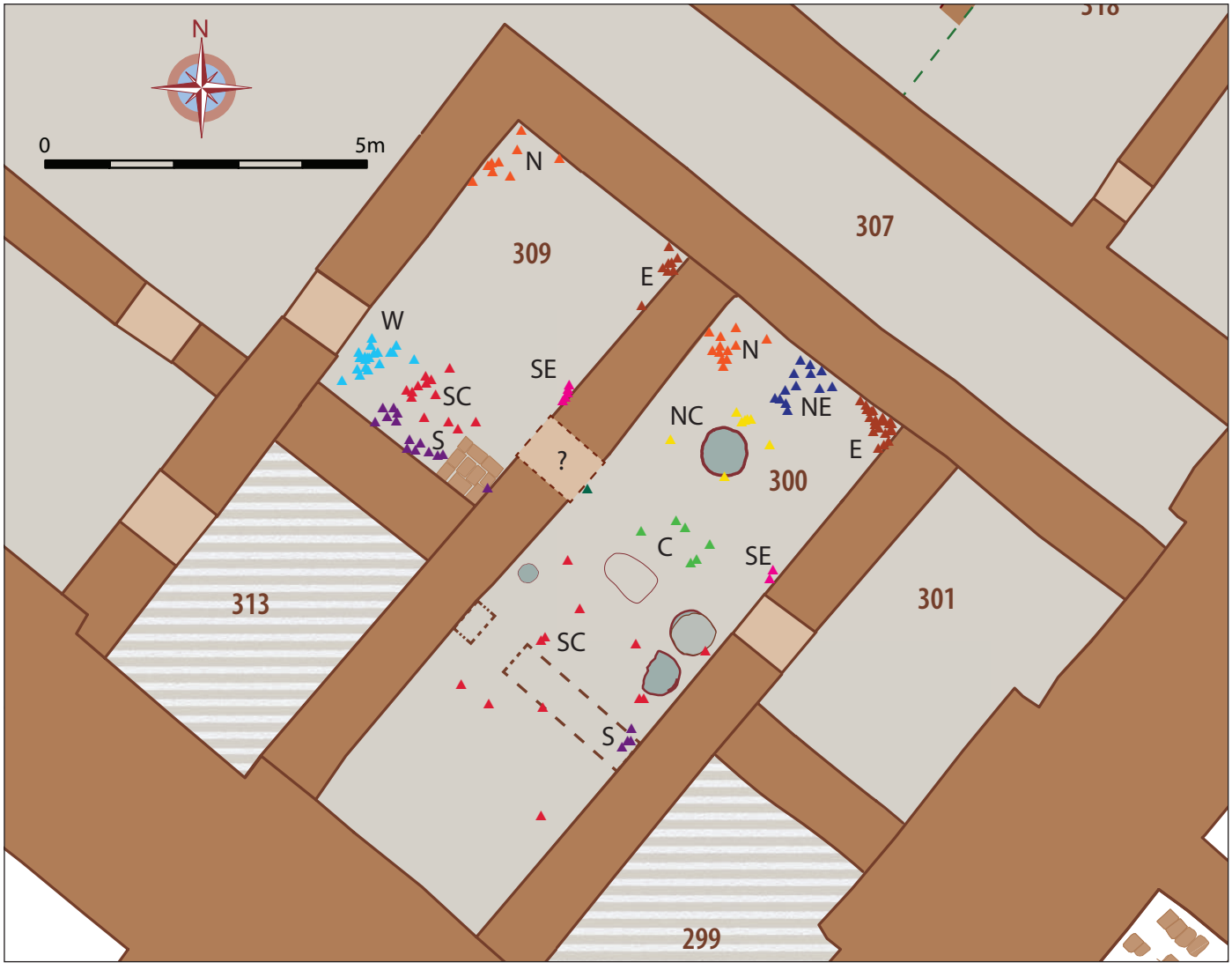

FIG. 4.1. Distribution of tablets in Archive Room 300 and Letters Room 309, with assigned tablet groups.

ELEANOR ROBSON

4. The Archive

INTRODUCTION

The 145 cuneiform tablets from Tell Khaiber are uniquely important in providing secure identification of this settlement as dating to the First Sealand Dynasty, which ruled the marshlands of southern Babylonia in the mid-second millennium BCE. They also represent the first full publication of an archaeologically contextualised find of cuneiform tablets in southern Iraq since the long hiatus in international fieldwork in the area, *c.*1990–2012. First in this chapter, I describe the find context of the tablets, their typology, and relationship to illicitly excavated tablets of the Sealand period from the Schøyen Collection published by Dalley and studied more recently by Boivin.[35] I then consider the historical, ethical, and methodological implications of the find. Finally, after an overview catalogue of the tablets, more detailed descriptions are grouped by tablet group, enabling micro-geographical study of the archive's remains.[36] An open-access, online edition, with photographs of all the tablets, plus glossaries of names and words in the corpus, can be found at https://oracc.org/urap.

FIG. 4.2. Archive Room 300 under excavation, with central bin.

Find context

The vast majority of the tablets were unearthed from the southernmost corner of the Fortified Building, Level 2, in two long rooms that were each later divided into two halves. Around eighty tablets, mostly lists, accounts, and school exercises, came from Room 300, while the remainder, mostly letters and payment records, were found in Room 309. Four tablets were found underneath the wall that split Room 300 soon after it was built and five under the later wall in the centre of 309, so it is clear these areas were in scribal use before the divisions took place.[37] For convenience, I shall sometimes refer to Room 300 as the Archive Room and Room 309 as the Letters Room.

Archive Room 300

Room 300 earns the name of Archive Room because tablets were found in distinct groups along its northeast and southeast walls, apparently the remnants of a once well-organized storage system (Fig. 4.1). There was no direct access to courtyard 315, as Room 309 intervened, though no clear doorway between Rooms 300 and 309 was found. A doorway in the southeast wall connected Room 300 to Room 301, whose paved floor suggests it was unroofed. Room 300 probably received relatively little light from this doorway, however, as the massive exterior walls of the Fortified Building immediately opposite would have kept it in shade for much of the day. It is therefore likely that Room 300 was primarily used for the storage and manufacture of tablets

[35] Dalley 2009; 2010; 2020. Boivin 2016a; 2016b; 2018; 2019; 2020a; 2020b.

[36] For a similar approach, see Tanret 2002.

[37] Thus in preliminary publications about the Tell Khaiber tablets, the southern half of Room 300 is referred to as Area 305 and the southern half of 309 as Area 311.

and tablet clay rather than for their inscription. The room also features a large, round clay bin (context 3081) in the centre of the northern sector, measuring approximately 750 mm in diameter and 150 mm high, and two similar ones along the southeast wall (contexts 3113 and 3114, just south of the doorway to Area 301). These bins were probably used to soak redundant tablets and remodel them into new ones.[38] Although they were empty when excavated, scattered on the floor around them were several small tablets and fragments, as if overlooked during the final cleaning process (Fig. 4.2).

The recycling bins are associated with floors 3111–3112, representing multiple replasterings. Tablets from contexts 3080 and 3119 were found on and above this floor, in a compacted sandy silt mixed with mud brick fragments. Pockets of ash overlay the floor surfaces in some areas, especially towards the centre of the room around feature 3081. There were also recognizable reed matting impressions in some areas. Some pottery and at least one cuneiform tablet (3080:06) appeared to be lying directly on the floor. The team recovered a considerable quantity of tablet fragments, mostly containing school exercises, from the eastern corner of the room. However, these finds cannot be directly associated to a floor as the deposit in this corner was badly disturbed by animal and/or root action.

Over this mixed debris was a stratum of moderately compacted fill of small-to-large mud-brick rubble with looser silty fill in between the brick lumps (contexts 3064 in the northern half of Room 300, 3111 under the later central wall, and 3006 to its south). Finds included several complete or near complete pots, as well as occasional bone, shell, stone and clay figurine fragments. Tablets and tablet fragments were found throughout the fill, mostly lower than around 150 mm below the top of the context and near the walls but also scattered through the whole area. Large bitumen chunks concentrated near centre of northern half of room, approximately above circular feature 3081, although this could be coincidental.

Post-excavation analysis of the tablets' precise spatial locations and, independently, detailed study of their contents, suggest that, in retrospect, the different context numbers are of minor importance and that the archive should be treated holistically. Nevertheless, the elevations and horizontal locations of the tablets do suggest that most were deposited in meaningful groups (Table 4.1 and Fig. 4.3).

The lowest-lying group, 300-E, was found in the eastern corner of the room. It is dominated by fragments of elementary school exercise tablets. Their discovery was a complete surprise, given that almost all known assemblages of Old and Middle Babylonian school tablets that have an archaeological context are from urban domestic settings.[39] Unlike the administrative tablets, many of which survive more or less intact, all but one of these had clearly been deliberately ripped up ready for recycling, perhaps immediately after production. I suggest that these represent oddments from the recycling bin, swept in into a corner one day to make way for fresh clay and then forgotten about, either prior to the laying of a new floor or before the stored administrative tablets collapsed on top of them.[40] A small group of low-lying tiny tablets near the northern rim of the recycling bin, namely 3080:01–05 from 300-NC, may have been similarly overlooked.

Then there are five distinct groups, dominated by large, complete tablets, ranged around the northeastern and

Tablet group	Number of tablets	Elevations	Find circumstances
300-E	23	8.30–8.42 m	Clustered in the eastern corner
300-NE	13	8.35–8.51 m	Clustered against the northeastern wall
300-NC	8	8.34–8.49 m	Around the perimeter of the recycling bin
300-N	14	8.40–8.49 m	Clustered in the northern corner
300-SE	2	8.42–8.43 m	Against the southeastern wall
300-S	4	8.45–8.46 m	Against the southeastern wall, south of the doorway to Room 301
300-SC	13	8.51–8.59 m	Dispersed across the southern half of the room, from the putative western doorway to the opposite wall
300-C	5	8.60–8.84 m	Clustered in the centre of the room between the doorways

TABLE 4.1. Tablet groups in Archive Room 300.

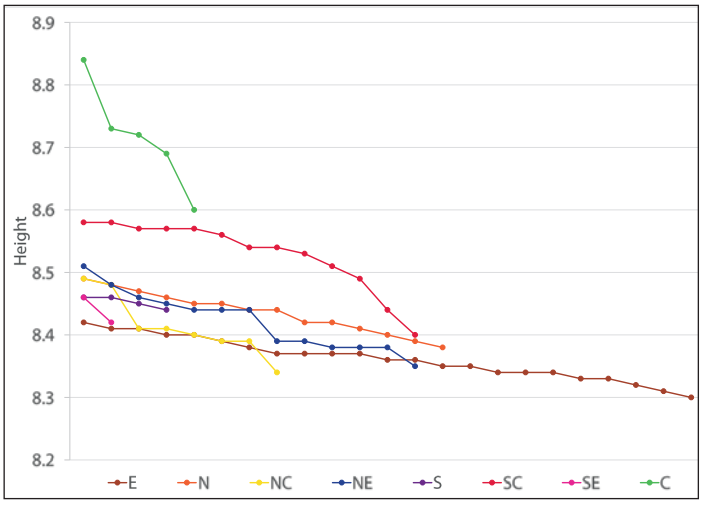

FIG. 4.3. Spot heights of tablets in Archive Room 300, arranged by tablet group and by highest to lowest elevation.

[38] On tablet recycling facilities, in both domestic scribal settings and institutional buildings, see Faivre 1995; Tanret 2002: 4–8; Robson 2008: 237.

[39] For convenient overviews and references to further literature, see Robson 2008: 94 (Old Babylonian); Veldhuis 2014: 242, 281, 297 (Middle Babylonian).

[40] Compare the fifty-four half-recycled school tablets left in and around the recycling bin (locus 4, phase IIId) in the courtyard of Ur-Utu's House in late Old Babylonian Sippar (Tanret 2002: 4–8).

Tablet group	Number of tablets	Elevations	Find circumstances
309-SC	13	8.53–8.63 m	Strewn across the centre of the southern half of the room
309-SE	5	8.54–5.58 m	Clustered near the centre of the southeastern wall, under the later wall
309-S	14	8.62–8.68 m	Scattered along the southwestern wall
309-E	8	8.62–8.71 m	Tightly clustered in the eastern corner
309-W	19	8.66–8.77 m	Scattered across the western corner in front of the doorway to courtyard 315
309-N	9	8.66–8.78 m	Scattered in the northern corner

TABLE 4.2. Tablet groups in Letters Room 309.

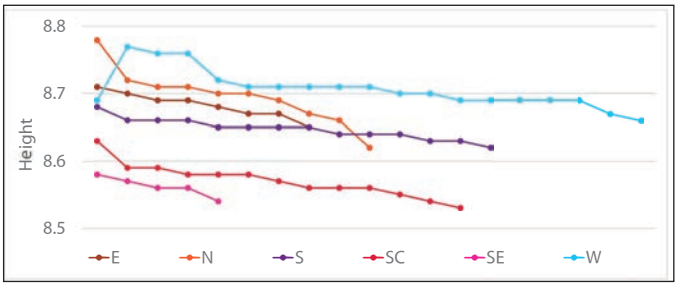

FIG. 4.4. Spot heights of tablets in Letters Room 309, arranged by tablet group and by highest to lowest elevation.

southeastern walls of the room: 300-N, NE, SE, and S, as well as the four administrative records from 300-E. Two possibilities suggest themselves. Either the tablets were found where they had been stored, in or on a long-perished medium; or they had been dumped from their erstwhile containers in the process of levelling the floor for the next phase of building or repair, now largely eroded away.

Finally, there are two distinct scatters of mostly fragmentary tablets. Group 300-SC is thinly dispersed wall-to-wall across the southern half of the room, at a higher elevation than the northern tablets. The fragmentary tablets in the more tightly clustered Group 300-C are higher up again. Nevertheless, as we shall see, there are strong prosopographical linkages between both of these tablet groups and the rest of the archive, and no reason to treat them as historically distinct.

Letters Room 309

Immediately to the west, Room 309 also yielded distinct find groups of tablets, around the northern and eastern edges of the room (context 1096), under a later dividing wall (context 1124), and in/on the centre of the floor in the southern sector (context 1114) (Fig. 4.1). A brick-paved area in the southern corner of the room might have served as a place for mixing tablet clay.[41] There are clear prosopographical linkages between the tablets found in this room and those in contexts 3006, 3064 and 3111 (but not 3080) in Room 300, though no connecting doorway was identified. I have labelled the tablet groups as per Table 4.2, from the lowest-lying deposits to the highest (Fig. 4.4).

Each of these groups has a distinct character. The tablets in the north corner, 309-N, most closely resemble those from the northern half of Room 300 in format and content, and like them are mostly complete. However, those in the eastern corner, 309-E, predominantly concern payment of *miksu*- and *šibšu*-revenues, and feature names that do not occur, by and large, in the rest of the corpus. Many appear to have been deliberately destroyed for recycling Finally, the four groups in the southern half of the room are dominated by small, complete tablets containing payment records and worker lists for another set of people again, as well as flour processing documents featuring a small number of individuals well known from Room 300. While the members of 309-SE were found very tightly packed together, the rest were dispersed across the fill and could well have been dumped there in a single act of deposition. Group 309-SC, furthest from the walls, was at the lowest elevation, 309-SW near the doorway at the highest.

Other rooms

Room 301, a brick-paved, unroofed space accessed only from Room 300, was eroded down to floor level with no surviving contents. One small tablet fragment was found in each of the nearby reception Rooms 314 and 601 of the southern unit, while various fragments of inscribed bricks, a healing figurine, and anepigraphic clay turned up elsewhere in and around the Fortified Building: in/above Rooms 122 and 124, two towers at the northern end of the eastern external wall; and above Room 179, a large room between the western and central passages of the northern unit. The legible pieces are edited at the end of this chapter but not discussed in any detail.

State of preservation

The tablets found inside the Fortified Building were made with carefully prepared clay, of a quality otherwise found only in the highest-quality pottery wares from the site.[42]

By and large, it appears that when the archival tablets were abandoned in antiquity they were still intact. Only the school exercises in the eastern corner of Room 300, and the tax accounts in 309-E, showed signs of deliberate destruction for recycling purposes. However, because many of the tablets were found so close to the surface of the site, they were not always well preserved. Generally speaking, the surface

[41] Compare the bitumen-covered surface covered in unused tablet clay, bone styli and old tablets in Room 3 of the scholar's house in Uruk Ue XVIII/1 (Level III), late fourth century BCE (Schmidt et al. 1979: 28–9, pl. 69; Robson 2008: 237–8).

[42] Pers. comm. Daniel Calderbank, April 2016, based on microscopic analysis (magnification × 150) of loose anepigraphic fragments from eight tablets: 1096:43, 1114:03, 1114:12, 1114:50, 3064:120, 3064:121, 3064:123, and 3064:135.

Dalley name	Transliteration	Translation	Tablet	Tablet group	Elevation
Year I	mu a-a-ᵍdara$_3$ᵍ-[galam-ma lugal-e]; har za-gin$_3$ ku$_3$-[sig$_{17}$ ...]	Year that ADG the king […] a ring of lapis and gold	3064:129	300-SC	8.51 m
Year J	ᵍmu aᵍ-[a]-dara$_3$-ᵍgalamᵍ-ma ᵍlugalᵍ-e; [ĝeš-alam didli] kug-sig$_{17}$ huš-a ĝar-ra; [d]en#-lil$_2$ ^{d}en-ki in-[ne-en-kur$_9$-ra]	Year that ADG the king: installed [statues] of Ellil and Ea covered in red gold	3064:135	300-SC	8.53 m
Year K	mu a-a-ᵍdara$_3$-galamᵍ-ma ᵍlugal-eᵍ; [mu] ᵍgibil?ᵍ	Year of ADG the king: new year(?)	3006:17	300-SC	8.57 m
Year K	mu a-a-dara$_3$-galam-ma lugal-e; mu gibil	Year of ADG the king: new year	3064:67	300-NE	8.46 m

TABLE 4.3. Year names in the Tell Khaiber tablets.

that had been uppermost in the ground—whether obverse or reverse—was badly eroded through exposure to the environment, while the lowermost surface remained intact and fully legible. Two tablets had continued to be written once the clay was too dry to receive a stylus (3064:26 and 3080:06). One (3111:01) had been smashed to pieces when a wall was erected on top of it, dividing Room 300 into two.

Dating

Four of the Tell Khaiber tablets from Room 300 are dated to the year, all within the reign of the Sealand king Aya-dara-galama (abbreviated here as ADG). Following Dalley's nomenclature for dates on the illicitly excavated Sealand tablets in the Schøyen Collection, they are as shown in Table 4.3.[43]

Where Dalley notes two distinct year names, mu ADG lugal-e (Year D) and mu gibil (Year K), the dates on 3006:17 and 3064:67, if read correctly, combine the two year formulae (as in fact does Dalley 2004: no. 421). We can rule out the possibility that 'mu gibil' is a general-purpose notation used at the start of a year, before its official name had been promulgated: not only are 3006:17 and 3064:67 dated to the fifth and eighth month of the year respectively but the twenty-one 'Year K' tablets published by Dalley are also distributed across the year with nearly two-thirds of them from the second half.[44] Indeed, Dalley points out that Year K shares an intercalary month XII with Aya-dara-galama's seventh regnal year (mu ADG mu 7) and conjectures that they might be alternative names for the same year.[45] Further, van Koppen suggests that Dalley's Years D–J collectively represent the first six years of Aya-dara-galama's reign; both remain agnostic about their relative order.[46] Then, he argues, mu gibil (i.e., Year K)/mu 7 represents a switch from naming to counting years. Whether or not this turns out to be the case, we can conclude that the Tell Khaiber archive spanned at least three years during the rule of Aya-dara-galama. However, we must wait for further evidence in order to establish the exact internal chronology of this king's reign.

The findspots of these four dated tablets tell us nothing useful about the internal chronology of the archive either, while the orthography and palaeography are both consistent with a late Old Babylonian date.[47] As for its absolute dating, further evidence has recently come to light in the form of a literary composition from Nippur published by Elyze Zomer.[48] The so-called Epic of Gulkišar, which survives in fragments in Penn Museum and the Hilprecht Collection, recounts the speech of this Sealand king as he goads his contemporary Samsu-ditana, the last king of Babylon, into battle. Both the Babylonian King List (BKL) and the Synchronistic King List (SKL) give Gulkišar as the sixth king of the Sealand and Aya-dara-galama as either the eighth (BKL) or the ninth (SKL).[49] That places the Tell Khaiber archive just a few generations or so after the fall of Babylon, dated to 1595 according to the Middle Chronology. For now, it seems reasonable to estimate that the archive was active for several years in the period *c.*1550–1500 BCE.

[43] Dalley 2009: 11–12.

[44] See Boivin 2018: 249 for a convenient list.

[45] Dalley 2009: 10.

[46] Koppen 2010: 456.

[47] For instance, CV and VC syllabic values predominate over CVC values but Akkadian nouns and adjectives are not systematically mimated. Here, simply for consistency and clarity, I use non-mimated forms of transliterated words, except for those personal names where mimation is clear.

[48] Zomer 2019: 3–38.

[49] See most conveniently Boivin 2018: 34, Table 2.

Notation	Akkadian reading	Sub-units	Metric equivalent
1 SÌLA	*qû*	–	*c.*1 litre
1(BÁN)	*sūtu*	10 *qû*	*c.*10 litres
1(BARIG)	*parsiktu*	6 *sūtu* = 60 *qû*	*c.*60 litres
1(AŠ) GUR	*kurru*	5 *parsiktu* = 30 *sūtu* = 300 *qû*	*c.*300 litres

TABLE 4.4. Capacity measures used in the Tell Khaiber archive.

TABLET TYPOLOGY

Categorising the Tell Khaiber archival tablets has been a challenge because of their poor state of preservation and lack of surviving administrative metadata. I have therefore used three complementary strategies to make sense of them. First, I drew on my own prior work on the description and classification of tabular accounts.[50] Based on the tablets' formal layouts, I divided them into four distinct types:

- numerical lists, with one quantitative column, followed by one or two descriptive ones and containing no calculations;
- tabular lists, with two or more quantitative columns, followed by one or two descriptive ones and containing no calculations;
- tabular accounts, containing two or more quantitative columns, which include calculated data, and a final descriptive column or two;
- and non-numerical lists and prose documents, including informal memoranda, letters, letter-orders and payment records.

I was also heavily influenced by the work of Nicholas Postgate on Middle Assyrian archives.[51] Accordingly, the administrative tablets from Archive Room 300 are mostly unilateral records, storing information, rather than bilateral ones, being transactions between two parties.[52] The tablets from Letters Room 309, by contrast, also include three types of bilateral document, recording transactions or communications between two or more members of the internal administration: namely letters, letter-orders and payment records.

Second, although internal textual evidence is scant—even the surviving headings are often frustratingly terse, and there is next to no apparatus of accountability such as names of responsible officials—the quantifications themselves proved very useful. Most obviously, the tablets can be grouped by metrological system: the vast majority use capacity measures, for grain and grain products; a smaller number use counting numerals, for pottery, people and unidentified commodities; and a very few use the sexagesimal place value system, for calculations. For convenience, the relevant metrological units and their modern-day equivalents are given in Table 4.4.

Document type	Quantity	Publication numbers (Dalley 2009)	Years
Numerical lists	27	368, 368a, 369, 371–2, 374–8, 380, 383, 385–9, 390–5, 407, 412, 413a, 417, 423, 427, 429, 431, 433, 437, 439–40	C, E, F, H, I, J, K, M, N
Tabular accounts	31	408–11, 413–6, 418–22, 424, 426, 428, 430, 431a, 432, 434–6, 441–8, 450	D, F, I, J, K, L, M, N, O
Memoranda	17	382, 396, 398–9, 402–6	N
Letters (OB style)	4	2, 12, 13, 14	—
Payment orders	—		

TABLE 4.5. Comparanda in the Schøyen Collection.

It was also helpful to disambiguate document types according to relative size and uniformity of the capacity measures they recorded. In this way, for instance, it became possible to distinguish between daily, bi-monthly and monthly records, and high-value *hargallû*-grain versus mass-produced barley.

Third, administrative documents from Tell Khaiber are very similar in their format, content, terminology, ductus, and orthography to about 80 of the 475 unprovenanced Sealand Dynasty tablets from the Schøyen Collection published by Dalley (Table 4.5).[53] As they are generally better preserved than their excavated counterparts, having had to survive the rigours of looting and international smuggling, and were furnished with more fulsome administrative apparatus by their ancient scribes, they provide useful amplification, correction and clarifications on the functions of each document type. Likewise, Dalley's and Boivin's studies of the Schøyen Collection at times proved valuable in making sense of the Tell Khaiber tablets, in particular when deciphering personal names and table headings. Conversely, clearer readings and new interpretations of some aspects of the Schøyen material are made possible by this edition.

These strategies have enabled me to assign types and posit functions for seventy archival tablets whose uses were not immediately self-evident. However, there remain twenty-one fragments of administrative documents, inscribed either

[50] Robson 2003; 2004. This section is an updated version of the preliminary analysis presented in Campbell et al. 2017a; 2019.

[51] Postgate 2014.

[52] Postgate 2014: 414.

[53] The Schøyen Sealand administrative tablets cover a much wider range of subject matter than the Tell Khaiber archive, including animal husbandry, beer brewing, textile production, and offerings to the gods. Some documents even make reference to courtiers and members of the royal family.

with capacity measures or with personal names, which are not complete enough to typologize.

As noted above, Room 300 also yielded over twenty fragments of tablets bearing elementary scribal exercises, mostly in context 3080. Three small inscribed fragments could not be identified at all as to genre, while many other pieces of tablet-clay were entirely anepigraphic. These pieces include one or two uninscribed whole tablets (e.g. 1114:50, found in the centre of Room 309) as well as many pieces from the interior or erased or damaged surfaces of otherwise inscribed tablets. The anepigraphic fragments found in the archive rooms are listed briefly in this chapter while the few found elsewhere in the building are not considered.

Lastly, two fragments of Ur III-period stamped baked bricks were found elsewhere on the site, as well as a fragmentary therapeutic dog-figurine inscribed on its flank. These artefacts are treated at the end of this chapter.

Unilateral records: numerical lists

All but four of the thirty-eight numerical lists in this archive enumerate quantities of grain or grain products against named individuals. After the quantitative column on the left, some also have one or more intermediate columns containing occasional check-marks or annotations. The name and sometimes also patronym, profession and/or relationship to another person is given in the final column or (rarely) two. Almost all the lists were originally headed but none is totalled, and none is attributed to a named scribe or functionary. A few are dated to the month and day, two also to the year. A further two have illegible traces on their edge which may be compatible with a year name. They were perhaps collated from memoranda or maybe written as primary documents.[54] I have classified them into eight subtypes, some of which might turn out to be variants of each other (Table 4.6).[55]

The headings on the seven *hargallû*-grain lists consist only of '*hargallû*-grain', followed by MU.BI.IM, for 'their names' (of the recipients).[56] Mean values of surviving entries mostly cluster around 1 *sūtu*, roughly 10 litres, though a few lists, marked ' and * in Table 4.6, have mean entries of the order of 1 *qû* (ten times smaller) or a few *parsiktu* (5–8 times larger) respectively. On four of the eight tablets there are stylus check-marks next to the first half-dozen or so entries. As check-marks are otherwise found only on receipt lists at Tell Khaiber, it seems reasonable to suggest that these lists serve the same function. The tablets are mostly in portrait or near-square landscape format, measuring 40–60 by 55–140 mm. Half are dated to the month and day (Fig. 4.5).

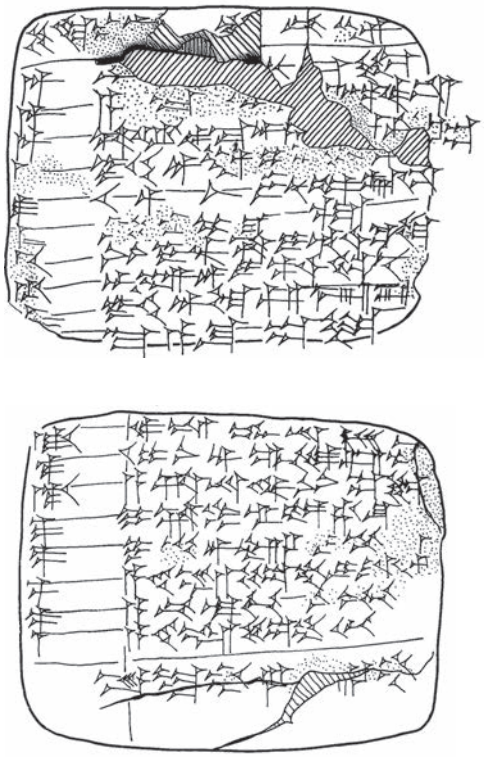

FIG. 4.5. Headed, dated *hargallû*-grain list 3064:052 (obverse and reverse).

Three headed *hargallû*-flour delivery lists record 1-*sūtu* quantities of *hargallû*-flour (ZÍD.DA HAR.GAL-^{ú}-MEŠ/*har-gal-lu-ú*) assigned to a few dozen individuals each. One explicitly mentions 'deliveries [of(?) (… and)] palace men', MU.ᵀTÚMᵀ [...] LÚ É.GAL (1124:01). All are on portrait-format tablets, measuring 40–55 mm wide by 65–80 mm high.[57] One unheaded list (1124:02) with check-marks and one broken one (3080:27), on portrait-format tablets of a similar size, could belong to either to this type or the *hargallû*-flour delivery lists.

Just two lists, from a single tablet group in the Letters Room, state that they are '*hargallû*-grain receipts', ŠU.TI.A, to a group of farmers and palace servant-women. Mean values cluster tightly around 2 *sūtu*, *c.*20 litres, with check-marks next to some or all of the entries. The tablets are laid out in landscape format, measuring 36–43 mm high by 67–81 mm wide.[58]

[54] See Postgate 2014: 79–80.

[55] A type of numerical list attested in the Schøyen Collection but not at Tell Khaiber comprises extracts from, or drafts for, numerical lists, containing 1–5 two-column entries (Dalley 2009: nos. 390–2, 395, 439–40).

[56] There are six Schøyen tablets with very terse '*hargallû*-grain' headings and check-marks (Dalley 2009: nos. 368A, 369, 374–7).

[57] All three Schøyen *hargallû*-flour lists also explicitly state that they are outgoings, ZI.GA, or deliveries, MU.TÚM, one of which is *ana ēkalli*, 'to the palace' (Dalley 2009: nos. 368, 413a, 417). These, however, are all on landscape-format tablets.

[58] Four numerical lists in the Schøyen Collection are also grain receipts. They assign *hargallû*-grain for *tillatu*-auxiliary troops, barley for guards, travel-rations for workers, and barley as wages (Dalley 2009: nos. 371, 378, 412 433; see also no. 393).

Opposite: TABLE 4.6. Numerical lists in the Tell Khaiber archive.

