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Knocking on Wood: Writing Boards in the Kassite Administration

<https://doi.org/10.1515/janeh-2023-0010>

Received June 6, 2023; accepted December 17, 2023; published online January 8, 2024

Abstract: This article explores the emerging role of wooden wax-covered writing boards in Kassite administration, as indicated by their mentions in three letters and one cattle account from Kassite period Nippur. Even though the number of textual references is scarce, the use of wooden wax-covered writing boards is supported by the depictions on late Kassite *kudurru* monuments. By incorporating perspectives from Middle Assyrian texts and Neo-Assyrian sealings, this study interprets references to writing board usage in Kassite letters, revealing their role in documenting conscripted workers and their rations. This interpretation finds support in evidence from the Ur III period, contemporary Emar, and the Neo-Babylonian period, collectively suggesting that writing boards were regarded as durable and highly reliable sources. The appearance of seal rings in Babylonia in 13th century BC allows for the hypothesis that wooden wax-covered writing boards could have been sealed in a similar fashion as is assumed for Neo-Assyrian writing boards containing lists of ERIN₂.MEŠ troops of the king. Notably, the Kassite period letters indicate that writing boards were archived for minimum of 50 years and were checked to verify claims.

Keywords: writing boards; wax; Kassite Babylonia; Kassite letters; sealing practice; erin₂ workers

I would like to thank Jacob L. Dahl (Oxford), Timothy Clayden (Oxford), Stephanie Dalley (Oxford) and Marie-Christine Ludwig (Oxford) for their invaluable insight and advice during the research for this paper. Additionally, I am grateful for the comments by Joost Hazenbos (Berlin), Jörg Klinger (Berlin), Gösta I. Gabriel (Berlin) and Hans Neumann (Münster) in the research colloquium of the Institute of Ancient Near Eastern studies at the Freie Universität Berlin. Further, I would like to extend my sincere appreciation to the anonymous reviewers whose valuable insights and constructive feedback significantly contributed to the improvement of this article. All errors remain, as usual, my own.

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1 Introduction

Although it is believed that there are no indications for an administrative use of wooden wax-covered writing boards (henceforth called “writing boards”) in the Middle Babylonian¹ period,² I have identified four Kassite period administrative sources³ from Nippur, which mention writing boards. For this reason, I am going to examine their emerging role within the Kassite period administration in this paper.

Due to the scarcity of archaeological evidence from ancient Mesopotamia and the small number of textual references to writing boards in the third and second millennium BC, Assyriological research has focused on the documents preserved on clay. The role of writing boards as a writing medium before the first millennium BC is often (dis)missed or diminished in Assyriological research. For this reason Maekawa (1997: 120–121) and Veenhof (1995: 311–332) express pronounced doubts that the Sumerian term **le-um** in most mentions from the Ur III period and the Old Assyrian term *išurtum* could refer to writing boards (Veenhof revised his stance in 2020: 225–243). With regard to Middle Assyrian attestations of the Akkadian term *lē'u*, which in the first millennium BC designated writing boards, less scepticism is articulated (Freydank 2001: 103; Postgate 1986: 22–23). Obviously, wood is perishable, and, thus, wooden documents would not have been preserved. Consequently, research on writing boards in third and second millennium Mesopotamia is bound to be tentative and relies on circumstantial evidence. The controversy about evidence for the use of wax and wood as writing material in Mesopotamia has recently been addressed by Cammarosano, Jendritzki, and Streckfuss (2019a: 121–180). Since the question whether we are lacking textual evidence of certain text groups in certain periods due to the use of perishable writing materials, undiscovered tablets or absence of written documentation (for the *argumentum ex silentio* in Zimmermann 2023: 99–101)⁴ is

1 In this paper, the regnal years of kings are based on Brinkman (2017: 36). Throughout this paper, the term Middle Babylonian includes both the Kassite (ca. 1500–1150 BC) and the Isin II (ca. 1157–1026 BC) periods. The terms “Kassite administration,” “Kassite letters,” or any other document qualified with “Kassite” in this article refer to documents from the Kassite period, not to documents in the Kassite language.

2 “These indications, however, apply only to royal, legal and literary texts, not to administrative ones” (Dalley 2020: 18).

3 A commonly acknowledged difference between legal and administrative documents is the list of witnesses (see Oelsner 1980a: 98, fn. 2; Renger 1977, 80–81, n. 2; Stiehler-Alegria Delgado 1996: 49, fn. 48). However, some Kassite legal documents lack a list of witnesses (Oelsner 1980a, 1980b: 89, fn. 2). For Postgate’s approach to distinguishing legal from administrative texts in the Middle Assyrian period see Postgate (2003, 125, 130).