Type	Tablet	Tablet group	Format	Cols	Heading	Check-marks	Mean value (litres)	Date
Grain	3064:83	300-E	P	2	*hargallû*-grain	•	9.8	
	1096:50	309-N	P	2	*hargallû*-grain		13.2	Month 8, day 5
	1114:36	309-S	P	2	*hargallû*-grain		11.4	Month 10, day [n]
Grain'	1114:05	309-W	P	2	*hargallû*-grain	•	1.1	
	1114:17	309-W	L	2	*hargallû*-grain	•	1.2	
Grain*	3064:52	300-NE	L	2	*hargallû*-grain		48.8	Month 1, day 7
	1124:03	309-SE	L	2	*hargallû*-grain	•	85.0	Month 5, day 25
Flour	3064:48	300-E	P	2	*hargallû*-flour		12.7	
	1124:01	309-SE	P	2	*hargallû*-[flour?] deliveries of palace men		10.0	
	1114:40	309-SC	P	2	*hargallû*-flour		10.0	
Flour/ grain	3080:27	300-NC	P	2	Missing (capacity measures)		9.6	
	1124:02	309-SE	P	2	— (capacity measures)	•	10.0	
Receipts	1124:04	309-SE	L	2	*hargallû*-grain receipts of palace servant-women	•	22.0	Month 8, day 1
	1124:05	309-SE	L	2	*hargallû*-grain receipts of farmers	•	20.0	
Daily receipts	3064:72	300-N	L	2	Barley receipts	•••	18.0	Month [n], day [n]
	3064:67	300-NE	L	2	Barley receipts of farmers		20.0	Month 8 day 24; ADG year K
	3064:101	300-NC	L	2	[Barley receipts] of farmers		—	Traces of date on reverse
	3064:128	300-SC	L	2	*hargallû*-grain		10.0	Month 10 day [n]
Long	3064:49	300-E	P	3	Missing (capacity measures)		135.8	
	3064:53	300-E	P	3	Missing (capacity measures)		173.3	
	3064:57	300-SE	P	2	Missing (capacity measures)		31.7	
	3064:118	300-S	P	2+	Missing (capacity measures)		164.0	
	3064:123	300-S	P	3	Missing (capacity measures)		161.8	
	3111:1	300-S	P	3	Missing (capacity measures)		320.0	Traces of date on left edge?
	3006:1	300-SC	P	3	Missing (capacity measures)		258.0	
	3064:120a	300-SC	frag		Missing		—	
	3064:120b	300-SC	frag		Missing		—	
	3064:135	300-SC	P	3	Missing (capacity measures)		252.3	Month 8 day 25; ADG year J
	3064:136	300 sieve	frag	2	Missing (capacity measures)		300.0	
	1096:58	309-N	frag		Missing		—	
Grain/ other	3064:74	300-N	round	2	Received (commodity unknown, counted)		10.0	
	3080:06	300-NE	P	2	— (commodity unknown, counted)		10.8	Traces of date on top edge?
Pottery	3064:65	300-NE	L	2	Received (pottery vessels)			2 months from month 8
	1096:55	309-N	L	2	— (pottery vessels)			
Unclear	3080:04	300-NC	P	2	Missing (capacity measures)		270.0	
	1096:59	309-E	L	2	Missing (capacity measures)		918.0	

Four particularly interesting daily receipt lists leave narrow, empty columns in the centre of the landscape-formatted tablet for the scribe to mark with stylus-holes *ša ūmišu innaddinu*, '(that) which is given daily' (3064:72), to the recipients over the course of 5–15 days. The mean values cluster tightly around 2 *sūtu* for barley, 1 *sūtu* for *hargallû*-grain payments.[59] All are dated to the month and day, one also to the year.

While these three types of grain receipt, most with dates and check-marks, all seem to serve similar functions, it is mostly impossible to tell whether they record rations or grain for processing into flour, as suggested by a heading on one of the Schøyen tablets*: še'u hargallû ša ana ṭēni amāt ēkalli imhurā, 'hargallû*-grain that the palace servant-women received for grinding'.[60]

The longest type of numerical list assigns large, variable quantities of grain, probably barley, to people grouped into eight or more *ešertu*-workteams of around ten members each. Unfortunately, no headings survive, except for a faint ŠU.TI.A, 'receipts', on 3064:135, which is also dated to the day, month and year. There are no check marks on these documents. With one exception, the mean value of entries in this document type cluster around 1 *kurru* (*c.*300 litres) or half that amount. To judge from parallels in the Schøyen Collection, they seem to represent monthly or bi-monthly ration payments to the Tell Khaiber workforce.[61]

Three fragmentary tablets which also list recognizable *ešertu*-workteams are included in this category even though they now lack quantifications. Complete tablets range from 50 × 90 mm to 110 × 160 mm. The wider tablets put personal names in the second column and patronyms or professions in the third. All but one of the twelve lists of this type come from Archive Room 300.

Finally, two documents list quantities of different pottery vessels received, one headed *mahir*, 'received' but with no receiving authority figure named.[62] Another two lists, one also headed *mahir*, write the numeral 10 next to the names of multiple individuals. There are three possible interpretations. First, each person may be receiving ten countable objects;[63] or the 10-sign is being used as a check-mark against each name. Third, this may be an alternative writing of 1(BÁN), i.e., 10 *qû*, based on parallels with the *hargallû*-grain list 1114:36, which switches from 1(BÁN) on the obverse to 10s on the reverse. Finally, two lists of unclear function, with missing or damaged headings assign large amounts of grain to named individuals, but without *ešertu*-groupings. The very large quantities in 1096:59 are commensurate with tax records such as 1096:40 and 41, with which this tablet was found, while those in 3080:04 more resemble the long receipt lists.

Unilateral records: tabular lists and accounts

The three tabular lists and thirteen tabular accounts from Tell Khaiber are all concerned with the management of grain (Tables 4.7, 8). Based on their headings and quantitative structures, they can be assigned to four main categories: multi-commodity delivery lists; balanced delivery accounts; and tax or revenue accounts and lists.[64] As in the numerical lists, there are no summations or attributions of accountability at the end of the tabular accounts, but by definition the accounts all include horizontally calculated data columns in each row. At least some were dated to the month and day, if not to the year. There are equal numbers of portrait and landscape orientation tablets, which do not correlate to document type, plus several substantial fragments. The complete tablets range in size from *c.*45 × 70 mm to *c.*65 × 125 mm.

There are two very long multi-commodity receipt lists. One heading explicitly describes multiple types of grain products, ŠE TUR.TUR *ù* ZÍD Ì.BA NUMUN, 'Minor crops and flour, paste and seeds' (3064:33). Their recipients may be described, in a damaged section of the heading, as LÚ É.GAL, literally 'palace men'. The heading of the other (1096:48) is missing but the contents are otherwise identical in structure, with two quantitative and two qualitative columns, and a very close match in personnel. The absence of horizontal calculations suggests that each column was reserved for a separate commodity and are thus classified here as tabular lists rather than tabular accounts. Quantities involved are substantial, averaging just under 1 *kurru* per commodity per person. In both documents, the people are grouped into multiple *ešertu*-workteams, as in the long numerical receipt lists, and indeed the same individuals predominate.[65]

[59] There are also three Schøyen tablets marked out in up to 15 narrow, blank columns for *ūmiša*, 'daily', payments of ŠUKU$^{-at/-tum}$ (*kurummatu*) rations of barley, *terru*-grain, fodder and other commodities to brewers, a princess, and perhaps donkeys (Dalley 2009: nos. 383, 423, 427).

[60] Dalley 2009: no. 372.

[61] Five of the Schøyen tablets explicitly state that they concern monthly or bimonthly payments of 20–50 or 300–400 litres of grain as ŠE.BA (*ipru*-allowances) or ŠE.ŠUKU-at (*kurummatu*-rations) to single *ešertu*-workteams (Dalley 2009: nos. 380, 386–8, 394, 431).

[62] See Calderbank 2021a for further discussion.

[63] cf. Rositani 2011: no. 79, a numerical list of the number of harvesters provided by each of eight *iššiakku*-farmers, probably from about Hammurabi year 40.

[64] There is an open debate as to whether this type of state revenue should be considered as tax or rent: e.g. the contributions in Mynárová and Alivernini 2020. For convenience, I mostly refer to it as tax in this discussion.

[65] The Schøyen tablets include seven multi-commodity accounts that document different types of grain products without reconciling them to an expected amount (Dalley 2009: nos. 408, 414, 416, 418, 444, 450?). Most are for different grades of flour but one is for wheat, dates and oil (no. 408). Two are receipts, ŠU.TI.A (nos. 416, 418) while a fourth documents outgoings, ZI.GA (no. 414). One unheaded, undated table with heavily abbreviated names seems to represent a draft of a similar account (no. 450).

Type	Tablet	Tablet group	Format	Cols	Heading	Mean value (litres)	Date
Long multi-commodity	3064:33	300-SE	P	4	Minor crops, flour, paste, seeds: receipts of palace men(?)	165 278	
	1096:48	309-N	frag	4	Missing (capacity measures)	300 294	
Miksu-tax	1096:40	309-E	L	3	*miksu*-tax of dependents	918	

TABLE 4.7. Tabular lists in the Tell Khaiber archive.

Type	Tablet	Tablet group	Format	Cols	Heading	Mean value (litres)	Date
Delivery	1114:48	309-SC	L	5	*hargallû*-flour, farmers' deliveries: balance–brought–deficit	17.7	Month 8, day 7
	1096:47	309-N	P	5	[Missing]: balance–brought–[deficit]	10.0	
	1096:51	309-N	L	4	[Missing]: balance–brought–deficit	17.0	
Delivery*	3064:12	300-N	frag	4	Missing [balance–brought–deficit]	361	
	3064:26	300-C	frag	2+	Missing [balance–brought–deficit]	—	
	3064:51	300-NE	P	4	Milled barley: balance–brought–deficit	528	Month 4, day 29
	3064:89	300-NE	P	4	Missing [balance–brought–deficit]	258	
	3119:03	300-SC	frag	2+	Milled barley: balance–brought–[deficit]	900	
Šibšu-tax	1096:26	309-E	frag	4?	*šibšu*-tax of dependents, receipts of the palace	—	
	1096:41	309-E	L	6	*šibšu*-tax: balance–dependents' share–palace share–*kiṣru*-tax–city-gate tax	4,274	
Tax	3064:15	300-N	frag	7+	Missing	—	
	3064:18	300-NC	P	6	Missing	1,038	
	1114:04	309-W	L	4	Missing	1,243	

TABLE 4.8. Tabular accounts in the Tell Khaiber archive.

The eight delivery accounts reconcile expected quantities of incoming grain products with the amounts that were actually received, using three or four quantitative columns followed by the name of the individual concerned. Several begin with a descriptive title, from the simple ŠE ÀR.RA, 'milled barley' (3064:51), to the more extensive preamble ZÍD.DA *har-ga-lu-ú* MU.TÚM ÉNSI.MEŠ LÚ.MEŠ É.GAL, '*hargallû*-flour, deliveries of the farmers and palace (servant-wo)men' (1114:48, Fig. 4.6). The column headings always read, from left to right: SAG.NÍG.GA = *rēš namkūri*, 'opening balance' (literally 'head of the account'); *ub-lam*, 'brought'; and LÁL.Ì = *muṭû*, 'deficit'. In this column entries typically read Ì.SÁ, probably a writing for *išaru*, 'correct', lit. 'straight, proper', when equal amounts are entered in columns 1 and 2.[66] An optional final quantitative column, ŠE ŠU.TI.A, 'grain

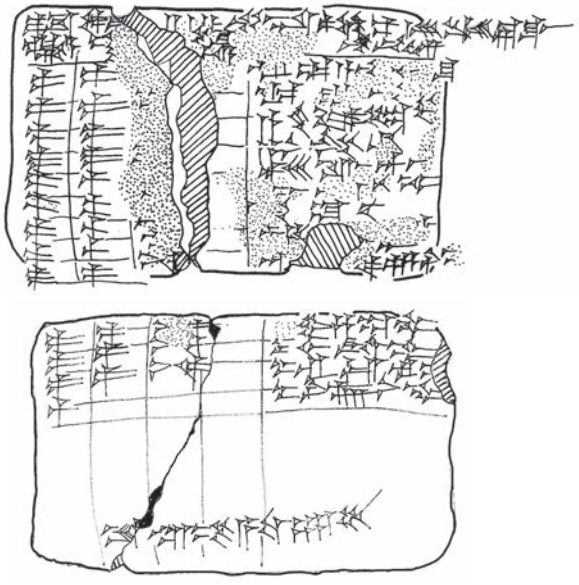

FIG. 4.6. Headed, dated delivery account of *hargallû*-flour, 1114:48 (obverse and reverse).

[66] Correcting Dalley 2009: nos. 225, 239, 241, 247, 249, 258, 269, 271, who reads GÚ for LÁL.Ì and *ni-di* for Ì.SÁ without translation or commentary.

delivered', was often omitted, as its contents replicate column 2. Two of these delivery accounts are dated to the month and day, none to the year. The quantities involved are either very small, in the order of 1–2 *sūtu* per entry in the tablets from Letters Room 309, or rather large, with 1 or more *kurru* per entry in those from Archive Room 300 (marked * in Table 4.8). We might interpret these differences either as pertaining to commodities—*hargallû*-flour in Room 309, barley in Room 300—or to daily versus monthly reckonings.[67]

The six tax lists and accounts each divide the harvested grain in a 2:1 split between dependent individuals and the palace, under the headings SAG.NÍG.GA = *rēš namkūri*, 'opening balance'; HA.LA MAŠ.EN.KAK = *zitti muškēni*, 'share of the dependent'; and HA.LA É.GAL = *zitti ēkalli*, 'share of the palace' XXX. In all legible cases the 'opening balance' in column 1 is split between the dependent and palace in the ratio 2:1. Some of these accounts also include columns for the transport duty KA.KEŠDA = *kiṣru* and local tax KÁ.URU = *bāb āli*, 'city gate', always very tiny amounts.[68] On two documents the very fragmentary preambles name the tax as *šibšu*; another is classified as NÍG.KUD.DA = *miksu*.[69] In the remaining cases the preamble is missing and it is impossible to assign them to one tax or another. Surviving column data suggest individual harvests in the order of 3–4, exceptionally 14, *kurru*.[70]

Unilateral records: memoranda and work lists

These are ephemeral notes for an informal record of one or more pieces of information or instruction, mostly on very small landscape-format tablets ranging in size from 20 × 40 mm to 60 × 75 mm. They are usually in the form of a prose narrative but sometimes a non-numerical list, with horizontal rulings dividing the sections. Five of the seventeen documents, all from Room 300, are dated: three to the month and day, two also to the year, while four from Room 309 have headings (Table 4.9).

The majority are concerned only with membership of *ešertu*-workteams—the most clearly defined group—and/or the transfer of workers, while a number also record movements or calculations of commodities (Fig. 4.7). Tablet 3080:02 must have been used to compile a *šibšu*-tax account. The text on 3064:12 has been palimpsested onto a tablet originally used for keeping a daily receipt list (see above). Three tablets are too fragmentary to be classified.[71]

Bilateral documents: letters and letter-orders

Five short letters and one letter-order are all written on landscape orientation tablets, ranging in size from *c.*20 × 45 mm to *c.*50 × 55 mm (Table 4.10). They are undated and unsealed. All but one were found in Room 309 with the payment records, discussed below.[72]

The letters open with the classic Old Babylonian greetings formula, e.g. [*a*]-*na a-ta-na-ah-ì-*[*lí*] / *qí-bí-ma* / *um-ma* DUMU-20.KAM / *a-hu-ka-ma*, 'Speak to Atanah-ili, thus Mar-ešre, your brother' (3064:93, Fig. 4.8), while the letter-order has no sender but names the recipient, or possibly sender, at the end (1096:53).[73] They give either information or orders about stored commodities, the workforce and legal matters. Five are addressed to one or other of the two scribes of the archive, Atanah-ili and Mayašu, and their associates, the other to a certain Nuratum. Senders are Uraš-ibsasa and his son Adad-ilum, Ahi-illikam and Mar-ešre. The first two senders do not appear elsewhere in the archive, whereas the latter two names are so ubiquitous it is almost impossible to identify them with one particular individual. I discuss these documents, and the individuals featured in them, on pp.95–6.

[67] Nine of the Schøyen Collection's tabular accounts record MU.TÚM *ana ēkalli* 'deliveries to the palace' of processed goods, reconciling amounts owed with amounts delivered in identical format to the Tell Khaiber accounts. They too encompass flour deliveries, as the work-quotas of a mixed group of men and women overseen by guards (Dalley 2009: nos. 414, 419, 422, 424, 436; Boivin 2018: 147–9) but also bricks from ploughmen, made in the hot summer months (420), grinding stones (421) and perhaps also a weighed commodity whose identity is now lost (435).

[68] See Boivin 2016a for a very useful discussion of these terms.

[69] This document, 1096:40, clearly headed ŠE NÍG.KUD.DA *ša* MAŠ.EN.KAK.MEŠ, 'barley of the dependents' *miksu*-tax', confirms Boivin's (2016a: 59) tentative suggestion that 'the individuals paying the *miksu* may also have been *muškēnū*'.

[70] Sixteen tabular accounts in the Schøyen Collection record grain taxes paid by (the *muškēnū* of) named communities to the palace, analysed in detail by Boivin 2020a; see also Fiette 2020's helpful review of Boivin 2018. The large majority concern *šibšu*-tax (Dalley 2009: nos. 411, 412, 415, 426, 428, 431a, 432, 434, 441, 442, 446–7), either in grain or, once, in *sahlû*-crop (no. 446), and three times divided equally (*ša ezūzu immandū*) between palace and temple (nos. 428, 430, 447). A further three record *miksu*-tax (nos. 410, 442, 448) and one *kiṣru*-duty (no. 445). No. 429 is a dated record, in numerical list format, of one individual's *šibšu*-tax payment: not a receipt but maybe a preparatory note for a tax account (cf. 3080:2).

[71] I have identified nine relevant memoranda amongst the Schøyen materials. Five are undated lists of 8–16 workers belonging to one or two *ešertu*-workteams (Dalley 2009: nos. 396, 398–9, 402–3). Only one of these is headed, simply ÉRIN.MEŠ 'workers', (no. 396), while three others include subscripts naming their leader or community (nos. 398, 402–3). There is also one dated list of three workers (no. 382) and rough calculation associated with the names of seven individuals (no. 404).

[72] Four of the Schøyen Collection letters have Old Babylonian-style greeting formulae like those at Tell Khaiber. Two concern similar topics: the conduct of a court case, *dīnu* (Dalley 2009: no. 12, cf. 1114:01); and the collection of *šibšu*-tax (no. 14). This last is from Uraš-ibsasa, presumably the same sender as at Tell Khaiber. Nos. 405–6 may be letter-orders.

[73] cf. Dalley 2009: nos. 2, 12–14.

Type	Tablet	Tablet group	Format	Heading	Date
Commodities	3080:02	300-NC	L		
	3080:03	300-NC	L		Month 1, day 24
	3080:05	300-NC	L		
	1114:47	309-SC	L		
ešertu-teams	3064:73	300-N	L		
	3064:129	300-SC	L	*ešertu*-workteam, correct, opening balance(?)	Month 3; ADG year I
	1114:26	309-S	L	Workers […]	
	1114:12	309-W	P	Workers […]	
	1114:14	309-W	L	Workers, sons of (free?) men	
	1114:15	309-W	L		
Workers	3064:76	300-N	L		
	3064:94	300-N	L		Month [n], day 1
	3064:13	300-NE	L		
	3064:122	300-SC	L		
	1096:25	309-E	L	Workers who have behaved dishonestly	
Unclear	3080:01	300-NC	L		Month [n], day 2
	3006:17	300-SC	L		Month 5, day [n]; ADG year K
	3064:121	300-SC	L		

TABLE 4.9. Memoranda in the Tell Khaiber archive.

Tablet	Tablet group	Sender	Recipient	Topic
3064:93	300-N	Mar-ešre	Atanah-ili	Transporting barley
1096:52	309-N	Adad-ilum, son of Uraš-ibsasa	Mayašu, Adad-šemi and Sin-išmanni	Transporting Nuratum's wool
1096:53	309-N	—	Adad-šemi, son-in-law of Mayašu	Order to record labourers
1114:01	309-S	Ahi-illikam	Atanah-ili	A court case
1114:45	309-SC	Uraš-ibsasa	Atanah-ili	The mayor and missing barley
1114:06	309-W	Uraš-ibsasa	Nuratum	Transporting flour

TABLE 4.10. Letters and letter-orders in the Tell Khaiber archive.

FIG. 4.7. Dated memorandum 3080:03, recording grain 'by the royal measure' (obverse and reverse).

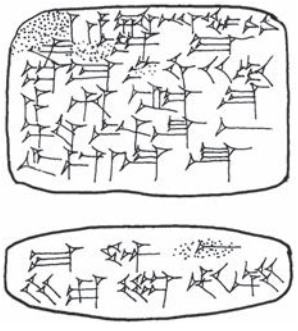

FIG. 4.8. Letter from Mar-ešre to Atanah-ili, 3064:93 (obverse and bottom edge; reverse blank).

Tablet	Tablet group	Recipient	Authorization	Barley (litres)	Silver (grams)	Date
1114:07	309-W	Ahi-illikam		150	4	Month 4, day 9
1114:10	309-W	Re'i-Ninurta		123.5	4	Month 4, day 19
1114:11*	309-W	Manni-Šamaš	Atanah-ili	100	4	Month 4, day 22
1114:13	309-W	Ahi-illikam		120		Month 3, day 27
1114:16*	309-W	Ile"i-bulluṭa		20		Month [n], day 27
1114:18	309-W	Nuratum		100		Month 4, day 12
1114:21	309-S	Nuratum		130	4	Month 4, day 2
1114:22	309-S	Nuratum		70		Month 4, day 28
1114:25	309-S	Re'i-Ninurta		42		Month 3, day 11
1114:27	309-S	Re'i-Ninurta		81		Month 4, day 10
1114:29*	309-S	[Nura]tum?		missing		Month 3, day 18
1114:30	309-W	Re'i-Ninurta		140		Month 4, day 13
1114:31	309-W	Atanah-ili		missing		Month 4, day 19
1114:32*	309-W	Atanah-ili		80		Month 4, day 10
1114:33	309-W	Re'i-Ninurta		430		Month 4, day 17
1114:34	309-S	Re'i-Ninurta		132		Month 2, day 29
1114:38	309-SC	Re'i-Ninurta		80	4	Month 4, day 11
1114:39	309-SC	Nuratum		120		Month 3, day 26
1114:41	309-SC	Nuratum		120	4	Month 3, day 22
1114:43	309-SC	Nuratum		120		Month 4, day 16
1114:44	309-SC	(illegible)		missing		Month 4, day 4
1114:49	309-SC	Ahi-illikam		150	4	Month 3, day 21
1114:51	309-SC	Arzazu		150	4	Month 4, day 5
1114:52	309-SC	Re'i-Ninurta		50		Month 3, day 22

TABLE 4.11. Payment records in the Tell Khaiber archive.

Bilateral documents: payment records

Twenty-four tiny, landscape orientation tablets contain highly formulaic records of payments to individual people in either grain or silver or both (Table 4.11). They are dated to the month and day, but not the year, and almost never give the name of the authorising official. The twenty-one surviving barley payments range from 20 to 430 litres, with mean and median both 120 litres, while the eight silver payments are all for ½ shekel, *c.*4 grams. Four slightly anomalous records, marked * in the table, are discussed further on pp. 97–8 (Fig. 4.9). The tablets range in size from *c.*15 × 35 mm to *c.*25 × 45 mm. All were found in the southern half of Room 309.[74]

Fragments

A number of fragmentary administrative tablets cannot be further typologized. They are listed here for completeness (Table 4.12).

Scribal exercises

The twenty-one fragments of tablets bearing scribal exercises were all found in the north and eastern sectors of Archive Room 300, with the exception of one illegible piece from the western doorway of Letters Room 309 (Table 4.13). All had been deliberately broken in antiquity and many were deformed, presumably during the (interrupted) process of recycling. Most appear to have originally been large multi-column format tablets, that is to say Type I or perhaps Type II in the typology of Old Babylonian Nippur.[75] Although most preserve very little by way of legible inscription, eight

[74] There are no Tell Khaiber-style payment records amongst the Schøyen material.

[75] See, for example, Veldhuis 2014: 204–5.

Tablet	Tablet group	Date	Contents
3006:09	300-C		PNs from the final column of a numerical list or tabular account
3064:20	300-C		PNs from the final column of a numerical list or tabular account
3064:106	300-C		PNs from the final column of a numerical list or tabular account
3064:108	300-C		PNs from the final column of a numerical list or tabular account
3064:62	300-NE		Capacity measures from the first column of a numerical list or tabular account
3064:63	300-NE		Final column of a headed numerical list or tabular account
3064:64	300-NE		PNs from the final column of a numerical list or tabular account
3064:71	300-N		PNs from the final column of a numerical list or tabular account
3064:98	300-N		Capacity measures from the first column of a numerical list or tabular account:
3064:116	300-N		Small fragment; only numerals survive
3064:119	300-SC		Capacity measures from the first column of a numerical list or tabular account:
3064:125	300-SC	traces?	PNs from the final column of a numerical list or tabular account
3064:133	300-S		PNs from the final column of a numerical list or tabular account
3080:25	300-N		Small fragment; only elements of PNs survive
3119:03	300-SC		Final column of a headed numerical list or tabular account
1096:24	309-E		Final column of a headed numerical list or tabular account
1096:27	309-E		Small fragment; only numerals survive
1096:42	309-E		Small fragment; mostly numerals survive
1096:60	309-N		Two small flakes with small capacity measures and single signs
1114:03	309-W		Final column of a headed numerical list or tabular account
1114:23	309-S		Round tablet; text mostly erased
1114:55	309-S		Crumpled clay with crudely written numerals; may be scribal exercise
1142:07	314		Capacity measures and traces of PNs from a numerical list or tabular account
6136:12	179 surface		Round tablet; traces only

TABLE 4.12. Administrative fragments in the Tell Khaiber archive.

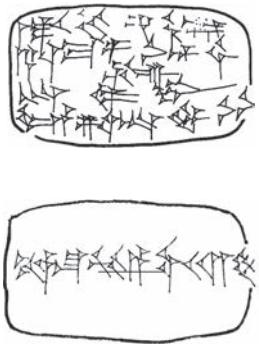

FIG. 4.9. Anomalous payment record 1114:11, authorised by Atanah-ili (obverse and reverse).

FIG. 4.10. Extract from the thematic word list Ur_5-ra, metals and stones section, 3080:15 (obverse only; reverse missing).

Tablet	Tablet group	Exercise
3064:14	300-N	Elementary writing exercise
3064:97	300-N	(Unidentified)
3064:88	300-NE	Extract from Ur_5-ra Metals
3064:79	300-E	Extract from the sign-list Ea?
3064:82	300-E	Extract from Ur_5-ra Wild Animals
3064:84	300-E	Extract from Ur_5-ra Metals
3080:07	300-E	(Unidentified)
3080:09	300-E	Extract from Ur_5-ra Leather?
3080:10	300-E	(Unidentified)
3080:11	300-E	(Unidentified)
3080:12	300-E	(Unidentified)
3080:13	300-E	Extract from Ur_5-ra Stones
3080:14	300-E	Extract from Ur_5-ra Metals
3080:15	300-E	Extracts from Ur_5-ra Metals and Stones
3080:16	300-E	Extract from a sign-list such as Izi?
3080:17	300-E	Extract from the sign-list Ea?
3080:18	300-E	(Unidentified)
3080:19	300-E	Extract from Ur_5-ra Stones
3080:20	300-E	(Unidentified)
3080:21	300-E	(Unidentified)
1114:09	309-W	Extract from a sign-list such as Ea?

TABLE 4.13. Elementary scribal exercises in the Tell Khaiber archive.

identifiable extracts are from the word-list known as Ur_5-ra, drawn from the sections on leather objects, metals, stones and wild animals (Fig. 4.10). A few further badly executed pieces appear to be extracts from sign lists like Ea or Izi, while a small, complete tablet contains a well-preserved exercise in writing the component elements of cuneiform signs. Some of the remaining eight may also be identifiable in due course, while others might in fact turn out to be fragments of archival records. The implications of this find are discussed further below.

HISTORICAL ANALYSIS

At first reading, the tablets from Tell Khaiber are mostly dry lists and tables, which yield disappointingly little about Sealand history writ large. They tell us virtually nothing about the chronology, events and centres of power of the period. However, when read in context, they reveal a great deal about economy, society and the uses of literacy and numeracy in the Babylonian Sealand. Here I present a preliminary historical analysis, focusing first on the people of Tell Khaiber and their relationship with the Sealand authorities; then on the micro- and macro-economic implications of the archive; and finally on the quite revolutionary consequences for our understanding of the uses, and users, of writing in cuneiform culture.

People, professions and authorities

Who were the people named in the Tell Khaiber tablets? The archive contains a vast amount of information about the professional, social and familial status of many individuals and their relationships. There are significant challenges to identifying them with confidence, however, due to the poor state of the tablets' preservation and the scribal habits of documentation. This presents at least three layers of ambiguity for anyone wishing to work this data. First, many individual entries on the tablets are very damaged and hard to read, even with excellent RTI. In restoring them I have often made educated guesses, based on proximity patterns in better preserved tablets. For instance, the sequence:

Nur-Inšušinak[76]
Habzazu
Sizzu
Ubarrum
Ahu'atum
É.GI
Abi-Laguda
Qišti-Amurru
Burra-Šugab

is well preserved on 3064:34 r 13–21, 3064:53 r 7–15, and 3111:01 o 45' – b 2, where the men are listed as members of Sebitti-nada's *ešertu*-workteam of palace auxiliary troops. It seemed reasonable to restore most of the same sequence in the more damaged 3064:123 r 26 – t 2, where Nur-Inšušinak is the *ešertu*-leader of the same profession. Similarly, the same list seems to occur on the very badly preserved surface flake 1096:58 5'–13', prompting me to restore whole names from the visible traces. However, there I have not filled in the missing lines 7'–8' with the names Sizzu and Ubarrum, though I think it highly likely that they were present on the original tablet; and nor have I restored the missing professional designation, even though the repetition of Sebitti-nada's (damaged) name in lines 4' and 14' confirms that this is a fourth attestation of the same *ešertu*-workteam. While I have been careful not to overplay this restoration methodology, it has probably led to a certain degree of confirmation bias, resulting in over-attribution of some names, professions and relationships, and under-attribution of others.

Second, even assuming that I have made no reading errors or inappropriate restorations—a false assumption, I can confidently assert—there is an inherent ambiguity in the dataset, given that professional titles and family relationships are often absent, whether never recorded or now missing. For instance, we cannot know whether the Ahu'atum being transferred to the palace in 3064:76 o 3 is the same individual from Sebitti-nada's *ešertu*-workteam or another. Likewise, the Ahu'atum listed in 1114:17 r 12 might be another person again. Following the practice of *The Prosopography*

[76] I am very grateful to Jeremiah Peterson (pers. comm. July 2022) for identifying the correct reading of this name.

Profession	Writings	Instances of term	Named individuals	Total attestations	Schøyen (term)	Schøyen (individuals)
iššiakku-farmer	ÉNSI	22	14	173	8	10
nukaribbu-gardener	NU.GIŠ.KIRI$_6$	24	11	24	5	4
bā'eru-fisherman	ŠU.KU$_6$ and syllabic	6	5	12	4	3
re'û-shepherd	SIPA	8	4	8	16	10
usandû-bird catcher	MUŠEN.DÙ	6	1	6	—	—
ikkaru-ploughman	ENGAR	2	1	3	4	4
kullizu-ox driver	ŠA$_3$.GU$_4$	—	—	—	2	1

TABLE 4.14. Food producers in the Tell Khaiber archive.

of the Neo-Assyrian Empire,[77] I have therefore disambiguated individuals in the online glossary by profession and family relationship, but cannot exclude the possibility that some people might have been designated differently in different records or by different scribes. Sebitti-nada himself is described in 3064:33 only as the son of Innibu; fortunately, 3064:53 lists both his professional and familial ties. But this is unusual. For example, there might have been one, two or three separate individuals named Ili-iddinam: the farmer, the father of Dassu-karabu, and the son of Ukkulu-Naze: it is impossible to tell.

Finally, we have to contend with variant spellings and short forms of names. For example, the *iššiakku*-farmer Ili-ya'u is attested just twice in the corpus. Should we understand this name as a familiar version of the name Ili-iddinam—also attested as a farmer but not in the same documents as Ili-ya'u?[78] A particular father and son have their names spelled Sin-išm(e)anni and Ili-iyatum/-iyati, apparently interchangeably, presumably depending on scribal preference.

I have therefore reluctantly concluded that the community documented by the Tell Khaiber tablets is not easily susceptible to Social Network Analysis, but I offer it as an exciting challenge to colleagues with better prosopographical and data analysis skills than I. Instead, I offer a more qualitative preliminary overview, starting with professions and professional relationships, then the question of the *muškēnu* tax-payers and the community's relationship(s) with authority. I then briefly look at family ties, finally considering theological commitments, as evidenced in the theophoric elements in personal names.

Professions

About thirty different professions are attested at Tell Khaiber. The most prominent are, of course, the *iššiakku*-farmers. But alongside them worked a host of other people, most of whom, on the face of it, had nothing to do with grain production. In order to make sense of why they were all documented in the archive, I shall first give a general survey before focusing in on particular groups. Exact numbers are difficult to ascertain, given the ambiguities in nomenclature described in the introduction to this section, and the fragmentary state of many tablets. Nevertheless, for indicative purposes I have given simple counts of the occurrence of each professional term, the number of discrete individuals associated with it, and the minimum total number of attestations.[79] This number can be significantly higher than instances of the term would suggest, as many individuals turn up repeatedly, for example in professional *ešertu*-workteams or named as TAB.BA.NI, *tappašu*, the 'partner' or 'workmate' of a colleague.

Working relationships between equals can also be expressed as PN$_1$ *u* 'and', or more rarely *itti*, 'with' PN$_2$. Enduring subordinate relationships, meanwhile are described as PN$_1$ NÍG(.ŠU) PN$_2$, perhaps to be rendered *ša qāt*, literally 'of the hand of', or perhaps *pīhāt* 'responsibility of', here translated 'subordinate of'. Both men and women served as subordinates, apparently to people they were not related to. More informal, occasional substitutions, for instance by family members who are acting on a senior relative's behalf, are noted with the familiar PN$_1$ GÌR PN$_2$, or *šēp*, literally 'foot of', here translated 'authority of'.[80]

Those family relationships were, not surprisingly, overwhelmingly sons and fathers. But mothers, daughters, brothers, and occasionally sisters and wives are also attested, all written with the normal logograms. The one rather more unusual term is *hatanu*, written syllabically, '(son-)in-law', and apparently used only in relation to the scribes (see further below). Multi-generational families are very rarely detectable.

The food-producing professions dominate the archive, revealing a mix of agriculturalists, herdsmen and wetland hunters, as befits Tell Khaiber's location on the edge of

[77] Parpola et al. 1988–2011.

[78] Ili-ya'u cannot be a short form of Ili-iqiša, the name of another farmer, for both are named in 1096:40, the former as (the farmer) Sin-leqe-unninni's substitute and the latter as his subordinate. I follow Zadok (2014) in interpreting *-ya'u* and *-ya'utu(m)* as diminutive suffixes.

[79] For details, go to https://oracc.org/urap/qpn and search for the relevant professional term, in English or Akkadian.

[80] See Boivin 2016b: 11–14 for a discussion of the writings NÍG(.ŠU) and GÌR in the Schøyen Sealand tablets.

Profession	Writings	Instances of term	Named individuals	Total attestations	Schøyen (term)	Schøyen (individuals)
nagāru-carpenter	NAGAR	18	3	18	8	16
atkuppu-reedworker	AD.KID	6	3	6	8	6
aškāpu-leatherworker	AŠGAB	7	4	7	9	32
nappāhu-smith	SIMUG	6	3	6	2	2
sasinnu-bowyer	ZADIM	4	1	4	1	1
mukabbû-tailor	^{lú}TÚG.KAL.KAL.LA	3	2	3	4	3
purkullu-seal cutter	BURGUL	1	1	1	1	1
kutimmu-goldsmith	KÙ.DÍM	–	–	–	8	8
kabšarru-stone carver	KAB.SAR	–	–	–	2	1
qurqurru-coppersmith	URUDU NAGAR	–	–	–	1	5

TABLE 4.15. Craftsmen in the Tell Khaiber archive.

Profession	Writings	Instances of term	Named individuals	Total attestations	Schøyen (term)	Schøyen (individuals)
ṣāhitu-oil-presser	Ì.ŠUR	5	3	6	–	–
nuhatimmu-cook	MUHALDIM	4	3	4	46	8
sīrāšû-brewer	^{lú}LUNGA	2	1	2	24	2
bāqilu-maltster	^{lú}BULÙG	–	–	–	44	11
sābû-brewer	^{lú}KURÚN.NA	–	–	–	1	8

TABLE 4.16. Caterers in the Tell Khaiber archive.

the marshes (Table 4.14).[81] The large number of date-palm gardeners, almost as many as the farmers, hints at the economic importance of this crop to the community, even though dates themselves are not documented in the archive. By contrast, only four named gardeners appear in the Schøyen tablets, three of them in tax accounts from settlements like Tell Khaiber.[82] Fishermen are also poorly represented there and bird catchers do not feature at all, while shepherds and ploughmen are well attested.[83] This difference in professional profiles strongly suggests that the source of the Schøyen tablets was outside the marshes.

Similarly, the craft professions at Tell Khaiber almost all worked with locally available, low-cost materials: wood, reed, leather and cloth (Table 4.15). We might suppose that some of them, at least the smiths and bow-makers, serviced the military personnel stationed at the Fortified Building.[84] One of the tailors, on the other hand, is associated with a group of four palace servant-women (1124:04), while Kussašu-gamil is attested as a leatherworker in the Schøyen tablets and a 'royal leatherworker' at Tell Khaiber (1114:40).[85] There are no workers in precious stone and metal, such as those listed in a roster of *ummānu*-craftsmen in the Schøyen tablets, reflecting the wealth disparities documented in the two archives.[86] More intriguingly, nor have I identified any potters (^{lú}BÁHAR = *pahāru*), despite the large number and range of ceramic vessels found in and around the Fortified Building.[87]

[81] Note the flint sickle blades for reaping and the large number of clay disks found in and around the Fortified Building that could have served as net-sinkers, as well as bone needles suitable for making nets (see Chapter 6).

[82] Dalley 2009: 302, s.v. NU.GIŠ.KIRI$_6$. NB in no. 374, Nergal-abi's profession should be corrected to MUHALDIM, 'cook'.

[83] The ox-driver Arad-Anzakti, son of Abu-ṭabu is probably to be identified with the *iššiakku*-farmer of same name (Dalley 2009: nos. 356, 366).

[84] Craftsmen's tools found in and around the Fortified Building included copper awls, an adze, and a knife, copper and lead nails, flint blades and points, stone scrapers and polishers, and bone pins and needles (see Chapter 6).

[85] Dalley 2009: no. 381.

[86] In Dalley 2009: no. 381 r 35'–36' the profession of Ahušina and Šamaš-bari is probably to be read LÚ *ša* SAG'(GI), 'eunuch', after no. 397 o 5.

[87] The Tell Khaiber pottery is analysed by Calderbank 2020; 2021a; 2021b. Amanda Podany (pers. comm. November 2022) notes a general absence of potters in the Old Babylonian textual record. ARCHIBAB contains only seventeen attestations of the term in nearly 22,500 OB documents (https://www.archibab.fr, accessed December 2022). For instance, there are three potters amongst 173 artisanal ration-recipients at the palace of Dur-Yahdum-Lim in the early 18th century BCE (ARM 33 35 [M.6231] = ARCHIBAB T20261).

Profession	Writings	Instances of term	Named individuals	Total attestations	Schøyen (term)	Schøyen (individuals)
ne' rār ēkallim palace auxiliary	ÉRIN.TAH É.GAL	21	20	76	–	–
tillatu-reinforcement	Syllabic	1	1	1	1	–
hurādu-soldier	Syllabic	1	–	–	–	–
ša rēši-eunuch	LÚ.SAG and syllabic	–	–	–	9	7
maṣṣaru-guard	^{lú}EN.NU.UN	–	–	–	8	5
ša abulli-gatekeeper	LÚ KÁ.GAL	–	–	–	5	3
atû-doorkeeper	Ì.DU$_8$	–	–	–	4	3
rēdû-soldier	AGA.ÚŠ	–	–	–	3	2

TABLE 4.17. Soldiers and guards in the Tell Khaiber archive.

Profession	Writings	Instances of term	Named individuals	Total attestations	Schøyen (term)	Schøyen (individuals)
ašlāku-washerman	^{lú}ÁZLAG	21	4	21	–	–
malāhu-boatman	$^{(lú)}$MÁ.LAH$_{4/5}$	11	6	19	4	–
ṭupšarru-scribe	DUB.SAR	11	3	17	5	4
kisalluhhu (courtyard) sweeper	(KISAL.)LUH	7	1	7	1	–
nāgiru-herald	Syllabic	3	2	3	–	–
hazannu-mayor	Syllabic	3	1	3	2	2
mār šipri-messenger	LÚ.KIN.GI$_4$.A and syllabic	–	–	–	12	5
gallābu-barber	ŠU.I	–	–	–	10	8
tamkāru-merchant	DAM.GÀR	–	–	–	5	3
ša dalî-water drawer	Syllabic	–	–	–	1	1
dayyānu-judge	DI.KUD	-	-	-	1	1

TABLE 4.18. Scribes, functionaries and service-providers in the Tell Khaiber archive.

Compared to the preponderance of outdoor food producers in the Tell Khaiber archive, there are very few references to indoor preparers of food and drink (Table 4.16). The brewers' raw material was presumably the barley documented there, while the presence of the oil-pressers implies the existence of a sesame crop too. By contrast, a large proportion of the Schøyen tablets documents the labour of the cooks, brewers and maltsters (but not oil-pressers) who provisioned the human and divine residents of the palace and royal temples.[88] We should also note the apparent absence of butchers (^{lú}GÍR.LÁ = *ṭabbihu*) from both archives.[89]

There was a sizeable contingent of 'palace auxiliaries' at Tell Khaiber, who were issued grain and flour, usually in *ešertu*-workteams (Table 4.17). They do not seem to have been responsible for delivering flour or grain, unlike the *maṣṣaru*-guards who oversaw flour-milling in the palace workhouse.[90] Nor do they seem to have much in common with the *rēdû*-soldiers who received animal carcasses for the palace.[91] However, they could be synonymous with the *tillatu*-auxiliaries and/or *hurādu*-soldiers who make occasional appearances at Tell Khaiber and in the Schøyen tablets. There were seemingly no designated security staff at the entrances to the Fortified Building: perhaps the palace auxiliaries served this function.

Not surprisingly, the archive also features several named and unnamed scribes and their apprentices, who are discussed further on pp.94–5 (Table 4.18). A mayor and two heralds attest to local governance at Tell Khaiber and while I

[88] In the Schøyen tablets, the terms ^{lú}LUNGA, ^{lú}ŠEM and ^{lú}BULÙG are used interchangeably to denote the same eleven individuals, who supplied the temples and palace with malt and beer (Dalley 2009: nos. 151–304).

[89] Likewise, ARCHIBAB contains only four attestations of the term in nearly 22,500 OB documents (https://www.archibab.fr, accessed December 2022).

[90] Boivin 2018: 147–9.

[91] Dalley 2009: nos. 317, 320, 324.

Profession	Writings	Instances of term	Named individuals	Total attestations	Schøyen (term)	Schøyen (individuals)
šangû-priest	SANGA	6	2	6	5	6
ša ebbūbi-piper	LÚ GI.GÍD	2	1	4	1	1
nāru-musician	NAR	1	1	1	7	4
asû-healer	A.ZU and syllabic	–	–	–	6	4
nadītu-priestess	LUKUR/NIN.DINGIR	–	–	–	4	–
bārû-diviner	MÁŠ.ŠU.GÍD.GÍD	–	–	–	3	2
ša gipāri-cloister man/ woman	LÚ/MUNUS É.GI$_6$.PÀR	–	–	–	2	3
(mu)raqqû-perfumer	Ì.RÁ.RÁ and syllabic	–	–	–	2	1
apiltu-prophetess	Syllabic	–	–	–	1	1
aluzinnu-jester	ALAN.ZÚ	–	–	–	1	1
enu-priest	Syllabic	–	–	–	1?	–

TABLE 4.19. Temple personnel and performers in the Tell Khaiber archive.

Tablet group	300-E		300-S		300-SC	300-SE	
***ešertu*-leader**	3064:49	3064:53	3064:123	3111:01	3064:135	3064:33	3064:57
Dalilu, son of […]	(1)	(1)	(1)	(1)	1	1	
Burra-dabani, son of Qiš[…]	(2)	(2)	(2)	(2)	2	2	
Dassu-karabu, boatman*	(3)	(3)		(3)			
Iddin-Ninurta, courtyard sweeper*	(4)	(4)	(4)	(4)			
Habbil-ilu, farmer	5	5	5		(4)	8	1
Sebitti-nada, palace auxiliary	6	6	6	5			
Hablu-banutum, Elamite	(7)	(7)		6	3		
Nanaya-eriš, fisherman	(8)	(8)					
Šimanni-ili, Babylonian		9	3	8		(7)	
Šamayutum						3?	
Surarum, son of Ubarrum						4	
Habzazu, palace auxiliary					(4)	5	2
Nergal-gamil, son of Iddin-Adad						9	
Ea-eriba					(4)		3
Gimil-Gula, herald					5		
unclear		10		7		6	4

TABLE 4.20. *ešertu*-workteams in the Tell Khaiber archive.

have not been able to identify any judges, the memo 1096:25 and letter 1114:01 show that miscreants were identified and court cases conducted there. Other palace agents and functionaries—merchants, messengers and eunuchs—that appear in the Schøyen tablets have not yet been found in the Tell Khaiber archive either. The Fortified Building and its occupants were kept clean by sweepers and washermen, while boatmen were essential to the delivery of grain and life in the marshes more generally. But there was apparently no need for specialist water-drawers or barbers.

Finally, the wide social divide between Tell Khaiber and the palace is also apparent in the types of temple personnel and performers documented at each place (Table 4.19). One of the two Tell Khaiber priests, Arad-Bel-Akusi, is presumably the same individual who occurs in the Schøyen tablets as partner of Abi-lišir, priest of Ninurta, along with other high-

Type	Tablet	Tablet group	People	Description in heading
Delivery	1114:48	309-SC	farmers, women	Deliveries of farmers, palace men
	1096:47	309-N	mixed principals, farmers, and women	(missing)
	1096:51	309-N	principals	—
Delivery*	3064:26	300-C	farmers, principals	(missing)
	3064:51	300-NE	principals	—
Flour	3064:48	300-E	principals	—
	1114:40	309-SC	principals	—
	1124:01	309-SE	women, principals	Deliveries [of …] palace men
Flour/grain	3080:27	300-NC	principals, farmers	(missing)
	1124:02	309-SE	principals?	—
Grain	1096:50	309-N	farmers, women, principals	—
	1114:36	309-S	mixed principals, women, and farmers	—
	3064:83	300-E	principals, farmers	—
Grain'	1114:05	309-W	outliers	—
	1114:17	309-W	outliers	—
Grain*	3064:52	300-NE	principals	—
	1124:03	309-SE	principals	—
Other	3064:74	300-N	principals	—
	3080:06	300-N	principals	—
Receipts	1124:05	309-SE	farmers, women	Receipts of […]
	1124:04	309-SE	women	Receipts of palace servant-women
Daily receipts	3064:67	300-NE	farmers	Receipts of farmers
	3064:72	300-N	farmers	—
	3064:128	300-SC	women	—
Unclear	3080:04	300-NC	outliers	(missing)

TABLE 4.21. Types of workers in ration lists, flour and grain lists and delivery accounts at Tell Khaiber.

status men remitted from their *miksu*-dues.[92] Musicians were also on hand, whether for secular entertainment or religious ceremonies.

Workteams and professional groups

In fourteen long receipt lists and tables, and six memos, workers are explicitly or implicitly assigned to an *ešertu* 'decury' or workteam of ten (Tables 4.6, 8, 9). The ten men (or more or less) may be identified by patronym and/or profession, followed by a summary line stating 10^{-ti} PN, '*ešertu* of PN'. Where the workteam includes a professional group, the occupation of the first man is given and those following are described as TAB.A.NI = *tappašu* 'his partner'. Some individuals are both *ešertu*-leaders and professional group leaders. In most cases, *ešertu*-membership is relatively stable, enabling confident restoration of damaged passages in the long receipt lists. This also allows the lists to be clustered according to the order of the *ešertu*-workteams they contain, even when the decury leader is not explicitly named (Table 4.20).[93] Perhaps not surprisingly, the tablets found together are most similar to each other.[94]

As the fluidity of these receipt lists suggest, and the memos show explicitly, men were regularly moved around

[92] Dalley 2009: no. 384.

[93] Where the *ešertu*-teams never have a named leader, I have provisionally named them after the final member of the group, marked by * in Table 4.20, where the implicit *ešertus* are shown in parentheses. On the reverse of 3064:135 the farmers' team is named as such without individuals being listed, in a damaged sequence that also seems to list known *ešertu*-leaders.

[94] The more fragmentary 3064:136 starts with Dalilu's workteam and then breaks off. The remains of 3064:120a start with Hablu-banutum's team; the second, unclear, is perhaps Habzazu's. The order of names on 1086.48 and 3006:01 most closely matches 3064:33, which contains the names of farmers followed by auxiliaries.

ešertu-workteams. Most clearly, the memo 3064:129 assigns at least five men to Dassu-karabu's workteam, noting that he is subordinate to Habzazu, while 3064:76 moves another half-dozen to 'the palace', 'the fishermen' and 'the palace auxiliaries' in ones, twos and threes. 3064:94 simply names two of the famers, 1114:14 lists six ÉRIN.MEŠ DUMU.MEŠ LÚ, 'workers, sons of (free) men', who belong to one Abi-ili's *ešertu*, including two of his brothers. Conversely, 3064:73 names seven men who are currently 'surplus', *watar*. Only a few of the individuals in these memos can be identified, even tentatively, with those in the long receipt lists.

Conversely, many members of the core *ešertu*-workteams, whom I shall collectively denote as the principal workforce, also dominate the other types of lists and flour delivery accounts (Table 4.21; see commentary to Table 4.6 for definition of types). Here, however, they appear seemingly in random order, with the frequent exception of the farmers' workteam and two small groups of GÉME É.GAL = *amāt ēkalli*, literally 'palace servant women'. Even so, whereas in the long grain receipt lists the farmers are always led by Habbil-ilu, in these documents any one of them may be listed first.

As Table 4.21 shows, the flour delivery accounts, and the *hargallû*-flour/grain lists minimally record members of the principal workforce, sometimes also the farmers' *ešertu* at the start or end of the document. The farmers in turn may be followed by one or other of the women's groups. Alternatively, farmers, women and other members of the principal workforce may be mixed in with each other individually. The few Grain* and Other receipt lists exclude women and farmers, while the (daily) receipt lists are apparently for those groups only. The few Grain' and Unclear receipt lists seem to name outlier individuals who do not feature elsewhere in the archive.

Relationships with the palace

In the headed lists discussed so far, members of the principal workteams are sometimes described as LÚ/GÉME.MEŠ É.GAL, 'palace men/servant-women' (see Table 4.21). At the same time, headed memos categorize the same demographic as ÉRIN.MEŠ, 'workers' (Table 4.9), even while documenting the movement of small groups to, and possibly from, the palace.[95] And we have already seen that over twenty men belonged to the palace auxiliary guard, ÉRIN.TAH É.GAL (Table 4.17). In my view this does not mean that any of these individuals were high-status courtiers; their professions belie that interpretation. Rather, these terms indicate that they received rations from the palace in exchange for their labour, as these very documents show.

One plausible interpretation is that the document types in Table 4.21 record their production of high-value flour from grain that was provided to them by palace authorities, which was then delivered to the palace according to quotas recorded in daily and monthly delivery accounts.[96] The memo 1114:47 records family members deputising for three farmers in the production and delivery of flour, while 3080:03 explicitly refers to 'barley by the royal measure', ŠE LUGAL (Fig. 4.7).

This leaves us with the tax (or revenue) accounts, in which *muškēnu*-people or their representatives pay one-third of their harvests to the palace (Table 4.22). Only 44 sets of names are preserved in these very fragmentary documents. On the 11 occasions when *šibšu* or *miksu* is paid on behalf of someone else, four of the seven legible names belong to known farmers. Of the remaining 33, four are explicitly named as farmers or farmers' sons, and four more have names known from the farmers' *ešertu*-workteam. Similarly, ten entries can be plausibly assigned to members of the principal workforce, eight to individuals whose names I have been able to identify only once elsewhere in the archive, and seven whose names do not recur at all. A further seven fragmentary names cannot be identified.

In short, between a tenth and a quarter of the attributed *šibšu* and *miksu*-payments were made by or for farmers, and similar amounts again by other members of the principal workforce. What are we to make of this?

The classic model of Old Babylonian palatial economy (Renger's Palastgeschäft) argues that there were two types of royal agricultural regimes: the directly controlled royal reserve, *eqel ēkalli*, and tenured subsistence fields, *šukussu*, held in return for state service by people who would otherwise receive rations. Dues were payable on both types of land, but the technical terminology of royal revenue collection was highly variable and localised: no earlier set of terms and practices maps neatly onto the Sealand evidence.[97] However, as Baptiste Fiette has suggested, the regime operated by Hammurabi's provincial officials in Yamutbal, the former kingdom of Larsa, after its conquest in 1762 BCE may well have been its precursor.[98]

According to Fiette's detailed study of the famous Šamaš-hazir correspondence and related documents, the royal reserve was the responsibility of provincial governors.[99] They provided tools, seeds and labour to *iššiakku*-farmers, who worked the land in return for rations. The governors paid a third or a half of the harvest to the crown each year, as *biltu*-duties. By Sealand times, Fiette argues, this duty was known as *šibšu*—a term also well attested in Mari, Eshnunna and elsewhere in the Old Babylonian period. Meanwhile, particularly favoured palace dependents could be allocated subsistence fields

[95] 3006:17, 3064:13, 3064:76.

[96] Note the hundreds of fragments of flat stone querns, grinders and pounders found in the Fortified Building, especially in Rooms 316 and 616 (see pp.178–86).

[97] Ellis 1974; Mynárová and Alivernini 2020; De Graef 2020; Goddeeris 2020; Boivin 2016a; 2020a; 2020b.

[98] Fiette 2020: 325.

[99] Fiette 2018a; 2018b; 2019; 2022.

Tablet	Tablet group	Type	Usable entries	Designated farmers	Farmers' substitutes	Possible farmers	Other principals
1096:26	309-E	*šibšu*	1	—	—	—	Sin-šemi, son of […]
1096:40	309-E	*miksu*	26	Ili-ya'u for Sin-leqi-unninni Uṣi-ana-nurišu	Ili-eriš for Sin-leqi-unninni Ili-iqiša for Sin-leqi-unninni […] for Habbil-ilu	Ilanutum, son of Iddin-Erra Ili-iddinam, son of Ukkulu-Naze	Arad-Sin for […] Beliyatum, son of Sin-išmeanni Dassu-karabu, boatman Qišti-Amurru for […]-Sin Silli-Sin, shepherd, for Sin-bel-kali Taribatum for […]
1096:41	309-E	*šibšu*	6	—	—	Ali-tillati	Arad-Ea Silli-Šamas, son of […]
1114:04	309-W	unclear	11	Ili-ya'u for Sin-leqi-unninni Uṣi-ana-nurišu	—	Ahi-illikam	Damiq-Šakkan, chief smith

TABLE 4.22. Farmers and other likely members of the principal workforce in tax accounts at Tell Khaiber.

under *ṣibtu*-tenure instead of receiving rations. They were to live off this land, either by farming it directly or by contracting *iššiakku*-farmers to do the work for them. In return these *muškēnū* contributed both regular labour to the state, in the form of *ilku*-service (or paid for substitutes), and a fraction of the harvest, known as *miksu*. In other words, different members of the same profession, in the same community, might be ration-recipients or *muškēnu*-tenants (and individuals might change status in the course of their lives). And *iššiakku*-farmers might cultivate land in the royal reserve, in exchange for rations, and/or work their own tenured land as *muškēnu*-dependents, and/or be contracted by other *muškēnū* to farm on their behalf.

This model certainly fits the Tell Khaiber evidence, where, for instance, most boatmen, reedworkers and shepherds receive rations but some pay *miksu*-dues on their harvest; while a group of ten *iššiakku*-farmers, organized into an *ešertu*, regularly receive rations; deliver harvest revenues as *muškēnū* or have subordinates do it for them; and pay *šibšu*, perhaps on behalf of their superiors.[100] I return to the question of superiors on pp.95–6.

Ethnicity, religion, migration: hints from personal names

The Tell Khaiber community, as attested in the archive, comprised people with local roots and those from much further afield. Most often family origins are discernible through naming practices, via theophoric elements referencing members of regional panthea. Geographical designations are used much more rarely, and interestingly these tend to belie the personal names themselves. Finally, as we shall see, the overall image of diversity generated here, while sharing much with the unprovenanced Schøyen tablets, also shows significant differences.[101]

Not surprisingly the largest proportion of theophoric names reference the gods of the southern cities: overwhelmingly Sin of Ur, just 20 km away. But we also find Ea of Eridu; Anu, Ištar and Nanaya of Uruk; Šamaš of Larsa; and Naze (Nanše) of Šurgul. The fishermen, boatmen and bird-catchers have local, marshland names such as Ea-abi and Sin-iddinam. One palace auxiliary is even called Ištu-tamtim-Anu, 'Anu-from-the-sea'; another man is Mar-Eridu-ali, 'Son of Eridu, my city'. Some local names are attached to ethnonyms from further afield: for instance Nur-Ea the Elamite, or Ṭeh-tamtim-išemme (lit. 'He listens next to the sea') of Babylon. I understand these as *nisba*-names, indicating ancestry or family origin, rather than labels for very recent incomers.

A rather smaller number of theophoric names reference deities from mid-Babylonia: Adad of Karkar, Gula of Isin, Ninurta and the Sebitti of Nippur, and Sugallitum of Zabalam. Enlil of Nippur is notably absent, given his prominence in the Schøyen offering lists.[102] The gods of the northern cities are perhaps better attested: Marduk of Babylon, Uraš of Dilbat, Nergal and Erra of Kutha, Ištaran of Der, and Ištar-Akkaditu or Belet-Akkade. We should probably include the Amorite god Amurru in this list, and the obscure Bel-Akusi. Neither of the two men who are explicitly named as 'sons of Babylon', DUMU KÁ.DINGIR.RA^{ki}, have particularly northern names: the just-mentioned Ṭeh-tamti-išemme and the *ešertu*-leader Šimanni-ili.

Most of the people with Elamite origins are recognizable only from the label 'Elamite' attached to their names, written ^{lú}ELAM.MA or syllabically. They all have unremarkably Akkadian names, though with the exception of an Adad-[…], they conspicuously avoid Babylonian theophoric elements:

[100] Although the very damaged *šibšu* accounts do not explicitly document farmers paying tax, the fragmentary memo 3080:02 records ŠE *ši-ib-šu* […] *a-na* É.GAL, '*šibšu*-barley […] to the palace' paid by an unknown *iššiakku*-farmer and at least one partner. There is not enough evidence in the Tell Khaiber accounts to confirm or refute Boivin's hypothesis that '*šibšu*-payers were less close to the palace than *miksu*-payers' (Boivin, 2020a: 289).

[101] See Zadok 2014; also relevant is Boivin 2018: 231–7. The Tell Khaiber names glossary is at https://oracc.org/urap/qpn-x-people.

[102] Boivin 2018: 197–8.

Name	Identifier	Tell Khaiber	Schøyen tablets
Ahi-illikam	carpenter	Receives grain (as rations?) in Surarum's *ešertu*; receives *hargallû*-grain and delivers flour (1096:47, 48, 51, 58; 1124:03; 3064:49, 52, 53, 57, 83)	One of 14 carpenters in a list of craftsmen (Dalley 2009: no. 381, year I)
Ahuni, Anzak-rabi(at), Habbil-ilu and Iddin-ya' utum	various	Ahuni: receives rations via Dummuqum (3064:33); Anzak-rabiat: gardener, delivers milled barley (3064:51); Habbil-ilu: see below; Iddin-ya'utum: pays *miksu*-tax for Iqiša-ili (1096:40)	Four of five men ordered to deliver grain to the town Quppat-Nikkal (Dalley 2009: no. 1, year I)
Arad-Bel-Akusi	priest (of Ninurta)	Receives grain (rations?) in Habzazu's *ešertu*; delivers flour (1096:48, 51; 3006:01; 3064:33, 57, 120a)	Is exempted from *miksu*-tax; pays *miksu*-tax in Kar-Šamaš (Dalley 2009: nos. 384 year N, 443)
Arad-Sin	father of Eribu	Listed with 10 other men who are perhaps 'of the palace', ⌜*ša*⌝ É.[GAL$^{?}$] (memo 3064:13)	Delivers calf carcass to the palace (Dalley 2009: no. 344 year N)
Arad-Šamaš	shepherd	Receives grain (as rations?), delivers milled barley (3080:04, 3064:51)	Sends single ewes to the palace via Nanna-mansum (Dalley 2009: nos. 18, 21, 22, years E and F)
Beli-iddinam	leatherworker	Receives grain (as rations?) in Šamayutum's *ešertu* (1096:47, 48; 1114:36; 3064:33, 57, 83, 135 year J)	One of at least 27 leatherworkers, with Kussašu-gamil, in a list of craftsmen (Dalley 2009: no. 381, year I)
Habbil-ilu	farmer	Receives rations, delivers *hargallû*-flour to the palace, pays *miksu*-tax; mentioned with Ili-iqiša in a memo (1096:40, 47, 50; 1114:48; 1124:05; 3064:33, 57, 67 year K, 122, 123)	Pays *šibšu*-tax in the town Kiribti-Ellile (Dalley 2009: no. 442)
Ili-iqiša	farmer	Receives rations, delivers *hargallû*-flour to the palace; mentioned with Habbil-ilu in a memo (1096:58; 3064:33, 48, 49, 53, 57, 67 year K, 72, 83, 122, 123; 3080:27)	Pays *šibšu*-tax for Ahiya'utum in the town Nur-šarri (Dalley 2009: no. 415); Pays *šibšu*-tax in the town Kiribti-Ellile as a 'servant of the palace' ARAD É.GAL (Dalley 2009: no. 442)
Kalbiatum	father of Arad-Ea	Arad-Ea receives rations (3006:01, 3064:120b)	Mentioned in letter by senior official Ṭab-kidenšu as the father of his (unnamed) young servant (Dalley 2009: no. 5)
Kussašu-gamil	leatherworker	Delivers(?) *hargallû*-flour, named as 'royal leatherworker', AŠGAB LUGAL (1114:40)	One of at least 27 leatherworkers, with Beli-iddinam, in a list of craftsmen (Dalley 2009: no. 381, year I)
Nuratum	(senior official)	Superior of eight men who often work together; receives payments of silver and grain; receives letter from Uraš-ibsasa; mentioned in letter from Uraš-ibsasa's son Adad-šemi about transporting sheep's wool he is responsible for (1096:52, 1114:06, 18, 21, 22, 39, 41, 43; 3064:33, 49, 53, 106, 135, year J)	Receives delivery of 1 sheep (Dalley 2009: no. 17, year E)
Ṭab-kidenšu	(senior official)	Receives *hargallû*-grain, named as *ša tillati*, 'of the auxiliary guard' (1114:05)	Author of two letters 'of a type written to a senior official to a king', including one mentioning Kalbiatum (Dalley 2009: nos, 4, 5)
Uraš-ibsasa	(senior official)	Gives orders in letters to scribes and Nuratum and is mentioned in one by his son Adad-ilum (1096:52; 1114:06, 45)	Gives order in letter to take *šibšu*-tax of Dur-Ninurta town; receives ghee (Dalley 2009: nos. 14, 104 year J)

TABLE 4.23. Possible prosopographical connections between the Tell Khaiber archive and the Schøyen tablets.