4 The absence of evidence is not necessarily evidence of absence, see Zimmermann (2023: 99–101). With regard to archaeological evidence, the *argumentum ex silentio* is only valid, if it meets two

central to the discipline of Assyriological research, this paper aims to examine and highlight their significance in Kassite Babylonia.

This study provides an exciting opportunity to advance our knowledge about the use of writing boards in the second millennium BC in Babylonia. It is divided into four parts and a conclusion. The first section (Section 2) examines the evidence for writing boards in Kassite and Isin II Babylonia. Section 2 includes a transliteration and translation of the administrative documents from Kassite Nippur (Section 2.1–2.4), which refer to writing boards. The next section (Section 3) focuses on the origin of the materials needed for the production of a writing board as well as the (archaeological) evidence for sealing. In Section 4, I review references to writing boards in contemporary sources from neighbouring regions, such as the Middle Assyrian and Hittite kingdom, Emar and Ugarit. Having presented contemporary references to writing boards, the references to writing boards from the third and first millennium BC are discussed in Section 5. Sections 4 and 5 provide contemporary as well as earlier and later evidence for the use of writing boards, which can be employed to interpret the Kassite evidence in the conclusion (Section 6). Finally, in the conclusion in Section 6, I summarise the research findings, synthesis and evaluation of the use of writing boards in the Kassite administration.

2 Writing Boards in the Kassite Period

Before presenting the administrative sources pertaining to Kassite writing boards, it is necessary to outline the current discussions regarding writing boards in the Middle Babylonian period. I (2022: 53–106) presented an in-depth analysis of two references to writing boards in two *kudurru*⁵ inscriptions from the Kassite and Isin II period: the *kudurru* KA IV 2 from the Late Kassite King Kaštiliaš IV (1233–1225), which mentions a writing board in the legal part of its inscription, and the *kudurru* MŠZ 2 from the Isin II-King Marduk-šāpik-zēri (1086–1074), which lists a writing board among its *Vorlages* in its colophon. I (2022: 82–101) concluded that writing boards a) either contained one of the drafts of the inscription in stone, such as it is attested for the Neo-Assyrian period, b) served as a source of literary passages and chronicles, out of which passages were incorporated into (narrative introduction or curse formula)

criteria: (a) there needs to be high probability that X is true, and (b) there needs to be a high probability that we would learn about X (Wallach 2019: 8).

⁵ A *kudurru* is a stela out of stone or clay with the function to protect and confirm a royal land grant or a grant of a prebend. Other researchers, such as, for example, Dalley (2020: 18–19) or Cammarosano, Jendritzki, and Streckfuss (2019a: 131) have noticed before that two *kudurru* inscriptions from the Kassite and Isin II period mention two writing boards.

of the *kudurru* inscription, or c) as a sealed field survey document, which was part of the process of the Kassite royal land grants.⁶

Textual sources from the Ur III period imply that some land surveys and ground plans were recorded on wooden boards (see below Section 5.1 and Steinkeller 2004: 76–77). Based on this traditional use of writing boards in Babylonia, I (2022: 92–101) suggested that the *ammatu* field survey documents may have been inscribed on a writing board, which was lighter and more robust than a clay tablet, and which could be easily carried around during the measuring of the granted land.⁷ This use of writing boards for bookkeeping, land surveys, and the work pensus of workers in the Ur III period (see below Section 5.1), on which I based my theory that the *ammatu* may have been inscribed on a writing board, can also serve as a model for the use of writing boards in the Kassite administration, which I discuss in this paper. Although the mentions of writing boards are scarce in the Kassite period – one *kudurru* and four administrative documents from Nippur contain attest to their use in Kassite Babylonia – I propose that their context indicates a similar function in the administration as is attested in earlier, contemporary and younger textual sources. However, such a hypothesis is rather controversial, and there is no general agreement about the extent to which they were in use in the Middle Babylonian period, as I am going to outline in the following:

Based on the lack of clay tablets from the first Sealand Dynasty and based on a *kudurru* from the Isin II dynasty, Dalley suggests that the use of writing boards increased in the Middle Babylonian period (see Dalley 2020: 18–19; Zimmermann 2023: 95). One reason for this conclusion is that Dalley identified incised linear letters on four Sealand tablets (CUSAS 9: 67, 134, 149, 435, pp. 69, 107, 112, 257). This linear alphabetic script is related to an alphabetic script that was inscribed on central ribs of date-palm leaves in Yemen as early as the 1st millennium BC (Dalley 2020: 18–19). Furthermore, Dalley connects the alphabetic script “to the early South Arabian order of letters that begins HLHM and variants rather than the so-called Phoenician order that begins ABCD” (Dalley 2020: 19). A so-called “South Arabian type alphabet” is attested in cigar-shaped tablets from Ugarit, in Palestine and in a late 15th century tomb in Egypt.