Atanah-ili, son of Etena-pišu; the *ešertu*-leader Hablu-banutum; Gamilu-šemi, Šanumma, and Ubarrum, son of Nur-Ea. One of the auxiliary guards is called (in Akkadian) Nur-Inšušinak, after the major deity of the Elamite pantheon, and a second is Ṭab-kidenšu. A small group of men and women, without ethnonyms, share the Elamite goddess Šimut in their otherwise Akkadian names: Imdi-Šimut, Kuri-Šimut, Ṣilli-Šimut. Finally, there is a short sequence of purely Elamite names in the fragment 3064:63: […]-hater, son of Šimut-[…], followed by the son of Kukšia.

The Kassite deities, meanwhile, appear in the purely Kassite names Burra-Sah, Burra-Šugab, and Burrun-dassi, as well as the Akkadianising Damiq-Šumuqan. Also from the far north are the Hurrian gods Haldi (in Merri-Haldi), Išhara (in the woman Ummi-Išhara) and Šeriš (Šeriš-ilum and a damaged name). Finally, Gulf connections are hinted at through Dilmunite theological commitments: two men with classically Akkadian names have (damaged) patronyms featuring the deity Anzak, while a gardener has the Akkadianised name Anzak-rabiat, 'Anzak is great', and palace auxiliary is called Abi-Laguda, 'Laguda is my father'.

All of this suggests a significant degree of assimilation—although there could well be purely Dilmunite, Elamite, Hurrian, and/or Kassite names amongst those I have not been able to read correctly. Coincidentally or not, there is a preponderance of non-Babylonian names amongst the palace auxiliaries.

Prosopographical links with the Schøyen tablets

About a hundred names—around a quarter of those attested at Tell Khaiber—are also identifiable in the Schøyen tablets.[103] For the most part, it is impossible to tell if the same individuals are meant, as many are commonly found throughout the Old and Middle Babylonian historical record. However, where the same profession, patronym or activity is found in both archives, there is a possibility that we are dealing with a single person. That likelihood increases if the name is a more unusual one. Boivin already tentatively identified eight possible matches, five of which are borne out.[104] I suggest a further dozen or so (Table 4.23).

As can be seen, these fall into four categories, more or less secure: first, the priest Arad-Bel-Akusi and the senior officials Nuratum, Ṭab-kidenšu and Uraš-ibsasa are the most convincing matches; I return to Nuratum and Uraš-ibsasa below. Next are the two farmers Habbil-ilu and Ili-iqiša. The fact that they both pay *šibšu*-tax (on others' behalf?) in Kiribti-Ellile suggests that this might have been the name of Tell Khaiber; however, the fact that Ili-iqiša also does so for Ahiyaʾutum in Nur-šarri reminds us that people could and did move around, so we should not be over-confident in plumping for either toponym. Third, of the three craftsmen who appear in the palace roster, the unusually named Kussašu-gamil is most likely to be our man at Tell Khaiber; Beli-iddinam and Ahi-illikam are less secure, given the ubiquity of these names. Finally, the other men—Ahuni, Anzak-rabiat, and Iddin-yaʾtum; Arad-Sin, Arad-Šamaš and Kalbiatum—seem least likely, based only on circumstantial evidence.

Archival practice and the Sealand economy

In this section I give a brief overview of the range of commodities covered by the Tell Khaiber archive. I attempt to quantify the amount of grain the community produced each year, for the palace and themselves, and how much was processed into flour. These figures can also be used to estimate the storage capacity needed and the amount of land under cultivation. I then explore how much people were paid for their labour, in grain and in silver. Finally, I look for patterns in the distribution of records and activities over the archival and agricultural year.

Commodities

As will already be obvious, grains and grain products dominate the Tell Khaiber archive. Twenty-two of the headings on the archival documents refer to *hargallû*-grain and *hargallû*-flour and a further eight to ŠE, 'barley' (Tables 4.6 and 8). There are also two references to *kunāšu*, 'emmer wheat' in damaged tax accounts (3064:15 and 71).

As Odette Boivin discusses, *hargal(l)û*, a term which is attested only rarely outside the Babylonian Sealand, may pertain to either a variety or a quality of grain.[105] The Tell Khaiber documents do not help clarify that matter but they do point to a very clear distinction in use contexts between barley and *hargallû*, also apparent in the Schøyen tablets.

[103] Namely Abi-ili, Abu-ṭabu, Ahi-illikam, Ahuʾatum, Ahušina, Ali-tillati, Apil-Amurru, Apil-Šamaš, Arad-Ištar, Arad-Kinuni, Atanah-ili, Atanah-Šamaš, Atta-ilamma, Bahu, Belšunu, Dassu-karabu, Dummuqu, Ea-abi, Ea-eriba, Ea-kidinnišu, Ea-šarrum, Egi-ana-mešu, Eribu, Gimil-Gula, Gubbuhu, Habbil-kenu, Huzalum , Iballuṭ, Ibašši-ilum, Ibbi-Sin, Ibni-Amurru, Iddin-Adad, Iddin-Amurru, Iddinu, Ili-ahi-iddin, Ili-eriš, Ili-iddin(am), Ili-iqulam, Ili-išm(e)anni, Ili-iyatum, Ili-ya'u, Ilima-abi, Iluni, Inbi-ilu, Inbuša, Iqulam-Šamaš, Išaggum, Itti-ili-uballiṭ, Mannu-balu-Šamaš, Mar-ešre, Mayašu, Muranu, Nanaya-eriš, Nur-Ištar, Qiš-kubi, Qišti-Amurru, Qišti-Ea, Qištum, Quttunu, Ruqi-lumur, Sanqum, Sin-ahi-iddin(am), Sin-bel-apli, Sin-eriš, Sin-gamil, Sin-iddin(am), Sin-iqiša, Sin-iqulam, Sin-išm(e)anni, Sin-mušallim, Sin-nadin-šumi, Sin-napšera, Sin-šemi, Sizzu, Surarum, Ṣilli-Adad, Ṣilli-Sin, Ṣilli-Šamaš, Ṣilli-Šimut, Ša-ili-bana, Šamaš-rabi, Šelebu, Šep-Adad, EŠeriš-ilum, Šumman-la-Adad, Šummuhu, Šunu-gamilu, Taribatum, Taribu, Ṭab-Addaru, Ubarrum, Ukkulu-Naze, Ummi-ṭabat, Uṣi-ana-nur-Adad, and Uṣi-ana-nurišu.

[104] Boivin (2018: 71) correctly identifies Ahi-illikam, Arad-Šamaš, Beli-iddinam, Habbil-ilu, and Ili-iqiša. The palace carpenters Egi-ana-mešu and Uṣi-nur-Adad are unlikely to be the same as the boatman and *miksu*-payer attested at Tell Khaiber, while the two names in the third suggested comparison are both too damaged to be conclusive.

[105] Boivin 2018:137. It is not impossible that *hargallû* refers to soybean, Akkadian term hitherto unknown and now identified in residue form at Tell Khaiber (Chowdhury et al. 2021).

Type	Tablet	Complete entries	Sum of complete entries (litres)	Mean of complete entries (litres)	Median of complete entries (litres)	Damaged entries
miksu-tax	1096:40	21	19,285	918	720	4
šibšu-tax	1096:41	23	96,531	4,274	1,096	6
tax unknown	1114:04	12	14,910	1,243	1,356	0
	3064:18	29	30,101	1,038	1,030	13
Total			160,827			

As Tables 4.6, 7 and 8 show, *hargallû*-grain occurs almost exclusively in grain receipt lists, while *hargallû*-flour appears in delivery lists and accounts. By contrast, the large majority of receipt lists, and all tax accounts are made in barley (and secondarily emmer).

Some commodities are not directly attested in the archive but their role in the local economy can be inferred from the existence of related professions (see pp.79–82), and references in letters (Table 4.10). Thus we find fisherman and bird-catchers, woodworkers and reedworkers, all presumably active in the marshes surrounding the settlement. In the fields and orchards, shepherds provided wool and leather, and doubtless meat and milk products, while date-palm gardeners and oil-pressers harvested and processed their respective foodstuffs.

Metal and stone artefacts found in and around the Fortified Building and neighbouring houses show that the smiths and a seal-cutter might have been working their raw materials onsite. The archaeologically abundant pottery vessels, on the other hand, seem to have been delivered from elsewhere. The apparent absence of potters in the archive explains the two receipts for a variety of small containers, bowls and drinking vessels, almost 700 in total (1096:55 and 3064:65).[106] These must have represented significant shipments.

Grain quantifications

How much grain was documented in the archive? We can use the better-preserved tax accounts to estimate the total harvest yield at Tell Khaiber (Table 4.24). As the palace systematically took one third of the harvest, even when individual yields are not preserved, they can be calculated with confidence, either as 1.5 of the *muškēnu*'s share or as 3 times the palace share (with the usual estimate of 1 *qû* ≈ 1 litre). The totals, means and medians of these 'complete' entries are shown in columns 3–5. Some producers in 1096:41 were particularly productive, skewing the mean, but the median harvest per individual was consistently around 1,000 litres +/- 30%. I therefore made two estimates of total yield per tablet. The minimum, in column 7, is calculated as the sum of the complete entries plus the sum of the partially preserved ones, using the largest preserved entry in each row to calculate minimum total yield (=1.5 × *muškēnu* or 3 × palace). Then, I estimated the sum of the missing entries using the median values of the complete entries and added this to the minimum estimate. Finally, I used an online convertor to estimate the weight of these large volumes of barley in metric tonnes.[107] For comparison, a modern ISO-standard 20 ft shipping container, measuring 5.87 × 2.35 × 2.38 m externally, has an internal volume of 33.1 cubic metres (33,100 litres) and can bear a maximum load of 28.23 metric tonnes.

In short, each *muškēnu* at Tell Khaiber typically supplied the palace with 350–400 litres of grain per harvest. If we suppose for a moment, purely as a thought experiment, that 1096:40 and 1096:41, which were found together, represent one year's *šibšu*- and *miksu*-payments, then the settlement as a whole was producing over 75 metric tonnes of barley a year, occupying a volume of around 126.7 cubic metres—almost enough to fill four modern 20 ft shipping containers. A third of that volume was sent to the palace each year: some 25 metric tonnes, over 1¼ shipping containers' full. This is the same order of magnitude as the barley deliveries to Larsa in the late nineteenth century BCE, when, as Tina Breckwoldt has shown, seven neighbouring settlements each shipped between 32 and 130 metric tonnes to central storage facilities in the city.[108]

The barley flour delivery accounts are commensurate with this picture: see Table 4.25, where complete tablets are marked with '*'. In these documents, individual entries typically average 250–500 litres, with one outlier that falls into the same range as the tax accounts (3119:03). The total grain each record deals with ranges from about 3.5 to 8 metric tonnes, roughly 5–10% of Tell Khaiber's putative annual barley yield, much less than half of a modern 20 ft shipping container. It is unclear whether this was delivered to the palace as part of the community's *šibšu*-dues or on top of them.

The production of *hargallû*-flour represented a tiny proportion of the volume of grain flowing through Tell Khaiber (Table 4.26), even on a generous estimate. Document types that probably record this commodity together account for less than 6,500 litres of flour and its grain precursor, under 4 metric tonnes, which is about five percent of the estimated barley harvest. This volume would fill just less than 1/5 of a modern 20 ft shipping container.

Where might all this grain have been stored? In her study of grain storage at nearby Larsa during the reign of Rim-Sin I

[106] Calderbank 2020; 2021a; 2021b.

[107] https://www.aqua-calc.com/calculate/volume-to-weight (accessed August 2021), using the conversion factor 1 litre = 0.6 kg barley.

[108] Breckwoldt 1995/96: 66–8.

Min. sum of damaged entries	Min. original total (litres)	Missing entries	Est. sum of missing entries (litres)	Est. original total (litres)	Est. weight equivalent (metric tonnes)
1,337	20,662	3	2,160	22,822	12.6–13.9
7,296	103,827	0	—	103,827	63.2
0	14,910	1	1,356	16,266	9.1–9.9
17,835	47,936	2	2,060	49,996	29.2–30.4
26,468	187,295		5,576	192,911	114.0–117.5

TABLE 4.24. Estimated harvest yields at Tell Khaiber, based on tax accounts.

Tablet	Complete entries	Sum of complete entries (litres)	Mean of complete entries (litres)	Damaged/ missing entries	Est. sum of damaged/missing entries (litres)	Est. original total (litres)	Est. weight equivalent (metric tonnes)
3064:12	10	3,610	361.0	7+	2,527+	6,137+	3.68+
3064:51*	19	10,030	527.9	6	3,167	13,197	7.92
3064:89*	9	2,320	257.8	13	3,351	5,671	3.40
3119:03	5	4,500	900.0	1+	900+	5,400+	3.24+
Total	43	20,460			9,945	30,405	18.24+

TABLE 4.25. Estimated barley flour production at Tell Khaiber.

Type	Tablet	Sum of complete entries (litres)	Complete entries	Mean of complete entries (litres)	Damaged/ missing entries	Est. sum of damaged/missing entries (litres)	Est. original total (litres)	Est. equivalent (metric tonnes)
Delivery	1096:47	710	72	9.9	1	10	720	0.45
	1096:51	17.5	6	2.9	6	16.5	35	0.02
	1114:48	230	13	17.7	0	—	230	0.14
Flour	1114:40	450	45	10.0	0	—	450	0.27
	1124:01	100	10	10.0	0	—	100	0.06
	3064:48	380	30	12.7	0	—	380	0.23
Flour/grain	1124:02	140	14	10.0	0	—	140	0.06
	3080:27	220	23	9.6	0	—	220	0.13
Grain	1096:50	450	34	13.2	34	450	900	0.54
	1114:36	320	28	11.4	18	206	526	0.32
	3064:83	440	45	9.8	0	—	440	0.26
Grain'	1114:05	35	32	1.1	9	10	45	0.03
	1114:17	34	29	1.2	4	5	39	0.02
Grain*	1124:03	170	2	85.0	8	680	850	0.51
	3064:52	780	16	48.8	2	98	878	0.53
Grain/other	3064:74	100	10	10.0	2	20	120	0.07
	3080:06	355	33	10.8	5	54	409	0.25
	Total	4,391.5				1,549.5	6,481	3.89

TABLE 4.26. Estimated *hargallû*-flour production at Tell Khaiber, based on lists and accounts.

in the late nineteenth century BCE, Tina Breckwoldt was able to document the existence of a large warehouse, É.KIŠIB.BA É.ÚS.GÍD.DA = *bīt kunukki (ša) bīt ašahhāti*, in the central square with capacity for at least 1,156 *kurru* or *c.*209 metric tonnes. When this filled up with arrivals from neighbouring agricultural settlements, a temple granary (at least 221 *kurru*, *c.*40 metric tonnes), and two privately owned storerooms (at least 230 and 278 *kurru*, *c.*41 and 50 metric tonnes) could also be put to use.[109] Contemporary letters suggest that the grain was stored and transported in standard-sized cloth sacks of perhaps 1 *parsiktu*, 60 litres.[110]

The Larsa tablets do not describe storage arrangements in the agricultural centres, so, for want of a different model, let us for argument's sake, imagine that at Tell Khaiber the grain was deposited in the Fortified Building, at least temporarily. Rooms 99–109, the range of small, long, single-entrance rooms between the Eastern Passage and eastern exterior wall of the northern unit, are superficially very similar to the storage rooms in two late third-millennium fortified buildings that Tate Paulette interprets as institutional storehouses: namely Naram-Sin's 'palace' at Tell Brak in northern Mesopotamia, and the Ur III period Enunmah at Ur, much closer to hand.[111] As each of these Rooms 99–109 has a floor area of *c.*12.2 square metres, the 127 cubic metres of barley estimated above would fill them all to a depth of about a metre. However, in practice, the *tannurs* found in around half of these spaces suggest human habitation and cooking, while it would have been challenging to carry heavy sacks of grain down the very narrow Eastern Passage itself.

Estimating population size

How much labour was needed to manage that output, and how many mouths would it feed? We can attempt a minimum estimate, based on Seth Richardson's work. He used the much richer documentation from Old Babylonian Larsa—whose territory included the marshlands around Tell Khaiber—to calculate that land producing 6.6 million litres of barley required 1.9 million labour days per annum, for tasks encompassing land preparation, planting, crop maintenance and harvest.[112] That is, one agricultural labour day yielded 3.44 litres of grain. If we continue the fiction that the best preserved *miksu* and *šibšu* accounts, 1096:40 and 1096:41, together represent Tell Khaiber's typical annual yield (Table 4.24), these 126,649 litres of barley would have required some, 37,250 labour days to produce, namely 124 workers for 300 days each. And indeed, the longest grain receipt lists at Tell Khaiber, 3064:33 and 3111:01, do account for roughly this number of workers, namely 108 and (at least) 121 respectively.

Conversely, inspired by Rosemary Ellison's classic analysis of the nutritional content of barley rations, we can guesstimate the number of people that Tell Khaiber's crop yield could support—bearing in mind that, even for palace dependents on rations this would have been supported by hunted fish and wildfowl, as well as a range of domestically grown plant foods.[113] Data available to her put the calorific content of 1 litre of barley at 2,700 calories, enough to fuel a reasonably active adult man for a day if supplemented by nutritionally varied foodstuffs to prevent Vitamin A and C deficiencies. Let us say, then, that 360 litres of barley could sustain a healthy adult for a year. Let us also suppose that just under half of the Tell Khaiber crop, some 63,000 litres, were available for feeding its workers and their families, given that a third went to the palace, and some was needed for seeding and cattle feed. In that case, we arrive at an adult population estimate of 175 people, about 1.5 times the number of labour-years needed to produce the crop. Now, there were presumably plenty of people associated with Tell Khaiber who were only peripherally involved in agricultural labour, if at all, as the variety of their professional titles attests (see pp.79–93). All told, a total all-age population of some 300–500, including infants, children and economically inactive adults, seems like a reasonable first approximation.

Land under cultivation

Following Boivin, we can use the harvest yield figures to estimate the amount of land under cultivation around Tell Khaiber (Table 4.27).[114] As she notes, based on Marten Stol's work with Old Babylonian evidence, it is reasonable to assume an average yield of 20 *kurru* per 1 *buru* of land.[115] This conveniently approximates to 1,000 litres per hectare (an area of 100 × 100 m). The results are surprisingly small. Seth Richardson, meanwhile, calculates that fields under cultivation in Old Babylonian Larsa yielded more like 800 litres per hectare.[116] Stol estimates the average area of an Old Babylonian subsistence field to have been 1 *buru*, *c.*6.5 ha.[117] The mean areas estimated here are all significantly less than that, on both Stol's and Richardson's models, even in the tax accounts which we might expect to have represented the entire holdings of individuals.

It is instructive to compare these estimates with those made by Boivin for the Schøyen Collection tax accounts.[118] I have recalculated those values in modern units and added totals for reasonably complete tablets, which Boivin does not provide (Table 4.28). As some individual entries are

[109] Breckwoldt 1995/96: 75–7.

[110] Breckwoldt 1995/96: 65–6 on AbB 6 219 = ARCHIBAB T16205. See also CAD N/I, 380 s.v. *naruqqu* 1b); S, 168–9 s.v. *saqqu* 1.

[111] Paulette 2015: 78–82, 157–61; 2016: 93–5.

[112] Richardson 2015: 294.

[113] Ellison 1981.

[114] Boivin 2018: 134–5.

[115] Boivin 2018: 134; Stol 2004: 840–5.

[116] Richardson 2015: 288–91.

[117] Stol 2004: 844.

[118] Boivin 2018: 135.

Type	Tablet	Mean complete entries (litres)	Mean area (ha): Stol model	Mean area (ha): Richardson	Est. total grain (litres)	Est. total area (ha): Stol	Est. total area (ha): Richardson
miksu-tax	1094.40	918	0.92	1.14	22,822	22.8	28.5
šibšu-tax	1094.41	4,274	4.27	5.34	103,827	103.8	129.8
tax unknown	1114:04	1,243	1.24	1.54	16,266	16.2	20.3
	3064:18	1,038	1.04	1.30	49,996	50.0	62.5

TABLE 4.27. Estimated areas of land under cultivation at Tell Khaiber, based on tax accounts.

Type	Tablet	Settlement	Year	Mean entry (litres)	Mean area (ha): Stol model	Median entry (litres)	Median area (ha): Stol	Total grain (litres)	Total area (ha): Stol
miksu	443	Kar-Šamaš	—	5,550	5.56	3,180	3.18	238,653	238.7
	448	—	—	236	0.24	135	0.14	8,246	8.2
šibšu	411	Kiribti-Ellile	F	6,747	6.75	4,658	4.66	80,961	81.0
	413	—	F	142	0.14	120	0.12	7,521	7.5
	415	Nur-šarri	I	5,066	5.07	1,026	1.03	157,042	157.0
	426	—	L	4,666	6.67	2,611	2.61	74,649	74.6
	428	Kar-Šamaš	M	875	0.88	530	0.53	28,031	28.0
	431A	Kar-šeduanni	N	2,701	2.70	565	0.57	70,230	70.2
	432	*mēreštu*-land	N	1,109	1.11	330	0.33	21,069	21.1
	434	Kar-a…	L	1,320	1.32	1,067	1.07	—	—
	441	Kar-[…]	—	4,412	4.41	1,545	1.55	—	—
	442	Kiribti-Ellile	—	1,282	1.28	900	0.90	39,756	39.8

TABLE 4.28. Estimated areas of land under cultivation in the Sealand, based on tax accounts from the Schøyen Collection.

exceptionally large, I have given both mean and median values for individual entries.[119]

Several features emerge. First, both the individual and total grain yields—and thus areas of land—estimated from the Tell Khaiber tax accounts are entirely in line with those in the settlements attested in the Schøyen Collection. They are neither unusually large, nor unusually small. Second, there is no appreciable difference between tax type: the few *miksu*-tax accounts deal with grain (and therefore land) in the same kinds of quantities as the more numerous *šibšu*-accounts. Third, the same settlement could submit wildly different grain harvests to the palace authorities from year to year. For instance, the total grain in the two accounts from Kiribti-Ellile varies by a factor of two, and the individual averages (mean and median) by a factor of five. The figures from Kar-Šamaš are even more variable. Therefore, the fact that the four most complete Tell Khaiber tax accounts give very different estimates should not in itself be a matter of concern. These accounts certainly warrant further investigation, however.

Rations and wages

How much were people paid for their labours? That question is difficult to answer, as it is mostly impossible to tell whether individuals received grain for consumption or for further production. The Tell Khaiber tablets listed in Tables 4.6 and 21 lack headings such as those found on Schøyen Collection comparanda that refer to, for instance, *še'u hargallû ša ana ṭēni amāt ēkalli imhurā*, '*hargallû*-grain that the palace servant women received for grinding'; *še'u ša kīma idīšunu ana epšēti innadinu*, 'barley that was given instead of their wages for work'; or ZAG.HI.LI NUMUN, '*sahlû*-seeds', presumably for sowing.[120] Terms such as ŠUKU^{-at} = *kurummāt(u)*, 'rations' and ŠE.BA= *ipru*, 'allowance', which occur in daily receipt lists and those for *ešertu*-workteams, are absent from Tell Khaiber too.[121]

However, if we continue to assume that each document type had the same function in both places, it seems reasonable to posit that the long lists which group grain recipients into workteams are records of ration payments. We can test this hypothesis by comparing them with seven similar documents from the Schøyen Collection, many of whose headings or subscripts explicitly state that they are ration

[119] To estimate areas according to Richardson's model, multiply the figures from Stol's model by 1.25.

[120] Dalley 2009: nos. 372, 378, 407.

[121] Dalley 2009: nos. 380, 383; 386–8, 443.

Tablet	Ration size (litres)	Recipients	Months	Daily equivalent (litres)	Heading	*ešertu*-leader
380	20	6	1	2/3	Barley rations (ŠUKU) of workmen from Ulli, that are from day 1 to day 30 of Month VI	Šamaš-šemi
386	50	4	—	1 2/3?	Allotments (ŠE.BA) for the ploughmen	—
387	400	10	1	13 1/3	Allotments (ŠE.BA) for 1 month	Kašaktu
388	20	10	—	2/3?	Allotments (ŠE.BA)	Mannu-ki-beliya
389	400	10	—	13 1/3?	—	Mannu-balu-ilišu, subordinate of Ten-huruppi
394	400	10	2nd	13 1/3	—	—
431	300	2	1	10	Allotments (ŠE.BA) for 1 month, that are from day 1 to day 30 of Month VII	—

TABLE 4.29. Recipients of monthly rations in tablets from the Schøyen Collection.

Tablet	Dalilu's *ešertu*	Burra-dabani's *ešertu*	Farmers	Palace auxiliaries	Nuratum's subordinates	Gimil-Gula's *ešertu*
3064:33/1	300	300	300	—	60–140	—
3064:49	240	240	(missing)	60	30–120	—
3064:53	250?	(missing)	150–240?	100	60–100	—
3064:123	(missing)	(missing)	100	60	—	—
3064:135	450	300–450	(missing)	—	—	60, 100
3111:01	560	(missing)	—	100–180	160	—

TABLE 4.30. Grain receipts (in litres) for six workteams in tablets from Tell Khaiber.

payments to *ešertu*-workteams for one month (Table 4.29). The equivalent daily allotments fall into two ranges: from ⅔ to 1⅔ litre; and from 10 to 13⅓ litres. There does not seem to be a quantitative distinction between ŠUKU and ŠE.BA.

Looking now at the six best-preserved long grain receipt lists from Tell Khaiber, in which the recipients are grouped by profession and/or *ešertu*-workteam, the quantities are similar (Table 4.30).[122] Just as in the Schøyen comparanda, grain is doled out in multiples of the *sūtu* (*c.*10 litres); the smaller *qû* measure which dominates the flour documents, and also occurs frequently in the tax accounts, is entirely absent. Quantities are also in the same range, namely 30–560 litres, suggesting daily allotments of 1–18⅔ litres a day if these do indeed record monthly payments too. Workteams listed earlier in each document—those headed by Dalilu and Burra-dabani—are paid most, at the equivalent of 8–18⅔ litres a day. These men, almost always listed ahead of the farmers, do not have professional titles, so perhaps they laboured full time on the fields. The more *ad hoc ešertu*s following the farmers, which include a variety of professions, may have been assembled just at peak times of the agricultural year for part-time work. Sometimes team leaders receive more than their partners; perhaps absences explain why individual members occasionally receive less.

However convincing the parallels with the Schøyen *ešertu*-ration lists, neither document type can have represented regular monthly payments all through the year, as the volumes are simply too great. As we have already seen on p. 90, according to Richardson's data an Old Babylonian agricultural labour day yielded 3.44 litres of barley, a year therefore roughly 1,000 litres. It simply was not economically sustainable to pay the workforce 10 litres a day each, every day of the year. And nor, as we have seen in examining the *miksu*- and *šibšu*-tax accounts (pp. 90–1), was the harvest large enough to support a large, undocumented workforce to whom our *ešertu*-men redistributed the bulk of their allotments.

In the absence of surviving headings or dates on these long receipt lists, we must therefore fall back on their other characteristics to make sense of them. As already noted, they are noticeably different to the other document types in the archive in two respects: first, the labourers are organized into *ešertu*-workteams, many but not all of which are internally consistent from list to list; second, they document large amounts of grain in conspicuously round quantities. Together these features suggest a programmatic or planning

[122] Only the data from the first column of the multi-commodity tabular list 3064:33 are included in this table, as the second column is too damaged to yield much. The notation '—' means that the team or professional group is absent from the tablet; (missing) means the names are present but not the quantifications.

Month / Tablet group	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Total
300-NC	1												1
300-NE	1			1				2					4
300-SC			1	1	1			1		1			5
309-N								1			1		2
309-S		1		2				1		1			5
309-SE					1			1					2
309-SC			6	5									11
309-W		1	2	6									9
Total	2	2	9	15	2	—	—	6	—	2	1	—	39

TABLE 4.31. Distribution of dated tablets from Tell Khaiber by tablet group.

Month / Document Type	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Total
Flour deliveries				1				1					2
Grain receipts	1				1			2		1			5
Memos and fragments	1		1	1	1								4
Payment records		2	8	13									23
Pottery receipts								1			1		2
Ration payments								2		1			3
Total	2	2	9	15	2	—	—	6	—	2	1	—	39

TABLE 4.32. Distribution of dated tablets from Tell Khaiber by document type.

function. Perhaps they are rosters which assemble all the available workforce for a particular agricultural season, such as sowing and harvest, estimating in round numbers the grain they will require, whether for personal consumption or use in the fields. If so, the very similar 3064:49 and 53 (found together) and 3111:01 would date to within a year or two of each other, while the others document how the workforce changed over a period of years. But, as with so much of my analysis of these laconic and badly damaged records, this can be no more than a very tentative hypothesis based on a frustrating paucity of data.

Finally, as already noted, one of the Schøyen numerical lists describes a series of payments in the range 120–900 litres to 16 named individuals as *še'u ša kīma idīšunu ana epšēti innadinū*, 'barley that was given instead of their wages for work'.[123] This might be a helpful way to interpret the twenty-four payment records to single individuals, found in Letters Room 309 (Table 4.11). As the table shows, the quantities handed out range from 20 to 430 litres of barley and, in a third of the payments *c.*4 grams of silver. Together they amount to just over 2,500 litres or 1500 kg of grain and around 33 g of silver—about the weight of a bracelet and worth just £8–£16 in 2021 market prices, depending on purity. As most of the recipients do not belong to the principal workforce involved in grain and flour production, they seem not to have been ration-receiving palace dependents but free men or senior officials.

Timings

About forty of the Tell Khaiber tablets are dated to the month and day, enabling us to gain a (limited) sense of the archival year. These impressions are confirmed by the forty or so dated documents from the comparable Schøyen corpus (Table 4.5). Almost all of these are also dated to the year, demonstrating, as Boivin has already pointed out for the tax accounts, that the annual cycle seems to have been relatively consistent.[124] As Table 4.31 shows, almost all tablet groupings with dated tablets yielded dates spread across the year. This strongly suggests that the data is not skewed by, for instance, tablets having been stored by month in any particular part of the archive. The obvious exceptions are the tablet groups S, SC and W in Letters Room 309, which produced a large number of payment records from the summer months. Overall, we see one surge of activity from the spring solstice in the Babylonian new year, through to high summer (Month V, approx. July–August). This presumably corresponds to the spring harvest and its aftermath. Documentation picks up again as the weather cools and the agricultural year restarts,

[123] Dalley 2009: no. 378.

[124] Boivin 2016a: 55 n82.

Document Type \ Month	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Total
Flour, etc. deliveries			2	3	1			3		1			10
Flour lists								1	1	1			3
Grain receipts		1	1							1			3
Memos and miscellaneous					2						1		3
Ration payments	1				1	2	1	2	1			1	8
Tax accounts				6	2			1					9
Total	1	1	3	9	6	2	1	8	2	3	1	1	37

TABLE 4.33. Distribution of comparable dated tablets from the Schøyen Collection by document type.

petering out in the cold, wet months of winter and early spring. Looking at the same data, organized by document type (Table 4.32), there are no clear sub-patterns apart from the spring cluster of payment records already noted.

We get a similar, slightly clearer picture from the Schøyen tablets concerning grain and agricultural workers (Table 4.33). The largest peak of activity in the summer months, III–V, as flour deliveries and tax accounts arrive, presumably from places such as Tell Khaiber.[125] Then little happens apart from payments to workers until the late autumn. Flour deliveries and tax accounts again peter out in the winter and early spring. Overall, though the evidence is meagre, it is consistent between the two corpora: late spring and late autumn were the periods when grain and flour production were most intensively documented.

Literacy and numeracy at Tell Khaiber

The Tell Khaiber archive challenges assumptions about cuneiform literacy in several interesting ways. Not only does it reveal professionally literate scribes active in the Babylonian countryside in a period long thought to be without writing; others could interact with them through reading and writing too. The phenomenon of non-professional cuneiform literacy is well documented for wealthy urbanites of the early second millennium BCE; it is somewhat unexpected to find it at Tell Khaiber. Here I first investigate the identity of the scribes, their apprentices and their superiors, and then explore the evidence for formal, Sumerian-language schooling, Akkadian-language on-the-job apprenticeship, professional scribal practice, and non-professional literacy.

Professional scribes and their apprentices

Three men are given the title DUB.SAR = *ṭupšarru*, 'scribe' in the Tell Khaiber archive: Atanah-ili, Mayašu, and Iluni.[126]

Atanah-ili is one of the commoner names at Tell Khaiber, with twenty-four instances across seven disambiguated individuals and a handful that are not further qualified. Atanah-ili DUB.SAR is attested at least six times: twice in well-preserved numerical lists and three or four times in more heavily restored passages in the same type of document. A payment record assigns him 80 litres of grain, and it is reasonable to assume that an untitled recipient of the same name in a second one is the same individual. As I shall argue further below, I also infer that the untitled Atanah-ili to whom three letters are addressed is this same scribe.

The name Mayašu also occurs frequently, with nineteen instances across three or more individuals. Mayašu DUB.SAR appears three times in numerical lists as a recipient of grain, once just a few lines above Atanah-ili, proving their contemporaneity, and once sending a certain Rešu-qablu-Ištar to receive it in his stead. He is probably also the addressee of a letter, although no title is given there.

Lastly, Iluni is the name of perhaps five different men in a total of fifteen instances. Iluni DUB.SAR appears just once, as the superior of a woman receiving grain in a numerical list. However, the name also occurs once as an authorised substitute, GÌR = *šēpu*, receiving 30 litres of grain on behalf of an untitled Mayašu in another numerical list. As will become clearer in the following paragraphs, it seems likely to me that here we are also dealing with the two scribes.

Mayašu the scribe is amongst at least fifteen men who authorise named substitutes—in his case, Rešu-qablu-Ištar and Iluni—to receive grain or pay taxes on their behalf. Another of these fifteen is an untitled Atanah-ili, who uses substitutes on three occasions. Ana-ṣillišu-abluṭ twice receives grain on his behalf, in numerical lists, while an anonymous *šēpu*-substitute scrawls a terribly written record of grain and silver paid to one Manni-Šamaš (discussed further on p.97). It is tempting, then, to suggest that Iluni was Mayašu's scribal apprentice, while the anonymous record-writer (Ana-ṣillišu-abluṭ?) was Atanah-ili's.[127]

This hypothesis is strengthened by the circumstantial evidence of family ties. The name Iluni is twice denoted as Mayašu's son-in-law, *hatan*, as is one Adad-šemi—a name that also appears amongst the recipients of letters and letter-orders. Conversely, Mayašu is described at least once as

[125] Likewise, most grain arrived in late nineteenth-century Larsa from surrounding agricultural regions between late in Months III and V (Breckwoldt 1995/96: 67).

[126] See the online names glossary https://oracc.org/urap/qpn-x-people for references to all the individuals discussed in this section.

[127] There is no evidence one way or another to suggest that Mayašu's one-time substitute Rešu-qablu-Ištar was also a scribal apprentice. This name does not reappear in the archive.

Name	DUB.SAR	Letter recipient	Substitute of	Son-in-law of
Sin-igištu				
Mayašu	×	×		Sin-igištu
Iluni	×		Mayašu	Mayašu
Adad-šemi		×		Mayašu
Rešu-qablu-Ištar			Mayašu	
Atanah-ili	×	×		
Ana-ṣillišu-abluṭ			Atanah-ili	

TABLE 4.34. Scribal relationships at Tell Khaiber.

the son-in-law of a Sin-igištu, not otherwise attested in the corpus, and as the brother of one Ṣilli-belti-Akkade.[128]

This overlapping cluster of three types of evidence—the professional title DUB.SAR, the receipt of letters, substituting for men with the same name as scribes, and in-law-relationships between them—suggest at least three generations of scribes in one family: Sin-igištu (not otherwise attested)—Mayašu and Ṣilli-belti-Akkade—Iluni and Adad-šemi. Mayašu's contemporary Atanah-ili clearly had at least one apprentice, presumably Ana-ṣillišu-abluṭ, but their familial relationship remains unclear (Table 4.34).

The scribes' superiors: senders and subjects of letters

All but one of the surviving letters in the archive are addressed to one or other of the scribes Atanah-ili, Mayašu and his son-in-law Adad-šemi, all in large, careful but error-riddled script as if the senders were not used to writing very often (Table 4.10, Fig. 4.8). The messages, information and orders they contain are terse to the point of abruptness. Nevertheless, it is possible to detect some formal chain of command, beyond the very fact that the tablets needed to be written at all. I shall return to the identities of the addressees Sin-išmeanni and Nuratum shortly, but first let us consider the senders.

Uraš-ibsasa and his son Adad-ilum are not otherwise attested in the Tell Khaiber archive, but the father appears twice in the Schøyen tablets (Table 4.23). In a letter he orders one Anam-dingira to collect the *šibšu*-dues of a settlement named Dur-Ninurta, while another document records his receipt of a 20-litre *kaptukkû*-vessel of ghee.[129] Uraš-ibsasa, with his high-status Sumerian name, was clearly a man of power in the Sealand, giving orders for the movement of goods across the kingdom and delegating some of that work to his son. We might posit that he had a similar position to Šamaš-hazir in Old Babylonian Larsa, who served as $SA_{12}.DU_5$ = *šassukku*, manager of the royal lands under Hammurabi.[130]

Ahi-illikam, conversely, is one of the most frequently occurring names in the corpus, with 38 instances representing up to eight individuals. The various Ahi-illikams' professions encompass carpenter (eleven times), farmer (four times), date-palm gardener (twice), and tailor (once). An Ahi-illikam is also one of Nuratum's subordinates (four times) and the name occurs three times as the recipient of grain (and twice silver) in payment records. A similarly bewildering range of contexts and professions is also associated with the thirty-four instances of this name in the Schøyen tablets, but not as a letter-writer.[131] Whichever of the Ahi-illikams wrote to Atanah-ili, he had the authority and status to criticise Atanah-ili about the conduct of a recent course case. Nevertheless, he struggled with the spellings of personal names, as discussed further on p.98.

The fourth and final sender, Mar-ešre, is the only one to style himself as *ahāka*, 'your brother', to the recipient, namely as a social equal. Perhaps he is the most likely to appear elsewhere in the archive. Indeed, the name is found twenty-seven times at Tell Khaiber, representing up to five individuals. The only associated profession is date-gardener (five times); but confusingly the name is also attested once as the 'subordinate' of one Ma-a-šum (not -šu) and at least seven times as the son of one Iluni. We should probably discount these as instances of the scribes Mayašu and his son-in-law Iluni, as it is *a priori* unlikely that one of their subordinates would give written orders to Atanah-ili, a contemporary of his supposed grandfather. The name Mar-ešre is also widely attested amongst the Schøyen tablets, but not in a context that fits this one.[132]

Now let us turn to the non-scribal addressees and subjects of the letters. Nuratum receives one letter and is referred to twice as the owner of sheep's wool in another (Table 4.10). In the Schøyen tablets, a man of the same name receives a sheep (Table 4.23). In six tabular accounts and numerical lists he appears as the superior of a group of eight men, three of whom are listed in Adad-šemi's letter-order, while he is the recipient of grain and silver in six payment records. He is never given a patronym or profession: the scribes seem to know exactly who he is. Sin-išmeanni, meanwhile, is addressed together with Adad-šemi in Adad-ilum's second letter. This name, plus the variant spelling Sin-išmanni, occurs no less than thirty-five times in the Tell Khaiber archive, representing three or more individuals, distinguished by their patronyms. There is also a Sin-išm(e)anni amongst the farmers' *ešertu*-workteam.

We have already seen that the names Atanah-ili, Ahi-illikam and Nuratum all feature in the little payment records found in Letters Room 309. In fact, together these three individuals appear in fully half of them (Tables 4.11 and 35) and account for almost half of the total payments.

[128] The only other in-law relationship found in Tell Khaiber tablets is [….]-mi *hatan* Ilu-bani (3006:01 r 10, 1124:01 o 7). The name Ilu-bani is given the title $NU.GIŠ.KIRI_6$ 'date-palm gardener' in 1096:51 o 10; cf. 1096:48 o 7', 1114:26 o 5', where the traces after the name are suggestive but inconclusive.

[129] Dalley 2009: nos. 14, 104.

[130] Fiette 2018a: 102–6.

[131] Dalley 2009: 285 s.v. *a-hi-il-li-ka*.

[132] Dalley 2009: 293 s.v. Mār-ešrê.

Name	Frequency	Average grain payment (litres)	Total grain payment (litres)	Total silver payment (shekels)	Attested elsewhere
Re'i-Ninurta	8	148	1078	1	—
Nuratum	7	110	660	1	Letters
Ahi-illikam	3	140	420	1	Letters
Atanah-ili	2	80	80		Letters, scribe
Arzazu	1	150	150	0.5	Accounts and lists (9)
Ile"i-bulluṭa	1	20	20		Accounts and lists (3), Leather-worker
Manni-Šamaš	1	100		0.5	Dalley 2009: no. 8, where he is the sender of a letter to 'my lord'
[Missing]	1	[Missing]			—

TABLE 4.35. Payees of grain and silver in the Room 309 payment records.

Name	Letters	Payments	Associated professions
Ahi-illikam	×	×	Carpenter (11), farmer (4), date-gardener (2), tailor (1)
Nuratum	×	×	Superior of 8 men (6)
Mar-ešre	×		Date-gardener (5)
Manni-Šamaš		×	—
Re'i-Ninurta		×	—
Uraš-ibsasa and his son Adad-ilum	×		—

TABLE 4.36. Letter-senders and payees as the scribes' likely superiors.

Only Re'i-Ninurta, not attested elsewhere at Tell Khaiber or in the Schøyen tablets, receives more.

While none of this evidence is completely conclusive, there appears to be a strong correlation between sending and receiving letters and being paid in grain and/or silver via individual payment records, but not receiving grain via numerical lists (except in the farmers' case). We end up with a cluster of half a dozen likely superiors to the scribes, who give them orders and regularly receive individual payments, but do not generally appear to be directly involved in the harvest or flour production documented in the rest of the archive (Table 4.36).

Scribal schooling in Sumerian

Despite being on the administrative periphery, the archival scribes of Tell Khaiber also belonged to, or at least aspired to, a more intellectual level of cuneiform culture. As mentioned above, twenty-one of the tablets in the archive, some 14%, are in fact scraps and fragments of learners' exercises, ripped up into tiny pieces and abandoned in the eastern corner of the Archive Room 300 after their contents had been committed to memory (Table 4.13). They do not teach the Akkadian vocabulary of Babylonian administration, however, or any other practical aspect of cuneiform literacy. Instead they draw upon a centuries-old tradition of urban learning in Sumerian, the ancient scholarly language which the Sealand dynasty particularly favoured.[133] Given that almost all archaeological evidence to date situates formal schooling in city houses in the early second millennium BCE,[134] it is a huge surprise to find clear evidence for it in a rural administrative centre.

There was, unsurprisingly, never a fixed 'curriculum' for learning cuneiform script, in the absence of any central authority to control it, but rather a shared culture, or habitus, whose specifics varied from place to place and time to time. For the Old Babylonian period, Veldhuis usefully divides the common practice of elementary scribal training into four levels, recognizable across Babylonia from Ur and Uruk in the south to Kish and Sippar in the north.[135] This heuristic tool is also helpful for analysing the Tell Khaiber fragments.

Level 1 is, in Veldhuis's terminology, 'the basics': learning how to write simple signs and string them together in short sequences. At Tell Khaiber, this level is attested by 3064:14, which carries a very elementary exercise in writing horizontal cuneiform wedges, and probably also by four almost illegible fragments that may contain extracts from one or more elementary sign lists similar to the widespread Syllable Alphabet A.[136] Likewise, the poorly executed and preserved 3080:10 might represent an exercise in writing personal names.

[133] Dalley 2020.

[134] Yamada 2016.

[135] e.g. Veldhuis 2014: 205–10; 2016.

[136] 1114:09, 3064:97, 3080:11, and 3080:21.

Veldhuis's Level 2, 'thematic word lists', is dedicated to the acquisition of Sumerian-language nouns, predominantly grouped by their materiality. It is well represented at Tell Khaiber, where eight tablets bear extracts from the thematic word list Ur_5-ra. This mainstay of elementary scribal education underwent substantial expansion over its long history. The loosely standardized version used in eighteenth-century Nippur comprised around 3600 entries in monolingual Sumerian, formally divided into six chapters, but it had at least doubled in length and acquired optional Akkadian translations by Kassite times.[137] The Tell Khaiber fragments, not surprisingly, represent an intermediate phase in the development of Ur_5-ra: they are all monolingual, they expand on the Old Babylonian version(s), and, like Kassite exercises, they often omit the first sign of a word if it is identical to the preceding entry.[138] Most of the fragments are from the chapters of Ur_5-ra about metals and about stones; one is a list of wild animals and another may be from the chapter on leather objects. Together they are drawn from chapters 2–4 of the OB Nippur version, chapters 7, 9 and 10 of the Middle Babylonian recension.

Level 3, 'advanced lists', offers a more abstract and theoretical approach to cuneiform script. The sign list Ea drills students in alternative readings of signs that students have already encountered: this exercise, or one very like it, appears on 3064:79 and 3080:17. So-called acrographic lists, meanwhile, group Sumerian words by their first sign, regardless of meaning. 3080:16 is perhaps one such example. Level 4, in which whole phrases and sentences of Sumerian are introduced for the first time, is not attested at Tell Khaiber. This is not unusual: we find the same pattern of survivals in, for instance, the so-called Scherbenloch, or sherd-pit, from early eighteenth-century Uruk, Ur-Utu's house from late Old Babylonian Sippar, and in several Old Babylonian findspots at Tell Uhaimir, Kish.[139] There is now general consensus that this was the level of formal education in cuneiform deemed sufficient for starting to learn Akkadian through on-the-job apprenticeship, at least in the second quarter of the second millennium BCE.[140]

Learning the Akkadian language

The apprentice scribes and some of the senior letter-writers faced similar challenges to each other when writing Akkadian: forming the cuneiform signs correctly; choosing contextually appropriate sign-values, particularly in relation to naming conventions, syllable boundaries and vowel choice; and adhering to correct word order. All of these problems are visible in the payment records written in Atanah-ili's stead, and in the letters sent by Ahi-illikam and Uraš-ibsasa. The large majority of the twenty-four payment records (Table 4.11) are drawn up to a highly standardized formula, including line breaks:

n ŠE (½KÙ.BABBAR)	n litres of grain (optionally: ½ shekel of silver)
a-na PN	to PN
šu-un-nu-(ú-)ma	re-measured and
na-di-in	given.
^{iti}y U$_4$ z-KAM	Month y, day z.

The four that do not conform to this formula also betray other errors. For instance, 1114:11 was written by an anonymous substitute of Atanah-ili (Fig. 4.9). In obverse line 1, he successfully writes the grain measure, after which the rest of the line deteriorates. The next sign may be an attempt to write the sign MAŠ, for '½', or KÙ, followed by a misshapen BABBAR in which the lower of the two initial diagonals is much smaller than the upper. The final sign of the line appears to be an unexpected *-ú*, giving either '½ <KÙ>.BABBAR$^{-ú}$ or 'KÙ.BABBAR$^{-ú}$. Line 2 begins with a rather messy ligatured *a+na*, after which the name of the recipient, *ma-an-ni-*^{d}UTU, slopes gently down to the middle of the tablet as the scribe struggles with the correct vertical sizing and alignment of the signs. Line 3 consists solely of a single BI sign in the centre of the tablet, followed by a very faint and elongated *-ú*, instead of the expected *šu-un-nu-ú-ma*. The final two lines of the obverse, *na-di-in* / GÌR *a-ta-na-ah-ì-lí*, are correctly rendered, as is the date on the reverse.

Similar errors can be identified in three other payment records. After a correctly written grain measure, the first line of 1114:16 ends with the sign sequence IL AN NU TU. This seems to be an idiosyncratic writing of the name commonly written in the rest of the archive as *i-la-nu-(ú-)tum*, influenced by a conventional spelling of the word 'these', *an-nu-tu*, after a highly unconventional breaking of the syllable boundary with *il-* rather than *i-la*. Was Ilanutum, a well attested farmer, the source of the grain being given out? The usual third line of the record is omitted entirely, as also in 1114:29. That tablet is badly damaged but the unconventional writing [KÙ?].BABBAR$^{-ú}$ also seems to appear at the end of its first line. Finally, 1114:32 also takes a unique approach to word order, though its sign-forms and spellings are all correct. Here, *šu-un-nu-ú* appears at the end of line 1, followed by the name of the recipient and—uniquely—his profession in a subordinate clause in lines 2–3. However, although this clause starts with the subordinating *ša*, 'that', the sentence ends as usual with indicative *na-di-in* rather than the grammatically correct *na-di-nu*.

Is it coincidence that the recipient of 1114:32 is none other than Atanah-ili DUB.SAR 'scribe', who therefore delegated the writing of this document to an apprentice? It seems reasonable to hypothesise that Atanah-ili was normally responsible for writing these payment records, allowing a junior to substitute

[137] Veldhuis 2014: 149–57, 228–9.

[138] See Veldhuis 2014: 250–2.

[139] Cavigneaux 1996; Ohgama and Robson 2010; Tanret 2002.

[140] Veldhuis 2014.

for him on this simple, short and formulaic task when he was the payee or otherwise engaged.[141]

Some of the letters sent to Atanah-ili betray similar struggles with orthographic and palaeographic convention.[142] In 1114:01, Ahi-illikam writes with a beautiful hand and an elegant eye for spacing the signs on the tablet. However, he does not appear to have been versed on the very specific conventions for writing personal names, rendering his addressee as *a-ta-na-ah-hi-li* (cf. *a-ta-na-ah-ì-lí*) in o 1 and himself as *a-hi-i-lik-kam* (cf. *a-hi-il-li-kam*) in o 3. A professional scribe, by contrast, would respect the word boundary between *ātanah* 'I have strived' and *ilī* '(for) my god' and distinguish between single and double consonants in *illikam* '(he) arrived'. It would also be second nature to write the conventional *ì-lí* for '(for) my god' instead of the many other phonetically equivalent alternatives. Uraš-ibsasa, by contrast, renders both his name and his addressees' correctly in 1114:06 and 1114:45.

However, in the terse messages that comprise the bodies of all three letters, the syntax, vocabulary, sign forms and novel spellings all make them difficult to interpret. To some extent that might be more a reflection of idiomatic Akkadian, closer to the spoken language than found in formulaic archival records, than any failing on the authors' part. Nevertheless, the distance between professional scribal practice and that of the letter-senders is noticeable. For instance, the scribes show the doubled final consonant in the word *hazannu*, 'mayor', thus: *ha-za-an-nu* (3064:49 o 38'; 3064:123 r 10) whereas Uraš-ibsasa writes just one: *ha-za-ni* (1114: o 4). In the same letter (b 2), the writing *ù-tu-e-ri* seems to represent the verb *utīr*, 'he brought back' but the vocalisation has more in common with Assyrian than 'polite' Old Babylonian. Compare the 'correct' scribal writing *ú-te-er* in the memo 1114:47 r 4. Adad-ilum's verb *tu-im-lu-uh* (1096:52 t 1) has such an unorthodox vowel pattern that I am not convinced I have understood it at all: the closest I can get is *malāhu*, 'to tear out', in the form *tamluh*, but the context suggests that the D-form of *malû*, in its meaning 'to hand over', *tumalli*, is what is really meant.

Scribal practice

As we have already seen, comparing the Tell Khaiber tablets with the illicitly excavated Schøyen archive reveals that both sets of scribes were trained in the same administrative conventions. They draw up the same document types, used the same terminology, and shared the habit of checking off entries in multi-person receipts using stylus-marks. Neither community attributed its documents to named scribes, overseers or other officials. However, it is also possible to discern differences between the two groups and perhaps, in due course, even between the individual Tell Khaiber scribes. Here I will point to a few possible lines of enquiry and leave more detailed study to others.

In order to compare like-for-like I have limited myself to the archival document types shared between the two communities: that is, the numerical lists, tabular lists and accounts and the memos. This amounts to 69 documents from Tell Khaiber (Tables 4.6, 7, 8 and 9) and 75 from the Schøyen Collection (Table 4.5). It is immediately clear that the Tell Khaiber scribes use much less administrative paratext, or metadata, than their palatial counterparts.

For instance, although about three-quarters of documents from both places are formally headed, the Tell Khaiber tablets' headings name only the commodity, omitting the transaction type, about twice as often as the Schøyen tablets, over a third of the time.[143] Likewise, 41—well over half—of the Schøyen tablets are dated to the year, and just two only to the month and day, a ratio of 20:1. Conversely, the Tell Khaiber scribes rarely used year dates, as we have seen, much preferring month-day dates by a ratio of 1:4, or 1:10 if we add in the payment records.[144] They presumably knew perfectly well whether grain was coming or going, and which Sealand year they were currently living through, and saw little need to document the obvious. But, as we have amply seen, this leaves us with considerable interpretative challenges.

A further noticeable feature of the Tell Khaiber accounts, especially compared to tabular book-keeping in cuneiform culture more generally, is that they are never totalled. By contrast there are final totals on four of the 31 tabular accounts from the Schøyen Collection, all in different styles.[145] The simplest format is an overall total, ŠU.NÍGIN 9.52(AŠ) GUR 5, written on the left edge of a large *šibšu*-tax account (Dalley 2009: no. 415). A flour delivery account gives separate totals for the quantities provided collectively by the seven women and four guardsmen (EN.NU.UN) listed in the document (no. 424). In a third level of complexity, another *šibšu*-tax account provides totals for both major and minor crops provided by the merchants' house(?), as well as that from the *muškēnu*-people and palace servant-women (no. 434). Cutting the data yet another way, the left edge of a *miksu*-tax account gives totals only for the small *kiṣru* and *bāb āli*, 'city gate', duties entered in its fourth and fifth columns (no. 443).

The absence of totals on the Tell Khaiber tabular accounts does not mean that our scribes were incapable of complex calculations, however. Four small fragments

[141] Note that 1114:31, in which Atanah-ili is the payee, is correctly rendered.

[142] 3064:93, from Mar-ešre, is clearly and competently written. 1096:52, addressed to Mayašu and others by Adad-ilum, is too damaged for analysis.

[143] Headings: 57/75 = 75% of Schøyen tablets and 40/55 = 74% of Tell Khaiber tablets with (partially) extant first lines. Transaction type omitted: 10/57 = 18% of Schøyen tablets and 12/35 = 34% of Tell Khaiber tablets (excluding those too damaged to use).

[144] There are 4 extant year-dates from Tell Khaiber and 39 (partially) extant month-day dates, all but 15 of which are on payment records.

[145] Dalley's conjectural restoration of ⌜ŠU⌝.[NÍGIN …] on the very small flour delivery account no. 416 is disregarded here.

of tablet found in the archive prove otherwise. As will be apparent to anyone who has tried to do so, working with the metrological systems of cuneiform culture entails a lot of fiddly arithmetic. For instance, the classic Ur III-OB capacity system used by the Tell Khaiber scribes involves working with bases 10, 6 and 5 in order to convert between successively larger units (Table 4.4).

As I showed some years ago, from the late third millennium onwards, many professional scribes only used these number systems to measure, record, and to do simple addition and subtraction. To perform more complex calculations, such as totalling the entries in a long tabular account, they first converted those multi-unit measures to what we now call the sexagesimal (base 60) place value system, SVPS.[146] Like the modern numeral system, the SPVS has two particularly relevant virtues: it can be used to write numbers of any length and complexity, without the need for new units at the lower or upper end; and it only uses one number base, namely 60, instead of many. That is, in order to total the entries in one column of a grain account, a scribe would convert them all from a mixture of *kurru*, *parsiktu*, *sūtu* and *qû* to the equivalent number of *qû*, however large. He could write them down in sexagesimal place value system, tot them up, and convert the answer back to capacity measures.[147] Such calculations rarely survive because scribes were trained to dispose of them.

However, semi-erased traces of SPVS notation so survive on four of the Schøyen tablets, including one of the totalled tables (nos. 385, 392, 404 and 443), and on four tiny fragments from the Tell Khaiber archive. 3080:02 is a preparatory note for *šibšu*-tax account for two or more farmers, according to its heading, while 3080:05 records the outcome of a large capacity measure calculation, perhaps even the same one as they are numerically almost equivalent. It is no coincidence, in my view, that they were found amongst the minuscule scraps around the recycling bin in Room 300-NC. Meanwhile 1096:27 and 42, from Room 309-E, are possibly fragments from a single original tablet. They both show sexagesimal numerals carefully laid out in columns and rows as if for a calculation, with the notation ŠU.NÍGIN, 'total', offset in the left margin of the latter. It is just possible that these are the remains of a school exercise, rather than a professional scribe's workings, but either way it proves that the Tell Khaiber men were competent users of the SPVS.

[146] See Robson 2008: 15–16, 75–83 for an example and a brief history of the origins of the SPVS.

[147] If the answer were really large, he'd leave the number of *kurru* in base 60, as there were no larger units to use: in the total above, for instance, 9.52(AŠ) GUR means $9 \times 60 + 52$, or 592 *kurru*. The transliteration 2(AŠ) simply notates that the scribe wrote the numeral 2 with horizontal than vertical wedges, as was the convention for writing GUR.

CONCLUSIONS

The edition and analysis of the Tell Khaiber archive presented here are necessarily provisional. Nevertheless, I think we can reasonably deduce some plausible hypotheses about how the community worked, triangulating between the archive itself, the illicitly excavated Schøyen tablets from the Sealand, and the Old Babylonian Yamutbal tablets, plundered from Larsa over a century ago. I put forward this sketch in the hope and anticipation that others will correct and improve on it in years to come.

Economy, community and society at Tell Khaiber

At the time the archive was active—probably around 1500 BCE, give or take half a century—the Fortified Building was a grain collection and distribution centre, storing barley and *hargallû*-grain, and perhaps also the produce of local date-palm orchards, grazing grounds and marshlands. A third of the barley harvest was shipped annually to the Sealand palace (wherever that might have been), paid as *šibšu*-dues from directly managed crown land and *miksu*-taxes from land bestowed by the king on favoured individuals. Much of the agricultural labour was performed by a team of ten *iššiakku*-farmers, who worked both as ration-recipients for the palace and as entrepreneurs for tenant land-holders. They were supported in the fields by two or three dedicated *ešertu*-workteams, plus *ad hoc* extra labour from the community's other professions as needed, including the servants or dependents of high-status men. The farmers in turn sometimes sent brothers or sons to the archive in their stead. The principal agricultural workforce, together with a few female palace dependents, also milled barley and *hargallû*-grain, at least some of which was likewise sent to the palace. Around twenty palace auxiliaries guarded the place.

The community was perhaps a few hundred adults strong. The principal agricultural labour force and the typically marshland professions were dominated by local men, while the palace's auxiliary forces also included individuals of Elamite, Kassite and Dilmunite descent.

This endeavour was managed locally by two or three scribes, overseen by a few senior officials who were responsible for much larger territories. We cannot know their exact responsibilities, but they cannot have been too different to those of the *šassukku* Šamaš-hazir, who had managed this same region for Hammurabi a few centuries earlier. In any case, these men communicated with the scribes by letter, and presumably also visited. While the scribes managed the workforce themselves, assembling and reorganizing labour as needed, storing and recycling tablets, the officials sent instructions about the movement of grain, flour and wool, and when necessary came to settle legal disputes. But where Šamaš-hazir had overseen a complex system of land surveying and forecasting with multiple levels of documentation and accountability, the Sealand bureaucracy had a much lighter touch.

Literacy and power in cuneiform culture

Even compared to agricultural documentation from other second-millennium sites, such as late Old Babylonian Sippar, Kassite Nippur, Middle Assyrian Dur-Katlimmu and Tell Sabi Abyad, the archive's laconic nature is striking.[148] The Tell Khaiber scribes, so far as we know, did not keep records of labour contracts (if any were ever written),[149] record field sizes, monitor agricultural activity throughout the year, or account for seed grain, draft animals or field equipment such as ploughs or sickles. Of course, it is always possible that such documents were produced and/or stored elsewhere, written on perishable media, and/or shipped elsewhere with their grain.[150] However, the tablets that do survive suggest that this was a small scale, relatively unhierarchical operation in which much was left undocumented. For instance, it was not always necessary to document whether grain was being paid out or coming in, as this was also apparently self-evident. I have therefore assumed that lists record outgoings, which did not need to be reconciled, while accounts show actual income tallied against expected receipts. But no credits or debits are ever totalled, or compared against one another. Likewise, there appears to be no formal apparatus of accountability on the documents, such as sealings, or the names and titles of responsible officials or institutional authorities. It must have been clear to all concerned who was in charge.

The scribes operated as a family, training the next generation through traditional Sumerian-language word lists as well on-the-job practice in Akkadian archival documentation. It is often asserted that scholarly literacy was a form of power in the ancient world. For instance, the Old Testament scholar David Carr stated in an influential monograph:

> The literacy that counted most in … ancient societies often was not a basic ability to read and write. Rather it was on oral-written mastery of a body of texts. Moreover this 'literacy' was something that separated the members of an elite from their contemporaries.[151]

This is a useful generalization, especially for ancient alphabetic literacies, but there is not a simple correlation between knowledge of writing and social status in cuneiform culture, as the letters in this archive show. The palace officials told the scribes what to do; gave them news during their absences; and rebuked them when they made mistakes. They often seem to have been angry. Their letters are full of handwriting and spelling errors: one of them, did not even know how to spell his own name. But they did not seem to care. Perhaps, like the senior *kalû*-priest Ur-Utu in late Old Babylonian Sippar, they had received a very elementary education in cuneiform but had since forgotten a great deal of it.[152]

As I now understand it, knowledge of cuneiform came in several degrees of strength in the Old Babylonian period *c.*1750–1500 BCE. The professional scribes did not only need to learn practical skills—indeed their training was not at all practical. Rather, they learned how to become members of a scribal community, one that was both nostalgic and proud. But what was the use of this education, intrinsically impractical and concentrated largely on the dead Sumerian language? Consider the men, such as Ur-Utu in Sippar and Ahi-illikam in Tell Khaiber, who knew enough cuneiform to get by in their professional and family lives. If they wanted to, men like that could easily live without scribes, writing their own documents, using only everyday signs and words in Akkadian. The curriculum could easily have been reformed to better fit the Akkadian language. But there was a social value, for the scribes and their employers too, to preserve the status quo. The wealthy and the powerful were too busy, too important to write correctly, while the scribes managed to persuade themselves that they were not simply writing mundane documents for a bad-tempered boss. In truth, they thought, they worked for the gods and the king, defending the long-established social order. Inadequate training was appropriate for both groups equally, and weak knowledge was a signifier of relative social power.