6 The last hypothesis c) is based on Paulus’ reconstruction of the nature of the *ammatu* to record the results of the field survey (Paulus 2014b: 102–104). The *ammatu* document appears on Kassite *kudurru* inscriptions in the context of measuring the land. This differentiates the *ammatu* from the Neo-Babylonian *ummu* document or Old Babylonian *tuppi ummātim*, the original title deeds of previous owners, which are attested and preserved on clay tablets, see Zimmermann (2023: 83–97).

7 According to the *kudurru* inscriptions, *ammatu* documents were legal documents sealed by the king before witnesses (Paulus 2014b: 104, fn. 284). Since writing boards could be sealed, it would theoretically be possible to record sealed administrative and legal documents on writing boards, including sealed *ammatu* documents (see Zimmermann 2023: 96).

Nippur and its vicinity may have been more conservative than elsewhere in continuing to write cuneiform on clay in the late Old Babylonian period, whereas further south the frond ribs were easily obtained and suitable for incising in an alphabetic script. (Dalley 2020: 18)

Additionally, a letter from the first Sealand dynasty mentions “30 GEŠ.DA.HI.A *it-ti-su-nu*”, “30 writing boards (are) with them” (CUSAS 9: 7 obv. 9–10). Interestingly, in the same letter, a “house of the Kassites” is mentioned (Dalley assumes, these were Kassites integrated in the Sealand society), see Dalley (2009: 25). Dalley reads GEŠ.DA as Akkadian *gišṭû* (a term mainly attested in Neo-Assyrian colophons, see AHw: 294; CAD G: 110a; e.g. in KAR: 164 (Enūma eliš) or KAR: 307 (mythical explanatory text)). The term *gišṭû* appears in the Kassite letter CBS 4773 from Nippur (see the translation below in Section 2.3). Dalley suggests that *gišṭû* designated a Yemeni-style “writing stick without wax”, in which the script was incised when the palm-leave ribs were still fresh. Her interpretation is based on the passage in the Tanakh passage Ezekiel 37:16, dated to the Exile period, which recounts an order by the deity to write “upon” a stick. According to Dalley (2020: 19) this attests to the “custom of writing on sticks in the 6th century in southern Mesopotamia near Nippur,” since “Ezekiel’s tomb with a synagogue and Hebrew texts carved in wood [...] lies in southern Iraq between Hillah and Najaf in the village Al-Kifl”. Dalley speculates whether *gišṭû* (GEŠ.DA) is to be distinguished from the Sumerogram GEŠ.ZU, which she reads as *lē’u*, and which she understands to be a wax-covered writing board.⁸

Michalowski (2021: 80) disagrees with Dalley’s theory that a transition to palm ribs or writing boards could account for the gap in textual sources in mid-second-millennium Babylonia, criticizing it as merely “hypothetical.”

As opposed to Michalowski, Postgate (1986: 22–23) and Seidl (1989: 125) argue that writing boards must have been so common in the late Kassite and Isin II period that they were depicted on *kudurru* as a symbol of the god Nabû. After king Meli-Šipak the (grooved) stylus, the tablet, and writing boards appear as symbols of the deity Nabû in Babylonia.⁹ For an in-depth analysis of writing

⁸ Further, Dalley (2020: 19) questions whether either the term GEŠ.DA or the term GEŠ.ZU was a more general umbrella term including the other.