Although the traditional repertoire of Sumerian vocabulary begins with the familiar material world—wooden objects and reed ones, leather and clay—the surviving exercises from Tell Khaiber focus on high-status materials and animals. They laboriously reproduce the Sumerian words for valuable stones such as chlorite and lapis lazuli, carnelian and flint, and for powerful wild animals such as the elephant, bison and wolf.[153] None of this learning would have been of any practical use, for all the scribes' day-to-day documentation was in Akkadian, but it enabled them to aspire to and feel a connection with, to the greater world of cuneiform learning and scribal professional identity.

Archaeology, Assyriology and Iraq

Finally, a few words about the extraordinary privilege of working on a tablet assemblage found under controlled archaeological conditions. So much can be learned from their deposition context and I have only just started to scratch the surface.

[148] Rositani 2011 (late Old Babylonian Sippar); Sassmannshausen 2001: 103–9 (Kassite Nippur); Wiggermann 2000 (Middle Assyrian Tell Sabi Abyad); Postgate 2014: 313–25 (Middle Assyrian Dur-Katlimmu).

[149] See, for example, the harvest contracts from (mostly late) Old Babylonian Sippar published by Rositani 2011: nos. 1–78, which are closely contemporary with the Tell Khaiber tablets.

[150] See the notes in alphabetic scripts on some of the tablets published by Dalley 2009 (Hamidović 2014) and post-firing pot marks found on five vessels at Tell Khaiber (Calderbank 2021a: 76).

[151] Carr 2005: 15.

[152] Tanret 2002.

[153] See p.171 for beads made of these stones found at Tell Khaiber. Elephants were indigenous to Syria and the upper Euphrates valley but were hunted to extinction in the early first millennium BCE (Pfälzner 2016). For the present-day distribution of grey wolves in Iraq, see Al-Sheikhly et al. 2020.

First, if these tablets had had the misfortune to be discovered by illicit diggers, they would not have survived the first shovel. They required expert excavation and weeks of conservation before they were robust enough for me to handle. The many thousands of tablets in circulation in the international market and private collections must represent a tiny fraction of what looters have discovered over the years. Second, the historical insights afforded by the micro-geography of the Archive Room and Letters Room are unique. Most obviously, the presence of Sumerian school exercise tablets, in the eastern corner of Room 300, invite radical rethinking of our assumptions about the location and purpose of scribal training. More than that, however, the tablet groups within the archive—whether primary storage contexts or secondary dump sites—are also proving meaningful. Both the school tablets and many of the tiny memos in the Archive Room seem to have been emptied from the central recycling bin. In the Letters Room the *miksu-* and *šibšu*-tax accounts cluster tightly in the eastern corner, while all the payment records are spread across the southern half the room. Barley flour delivery accounts are all from the Archive Room, while those for *hargallû*-flour are all from the other one. And I am sure that detailed prosopographical analysis, once combined with archival placement, will help to disambiguate small-scale chronological changes in personnel and document formatting that I can only intuit as yet.

I want to finish on a note of regret, however. I became epigrapher to this project by the pure dumb luck of visiting the site just after the first tablets had been unearthed in early 2013, during one of my first post-war visits to Iraq. Since then a family bereavement and a very heavy administrative workload have radically constrained the time I have had available to work on them, both in the field and at home. If I had my time again—and much more of it!—this would have been a collaborative project with one or more Iraqi Assyriologists, published in Arabic as well as English. There would have been time for discussion and mutual learning, and a much richer and rewarding publication would have resulted.

Descriptive Catalogue

This descriptive catalogue should be read in conjunction with the accompanying online edition at https://oracc.org/urap, where the Tell Khaiber corpus is also organized by tablet group. To go straight to an individual transliteration and translation, use a URL of the form https://oracc.org/urap/Pxxxxxx, where xxxxxx = the 6-digit P-number given for each tablet in Table 4.37. From there one can also browse and search the whole archive and associated glossaries of words and names.

THE ARCHIVE ROOM 300

300-N: Room 300 north

Fourteen tablets and inscribed fragments were found in the northern corner of Room 300, where the dividing wall with Room 309 meets the northeastern boundary wall of the under-vaulted complex. The large majority are archival documents, encompassing a range of types, but they also include a complete letter and two fragments of school exercises. Numerous anepigraphic fragments were scattered amongst them. Just one archival fragment comes from the lower stratum, context 3080. Unlike the other assemblages from this area, this group does not include any intact tablets of any size, and many of the fragments appear to have been created in antiquity. Overall they give the impression of being the abandoned remnants of a recycling bin.

3064:12 is a triangular fragment from the bottom left-hand corner of a tabular account, measuring 34 mm wide × 53 mm high at its maximum extent. Three columns survive, the first two of which record capacity measures and the third the notation Ì.SÁ 'correct'. It is therefore almost certainly a delivery account (Table 4.8).

3064:15 is a surface fragment from a large tabular account of at least seven columns, measuring 32 mm high × 86 mm wide at its maximum extent. No quantitative data is preserved—the first six columns are mostly blank—but the fact that the first three are considerably wider than the second three is strongly suggestive that this was intended to be a tax account (Table 4.8). If so, the wider columns were intended to record the opening balance and the respective shares of the *muškēnu*-dependents and the palace, and the narrower columns the local duties. However, it appears that this data was never entered, although names have been listed the final column. The occurrence of the phrase KI-2 *ša kunēše*, 'second time, of emmer wheat' also strongly suggests that we are dealing with a *šibšu*-tax account, as this phrase occurs seven times in documents of this type from the Schøyen Collection.[154] The few legible names in this text are unremarkable.

3064:71 is the upper right corner of a landscape orientation tablet, measuring up to 52 mm wide × 47 mm high. The obverse contains the remains of nine personal names, one in each line, two of which are legible, and the word *kunēše*, 'emmer wheat'. The surviving surface of the reverse, top edge and right edge are blank (Table 4.12).

3064:72 is an almost complete landscape orientation tablet, measuring 29 × 130 mm, with the lower right corner missing and reverse badly abraded. Below the heading,

[154] Boivin 2018: 124–6.

Tablet	P-number	Tablet group	Genre	Subgenre	Type	Date	Height	Width	Thickness
1005:18	P523880	Room 122	medical	dog figurine					
1039:19	P523861	Room 124	brick	Amar-Suen 01			105*	81*	55
1096:24	P523922	Room 309-E	admin	fragment			56	44	19
1096:25	P523920	Room 309-E	admin	memorandum	workers		86	44	19
1096:26	P523925	Room 309-E	admin	tabular account	*šibšu*-tax		57	44	22
1096:27	P523923	Room 309-E	admin	fragment			46	23	19
1096:40	P523943	Room 309-E	admin	tabular list	*miksu*-tax		86	58	24
1096:41	P524002	Room 309-E	admin	tabular account	*šibšu*-tax		97	69	27
1096:42	P523944	Room 309-E	admin	fragment			33	30	16
1096:47	P523942	Room 309-N	admin	tabular account	deliveries		124	64	26
1096:48	P523952	Room 309-N	admin	tabular list	multi-commodity		124	47	24
1096:50	P523953	Room 309-N	admin	numerical list	grain receipts	08-15	138	42	26
1096:51	P523951	Room 309-N	admin	tabular account	deliveries		85	54	20
1096:52	P523950	Room 309-N	letter	letter			57	50	20
1096:53	P523945	Room 309-N	admin	letter-order			45	31	15
1096:55	P523947	Room 309-N	admin	numerical list	pottery receipts	11-06	49	30	20
1096:58	P523946	Room 309-N	admin	numerical list	long receipts		31	28	8
1096:59	P523949	Room 309-E	admin	numerical list	unclear		63	49	26
1096:60	P523948	Room 309-N	unclear	fragment			46	33	23
1114:01	P523973	Room 309-S	letter	letter			45	31	17
1114:03	P523980	Room 309-W	admin	fragment			85	38	23
1114:04	P523985	Room 309-W	admin	tabular account	tax		84	52	22
1114:05	P523984	Room 309-W	admin	numerical list	grain receipts		74	59	18
1114:06	P523976	Room 309-W	letter	letter			44	21	15
1114:07	P523954	Room 309-W	admin	payment record		04-09	41	19	12
1114:09	P523979	Room 309-W	school	Ea?			82	70	22
1114:10	P523983	Room 309-W	admin	payment record		04-19	38	24	12
1114:11	P523986	Room 309-W	admin	payment record		04-22	38	21	13
1114:12	P523989	Room 309-W	admin	memorandum	*ešertu*-team		69	48	21
1114:13	P523974	Room 309-W	admin	payment record		03-27	39	24	18
1114:14	P523978	Room 309-W	admin	memorandum	*ešertu*-team		66	32	18
1114:15	P523955	Room 309-W	admin	memorandum	*ešertu*-team		43	72	
1114:16	P523982	Room 309-W	admin	payment record		00-27	41	20	14
1114:17	P523987	Room 309-W	admin	numerical list	grain receipts		63	56	22
1114:18	P523956	Room 309-W	admin	payment record		04-12	38	19	16
1114:21	P523966	Room 309-S	admin	payment record		04-22	43	24	15
1114:22	P523967	Room 309-S	admin	payment record		04-28	33	16	11
1114:23	P523968	Room 309-S	unclear	fragment			73	71	27
1114:25	P523975	Room 309-S	admin	payment record		03-11	42	26	14
1114:26	P523977	Room 309-S	admin	memorandum	*ešertu*-team		59	27	13

Tablet	P-number	Tablet group	Genre	Subgenre	Type	Date	Height	Width	Thickness
1114:27	P523981	Room 309-S	admin	payment record		04-10	36	16	12
1114:29	P523988	Room 309-S	admin	payment record		03-18	38	27	12
1114:30	P523957	Room 309-W	admin	payment record		04-13	38	25	14
1114:31	P523958	Room 309-W	admin	payment record		04-19	33	23	14
1114:32	P523959	Room 309-W	admin	payment record		03-10	42	24	12
1114:33	P523960	Room 309-W	admin	payment record		02-17	42	22	13
1114:34	P523969	Room 309-S	admin	payment record		02-29	40	19	13
1114:36	P523970	Room 309-S	admin	numerical list	grain receipts	10-00	110	48	26
1114:38	P523993	Room 309-SC	admin	payment record		04-11	41	21	13
1114:39	P523961	Room 309-SC	admin	payment record		03-26	37	22	13
1114:40	P523990	Room 309-SC	admin	numerical list	flour deliveries		71	41	18
1114:41	P523962	Room 309-SC	admin	payment record		03-22	34	20	12
1114:43	P523963	Room 309-SC	admin	payment record		04-16	39	21	10
1114:44	P523994	Room 309-SC	admin	payment record		04-04	29	22	12
1114:45	P523995	Room 309-SC	letter	letter			45	26	14
1114:47	P523971	Room 309-SC	admin	memorandum	commodities		52	29	18
1114:48	P523992	Room 309-SC	admin	tabular account	deliveries	08-07	70	44	20
1114:49	P523964	Room 309-SC	admin	payment record		03-21	44	22	15
1114:51	P523996	Room 309-SC	admin	payment record		04-05	45	25	16
1114:52	P523965	Room 309-SC	admin	payment record		03-22	41	23	12
1114:55	P523972	Room 309-S	unclear	fragment			34	32	21
1124:01	P524000	Room 309-SE	admin	numerical list	flour deliveries		80	57	20
1124:02	P524001	Room 309-SE	admin	numerical list	flour and grain		66	40	22
1124:03	P523998	Room 309-SE	admin	numerical list	grain receipts*	05-25	81	46	18
1124:04	P523991	Room 309-SE	admin	numerical list	receipts	08-01	81	36	20
1124:05	P524006	Room 309-SE	admin	numerical list	receipts		67	43	20
1142:07	P524009	Room 314	admin	fragment			38	37	22
3006:01	P523878	Room 300-SC	admin	numerical list	long receipts		65	50	27
3006:09	P523879	Room 300-C	admin	fragment			42	46	21
3006:17	P523864	Room 300-SC	admin	memorandum		05-00 K	45	26	12
3064:12	P523865	Room 300-N	admin	tabular account	deliveries		53	34	22
3064:13	P523866	Room 300-NE	admin	memorandum	workers		29	47	15
3064:14	P523867	Room 300-N	school	writing exercise			45	37	15
3064:15	P523868	Room 300-N	admin	tabular account	unclear		32	86	17
3064:18	P523869	Room 300-NC	admin	tabular account	tax		103	40	29
3064:20	P523870	Room 300-C	admin	fragment			77	46	
3064:26	P523871	Room 300-C	admin	tabular account	deliveries		64	96	27
3064:33	P523872	Room 300-SE	admin	tabular list	multi-commodity		189	80	25
3064:48	P523873	Room 300-E	admin	numerical list	flour deliveries		95	54	24
3064:49	P523874	Room 300-E	admin	numerical list	long receipts		141	100	224

Tablet	P-number	Tablet group	Genre	Subgenre	Type	Date	Height	Width	Thickness
3064:51	P523875	Room 300-NE	admin	tabular account	deliveries	04-29	100	74	23
3064:52	P523876	Room 300-NE	admin	numerical list	grain receipts*	01-07	70	55	22
3064:53	P523877	Room 300-E	admin	numerical list	long receipts		160	90	31
3064:57	P523881	Room 300-SE	admin	numerical list	long receipts		147	58	34
3064:62	P523928	Room 300-NE	admin	fragment			28	20	19
3064:63	P523884	Room 300-NE	admin	fragment			69	59	22
3064:64	P523900	Room 300-NE	admin	fragment			37	36	17
3064:65	P523882	Room 300-NE	admin	numerical list	pottery receipts	08-00	55	35	20
3064:67	P523885	Room 300-NE	admin	numerical list	daily receipts	08-24 K	98	34	22
3064:71	P523886	Room 300-N	admin	fragment			47	52	28
3064:72	P523895	Room 300-N	admin	numerical list	daily receipts		130	29	19
3064:73	P523902	Room 300-N	admin	memorandum	*ešertu*-team		46	27	17
3064:74	P523883	Room 300-N	admin	numerical list	other receipts				
3064:76	P523897	Room 300-N	admin	memorandum	workers		66	44	20
3064:79	P523913	Room 300-E	school	Ea*?*			57	37	18
3064:82	P523915	Room 300-E	school	Ur_5-ra Wild Animals			38	52	23
3064:83	P523894	Room 300-E	admin	numerical list	grain receipts		91	45	23
3064:84	P523892	Room 300-E	school	Ur_5-ra Metals			57	49	22
3064:88	P523898	Room 300-NE	school	Ur_5-ra Metals			33	32	10
3064:89	P523887	Room 300-NE	admin	tabular account	deliveries		108	73	23
3064:93	P523916	Room 300-N	letter	letter			50	31	19
3064:94	P523899	Room 300-N	admin	memorandum	workers	00-01	43	22	16
3064:97	P523896	Room 300-N	school	unidentified			59	47	19
3064:98	P523914	Room 300-N	admin	fragment			28	20	16
3064:101	P523918	Room 300-NC	admin	numerical list	daily receipts		33	31	17
3064:106	P523893	Room 300-C	admin	fragment			52	42	30
3064:108	P523890	Room 300-C	admin	fragment			47	30	26
3064:116	P523917	Room 300-N	admin	fragment			53	21	22
3064:118	P523936	Room 300-S	admin	numerical list	long receipts		87	47	29
3064:119	P523937	Room 300-SC	admin	fragment			67	48	23
3064:120a	P524007	Room 300-SC	admin	numerical list	long receipts		40	21	19
3064:120b	P524007	Room 300-SC	admin	numerical list	long receipts		45	23	18
3064:121	P523932	Room 300-SC	admin	memorandum	workers		76	58	18
3064:122	P523933	Room 300-SC	admin	memorandum	*ešertu*-team		41	21	17
3064:123	P523941	Room 300-S	admin	numerical list	long receipts		128	94	27
3064:125	P523934	Room 300-SC	admin	fragment		04-00	35	25	17
3064:128	P523931	Room 300-SC	admin	numerical list	daily receipts	10-00	56	26	16
3064:129	P523935	Room 300-SC	admin	memorandum	*ešertu*-team	03-00 I	47	24	15
3064:133	P523938	Room 300-S	admin	fragment			25	20	15
3064:135	P524003	Room 300-SC	admin	numerical list	long receipts	08-25 J	100	78	22

Tablet	P-number	Tablet group	Genre	Subgenre	Type	Date	Height	Width	Thickness
3064:136	P523940	Room 300	admin	numerical list	long receipts		58*	72*	19
3080:01	P523921	Room 300-NC	admin	memorandum		00-02	46	23	18
3080:02	P523888	Room 300-NC	admin	memorandum	commodities		62	32	18
3080:03	P523891	Room 300-NC	admin	memorandum	commodities	01-24	50	27	
3080:04	P523889	Room 300-NC	admin	numerical list	unclear		73	35	22
3080:05	P523901	Room 300-NC	admin	memorandum	commodities		47	25	18
3080:06	P523903	Room 300-NE	admin	numerical list	other receipts		87	44	21
3080:07	P523924	Room 300-E	school	unidentified			44	27	16
3080:09	P523908	Room 300-E	school	Ur_5-ra Leather?			49	38	21
3080:10	P523906	Room 300-E	school	unidentified			53	41	19
3080:11	P523909	Room 300-E	school	unidentified			37	33	19
3080:12	P523919	Room 300-E	school	unidentified			54	46	24
3080:13	P523910	Room 300-E	school	Ur_5-ra Stones			55	45	20
3080:14	P523905	Room 300-E	school	Ur_5-ra Metals			48	42	21
3080:15	P523930	Room 300-E	school	Ur_5-ra Metals			150	72	29
3080:16	P523927	Room 300-E	school	Nigga?			52	26	33
3080:17	P523929	Room 300-E	school	Ea			75	49	20
3080:18	P523911	Room 300-E	school	unidentified			46	41	17
3080:19	P523904	Room 300-E	school	Ur_5-ra Stones			87	59	18
3080:20	P523926	Room 300-E	school	unidentified			52	33	28
3080:21	P523907	Room 300-E	school	unidentified			47	27	17
3080:25	P523912	Room 300-N	admin	fragment			42	21	13
3080:27	P523997	Room 300-NC	admin	numerical list	flour or grain		51	55	24
3111:01	P524004	Room 300-S	admin	numerical list	long receipts		160	111	26
3119:01	P523999	Room 300-SC	admin	fragment			27	18	12
3119:03	P524008	Room 300-SC	admin	tabular account	deliveries		41	33	21
6058:07	P523863	Room 601	brick	Amar-Suen 01			62*	84*	
6136:12	P524005	Room 179	admin	fragment			41	22	18

TABLE 4.37. List of all tablets in the archive, arranged by find number.

which runs across the entire width of the tablet, there is one quantitative column containing small capacity measures, fourteen blank columns, some of which contain round stylus-marks, and a final column containing pairs of names, each entry split across two lines (Table 4.6). As the heading explains, this record enumerates barley given daily over the course of half a month to pairs of men—in fact ten of the *iššiakku*-farmers who are central figures in this archive, seven of whose names survive here. On the reverse of the tablet the document was originally dated to the month and day. The memorandum 3064:94 was perhaps a day-note of the sort that was used to compile records of this type.

3064:94 is a complete landscape-oriented tablet, measuring just 22×43 mm. It contains a brief memorandum recording only the names of two well-attested *iššiakku*-farmers, who are also listed together in 3064:72, the cumulative record of daily grain payments found close by (Table 4.9). Given that this document is dated to the month and day, perhaps this is a day-note of the type that went into compiling such overviews.

3064:73 is a complete landscape-orientation tablet measuring 27 mm high by 46 mm wide. Reconstructed from three fragments, it contains nine short, rather damaged lines of text running from obverse to reverse. The document is a memorandum recording the names of seven individuals, almost all of whom are also attested elsewhere in the archives, who are said to be *watar*, 'excess', or surplus to requirements (Table 4.9). The final line is very damaged but it may have contained a month-day date.

3064:74 is one of just four or five lenticular tablets found at Tell Khaiber, including one uninscribed complete tablet

and two or three fragments.[155] Originally around 70 mm in diameter, it too was pieced together from fragments and is still missing a substantial portion of its lower left. Much of the writing surface on the obverse has flaked away, making the text very challenging to read. The text is an unheaded numerical list, annotated with the word *mahir*, 'received', on the upper edge (Table 4.6). Over the obverse and reverse it originally recorded the number 10 against the names of at least thirteen individuals, five of which can currently be read. The text does not state which commodity is documented; but 3080:06, found close by in the northeast of Room 300, also records unknown, countable commodities in tens.

Tablet **3064:76** is a complete but badly abraded landscape-oriented tablet measuring 44 × 66 mm. Four lines are illegible at the bottom of the reverse. Nevertheless, it clearly bears an undated memorandum recording the transfer three separate groups of individuals to the palace or to the fishermen's and palace auxiliaries' professional groups respectively (Table 4.9). The two men to be transferred to the palace are otherwise attested as palace auxiliaries, as is the one of the men to be sent to work with the fishermen, if this name has been correctly restored. Conversely, the first two men sent to replace them in the auxiliary guard are not otherwise attested in the archive, while the third has the same name as a man who is frequently attested as one of Nuratum's eight subordinates.

Four tablet fragments were registered with the context number **3064:98**. Only one, measuring at most 20 × 28 mm, is inscribed. It is a surface fragment bearing four lines of large capacity measures, probably from a tabular account, as the numerical lists rarely contain measures of this size and complexity (Table 4.12).

3064:116 is the lower right corner fragment of a much larger tablet, measuring 21 mm high by 53 mm wide at its maximum extent. The surface is very abraded and only two horizontal line rulings are visible on the obverse. The much better preserved reverse contains just a few isolated jottings of capacity measures and numerals (Table 4.12).

3080:25 is a right-edge fragment, either from a lenticular tablet or a conventionally shaped one that has been deformed in the course of recycling. Three lines of script are visible, at least two of which contain elements of personal names (Table 4.12). It measures 21 × 42 mm at its maximum extent. Four tiny anepigraphic fragments were found with it, which may or may not belong to the same tablet.

3064:93 is a complete, well preserved landscape-orientation tablet measuring 31 mm high by 50 mm wide (Table 4.10, Fig. 4.8). It bears the only letter to have been found in Room 300, written in eight lines on the obverse and bottom edge. The reverse is blank. The letter is addressed to Atanah-ili, well attested as a scribe of this archive, by one Mar-ešre. There are a number of individuals with this name at Tell Khaiber, as discussed further on p.94. Although Mar-ešre addresses Atanah-ili as 'my brother', implying equal status, the letter gives quite peremptory orders to allow the entire stock of barley to be sent away.

3064:14 is a very roughly shaped little piece of clay, maximum 37 × 45 mm. On each side it bears five lines of clumsily executed horizontal cuneiform wedges, undoubtedly a very elementary student exercise (Table 4.13).

The substantial upper left corner fragment **3064:97** measures 47 mm in width by 59 mm in height. Its interior edges show clear evidence of recycling in progress. The obverse contains the remains of seven lines of a simple cuneiform sign list, which I have not been able to identify; the reverse is blank (Table 4.13).

300-NE: Room 300 northeast

Ten archival tablets and fragments, and one school exercise, were found in a discrete group, stretching from the middle of the northeast wall of Room 300, southwestwards towards the location of the recycling bin (context 3081) in the stratum below. Many of the tablets are both substantial and intact, suggesting storage or abandonment, rather than recycling. Two anepigraphic fragments, **3064:60** and **3064:90**, are not considered further here.

Tablet **3064:13** is a landscape-format tablet, measuring 47 × 29 mm. It is missing its lower right corner and the surface of the reverse is badly damaged. It contains a memorandum listing the names of eleven men, only the first five of which are fully preserved (Table 4.9). With the exception of Sin-ma-ilum, these are not well-attested names in the rest of the archive but they probably comprise an *ešertu*-workteam. The memo concludes with a frustratingly damaged note about the individuals listed. The reading of the final line is highly uncertain but may refer to 'the palace'.

3064:51 is a complete portrait-format tablet measuring 74 × 100 mm, with a well-preserved obverse and somewhat damaged reverse. It contains a tabular delivery account of milled barley (Table 4.8). The sixteen entries on the obverse describe deliveries by nine different individuals or pairs, many listed twice in order to record deliveries measured by the small *sūtu*-capacity measure as well as, presumably, by the normal one.[156] On the left-hand side there are marginal annotations against some entries, marking them as 'second' to 'fourth'; it is not clear to me what these refer to. The bottom third of the obverse is uninscribed. The central third of the otherwise blank reverse contains nine further entries for another group of people, this time apparently with only one entry each. The tablet is dated to the month and day on the top edge. Most of the legible names in this document are well attested elsewhere in the archive. The quantities of barley they deliver range from 180 to 900 litres.

Tablet **3064:52** is a complete landscape-format tablet, measuring 70 × 55 mm. Some of the writing surface has

[155] Fragments: 3080:25 from the same find context; 6136:12 from the surface of Area 179; and 1114:23, from the centre of Room 309, found with the blank tablet 1114:50.

[156] Compare Dalley 2009: no. 451, which tabulates (much smaller) measures delivered or received by the 'bronze *sūtu*-measure' and the 'usual' one, BÁN ZABAR and BÁN GI.NA.

broken away on the obverse but the reverse is in reasonably good order. It contains a headed numerical list of eighteen individuals receiving *hargallû*-grain in capacities ranging from 20 to 100 litres (Table 4.6, Fig. 4.5). Almost all the recipients are described by patronym, profession or ethnicity including the two scribes Mayašu and Atanah-ili (thereby showing that they were contemporaries). About half of the individuals in this list are attested elsewhere in the corpus. The document is dated to the month and day.

Fragment **3064:62** is the bottom left corner of a numerical list or—more likely, given the complexity of the capacity measures on it—a tabular account (Table 4.12). The obverse surface is missing and the reverse contains traces of five lines from the first column. It measures 20 × 28 mm at maximum extent.

3064:63 is a badly damaged landscape-orientation tablet missing the upper right corner and all of the left hand side. Measuring 59 mm high by 29 mm at its maximum width, it contains the final, qualitative column of a headed numerical list or perhaps a tabular account (Table 4.12). The obverse is very abraded to the point of illegibility and reconstruction of its contents is hampered by the fact that few of the legible name fragments can be matched with any certainty in the rest of the archive. The heading is almost too damaged to read. After a ruling, the document presumably concluded with a date (month and day) but this too is now illegible.

3064:64 is also the right hand side of a small landscape-oriented tablet, measuring 37 mm high by 36 mm at its maximum extent. One surface has been almost lost while the other—possibly the reverse—bears seven lines of text containing names and patronyms, some of which are attested elsewhere in the archive (Table 4.12). There are no traces of a heading or date.

The small landscape-orientation tablet **3064:65**, which is missing its upper right corner, measured 55 × 35 mm when complete. It contains a summary receipt in headed, numerical list format for a variety of pottery vessels, received over a two-month period (Table 4.6). The document 1096:55 from Room 309 north is closely related in content. In particular, lines o 2 and 5–7 appear to parallel o 1–4 in the latter document. My readings of several of the words in these texts are highly conjectural and open to revision. Nevertheless, together these two documents are a tantalising link to the pottery found on site, as discussed elsewhere by Daniel Calderbank.[157]

The elongated, landscape format tablet **3064:67** is essentially complete, measuring 98 × 34 mm at maximum extent. Its obverse surface is badly weathered but its ten lines are almost entirely legible thanks to parallels from elsewhere in the archive. The reverse is better preserved. This numerical list records, as its heading states, small quantities of barley received by ten well-attested *iššiakku*-farmers (Table 4.6). Across three otherwise blank central columns the scribe has made up to a dozen stylus-holes on each line. Comparison with the similarly structured document 3064:72, whose heading explicitly states that it records 'barley … that was given daily', suggests that these are tally-marks for day-by-day payouts over the immediately preceding (or following?) period. The document ends with a month-day-year date which is likely to have been in the 7th regnal year of Aya-dara-galama if Dalley's reckoning is correct (see p.68).

The portrait-orientation tablet **3064:89** is missing its top and bottom edges but is otherwise complete. Measuring 108 × 73 mm, it contains a tabular account in four columns on the damaged obverse (Table 4.8). The well preserved reverse, although likewise ruled in four columns, is otherwise blank. Although the heading is now largely missing, the structure of the entries in the first three columns reveals this document to be a balanced delivery account, recording quantities of (processed) grain expected, delivered, and still owing by some twenty-five individuals. Unfortunately the tablet's parlous state of preservation is such that not a single one of their names is fully legible.

Tablet **3080:06** is a small, complete portrait-orientation tablet measuring 44 × 87 mm. It contains an unheaded numerical list running from the relatively well-preserved obverse onto the more damaged reverse, top and right edge (Table 4.6). The final twenty lines were lightly impressed into drying clay and are now impossible to read, even with RTI imagery. Unusually, on this tablet the quantities are recorded not in capacity measure but in counting numerals. The only other document in this archive with the same notation is the numerical list 3064:74 from Room 300 north, with the notation *mahir*, 'received', on its edge. However, beyond inferring that the goods were countable objects, it is impossible to guess what they might have been. We can do much better with the identities of the recipients, however, even though few are given patronyms or professions. Many are well attested elsewhere in the archive, both individually and in identifiable informal clusters.

The surface fragment **3064:88** measures 32 × 33 mm at its maximum extent, with the left-hand edge probably representing a column ruling. It contains a well-executed extract from the scribal lexical list Ur_5-ra, from the chapter on Metals (Tables 4.13, 39). The versions from Old Babylonian Nippur contain only one entry for šim-bi-zi-da, 'kohl'. The closest parallels are from Middle Babylonian Emar, where the word is written at least twice in the monolingual MVF IV/75–2502 (o iv 5'–6', immediately followed by a break) and four times in the bilingual Msk 74193b (r iii 12'–15').[158] Further, as Niek Veldhuis notes,[159] the omission of the first sign of the word in repeated entries is typical for Middle Babylonian Emar and Ugarit but almost unattested in the Old Babylonian lexical corpus. It is not clear whether this particular exemplar was written in Sumerian only or originally included translations into Akkadian.

[157] Calderbank 2020; 2021a; 2021b.

[158] Watanabe 1987: 289–91; Arnaud 1985: I 257 (https://oracc.org/dcclt/P250373, P271466).

[159] Personal communication, 16 June 2015.

300-E: Room 300 east

Four numerical lists were found very close together towards the eastern end of the northeast wall of Room 300, immediately to the northwest of, and in a stratum immediately above, a group of seventeen school exercise tablets, to which they are not related. The four lists share a great deal of their prosopography, while the pairs 3064:48 and 83 and 3064:49 and 53 resemble each other very closely. It seems reasonable to assume that they were discovered together in their intended storage location, the original shelf or container having long since perished.

3064:48 is a complete portrait-oriented tablet, measuring 94 × 54 × 20 mm. It contains a headed numerical list recording small quantities of *hargallû*-flour associated with thirty named individuals (Table 4.6). The twenty-two individuals on the obverse—21 men and one woman—each deliver(?) 10 litres of flour. All are attested elsewhere in the archive, not least on the obverses of 3064:49 and 53, found together with this tablet. Indeed the individuals concerned were apparently so well known to the scribe that only six are assigned patronyms, none is given a professional designation, in order to disambiguate them from others of the same name. However, given the frequency with which these names cluster together in other tablets, often with further information attached to them, in fact it is possible to assign patronyms and/or professions to most of these individuals with some confidence.

The eight lines of text on the reverse of this tablet are written towards the bottom, marking a clear separation between this section of the list and the obverse. The men in this list are all assigned 20 litres of flour. The first is described explicitly as an *iššiakku*-farmer and the following four as his partners. In fact the remaining three men in the group are also well attested as belonging to the same profession, for instance in 3064:49 and 53, also from this tablet group (albeit in a different order). Usually, the farmers are listed as an *ešertu*-workteam of ten, but here a single ruling under the eighth entry shows that this list was complete.

3064:83 must have been almost identical in size and format to 3064:48, although most of the lower half is now missing. It contains a headed numerical list, of twenty-four lines on each of the obverse and reverse, recording small quantities—always 10 litres where extant—of *hargallû*-grain (Table 4.6). At least twelve names are missing from the obverse; the extant ones are rarely qualified by professional designation and never given patronyms. Many of these individuals also appear on the reverse of 3064:49 and 53, also from this tablet group. Parallel to 3064:48, the fourth member of this group, the names of nine men are written in a separate section at the bottom of the reverse. Although they are not designated explicitly as *iššiakku*-farmers here, that is undoubtedly who they are, as all nine names recur together frequently, including on 3064:49 and 53, with that same title.

3064:49 is a substantial, portrait-oriented tablet, missing its upper edge. It contains a three-column numerical list, missing its heading, with 41 extant lines on the obverse and 42 on the reverse (Table 4.6). The first column contains quantities of grain in the range 30–600 litres, while the second two columns list personal names and their associated professions, patronyms or ethnonyms respectively, grouped implicitly into *ešertu*-workteams. The order of the individuals named is almost identical to 3064:53, discovered next to this tablet; only the quantities of grain differ. That parallel suggests that perhaps three lines are missing from each side.

3064:53 is a largely complete, substantial portrait-oriented tablet, missing only its bottom right-hand corner. Like 3064:49, to which it is very similar, it contains a three-column numerical list (Table 4.6), with 44 lines on the obverse, 4 on the bottom edge, 26 on the reverse, and 4 on the top edge. The left edge is also divided into two columns containing three and five lines respectively. As in 3064:49, the first column contains quantities of grain in the range 60–300 litres, while the second two columns list personal names and their associated professions, patronyms or ethnonyms respectively, grouped into *ešertu*-workteams. Barring the quantities of grain, the two tablets are almost identical in content, where extant, though some spellings differ from tablet to tablet, as well the membership of the second *ešertu*.

Unlike the archival tablets from in the eastern corner of Room 300, the seventeen fragments of elementary scribal exercises found with them had clearly been deliberately broken up in antiquity and some had had even been partially reshaped (Table 4.13). It is suggestive that the majority were found in context 3080, on or just above the same floor as the nearby round recycling bin (context 3081), from which they might have been dumped. The remainder come from the higher context 3064, along with almost all of the archival documents from this room. Seven can be identified as extracts from the long thematic word list Ur_5-ra, widely used for scribal training for millennia across the cuneiform world. Three others may belong to the elementary sign exercises Ea (or Aa) and/or Nigga. The rest have not yet been identified but I give my reasons below for provisionally assigning them as scribal exercises rather than archival documents. To my knowledge, this is a unique archaeological findspot for school tablets, which are otherwise only known from urban domestic, palatial and temple settings. I discuss the implications of this find further on pp.96-7, within a broader analysis of cuneiform literacy at Tell Khaiber.

There are six fragments registered under the number **3064:79**, only one of which is epigraphic. This is a piece from the upper (or lower) edge of a tablet, maximally measuring 57 × 37 mm. One side—the obverse?—is ruled and carries the remains of an exercise like Ea, which gives the readings and pronunciations of simple cuneiform signs.[160] If interpreted correctly, it is in two columns. Only a single sign is preserved in the first, while there are five entries in the second. The other side—the reverse?—is unruled and contains only traces of crudely written signs. It too seems to be in two columns.

3064:82 is a left-edge fragment of a tablet which shows clear signs of having been deliberately destroyed in antiquity.

[160] Veldhuis 2014: 178–82.

Entry	Translation	OB Nippur Ur_5-ra 3	MB Ur_5-ra 9 (SLT 45, Nippur)	MB Ur_5-ra 9 (Msk 731058, Emar)	SB Ur_5-ra 14
nin-ka_6	mongoose	371	[…]	[…]	202
nin-ka_6 tir-ra	forest mongoose	—	[…]	[…]	205
am	bison	319	o i frag B 18′	[…]	48
am-si	elephant	320	o i frag B 19′	o i 1′	53
ur-[mah?]	lion(?)	286	o i frag B 26′	o i 7′	64
ur-bar-ra	wolf	288	o i frag B 27′	o i 9′	68

TABLE 4.38. Comparison of 3064:82 with entries in Wild Animals chapter of Ur_5-ra.

It measures 38 × 52 mm at its widest extent and originally had writing on both sides, although one of them is now illegible. The surviving text is an extract from the chapter of Ur_5-ra on Wild Animals. I have not been able to find an exact parallel but the order of the entries more closely resembles later recensions than Old Babylonian ones, as shown in Table 4.38.[161]

3064:84 is the bottom left corner of a sizeable school tablet, deliberately broken in antiquity. It now measures 57 × 49 mm. The ruled obverse contains the remains of a now illegible exercise in two columns. The unruled reverse contains a sequence from the scribal exercise Ur_5-ra, from the start of the chapter on Metals, duplicating o 4'–6 and 9'–11' of 3080:15 from the same tablet group (Table 4.39). It does not, however, join 3064:88 from nearby Room 300-NE, which contains the immediately following lines, as the latter is ruled and written by a much more competent hand. The corresponding lines of OB Nippur Ur_5-ra 2 are 478–82 and 489 in Veldhuis's reconstruction.[162]

3080:07 is a fragment from the top right corner of a school tablet, measuring 44 × 27 mm. The pattern of breakage and damage to its surface strongly suggests that it was recycled in antiquity. Just a few malformed signs survive on each lightly ruled surface, making it impossible to identify which scribal exercise it represents.

3080:09 is a piece from the right edge of a school tablet, broken up for recycling in antiquity. It now measures 38 × 49 mm. Some lines on the lightly ruled obverse can be identified as belonging to the scribal exercise Ur_5-ra, from the section on Leather. Lines o 5'–6' correspond to OB Nippur Ur_5-ra 2, 411 and 413 in Veldhuis's reconstruction.[163] Obverse 3', which appears to consist of the Akkadian gloss *lā pīdu*, literally, 'unforgiving', is reminiscent of an unprovenanced OB exemplar of OB Ur_5-ra 2, BM 85983 o iii 31 and 43, which Veldhuis suggests may refer to a leather strap or lash.[164] Only isolated signs remain visible on the reverse of this tablet.

3080:10 is a surface fragment from a partially recycled tablet, now measuring 41 × 53 mm. It bears four lines of script in a large, crude hand that may be from an *ad hoc* exercise in writing personal names and professions. Line 3' appears to contain the common element from Akkadian personal names, *-ilīšu*, 'of his god', while line 4' may be an attempt at writing the Akkadian professional title *hazannu*, 'mayor'.

3080:11 is a piece from the right-hand edge of a tablet, deliberately destroyed in antiquity, which now measures 33 × 37 mm. The final signs of four ruled lines appear on the obverse while only traces are visible on the reverse. I was not able to identify what, if any, scribal exercise, these meagre traces represent.

3080:12 is the upper left corner, measuring 46 × 54 mm, of a tablet deliberately destroyed in antiquity. Only a few traces of writing remain on one side, perhaps including the sign GAG repeated three times on consecutive, unruled lines.

3080:13 is the triangular top left corner of a large school tablet, now measuring 45 × 55 mm. The well preserved, unruled obverse contains a sequence from the thematic word-list Ur_5-ra, from the chapter on Stones. It parallels lines 200–201, 203, and 205–206 of Veldhuis's reconstruction of OB Nippur Ur_5-ra 4.[165] The badly preserved reverse is ruled into three unequal columns but its contents are now otherwise illegible.

3080:14 is a fragment from near the top left corner of a tablet that had been broken up in antiquity. It measures 42 × 48 mm at its maximum extent. The obverse contains an unruled extract from the start of the Metals section of Ur_5-ra, largely duplicating a sequence also found on 3064:84 and 3080:15, found just nearby (Table 4.39). Lines o 1–3 and 6–8 correspond to lines 476–7, 478–9 of OB Nippur Ur_5-ra 2 in Veldhuis's reconstruction.[166] However, o 4–5 are interpolations: the word a_2-kar_2, 'utensil', appears in OB Nippur Izi II 78,[167] while KA-kar_2, within the entry kir_4-$kar_2^{mušen}$, appears in the Birds section of OB Ur_5-ra 4.[168] The reverse is more difficult to read but it is possible that

[161] Following Veldhuis's reconstructions (https://oracc.org/dcclt/Q000001, Q000072, Q000089, accessed January 2020).

[162] https://oracc.org/dcclt/Q000040, accessed January 2020.

[163] https://oracc.org/dcclt/Q000040, accessed January 2020.

[164] Veldhuis 2017: 366; https://oracc.org/dcclt/P247857, accessed January 2020.

[165] https://oracc.org/dcclt/Q000041, accessed January 2020.

[166] https://oracc.org/dcclt/Q000040, accessed January 2020.

[167] https://oracc.org/dcclt/Q000050, accessed January 2020

[168] AO 6034 o ii 6 (https://oracc.org/dcclt/P492406, accessed January 2020).

Line	Entry	Translation	3080:15	3064:84	3064:88	OB Nippur Ur_5-ra 2	MB Ur_5-ra 7 (Msk 731054)	MB Ur_5-ra 7 (Msk 74123a)
1′.	an-ta-sur-ra	(a precious stone or metal)	o 3′				o iv 38	r iii 10′
2′.	a_2-kar_2	(a utensil)	o 4′					
3′.	KA-kar_2	…	o 5′					
4′.	an-za-ah	glass	o 6′	r 1		478	o iv 39	r iii 1′
5′.	an-za-ah babbar	white glass	o 7′	r 3		480	o iv 40	
6′.	an-za-ah gi_6	black glass	o 8′	r 2		479	o iv 41	
7′.	na_4 babbar	white stone						
8′.	na_4 gi_6	black stone						
9′.	su_3-ud-aĝ$_2$	(a precious stone or metal)		r 4		481		r iii 5′
10′.	su_3-ud-aĝ$_2$	(a precious stone or metal)		r 5		482		
11′.	a-gar_5	lead		r 6		489	o iv 44	r iii 7′
12′.	gag a-gar_5	lead nail				490	o iv 45	
13′.	$dilim_2$ a-gar_5	lead spoon					o iv 46	r iii 8′
14′.	šim-bi-zi-da	kohl			1′	483	o iv 47	r iii 11′
15′.	šim-bi-zi-da […]	[…] kohl			2′			r iii 12′
16′.	<šim>-bi-zi-da […]	[…] kohl			3′			r iii 13′
17′.	<šim>-bi-zi-da […]	[…] kohl			4′			r iii 14′
18′.	<šim> ku_3-sig_{17}	golden <aromatic>				484		
19′.	<šim> $gu_2^?$-$še^?$ [(…)]	…						
20′.	<šim> $gu_2^?$-$še^?$ [(…)]	…						
21′.	<šim> $gu_2^?$-$še^?$ [(…)]	…						
22′.	<šim> $arina_x$	<aromatic> madder-root				485		
23′.	$piš_{10}$ id_2-lu_2-ru-gu	sulphur				488	o v 3	

TABLE 4.39. Parallels to the Ur_5-ra Metals sequence in 3080:15.

it includes entries from the Leather and/or Wild Animals section(s) of Ur_5-ra.

3080:15 is the left edge of a once very substantial multi-columned school tablet, broken up for recycling in antiquity and now measuring 150 × 72 mm (Fig. 4.10). One column of text survives on the obverse, passages of which duplicate 3064:84 and 3080:14, both found nearby, and 3064:88 from Room 300-NE. It represents a sequence from the Metals chapter of the thematic word list Ur_5-ra (Table 4.39).[169] The reverse does not survive.

3080:16, measuring 52 × 26 mm, is a left- or right-edge fragment from a school tablet that was deliberately broken up for recycling. The tablet turns left-to-right rather than top-to-bottom and it is not clear which side was intended to be the obverse. One surface contains four lines beginning with the sign niĝ$_2$, strongly suggestive of an extract from the Old Babylonian school exercise Nigga.[170] It appears that the remains of two columns survive on other surface but I have not been able to identify which school exercise the traces are likely to represent.

3080:17 comprises two fragments, one of which is anepigraphic. The other is the upper or lower left-hand corner of a tablet broken up in antiquity. It measures 49 × 75 mm. One surface bears four lines of text written in a large, crude hand with deliberate erasures and crossings out. The other surface is now missing. The surviving lines can provisionally be identified as a passage from the sign list Ea, with o 1–2 corresponding to lines 83a and 83 of OB Nippur Ea in Veldhuis's reconstruction, and o 3–5 probably matching some combination of lines 81–82 and/or 86–88.[171]

[169] Following Veldhuis's reconstructions (https://oracc.org/dcclt/Q00040,Q00070, accessed January 2020).

[170] Possible parallels include lines 64–68, 79–82 and 95–98 in Veldhuis's reconstruction of OB Nippur Nigga (https://oracc.org/dcclt/Q000052, accessed January 2020).

[171] https://oracc.org/dcclt/Q000055, accessed January 2020.

3080:18 is a right edge fragment measuring 41 × 46 mm with lightly ruled lines on each side. The few remaining signs at the end of each line are too badly preserved to identify. Although provisionally classified as a school exercise, on the basis of its findspot, this tablet may equally well represent a small piece of an administrative document recording patronyms and professions.

3080:19 is a substantial piece from the upper left corner of a school tablet, broken up in antiquity. It measures 87 × 59 mm at is maximum extent and is ruled into at least six columns on the obverse; the reverse does not survive. The obverse contains three inexpertly written columns of text which only approximately fit the column rulings: the second and third columns of text start in columns 4 and 6 of the rulings respectively but the text does not consistently respect either right or left column boundaries.

The exercise presented on this tablet is an idiosyncratic version of the Stones chapter of the thematic word list Ur_5-ra. It largely follows the scheme of OB Nippur Ur_5-ra, as reconstructed by Veldhuis, but adds several entries of its own and, like many Middle Babylonian manuscripts, avoids repetition of head words as much as possible, and even systematically omits the crucial sign na_4, 'stone'. Nevertheless, the sequence o i 1–6 otherwise matches OB Nippur Ur_5-ra 4 lines 14–19 and o i 8–11 corresponds to lines 20 and 22–23.[172] The two exceptions can also be accounted for: o i 6 matches IM 73301 o 16, a manuscript of OB Ur_5-ra from Larsa;[173] while o i 12, if restored correctly, is an entry commonly found in relation to other stones (e.g. in o ii 6). Likewise the entries in the second column mostly correspond to OB Nippur Ur_5-ra 44–52, with the exceptions of o ii 2—which substitutes zu_2 'flint' for gazi 'veined'—and o ii 7, which I cannot read but does not correspond to the expected gug $burud_x$(U)-$burud_x$(U)-da 'perforated carnelian'. Note too that in o ii 3–6 the sign zu_2 is erroneously carried over from o ii 2. The third column preserves only a few traces of signs, which I cannot identify with any confidence.

3080:20 comprises three crumpled fragments of clay, two of which are anepigraphic. The third is from the upper or lower right corner of a tablet, measuring 33 × 52 mm. Its misshapen form shows that it was deliberately broken, probably for recycling. I have not been able to identify the four partially preserved lines of text on one surface but have provisionally marked it as a school exercise, given the poor ductus and irregular column rulings.

3080:21 is a surface fragment of a tablet, deliberately broken in antiquity. Measuring 27 × 47 mm, it is ruled into two columns, in which text is preserved only in the second. I have not been able to identify the composition on which it is based but it is likely to have been a sign list, given the repetition of the sign IGI in the first three lines.

[172] https://oracc.org/dcclt/Q000041, accessed January 2020.

[173] Arnaud 1994, no. 1; https://oracc.org/dcclt/P322830, accessed January 2020.

300-NC: Room 300 north centre

The tablets from the centre of the northern half of Room 300 were all found scattered round the cleaned-out recycling bin (context 3081). The two fragments 3064:18 and 3064:101 may have been deposited when the bin was emptied, while the tiny, essentially complete memoranda 3080:01–05, found on the floor on which the bin had been constructed, seem to have been trampled into earth around it. Maybe someone had attempted to throw them in, missed, and had not bothered to pick them up again.

3080:27 was found with an anepigraphic piece of tablet clay—destined for or dropped from the bin?—between the bin and the western wall.

3064:18 is a fragment from the left-hand edge of a multi-column tabular account (Table 4.8). Up to five quantitative columns survive to maximum dimensions of 104 × 80 × 31 mm. The first three columns contain capacity measures, while the fourth lists integers in the range 1–3. The fifth, where it survives is blank. The fact that the quantities in columns i–iii are, where complete, all in the ratio 3:2:1 strongly suggests that this document is the remains of a *šibšu*-tax account in which two-thirds of the grain is kept by the *muškēnu*-dependent and one third is taken by the palace.

3064:101 is the central third of what was originally a small landscape-oriented tablet. What remains is almost entirely anepigraphic, except for traces of the heading, mentioning *iššiakku*-farmers, and perhaps a date at the bottom of the reverse. The narrowly formatted columns give it the same appearance as 3064:72, recording daily disbursals of grain to named individuals (Table 4.6).

3080:01 consists of the right hand side of tiny landscape-oriented tablet. It originally contained a memorandum, of which two badly abraded lines are barely visible on the obverse (Table 4.9). The one line on the reverse comprises the remains of a month-day date.

3080:02 is a tiny, complete landscape-oriented tablet. Its badly abraded obverse contains five lines of an administrative memorandum; the well-preserved reverse is blank, except for three line-ends that run over from the obverse (Table 4.9). Even though most of the surface of the text is lost, it is possible to identify this document as a note recording over 3,000 litres of grain to be sent to the palace as *šibšu*-tax on behalf of two farmers, whose names are unfortunately missing. It presumably found its way into the recycling bin once it had been incorporated into a tabular account recording payments from the whole community.

If I have read the very damaged final line correctly, this memo contains rare evidence that the scribes of Tell Khaiber used the sexagesimal place-value system (SPVS), the numeration used by scribes of the Ur III and Old Babylonian periods for converting between metrological systems and performing complex calculations.[174] The fact that another tablet with the results of a similar calculation on it, 3080:05, was found nearby, suggests that such efforts were generally

[174] Robson 2008: 15–16.

destined for the recycling bin. Likewise, the sexagesimal calculations from Room 309 E are also on tiny fragments, 1096:27 and 42 (see p.99).

3080:03 is a tiny but largely complete landscape orientation tablet, missing the left half of the obverse (Table 4.9). It contains an administrative memorandum in four lines, recording two (missing) quantities of grain ŠE LUGAL, 'barley by the royal measure', each associated with an otherwise well-attested protagonist: Sin-ma-ilum, frequently described as a subordinate of Nuratum; and Mayašu: either the scribe of that name or another homonymous individual. The completely preserved reverse contains a single line containing a month-day date (Fig. 4.7).

3080:04 is a small, badly damaged portrait orientation tablet whose top edge, top left and bottom right corner are missing. The obverse contains twenty-six lines of a 2-column tabular numerical list of grain capacities and workers in extremely small and sometimes illegible script; the damaged reverse is blank where extant (Table 4.7). As the heading of this document, if it had one, is now missing, it is difficult to tell its intended function; but it seems reasonable to assume that the very round numbers of grain measures—from 1 *parsiktu* to 2 *kurru*, or 60–600 litres, where surviving—represent payments rather than deliveries. Many of the names, where legible, are not otherwise attested in the archive but Alatum (o 3'), the woman Sutitum (o 5'), Arad-Sin (o 8'), Arad-Šamaš the shepherd (o 10') and Arzazu (o 13') tie this document into the rest of the corpus. It is the only one to describe pairs of men as being *itti*, 'with' each other (in o 8', 10' and 13'). As the artefacts from context 3080 were found in a slightly lower stratum than those with prefix 3064 in the same space, it is possible that this tablet represents an earlier phase of the archive, which was otherwise recycled or removed.

3080:05 is another tiny, almost complete landscape orientation tablet, missing some of the left side of the obverse. It contains a one-line memorandum recording a quantity of at least 17,004 litres of grain in a mixed notation (Table 4.9). The largest numerals, to the left, appear to be in capacity measure with horizontal wedges denoting the *kurru* unit, while immediately to the right is written 4 40(?) in sexagesimal place value system (SPVS). Perhaps this note records a half-finished attempt to total the entries in a numerical list or tabular account, which a fully competent scribe would accomplish by converting fully to SPVS for the calculation and then back into capacity measure to record the result (see p.99).

The lower half of a portrait-oriented tablet now measuring 51 × 58 mm, **3080:27**, bears a numerical list (Table 4.7). Without a heading it is difficult to be confident of its function, though the small quantities of grain—consistently 1 *sūtu*, *c.*10 litres—in the first column strongly suggest flour deliveries or grain receipts. Most, but not all, of the names on the obverse are attested elsewhere in the archive. The two legible names on the reverse are both those of *iššiakku*-farmers. Given that the members of this professional group are almost invariably documented together, it is likely that the rest of this sequence also represents other individuals of that profession.

300-SE: Room 300 southeast

Two large, substantially complete tablets were found together, just to the north the doorway between Areas 300 and 301. They both record large numbers of individuals receiving grain and grain products, often in *ešertu*-workteams.

The long portrait-orientation tablet **3064:33** has been reconstructed from several large fragments and is now almost complete, barring damage around the joins and significant surface damage to the bottom half of the obverse. It measures 189 × 80 mm. The tablet contains a long tabular list, which, according to its damaged heading, records unreconciled receipts of various grain commodities in two columns (Table 4.7). The latter half of the phrase ŠU.TI.A ⌜LÚ É.GAL⌝, 'receipts of palace men', is tentatively restored from traces based on parallels with 1114:48 and 1124:01 (and cf. 1124:04). Quantities are mostly large, round numbers, from 1 *parsiktu* to 2 *kurru* (*c.*60–600 litres). Individual recipients are all given patronyms, professional designations, ethnonyms or other descriptors, and systematically grouped into at least five *ešertu*-workteams.

The tablet **3064:57** is an almost complete but badly damaged portrait oriented tablet missing its top and bottom edges, as well as the extreme left of the reverse. It now measures 58 × 147 mm at maximum extent. The tablet contains a long, two-column numerical list, with a much-damaged heading, recording small quantities of grain (20–50 litres where preserved), presumably allocated to the roughly 75 individuals originally named in the document (Table 4.6). The list starts by naming and identifying the ten *iššiakku*-farmers, then mentions two *ešertu*-workteams by the names of their leaders. After that, there is a mix of better and lesser attested individuals from the rest of the archive, sometimes further identified by profession or patronym. There is no further evidence of workteams or professional groups and no surviving date.

300-C: Room 300 central

Six fragments of administrative tablets, plus one piece of anepigraphic tablet clay (3064:24), were discovered in the centre of Room 300, to the southwest of the recycling bin Context 3081 and opposite the doorway to Area 301. 3064:26 was joined with another fragment, found some distance away and in a later season. The original tablet appears to have been deliberately broken in antiquity.

3006:09 is a fragment from the lower right corner of a tablet, now measuring 42 × 46 mm. Only names and professions remain in fifteen lines from the final column of an otherwise unidentifiable administrative record (Table 4.12). At least one individual, Egi-ana-mešu the boatman, can be firmly identified elsewhere in the archive.

3064:20 is a large surface flake from the right hand side of a portrait-format tablet, now measuring 46 × 77 mm. It preserves the remains of fifteen names and patronyms from

the final column of an otherwise unidentifiable administrative record (Table 4.12). Several of the names are also attested elsewhere in the archive but none is a central figure.

3064:26 comprises two fragments from right hand side of a landscape tablet, now measuring 96 × 64 mm. Inscribed as the clay was drying out, it preserves the final two columns of a balanced tabular account, in which all the surviving payments have been reconciled (Ì.SÁ). The entries on the obverse mostly concern the farmers, while several of the individuals on the reverse are also well known (Table 4.8).

3064:106 is a right-edge fragment of a tablet, measuring 52 × 42 mm at its maximum extent. It contains several, largely illegible lines on each side from the final column of an archival document (Table 4.12). The only identifiable individual is Nuratum, a powerful individual who is discussed further on p.95.

3064:108 is a bottom edge fragment, maximally measuring 47 × 30 mm. It contains the remains of several lines from the final column of an archival record, listing personal names (Table 4.12). Only a few are legible enough to reconstruct with any confidence.

300-SC: Room 300 south central

Thirteen small tablets and fragments were found scattered across the southern half of Room 300. Most were in isolated locations, except for 3064:120a and 120b (which might be parts of the same tablet) and 3064:121 and 122, also found together.

3006:01 comprises two joining fragments from the bottom half of a tablet, measuring 65 × 50 mm and bearing a three-column numerical list (Table 4.6). The obverse is largely destroyed, save for traces of the signs 10^{-ti} for *ešerti*, 'decury workteam', approximately six lines from the bottom. The reverse contains ten lines, containing large capacity measures, and the names and patronyms or professions of their recipients. All of the individuals are also attested elsewhere in the archive, with particularly close parallels in the sequencing on 3064:33 and 3064:120b from Room 300 and 1096:48 from Room 309.

3006:17 is a tiny, crudely made landscape-orientation tablet measuring just 26 × 45 mm. The obverse appears to contain a three-line memo recording the transfer for two individuals from (or to?) the palace, which may continue onto the bottom edge, now illegible (Table 4.9). The reverse contains a date, giving the month, day (now illegible), and year, namely Aya-dara-galama year K. Neither individual named in this memo is attested anywhere else in the archive, so far as I can tell.

3119:01 is a small fragment from the upper (or lower) right hand corner of a tablet, with maximum measurements 18 × 27 mm. The ends of four barely legible lines remain extant on one side, including a month-day date (Table 4.12).

Fragment **3119:03** is the top left-hand corner of a tablet, maximally measuring 41 × 33 mm. It contains a tabular account of milled barley deliveries (Table 4.8). Only the start of the introductory rubric, two column headings and first six entries of the obverse survive; the reverse is ruled but otherwise blank.

The fragment **3064:119**, now measuring 48 × 67 mm, preserves the top and bottom but not the left or right edges of the original tablet. On both sides it is ruled into two columns. The only writing that survives is a series of fairly small capacity measures on one side, with the rest of the surface bearing traces of mostly erased signs at top left, and otherwise apparently left blank. Although the other side is now badly damaged it appears to have been inscribed in a similar fashion (Table 4.12).

The fragment **3064:120a**, measuring 40 × 21 mm, represents part of the lower obverse and bottom edge of a tablet. Neither left or right edge survives. It preserves a sequence of seven personal names, some originally with patronyms, of the members of a well attested *ešertu*-workteam. Likely a fragment from a numerical list (Table 4.6), it may be a piece of the same tablet as 3064:120b, with which it was found.

Fragment **3064:120b** is the top right corner of a tablet, preserving several lines of the reverse and a small part of the top edge. Measuring 23 × 45 mm at its maximum extent, it might have belonged to the same tablet as 3064:120a, discovered nearby. While it now bears only patronyms and professional designations, the sequence can be matched exactly with that on the better preserved 3006:01 from Room 300, as well as partial matches with 3064:33 from Room 300 and 1096:48 from Room 309, in which the men are organized into *ešertu*-workteams (Table 4.6).

The very fragmentary landscape-orientation tablet **3064:121** now measures 78 × 58 mm at its maximum extent. It is missing much of its left-hand side as well as much of the surface of the obverse. However, the twenty-odd very narrow column rulings on this side, plus the traces of names to the right of them, show that this tablet was originally meant to contain a daily tally of grain receipts, like 3065.072 and others, found elsewhere in Room 300 (Table 4.6). By contrast, instead of the expected date, the unruled reverse appears to contain the remains of an informal memorandum concerning payment of *hargallû*-grain to a particular professional group, now illegible (Table 4.9).

The tiny, complete landscape tablet **3064:122** measures just 41 × 21 mm. Its obverse bears a partially illegible three-line memo about two of the archive's *iššiakku*-farmers (Table 4.9). The reverse is blank.

The fragment **3064:125** is an upper (or lower) edge fragment measuring 35 × 25 mm. Its unruled surface suggests that it originally contained a memo rather than a list or account. However, only four partially preserved names survive on the obverse; what remains of the reverse is too abraded to read (Table 4.12).

The small, landscape-oriented tablet **3064:128**, measuring 56 × 26 mm, is missing only its lower right corner. It bears a headed and dated numerical list, ruled as if for a five-day tally, of daily payments of 10 litres of grain to seven named women (Table 4.6). However, none of the narrow columns is checked off with a stylus impression, suggesting it was never

used for that purpose. The women are documented only by the first names, without professions or relationships, with the possible exception of o 4, where Halputu is described as [...].A.NI, 'her [...]', in relation to Šimat-Šamaš in the line above. Only Banitum, in o 6, is also attested elsewhere in the archive, just once (on 1096:47, a long tabular account from Room 309). The document is dated to the day and month.

The small landscape orientation tablet **3064:129** measures 47 × 24 mm, minus a substantial chunk of the top right hand corner. It contains a headed, dated memo documenting the names of half a dozen men, belonging to Habzazu's *ešertu*-workteam, who have a zero opening balance on their grain account (Table 4.9). Habzazu is also attested as an *ešertu*-leader on 3064:57 o 13, and perhaps also on 3064:118 o 12', both found elsewhere in the southern half of Room 300. Habzazu and Dassu-karabu (r 1) are frequently attested together as auxiliaries, but the rest of the list has a rather *ad hoc* feel to it, thanks to the throw-away phrase *u mamman* 'and whoever (else)' on b 1. Unfortunately the line immediately before the date, which we might expect to contain useful summary information or a statement of location or purpose, is largely illegible. The document is dated to the second month of Aya-dara-galama year I.

3064:135 is the upper two-thirds of a portrait orientation tablet, now measuring 78 × 100 mm at maximum extent. It contains a headed, dated numerical list of workers in receipt of large quantities of grain, grouped by *ešertu*-workteams (Table 4.6). Although the obverse is very abraded, the sixty or so names this document contains can be read almost entirely, thanks to parallels with 3064:33, found at the other side of the same doorway. The reverse shows rather greater variance with other lists in the archive. The tablet is dated to day 25, month VIII of Aya-dara-galama year J.

300-S: Room 300 south

This group contains the remains of three substantial three-column numerical lists, plus a number of unplaced fragments, which presumably originate from one or more of these tablets, found close together near the southeast wall of Room 300, south of the doorway to Room 301. As noted on p.66, Context 3111 represents the floor on which the recycling bin in Room 300 was constructed, while 3064 is the fill above it.

Despite their highly fragmentary state—crushed under a partition wall built to divide the long archive room into two—the two more complete tablets in this group have proved vital to understanding the composition of the community documented in the archive. This is because they both consistently give patronyms, ethnonyms and/or professional titles of the individuals recorded, as well as grouping them consistently into *ešertu*-workteams and more informal clusters. These groupings are discussed further on pp.83–4.