⁹ “Around the reign of the Kassite king Meli-Šipak, stylus, tablets, and writing boards start to be used in Mesopotamia as symbols of the god Nabu. Two basic varieties of stylus appear in the iconographic repertoire of *kudurru*, stelae, reliefs, and seals. Both are of rectangular or trapezoidal shape, showing that both are intended for cuneiform script; one, however, shows a line in the middle, resembling a groove (henceforth “grooved stylus”), whereas the other does not. Both variants spread with increasing frequency in the iconographical repertoire of Babylonia and Assyria as well as in the Syrian and Levantine region, and peaked in the Neo-Assyrian and Neo-Babylonian glyptic of the first millennium BCE; of the two variants, it was the grooved stylus that was to enjoy greater popularity” (Cammarosano, Jendritzki, and Streckfuss 2019a: 159).

boards depicted on Kassite *kudurrus* and their images, please refer to Cammarosano, Jendritzki, and Streckfuss (2019a: 146–147, 158–159). On two *kudurrus* dated to the late Kassite king Meli-Šipak (1186–1172 BC, see Brinkman 2017: 36; Paulus 2014b: 877, nos. 146 and 147), a diptych and triptych as well as grooved styli are depicted (see Seidl 1989: 122, nos. 40 and 43). On the *kudurru* Sb 25 (Paulus 2014b: 877, no. 146; OI 19; Seidl 1989: no. 40), the triptych is clearly marked as a writing board by two rows of hinges, similar to later depictions on Neo-Assyrian reliefs (see Cammarosano, Jendritzki, and Streckfuss 2019a: 158, Figure 15a). On the *kudurru* BM 90836 (Paulus 2014b: 877, no. 147, OI 20; Seidl 1989: no. 43), a diptych is recognisable through a narrow strip in the middle, interrupted only once by two small incised lines. These lines represent two very large hinges, since two short strokes would be nonsensical in a clay tablet depiction (i.e. they are not column or section dividing lines). The pages of the diptych are each divided into three sections (see Cammarosano, Jendritzki, and Streckfuss 2019a: 158, Figure 15b; Seidl 1989: 124).

On another later Kassite *kudurru*, Sb 6438, which dates to Marduk-apla-iddina I (1171–1159; see Paulus 2014b: 877, no. 154, OI 27; Seidl 1989: no. 53), the “grooved stylus” is depicted as a symbol of Nabû (see Figure 15c in Cammarosano, Jendritzki, and Streckfuss 2019a: 158).¹⁰ To view images of these depictions of writing boards and the grooved stylus on Kassite *kudurrus* see Cammarosano, Jendritzki, and Streckfuss (2019a: 158), Figure 15 a–c. For a detailed analysis of the “grooved stylus”, which was presumably used for writing in wax and which may have served as a *Vorlage* for the depiction of a closed diptych in profile view, see Cammarosano, Jendritzki, and Streckfuss (2019a: 158–168).

In my opinion, the aforementioned iconographic evidence, the references to writing boards in the inscriptions of *kudurru* monuments and the cited letter from the first Sealand dynasty (CUSAS 9: 7 obv. 9–10) strongly support an increased use of wooden writing boards in the Middle Babylonian period. In the following pages, I will provide further evidence confirming the use of writing boards in the Kassite period by presenting the reader with a transliteration and translation of three Kassite letters and a part of a cattle account from Nippur, which contain mentions of writing boards, with a brief commentary.

¹⁰ On four *kudurrus* (Seidl 1989: nos. 53, 96, 99, and 101), the “grooved stylus” is depicted as a symbol of Nabû, see Figure 15c–f in Cammarosano, Jendritzki, and Streckfuss (2019a: 158). Apart from the late Kassite *kudurru* Sb 6438, the other three *kudurrus* are early Neo-Babylonian: BM 90922 (Paulus 2014b: NAI 1; Seidl 1989: no. 96), AO 6684 (Paulus 2014b: MZŠ I 1; Seidl 1989: no. 99), and BM 40006 (Paulus 2014b: MAI II 2; Seidl 1989: no. 101).

2.1 The Kassite Letter BE 17: 51 (P265716, CBS 10510)

obv. 1'	[<i>ana bēlīja qībīma</i>]	[Speak to my lord]
obv. 2'	<i>um-ma-ṛa</i> ¹ [...]	the following [(says) ...],
obv. 3'	URDU- <i>ka</i> ṛx ¹ [... <i>a-na di-na-an</i>]	your servant. ṛ... ¹ [... I shall go] as my lord's
obv. 4'	<i>be-lī-ia-ṛlu-ul-lī-ṛ</i> [<i>ik um-ma(-a)</i>]	[substitute.]
obv. 5'	U ₈ .UDU.HI.A <i>ša</i> ṛx ¹ [...]	The flock of sheep and goats of/which [...]
obv. 6'	<i>ša</i> ^{URU} <i>Lu-ṛub</i> ^{ṛ1} [<i>dī</i> ...]	of the town Lubd[ī ...]
obv. 7'	<i>a-na-ku</i> ṛx ¹ [...]	I, myself, [...]
obv. 8'	<i>ku-ru-ṛuš-ta</i> ^{ṛ2} <i>ik</i> ^{ṛ3} -[(<i>ka</i> ² - <i>lu</i> ²) ...]	the fattening fe[ed (they are going to eat?) ...]
obv. 9'	<i>qá-at ma</i> ṛa ² -x ¹ [...]	under the administration of [...]
obv. 10'	<i>be-lī li-iš-pu</i> -[<i>ra</i> ...]	My lord shall send [to me (?) ...]
obv. 11'	<i>ḥa-mu-ut-ta</i> ṛlī ^{ṛ1} -[...]	promptly, ṛhe shall (?)' ... [...]
obv. 12'	<i>ku-ru-uš-ta-a</i> ṛx ¹ [...]	the fattening feed ... [...]
obv. 13'	<i>li-še-lī</i> [...]	he shall let come up [...]
rev. 1	U ₈ .UDU.HI.A <i>ša(-)qá(-)</i> [(<i>aṛ</i> ²) ...]	The flock of sheep and goats(, which are) under the ad[ministrat]ion of .../the wate[r]ing ...]
rev. 2'	<i>ḥa-za-an-na-a-ti</i>	the towns' mayors
rev. 3'	<i>ša be-lī-ia ša ma-da-a</i>	of my lord, are numerous.
rev. 4'	<i>mi-na-a-ṛšū</i> ¹ - <i>nu i-le-eq-qé</i>	What of theirs is he going to take? (=How many of their sheep and goats is the lord going to take?)
rev. 5'	<i>a-wi-lu-us-su-nu</i>	Their <i>awīlūtu</i> are written down
rev. 6'	<i>i-na</i> ^{GE5} <L>.U ₅ .UM <i>ša be-lī-ia</i>	on the wooden writing board of my lord.
rev. 7'	<i>ša-aṛ-ra-at</i>	
rev. 8'	<i>a-wi-lu-us-su-nu i-ṛna</i> ^{GE5} ṛlī ^{ṛ2} ... ¹	Their <i>awīlūtu</i> on/in ... [(the writing board ???) ...]
rev. 9'	<i>be-lī li-il-ṛqé</i> ¹	my lord shall take (it ?).

obv. 6': The reading ^{URU}*Lu-ṛub*^{ṛ1}[*dī*] is a tentative suggestion; the possible sign ṛub^{ṛ1} is strongly damaged.

obv. 8': *kuruštū*, **kurušta*-, “sheep or goats being fattened” (AHw: 514a; CAD K, 582), or “ein süßes Mastfutter” (AHw: 514a). von Soden (1965: 514a) (=AHw) translates BE 17: 51 obv. 8, 12, *ku-ru-uš-ta-a*, as “fattening feed”.

rev. 1: It is possible to read U₈.UDU.HI.A *ša-qá* [...], because there is large gap following the sign *qá*. *šaḳū* means in the context of livestock „to give to drink, to water animals“ (CAD Š/2: 24, 26). However, a gap between signs can appear in one word, as can be seen in rev. 2 and l. 5 between *ḥa-za-an-na-a* and *-ti* and between *a-wi-lu-us-su-* and *-nu* and does not necessarily indicate the end of one word.

rev. 3: *mādā* appears to be the stative fem. pl. of *mādu*, “to be numerous, plentiful, abundant” (cf. CAD M/1, 24), either referring to a substantive in the fem. pl., or a dual. The term U₈.UDU.HI.A, Akkadian *šenu*, “flock (of sheep and goats)” is a feminine substantive, cf. CAD Š: 128–131; *hazannāti* is the feminine plural, as well. It is more likely that the sender mentions the high number of sheep and goats instead of towns' mayors.