The find number **3064:118** is given to two non-joining fragments, the remains of a large three-column numerical list (Table 4.6). The larger of the two, now measuring 87 × 47 mm, is from the left hand side of the tablet. It contains 17 lines in three columns on the obverse and traces of 5 + 14 lines from one column on the reverse. The capacity measures in the first column range from 40 to 400 litres, mostly in whole, large units, on both obverse and reverse. Three *ešertu*-workteams are listed in consecutive lines of the second column on the obverse, which is otherwise blank, while the third contains the first few signs of personal names. The smaller fragment, measuring 38 × 30 mm, contains mostly illegible traces of signs from the right edge of one surface, which have not been transliterated.

3064:123 is a complete but badly damaged tablet, reconstructed from multiple fragments, measuring 128 × 94 mm in portrait orientation. Its obverse is badly abraded, especially in the top right and bottom left hand corners, but the text on the reverse is largely well preserved. It contains a three-column numerical list (Table 4.6), with capacity measures (insofar as they are preserved) ranging from 60 to 300 litres, followed by personal names with patronyms, ethnonyms and/or professional titles. If the tablet originally had a heading, it is now missing. Although only one *ešertu*-workteam is noted explicitly, other identifiable professional clusters include the ten *iššiakku*-farmers headed by Habbil-ilu (r 14–23) and the nine auxiliary troops led by Nur-Inšušinak (r 26–t 3). Very many of the individuals and groupings found in this list also appear multiple times elsewhere in the archive, across both rooms.

The four small surface fragments grouped under the find number **3064:133** were found very close to the large numerical list 3064:123. They almost certainly belong to the obverse of that tablet but cannot currently be placed. The largest of them, containing a few signs from the start of personal names, on each of six lines, measures 20 × 25 mm; the second has signs from probably the middle of names over five lines (23 × 13 mm) and the two smaller pieces just a single sign on each of two lines (Table 4.12).

The very badly damaged portrait-oriented tablet **3111:01** was smashed in antiquity by the weight of the wall constructed on top of it. A significant section of the middle of the upper half has been completely destroyed, as well as the top edge. Nevertheless, thanks to brilliant conservation work by Giulia Barella, much of it can now be reconstructed. Like 3064:123, found close nearby, it contains a three-column numerical list (Table 4.6), but it is about 25% greater in size, measuring roughly 110 × 160 mm and with over fifty lines per side. As the top of the obverse missing, no heading survives. In the first column are capacity measures ranging from 60 to 660 litres. The second and third columns contain the names of the recipients and their patronyms, professions, and/or (rarely) ethnonyms. The reverse follows a similar layout, albeit more tightly ruled, in order to make room for a second, two-column list of capacity measures and recipients on the right hand side of the tablet. Two *ešertu*-workteams are explicitly noted in the surviving sections but, as shown by close parallels to the other lists of this type, in fact most or all of this list is structured this way.

Room 300 unplaced

The tablet fragment **3064:136** was found when dry-sieving the fill from Room 300. Its exact findspot is therefore unknown. It is a surface flake spanning the whole width of the upper obverse of a tablet, to maximum dimensions 72 × 58 mm. The fragment bears a headed numerical list in two columns, recording large, rounded quantities of grain, presumably barley, but the identifying element of the heading is now missing. The remains of only two lines survive on the bottom of the reverse plus traces of a further line on the left edge. Although many of the thirteen personal names on the obverse are damaged, they can be restored with confidence, as they belong to members of two *ešertu*-workteams that are well documented in similar receipt lists across the archive (Table 4.6).

THE LETTERS ROOM 309

In the Letters Room, 309, the 64 tablets and fragments were found in three distinct groups close to the walls in the northern half of the space and three more scattered distributions over the southern end. The tablets in the northern groupings are very similar in content and genre to those in Archive Room 300, while the southern groupings also include a large number of payment records, which are not attested at all in Room 300.

309-N: Room 309 north

In the northern corner of Room 309 were found nine tablets and fragments, plus an uninscribed piece of clay. They comprise three tabular accounts, a dated numerical list, a letter, two memos and two fragments of administrative records.

1096:47 is a long, portrait orientation tablet measuring 124 × 64 mm. The obverse surface is badly abraded and is entirely missing the upper right corner, while the reverse is much better preserved. It contains a five-column balanced delivery account of flour(?) in over 70 entries (Table 4.8). Only traces remain of its one-line title and column headings and there is no evidence of dating. The capacity measures listed are all either 10 or 20 litres. While patronyms, professions and other signifiers are scarce, many of the names are clearly recognizable as those of individuals and groups well-attested elsewhere in the archive, including the ten *iššiakku*-farmers (o 20–29). Unusually, at least nine women are named, including two of the palace servant-women (r 1, 28).

1096:48 comprises two joining surface fragments of a large tablet, maximally measuring *c.*125 × 125 mm, spanning almost the entire width of the original tablet. The remains of two quantitative and two qualitative columns survive, covering thirty-one lines. Multiple structural similarities with 3064:33, including columnar configuration, the presence of the writing 10^{-ti} for *ešerti*, 'decury workteam' in the second column, and the capacity range, from 40 to 600 litres, strongly suggest that it too was a multi-commodity tabular receipt list (Table 4.7). All the individuals named in this document are also attested multiple times elsewhere in the archive.

1096:50 comprises the left-hand side of most of a long portrait orientation tablet, measuring 42 × 138 mm at its maximum extent. It contains a headed numerical list of recipients of small amounts (10–20 litres) of *hargallû*-grain, dated to the month and day on the left edge (Table 4.7). It must have contained about 70 entries originally, the first of which can be identified from parallels with other tablets in the archive as ten *iššiakku*-farmers and four palace servant-women. Thereafter many of the names become harder to reconstruct and the reverse is abraded to the point of illegibility. The list finishes with two entries on the left edge, written at 180 degrees to the month-day date.

1096:51 is a small landscape-orientation tablet measuring 85 × 54 mm. Its surface-damaged obverse contains a headed 4-column tabular delivery account comprising twelve entries (Table 4.8). The column rulings continue onto the well-preserved reverse, which is otherwise blank, save for a few fingernail marks on the top edge. The fact that many of the entries in columns 2 and 3 of the obverse are blank also suggests that this document was never finished. The individuals listed, many with professions, patronyms or other identifiers, are all attested elsewhere in the archive too.

1096:52 is an almost square tablet measuring 57 × 50 mm, which has been restored from fragments. The obverse surface is weathered, while the reverse, though mostly in better condition, has been eroded in parts by plant roots. It contains two short letters from one Adad-ilum, son of Uraš-ibsasa (Table 4.10). The first is to Mayašu the scribe, the second to his son-in-law Adad-šemi and a Sin-išmanni, perhaps the *iššiakku*-farmer of that name. Although badly damaged, both appear to give orders about managing the affairs of the sender's father and a certain Nuratum, whose sheep's wool needs to be transported. Tablet 1096:53, found in the immediate vicinity, appears to be related. These men and their business relationships are discussed further on pp.95–6.

1096:53 is a small, well preserved landscape-orientation tablet measuring 45 × 31 mm. The obverse contains an eight-line letter-order, which appears to instruct the names of five people to be entered into an account (*izzuzu* Š) (Table 4.10). All but the first are also attested elsewhere in the archive, the last three as the subordinates of Nuratum. The man named on the bottom edge, Adad-šemi, may, as I argue on p.95, have been a trainee scribe apprenticed to his father-in-law Mayašu. If so, it might not be too far-fetched to imagine that Mayašu was the author of this memo and Adad-šemi the addressee, or vice versa. The tablet 1096:52, containing letters addressed to Mayašu and Adad-šemi about sheep's wool belonging to Nuratum, was found right next to this one.

The small landscape-orientation tablet **1096:55** measures 49 × 30 mm. It is largely intact although there is some surface damage to both obverse and reverse. Like 3064:65 from Room 300 northeast, it contains a numerical list of seven different types of pottery vessels, in quantities from

ten to sixty (Table 4.6). Four of the vessel names in the first four lines are also found in the other list, though only two, *kaptukkû* and *kukkubbû* (o 1, 4), can be confidently identified as known types. In o 6, I take *lurmū* to be a variant of the well-known *lummu*, a type of cup or beaker. Four entries remain only partially read and unidentified. The list is dated to the day and month but, unlike 3064:65, is unheaded.

The two surface fragments together numbered **1096:58** measure 31 × 28 and 32 × 21 mm respectively. Although they do not join, they can confidently be related to each other, as between them they list eight members of Sebitti-nada's *ešertu*-workteam of palace auxiliary guards, plus five other men who are attested either immediately before or after them in several long grain receipt lists in this archive (Table 4.6). The fragments do not seem to join any of the other pieces found in this room either.

1096:60 is a small piece (46 × 33 mm) from the centre of a thick, and therefore probably originally very large tablet. It appears to have contained a two-column numerical list that ran over two (newspaper-style) columns on the surface of the tablet. Small capacity measures are preserved in the right-hand column; only small fragments of syllabic signs or logograms are visible in the left column. I have not attempted to edit it (Table 4.12).

309-E: Room 309 east

The remains of seven tablets, plus two pieces of uninscribed tablet clay, were found in the eastern corner of Room 309. They include three tabular tax accounts and a tantalising list of men 'who have behaved dishonestly'. A further numerical list, 1096:59, was found a little further away, along the southeast wall of the room.

1096:24 is a fragment from the top right corner of a tablet, measuring 44 × 56 mm. Its obverse preserves the right-hand column of a headed numerical list or tabular account, containing partially preserved personal names, often with professions, patronymics or other identifiers (Table 4.6). Several can be recognized as occurring elsewhere in the archive. The reverse, now badly damaged, appears to have continued the list.

1096:25 is a complete landscape-orientation tablet measuring 86 × 44 mm. Its slightly abraded obverse contains a headed memorandum with just three entries, written in a tiny hand (Table 4.9). The rest of the obverse is blank. Uniquely, the document records the names of 'workers who have behaved dishonestly', *ṣābū ša sārta īpušū*, according to the heading. Interestingly, the individuals listed—insofar as the names are legible—do not generally appear elsewhere in the archive, suggesting that they were removed from the workforce. Only a Sin-napšera (o 3) is once attested as a palace auxiliary (1114:17, b 1) but this appears to have been a different person.

1096:26 is the top left corner of a tablet, now measuring 57 × 44 mm. It is badly damaged and partly erased, giving the appearance of having been deliberately destroyed in antiquity. The obverse contains a tabular tax account, containing two, possibly three, quantitative columns and a qualitative one (Table 4.8). A fragmentary preamble describes its contents as *še' šibšu* [….] *muškēnī ša* […], 'barley of the *šibšu*-tax [….] *muškēnu*-dependents of/that […]'. The first column lists grain 'received by the palace', while, following Boivin (2016a), we expect the second, now mostly erased, column to have enumerated that kept by the *muškēnū*—typically twice the amounts sent to the palace. Only one name survives. The reverse is blank. As discussed further on pp.84–5, these tax accounts are important evidence for understanding the relationship between the inhabitants of Tell Khaiber and the palatial authority of the Sealand.

1096:27 is a fragment from the lower (or upper) edge of a tablet, now measuring 46 × 23 mm. It records four rows of numerals in two columns, apparently in the sexagesimal place value system (Table 4.12). This tablet and 1096:42 found close by, represent rare evidence for calculation, rather than just recording, of quantities in the whole archive. It is possible that they are two pieces of the same tablet. They are discussed further on p.99, along with 3080:02 and 3080:05, from around the recycling bin in Room 300.

1096:40 is a landscape-orientation tablet measuring 86 × 58 mm. It is complete but damaged, and the script is thus illegible in places. It contains a headed, three-column tabular list of *miksu*-tax paid by *muškēnu*-dependents to the palace, the only one securely identified in the archive (Table 4.7). Unlike the four Sealand *miksu*-accounts analysed by Boivin, this document records only the grain kept by the *muškēnū* and not the grain sent to the palace—typically twice the amount. The quantities involved range from around 250 to over 2,600 litres, and few are in round numbers. The small amounts in the second column might represent payments of *kiṣru*-duty. Many of the payees are described as substitutes/representatives or relatives (sons, daughters, wives) of others, perhaps receiving (or paying) the grain on their behalf. The *iššiakku*-farmers and their representatives are prominent in the first lines of the text, countering Boivin's tentative suggestion that *miksu*-payers 'were not primarily farmers'.[175]

1096:41 was reconstructed from three tablet fragments found a short distance apart from each other. Most of the upper part of the obverse can thus be restored, while the left half of the tablet has survived in its entirety. The larger piece measures 97× 69 mm and the smaller ones 44 × 20 and 20 × 13 mm respectively. When complete, the original tablet would have been at least 120 × 70 mm in size. The tablet contains a six-column, headed tabular account documenting *šibšu*-tax, like the simpler 1096:26 found nearby (Table 4.8). It records quantities of grain split in proportions of 2:1 for the 'share of the *muškēnu*-dependent' and 'the share of the palace'. In addition, small amounts are assigned to *kiṣru*-duty and city-gate tax. Such names as are legible cannot be firmly identified with other individuals attested elsewhere in the archive.

1096:42 is a small fragment from the lower left corner of a tablet, now measuring 33 × 30 mm. Tantalisingly, it is

[175] Boivin 2016a: 55.

the only document in the entire archive that records a total, ŠU.NIGIN, alongside numerals, written in relatively large script (Table 4.12). As discussed on p.99, some of these may be written in sexagesimal place value notation, for purposes of calculation. If so, this and 1096:27, found nearby, are important evidence that the scribes of this archive not only measured, counted and recorded capacities and other numbers but could also add and subtract them. It is possible that they are two pieces of the same tablet.

1096:59 comprises most of the left hand side of a landscape orientation tablet, measuring 49 × 63 mm. The full height of the tablet is preserved, although the first lines of the obverse have eroded away, including any heading the document may have had. The reverse is in much better condition. It contains the remains of a two-column numerical list (Table 4.6), with large, unrounded quantities of grain ranging from dozens to thousands of litres, a feature more characteristic of entries in tabular accounts. Perhaps it should be understood as *miksu*-tax document, like 1096:40 from this same tablet group. By and large, only a few traces of associated personal names survive. Some individuals are given multiple consecutive entries, marked KI-2 to KI-4 (e.g. o 9'–10', 14', r 11–13).

309-SE: Room 309 southeast

Five very similar tablets were found together against the central section of the wall separating Room 309 from 300. They underlay the point at which a later wall bisecting the room from northwest to southeast. All five concern deliveries of small quantities of *hargallû*-grain, to recipients including the farmers and palace servant-women.

1124:01 is a very badly damaged portrait-orientation tablet, measuring 57 × 80 mm. It is inscribed only on upper half of obverse, with a headed numerical list of *hargallû*-[flour] deliveries to the palace (Table 4.6). It comprises ten entries, both male and female. All surviving quantities are for 1 *sūtu*, *c.*10 litres. Some but not all the legible names are also attested elsewhere in the archive. There is no final ruling, suggesting that the document may have been left unfinished.

1124:02 is also a badly damaged portrait tablet, somewhat smaller than 1124:01 at 40 × 66 mm. Unlike 1124:01, it has no heading but it too is inscribed only on the obverse with a numerical list in which all entries are for 1 *sūtu*, *c.*10 litres of flour or grain (Table 4.6). The horizontal wedges to the right of this column may have served as check marks: see also 1124:03–05 found nearby. The names in this document are mostly illegible and can only be read where the traces match familiar names from elsewhere in the archive.

1124:03 is a landscape orientation tablet measuring 81 × 46 mm. It is in better condition than others found with it, with only the bottom left corner missing. The tablet contains a headed numerical list of *hargallû*-grain, dated to the month and day (Table 4.6). The few numerical entries surviving are in the 70–100 litre range and have all been checked off with a stylus mark. The list names eleven men, all well attested in the archive, but nevertheless giving their patronyms or professions. The list begins with the scribe Mayašu and ends with his son-in-law Iluni.

1124:04 is also a landscape-orientation tablet, measuring 81 × 36 mm. It has been restored from several fragments but its writing surface is in good condition. The obverse carries a headed numerical list of small, rounded quantities of *hargallû*-grain received by four 'palace servant-women', and a tailor (Table 4.6). Each entry is marked with a round check-mark, like 1124:03 and 1124:05. The women co-occur in several other tablets from Room 309, and the tailor only once more, without them.

1124:05 comprises four substantial fragments of a landscape-orientation tablet which must originally have measured some 67 × 43 mm. Although much of the writing in the central part of the tablet has been destroyed, the text can confidently be restored based on parallels, including **1124:04** foun0d with it. The document comprises a headed, dated list of *hargallû*-grain received in small, rounded quantities (Table 4.6). The named recipients are ten and four women, amply documented across the archive as *iššiakku*-farmers and palace servant-women respectively, and who are discussed further on pp.83–4.

300-S: Room 309 south

In the southern corner of Room 309, to the west of the low brick installation, the archaeologists unearthed eleven tablets and fragments, plus three pieces of uninscribed tablet clay. This group mixes document types familiar from Room 300 and the northern half of Room 309—a letter, a memorandum of workers and a list of *hargallû*-grain recipients—with the payment records that otherwise dominate the assemblage in this southern half (Table 4.11). The finds include a complete round tablet, 1114:23, measuring 72 mm in diameter. It was originally inscribed but is now illegible.

1114:01 is a small landscape-orientation tablet in good condition, measuring 45 × 31 mm. It contains a badly written letter, full of spelling errors and grammatical infelicities, to the scribe Atanah-ili from one Ahi-illikam, who queries the former's conduct of a court case, *dīnu* (Table 4.10). The implications of this letter for literacy and for the conduct of law at Tell Khaiber are discussed further on pp.95–6.

1114:26 is a small landscape-orientation tablet with surface damage to the obverse, measuring 59 × 26 mm. It contains a headed list of four workers, whose names can now only partially be read, and a note on the back, *ištēnma*, literally 'one', which probably means that it has been checked and verified (Table 4.9).

1114:36 is a long, portrait-orientation tablet measuring 48 × *c.*100 mm, reconstructed from four large fragments. Some passages of text are therefore missing at the joins and the corners, and there is some further surface damage to the obverse. A lot is still legible, nevertheless. The tablet contains a headed, dated numerical list of small, rounded quantities of *hargallû*-grain, originally comprising some forty entries (Table 4.6). At least eight names associated with the *iššiakku*-farmers are listed on the obverse, mostly

between o 5–17, while at least three of the palace servant-women are also present (o 3, 2', r 9). All other legible names are also well attested individuals elsewhere in the archive.

1114:21 is a small landscape-orientation tablet in good condition, measuring 43 × 24 mm. It contains a record, dated to the day and month, that Nuratum, who also features in the archive's letters as discussed on pp.95–6, has been paid a sizeable amount of grain and silver.

1114:22 is a very small landscape-orientation tablet in good condition, measuring 33 × 16 mm. It contains a record, dated to the day and month, that Nuratum has been paid a sizeable amount of grain but no silver.

1114:25 is a small landscape-orientation tablet in poor condition, measuring 42 × 26 mm. It contains a record, dated to the day and month, that one Re'i-Ninurta—attested frequently in such orders but nowhere else in the archive—has been paid a quantity of grain.

1114:27 is a very small, perfectly preserved landscape-orientation tablet, measuring 36 × 16 mm. It contains a record, dated to the day and month, that Re'i-Ninurta has been paid a quantity of grain.

1114:29 is the left hand portion small landscape-orientation tablet in poor condition, measuring 38 × 27 mm. It contains the remains of a payment record, dated to the day and month.

1114:34 is a small landscape-orientation tablet in good condition, measuring 40 × 19 mm. It contains a record, dated to the day and month, that Re'i-Ninurta has been paid a sizeable amount of grain but no silver.

1114:55 is a fragment of ill-formed tablet clay, possibly recycled, measuring 34 × 32 mm. One side contains several capacity measures, roughly jotted down, in two columns (Table 4.12). The other contains a date.

309-SC: Room 309 south central

Thirteen small tablets were found scattered across the floor of the southern end of Room 309, away from the wall towards the centre of the room. The tablets comprise a letter, a memo, and two documents about *hargallû*-flour, plus eight payment orders (Table 4.11). The round tablet 1114:50, measuring 93 mm in diameter, was found blank and looks as though it had never been inscribed.

1114:40 is a complete, mostly well-preserved portrait-orientation tablet measuring 41 × 71 mm. Some text is missing, especially along joins on the reverse of the tablet. It contains a headed but undated numerical list of small, rounded quantities of *hargallû*-flour (Table 4.6). The forty-five or so entries do not appear to be organized in any particular order. The *iššiakku*-farmers do not feature while many, but not all, of the names are also attested elsewhere in the archive.

1114:45 is a small landscape-orientation tablet with some surface damage to the obverse, measuring 45 × 26 mm. It contains an incompetently written letter to the scribe Atanah-ili from one Uraš-ibsasa, whose son mentions him in other letters found elsewhere in this room (Table 4.10). The syntax of the first sentence after the greeting, and morphology of the key verb, are both unclear, but he appears to report that an official has returned from the city to discover that all the barley has been removed. The relationship between Uraš-ibsasa and the scribes, and the implications for the chain of command at the Tell Khaiber grain archives, are discussed further on pp.95–6.

1114:47 is a small, almost perfectly preserved landscape-orientation tablet measuring 52 × 27 mm. It contains a very interesting and well executed memorandum documenting the flour production of three male relatives of well-attested *iššiakku*-farmers, perhaps on their behalf (Table 4.9). A certain Rib-ibe(?), not otherwise mentioned in the archive, is consulted and deferred to.

1114:48 is a small landscape-orientation tablet measuring 70 × 44. It is similar to 1124:05, found a few metres away in the southeast tablet group of Room 309 (Fig. 4.6). The obverse especially is badly damaged but much of the text can be restored with confidence as it concerns the ten men and four women identified here, and elsewhere in the archive, as *iššiakku*-farmers and palace servant-women respectively. This headed and dated tabular account records deliveries of small, rounded quantities of *hargallû*-flour in four quantitative columns (Table 4.9).

1114:38 is a small landscape-orientation tablet with some surface damage to the obverse, measuring 41 × 21 mm. It contains a record, dated to the day and month, that Re'i-Ninurta has been paid a quantity of grain and silver.

1114:39 is a small landscape-orientation tablet in good condition, measuring 37 × 22 mm. It contains a record, dated to the day and month, that Nuratum has been paid a sizeable quantity of grain.

1114:41 is a very small landscape-orientation tablet with some damage to the lower half, measuring 34 × 20 mm. It contains a record, dated to the day and month, that Nuratum has been paid a quantity of grain and silver.

1114:43 is a small landscape-orientation tablet, measuring 39 × 21 mm. It contains a record, dated to the day and month, that Nuratum has been paid a quantity of grain.

1114:44 is the right-hand portion of a small landscape-orientation tablet in poor condition, measuring 42 × 26 mm. It contains a payment order, dated to the day and month, for a quantity of grain.

1114:49 is a small landscape-orientation tablet in poor condition, measuring 42 × 26 mm. It contains a record, dated to the day and month, that one Ahi-illikam has been paid a sizeable quantity of grain and silver.

1114:51 is a small landscape-orientation tablet in good condition, measuring 45 × 25 mm. It contains a record, dated to the day and month, that one Arzazu has been paid a sizeable quantity of grain and silver.

1114:52 is a complete but slightly damaged landscape-orientation tablet, measuring 41 × 23 mm. It contains a record, dated to the day and month, that Re'i-Ninurta has been paid a quantity of grain.

309-W: Room 309 west

Nineteen tablets and two anepigraphic pieces of tablet clay were found scattered over the western corner of Room 309, between the walls and the floor. They include a tabular account, several numerical lists and two memoranda, as well as ten payment orders (Table 4.11) and a fragment of a possible school exercise.

1114:03 is a landscape orientation tablet measuring 85 × 38 mm. It is missing its top left corner and much of the rest is also in poor condition. It must have originally contained a numerical list of some sort, although the quantitative column and any heading are now entirely missing (Table 4.12). Traces of familiar names can be read in a few lines of the obverse. There may have been a date on the reverse, which was probably otherwise blank.

1114:04 is a landscape orientation tablet now missing its top edge and lower left corner. It is otherwise reasonably well preserved, measuring 84 × 53 at its maximum extent. The tablet contains a four-column tabular tax account (Table 4.8), recording payments of hundreds of litres of the grain to the palace, plus small quantities of *kiṣru*-duty and city-gate tax. As the preamble in the first line is missing, it is impossible to tell whether this document records *šibšu* or *miksu*-tax as both types typically gave one-third to the palace and two-thirds to the producer. At least four of the individuals named here are *iššiakku*-farmers or their representatives; only some of the others are also attested elsewhere in the archive.

1114:05 is a portrait orientation tablet measuring 59 × 74 mm. The obverse surface is badly damaged but the reverse is in much better condition. One can even see the stylus impressions becoming shallower as the tablet dried out in the course of being inscribed. The tablet contains a headed list of very small quantities of *hargallû*-grain, with some entries at the top of the reverse marked by stylus holes (Table 4.6). About forty individuals are listed, mostly men, many of them apparently otherwise unattested in the archive.

1114:06 is a small, well preserved landscape orientation tablet measuring 44 × 21 mm. It contains a letter written by Uraš-ibsasa to Nuratum, telling him to take a large quantity of flour, and informing him that he, Uraš-ibsasa, will take what remains (Table 4.10). Although a few words are difficult to interpret, the overall intention of the letter is clear. The two men, their role in the archive's management, and their relationship to cuneiform literacy, are discussed further on pp.95–6.

1114:07 is a small landscape-orientation tablet in good condition, measuring 41 × 19 mm. It contains a record, dated to the day and month, that Ahi-illikam has been paid a sizeable quantity of grain and silver.

1114:09 is a large surface piece from the right hand side of a large tablet, now measuring 82 × 70 mm. One surface preserves ten lines of a school exercise, which appears to be a sign-list like Ea (Table 4.13). The other surface is not preserved.

1114:11 is a small landscape-orientation tablet in good condition, measuring 38 × 24 mm. It contains a very badly written order, dated to the day and month, that one Manni-Šamaš has been paid a sizeable quantity of grain and silver, as authorised by the scribe Atanah-ili (Fig. 4.9). This document is discussed in more detail on pp.97–8, as key evidence for scribal apprenticeship.

1114:12 is the upper portion of a portrait orientation tablet, now measuring 48 × 69 mm. The obverse, in very bad condition, preserves the remains of a list of workers, presumably comprising an *ešertu*-workteam (Table 4.9). Only four names can be read; the perfectly preserved reverse is blank.

1114:13 is a small landscape-orientation tablet in good condition, measuring 39 × 24 mm. It contains a record, dated to the day and month, that Ahi-illikam has been paid a sizeable quantity of grain.

1114:14 is a well preserved landscape-orientation tablet measuring 66 × 32 mm. It contains a headed memorandum listing seven members of one Abi-ili's *ešertu*-workteam, including two of his brothers (Table 4.9). Most of the names are otherwise unattested in this archive. The significance of the numeral 48, written on the reverse of the tablet, is unclear to me.

1114:15 is a landscape orientation tablet measuring 72 × 43 mm. Its has been reconstructed from fragments but its writing surface is otherwise in good condition. It contains an unheaded, undated list of eleven men, most of whom are also attested elsewhere in the archive (Table 4.9). The individual named in o 1, Ṭeḫ-tamti-išemme, is noted elsewhere in the archive as coming from Babylon (3064:33 r 13; 3111:01 o 27'). Perhaps he is the *ešertu*-leader of this team.

1114:16 is a small landscape-orientation tablet, measuring 41 × 20 mm, with some damage to the reverse. It contains a record, dated to the day and month, that one Ile''i-bulluṭa has been paid a sizeable quantity of grain from, or belonging to, Ilanutu. As I suggest on pp.97–8, it may be evidence for on-the-job scribal training.

1114:17 is an almost square, landscape orientation tablet measuring 63 × 56 mm. Although complete, its obverse surface is in terrible condition but the reverse is relatively well preserved. It contains a headed numerical list of *hargallû*-grain (Table 4.6), in very small amounts with some entries at the top of the obverse checked off with stylus marks. The thirty or more individuals recorded here, including a few women, appear to be listed in no particular order. Many are recorded with their profession or family status. Some are otherwise attested elsewhere in the archive but several are not.

1114:18 is a small landscape-orientation tablet in good condition, measuring 38 × 19 mm. It contains a record, dated to the day and month, that Nuratum has been paid a sizeable quantity of grain.

1114:30 is a small landscape-orientation tablet in good condition, measuring 38 × 25 mm. It contains a record, dated to the day and month, that Re'i-Ninurta has been paid a sizeable quantity of grain.

1114:31 is the right-hand portion of a small landscape-orientation tablet, measuring 33 × 22 mm. It contains a

record, dated to the day and month, that Atanah-ili has been paid a quantity of grain, now missing.

1114:32 is a small landscape-orientation tablet in good condition, measuring 42 × 24 mm. It contains a record, dated to the day and month, that Atanah-ili the scribe has been paid a sizeable quantity of grain. Given its variant word-order, it is probably a further example of scribal education in practice, for which see pp.97–8.

1114:33 is a small landscape-orientation tablet, measuring 42 × 22 mm. It contains a record, dated to the day and month, that Re'i-Ninurta has been paid a large quantity of grain.

1114:51 is a small landscape-orientation tablet in good condition, measuring 38 × 23 mm. It contains a record, dated to the day and month, that Re'i-Ninurta has been paid a sizeable quantity of grain and silver.

OTHER FINDSPOTS

As mentioned in on p.67, a few other tablets and inscribed artefacts were found elsewhere in the Fortified Building, beyond the Archive Room and the Letters Room.

Room 122

A headless, fragmentary clay figurine of a seated animal (**1005:18**) was found in the surface clearance over Room 122, a tower room at the northern end of the Fortified Building's eastern external wall, . It carried the following inscription on its left flank:

A.ZU GAL ^{d}GU. ⌜LA⌝	Great healer (of) the goddess Gula […]
mu-bal-li-⌜iṭ⌝	[…] reviver […]
KUR GAL [...]	great land/mountain […]

The symbol of Gula is a dog, and the figurine might be of one, although the paws, which survive, are more lion-like.[176]

Room 124

Two small fragments of a single baked brick were discovered above nearby tower room 124, also at the northeastern exterior corner of the Fortified Building. **1039:19** bears signs from the first few lines of the standard 9-line inscription of the Ur III king Amar-Suen, stamped into the surface of the clay.[177] Pieces of baked brick occur occasionally in excavation and in surface clearance, but not in the quantities one might expect, given their relative indestructibility, if a building of royal patronage were represented, and we assume for now that they may originate elsewhere.

Room 179

Two edge fragments of a round tablet were found on the surface above 179, a large room in the west-central block of the Fortified Building's northern wing. The constituent parts of **6136:12** bear the scant remains of a headed administrative document, probably a tabular account given the size and complexity of the extant capacity measures (Table 4.8).

Room 314

Room 314 is the southern room of the Fortified Building, immediately to the west of the Letters Room. **1142:7**, a tablet fragment found here, measures 37 × 38 mm. It contains nine lines from the surface of an archival document, containing capacity measures and the initial signs of personal names (Table 4.12).

Room 601

Room 601, in the west wing of the southern unit, faces Letters Room 309 across courtyard 315. Here another fragment of a stamped brick of Amar-Suen was discovered, **6058:7**, partially preserving the first seven lines of the nine-line inscription.[178]

[176] See Nett 2021 for a recent discussion of Gula's dogs, with references to earlier literature.

[177] RIME 3/2.01.03.01. See, most conveniently, https://oracc.org/etcsri/Q000981, accessed July 2021.

[178] RIME 3/2.01.03.01 (https://oracc.org/etcsri/Q000981, accessed July 2021).

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info@www.iraqarchaeology.org