In the Kassite letter BE 17: 51 (P265716, CBS 10510) from Nippur the subordinate sender asks his lord to send fattening feed, presumably for sheep and goats. If the emendation in

obv. 6' is correct, then the sheep and goats may be located in the town Lubdu in the north-east of the Kassite kingdom (Nashef 1982: 178–179), near the Assyrian border. According to rev. 1–4 there is a great number of sheep and goatherds under the administration of the towns' mayors of his lord (for the reading of the signs *ša(-)qá(-)[(a²)]* see the commentary to line rev. 1 above; for the translation “hand (of)” as “under the administration of” see Petschow 1974: 56–57). Thus, the recipient, a “lord” in Nippur, had a higher rank than *ḫazannu*-officials in the area of Lubdu, since they were “in his hand (=under his administration)”. The Kassite letters from Nippur were allegedly found in the palace complex of Nippur (see Pedersén 1998: 115), so it may be the case that the recipient was a high official in the palace, i.e. in the provincial administration of Nippur. He may have been the *šandabakku*. If the town in obv. 6' is indeed to be emended to ^{URU}*Lu-¹ub²¹-[di]*, then this would imply that this high-ranking recipient commanded *ḫazannu* officials (rev. 2'–3': *ḫazannāti ša bēlīja*) in a completely different province. This could be understood to indicate that the *šandabakku* of Nippur had supra-regional influence over certain lands, workers and resources in other provinces.

Since the sender asks in rev. 4, “what” of “theirs” his lord is going to take, which, may refer the sheep and goats, it appears that the lord in Nippur is going to extract some of the sheep and goats from the herds of the *ḫazannus*. However, in the following lines rev. 5'–9', the sender asks his lord to take something, either a writing board on which *awilūtu* are listed, or to take the *awilūtu*, who are listed on his writing board (rev. 9': *li-il-¹qē¹*). As we can see in other Kassite administrative sources, such as in the cattle account BE 15: 199 (see below), the Nippur administration actually sold livestock to purchase *awilūtu*.

It is unclear whether the passage in rev. 5'–9' is linked to the discussion of the extraction of sheep and goats in the previous lines. However, the letter seems to imply that the local *ḫazannus* (possibly in the area of Lubdu) managed not only sheep and goats, but that they also controlled *amīlūtu* workers. These workers are apparently listed on a wooden writing board of the sender's lord. This means they are under his lord's supervision. The sender asks his lord to “take” them, which may imply that the lord shall redistribute the man power from one place to another place, perhaps, even from another province (Lubdu) to Nippur, where the letter was found.

Lubdu lay at the north-eastern fringes of the Kassite kingdom and had belonged to Mittani before it came under the control of Babylonia, perhaps, under Burna-Buriaš II (1354–1328), when Babylonia destroyed the area up to the Lower Zāb and conquered areas of the Mittani kingdom (Jakob 2011: 192, fn. 3; Wilhelm 1982: 50). The conquest of Lubdu presumably resulted in the influx of Hurrian servile workers (*arrapḫāju*, *ḫanigalbātū*) since the reign of Burna-Buriaš II (1354–1328). These Hurrian servile workers appear in personnel and ration lists, especially under Kurigalzu II (1327–1303) and Nazimaruttaš (1302–1277, cf. Brinkman 1981: 33; Sassmannshausen 2001: 134–135). In case the letter BE 17: 51: obv. 6' does contain a reference to the town Lubdu, then it may document

the redistribution of such Hurrian workers to another location, possibly, to the province of Nippur, where the recipient of the letter was located.

Later, Adad-nārārī I (1307–1275) destroyed the area of Lubdu during the war with Nazi-maruttaš (1302–1277, Paulus 2014a: 71)¹¹ It is unclear, but likely that the aftermath of several wars with Assyria resulted in more (Assyrian) prisoners of war who ended up as servile personnel in the border towns and may have been redistributed to central Babylonian provinces, such as Nippur.

2.2 The Kassite Letter PBS 1/2: 77 (P261059, CBS 4790)

broken part

obv. 1'	<i>ṛša i-na</i> ^{URU} KA ₂ .DINGIR.RA ^{K1}	... which in Babylon
obv. 2'	<i>tu-uš-i-da-an-ni</i>	you brought to my attention.
obv. 3'	<i>um-ma-a i-na</i> ^{GEŠ} LI.U ₅ .UM	The following: I shall look at (=read) the wooden writing board.
obv. 4'	<i>lu-mu-ur i-na</i> ^{GEŠ} LI.U ₅ .UM	After I had looked at (=had read) my wooden writing board,
obv. 5'	<i>at-tu-ú-a ki-i a-mu-ru</i>	(I found that) they are not written down (there).
obv. 6'	<i>ul ša-aṭ-ru</i>	
obv. 7'	DUMU ¹ Iš-bu-ú-la a-ka-an-na	The son of Išbu-ula in the following way
obv. 8'	<i>iq-ta-ba-a um-ma-a</i>	has said the following:
obv. 9'	¹ Iš-bu-ú-la a-bu-ú-a	“Išbu-ula, my father,
b.e. 1	<i>i-na ši-be me-e ša</i>	during/in (the section under) the soakings (of fields) with water of/in (the section under) of the seizers of water
b.e. 2	^{1,d} Nin-urta-ŠUM ₂ -ŠEŠ.MEŠ <i>ša-ti-ir</i>	Ninurta-nādin-aḥḥē is written down there.”
rev. 1	DUMU ^{1,d} Nin-urta-kab-ti-ŠEŠ.MEŠ-šú	The son of Ninurta-kabti-aḥḥēšu
rev. 2	<i>a-ka-an-na iq-ta-ba-a</i>	in the following way has said
rev. 3	<i>um-ma-a</i> ^{1,d} Nin-urta-kab-ti-ŠEŠ.MEŠ-šú	the following: “Ninurta-kabti-aḥḥēšu,
rev. 4	<i>a-bu-ú-ṛa i-na</i> ¹ MU-22-KAM	my father, in the 22nd year
rev. 5	<i>Na-zi-ṛMúru¹-taš ša-ti-ir</i>	of (king) Nazi-maruttaš was written down (there).”
rev. 6	DUMU ^{1,d} Nin-urta-ri-im-DINGIR.MEŠ <i>a-ka-an-na</i>	The son of Ninurta-rīm-ilāni in the following way
rev. 7	¹ iq ¹ -ta-ba-a um-ma-a i-na MU-22-KAM	has said the following: “In the 22nd year
rev. 8	<i>Bur-na-Bu-ri-ia-aš</i>	of (king) Burna-Buriaš
rev. 9'	^{1,d} Nin-urta-ri-im-DINGIR.MEŠ <i>a-bu-ú-a</i>	Ninurta-rīm-ilāni, my father,
rev. 10'	¹ ša ¹ -ti-ir	was written down there.”

11 “[I]n the time of Adad-nārārī I, Lubdu was clearly marked as Babylonian territory which that king had devastated. Then once again, by the reign of Tiglathpileser I, Lubdu was a Babylonian possession” (Brinkman 2017: 25, fn. 222). Two Middle Assyrian letters from the time of Tukulti-Ninurta’s first campaign against Babylon (Cancik-Kirschbaum 1996: 14–18, 154–162, nos. 11–12; Jakob 2011: 198–201) imply that Lubdu was besieged by Assyria (Paulus 2014a: 73, fn 90).

obv. 2': Regarding the verb form *tus'idanni*, and its verbal root **td* cf. Aro (1957, 39) and von Soden (1995: 194).

obv. 4': To report about conditions found at the sender's location the sender often used a *kī* and a preterite verb form in the sub clause, followed by a stative in the main clause to describe the state of affairs. In case the sender wants to express the state of affairs he found "when" he had looked at the writing boards, then the *kī* is not to be translated as "after", but rather as "as" and "when".

obv. 7', 9': For the personal name Išbula-ula see Balkan (1954: 57) and Hölscher (1996: 108).

b.e. 1: The third and fourth sign of b.e. l. 1 can be read *ši-bīt/bat/mit/be* etc. The fourth sign is the sign BAD with the reading *mit*, or *bīt* or *be*.

1. *šimdu* is a Kassite "yoke" field (120 big cubits × 120 big cubits, 30 sila seeds), one-eighth of a bur (Powell 1987–1990: 481–482). A plough drawn by a team of oxen could plough this amount in one day (Paulus 2014b: 169, fn. 214.)

2. *še-bīt, še/ēbit*,¹² could be the participle in the status constructus or the stative of *šabātu*, since in the Middle Babylonian period the /a/ in a closed syllable could become an /e/ if the following syllable contained an /e/ or /i/ (Aro 1955: 41–49). *še-bīt*, read as participle *šēbit*, followed by *me, mē*, "water," could be translated as "the seizer of/the one, who seizes water." Thus, Išbula is listed "in," i.e. under the section of the workers, who "seized" water. *šabātu*, "seize," can mean "to contain" with water, see CAD Š: 23a, s.v. *šabātu*. The examples refer to vessels which contain certain amounts of water given in measures of capacity. *šabātu* can also mean "to block an approach" (see CAD Š: 29b, s.v. *šabātu*); perhaps, in the sense of "blocking a stream of water"?

3. Another possible reading is *ši-be. šīpu* or *šību* means "soaking (referring to irrigation)" (CAD Š: 205), "Durchfeuchtung" (AHw: 1104), which is a possible reading in the context of *mē*, "water." appears to be a likely reading. *šībē* may be the gen./acc. pl. of "soaking", i.e. *ina šībē* may mean "the soakings". Išbula's name was written down *ina šībē mē*, "in the soakings of/ with water", i.e., while these soakings happened, or his name appears in a section on the writing board which concerns the irrigation and soaking of fields.

rev. 1: The name can be read ^{1d}*Nin-urta-kab²-ti-ŠEŠ.MEŠ-šú* or ^{1d}*Nin-urta-SAG²-ti-ŠEŠ.MEŠ-šú* (see Hölscher 1996: 158). However, in rev. 3, the sign KAB is identifiable in the name ^{1d}*Nin-urta-kab²-ti-ŠEŠ.MEŠ-šú*.

Furthermore, the cuneiform signs are very cursive (tilted to the left side), and, thus, both the sign SAG and the sign KAB are possible readings. The vertical wedge of the sign TI is tilted to the left so that it is nearly horizontal. In accordance with this, the vertical wedges of the alleged sign

¹² *šibtu* was a levy on cattle (cf. Paulus 2014b: 164, 398), which can be excluded in this context, since the following term in the genitive case if *mē*, "water."

KAB are slightly tilted to the left, as well. Those wedges, which are supposed to be horizontal in the signs KAB and TI, appear to be (nearly) horizontal. However, in order to read the sign SAG, one would have to assume that of the two horizontal wedges of the sign SAG – not all of the horizontal wedges – are tilted to the right and not the left, like the rest of the wedges in rev. 1. This would be an odd exception to the cursive writing. Therefore, it seems more likely to me to read KAB instead of SAG.

In Kassite letter PBS 1/2: 77 (P261059, CBS 4790) the sender mentions that the recipient brought something to his attention in Babylon. The origin from which the letter was sent is unknown. It is possible that it came from Babylon. The letter was found in Nippur, where it may have been received and/or archived.

It is typical in Kassite *ardu* letters from subordinates to higher ranking officials that the sender wants to report to his lord about certain conditions. However, in PBS 1/2: 77, there are no expressions characteristic of an *ardu* letter, such as addressing the recipient with “my lord” in the 3rd ps. sg. or giving him direct orders in the imperative. The verb form *tuš'idanni* in obv. 2' (“you brought to my attention”) could be an indicator that PBS 1/2: 77 is an *aḫu* letter or even *bēlu* letter, since the sender addresses the recipient directly in the 2nd ps. sg. However, occasionally subordinates used the 2nd ps. sg. instead of the 3rd. ps. sg. when they addressed higher ranking officials; such a possible mistake is not necessarily an indicator that a superior addressed a subordinate or “brother.” Since the sender is not giving any commands to the recipient, it is improbable that this is a *bēlu* letter from a superior to his subordinate. However, since he had access to the official records of the provincial administration, it is to be expected that he was a high ranking official in the Nippurean palace. Thus, it is reasonable to assume that PBS 1/2: 77 is an *ardu* or *aḫu* letter between a subordinate and his lord or between more or less equals.

The sender was apparently asked to check entries on wooden writing boards (obv. 3'–4': *i-na*^{GES} LI.U₅.UM *lu-mu-ur*, “I shall read the wooden writing board”), as several men had made the claim that their fathers' names were listed there. The sender reports that he has checked three entries (obv. 7'-b.e. l. 2; rev. 1–5;¹³ rev. 6–10¹⁴) on his writing board.

¹³ In PBS 1/2: 77 rev. 1–5, a son claims that his father Ninurta-kabti-aḫḫēšu was conscripted in the 22nd year of Nazi-maruttaš (1307–1282, see Brinkman 2017: 36). The name Ninurta-kabti-aḫḫēšu is attested as URDU E₂.GAL, “palace servant,” in BE 14: 134 obv. 3; 138 obv. 6, in CT 43: 102 obv. 1, and in PBS 1/2: 48 obv. 1, see Hölscher (1996: 155). These documents date in the reign of Šagarakti-šuriaš (see Hölscher 1996: 155).

¹⁴ In PBS 1/2: 77 rev. 6–10, a son claims that his father Ninurta-rīm-ilāni was conscripted in the 22nd year of Burna-Buriaš II (1359–1333, see Brinkman 2017: 36). The name Ninurta-rīm-ilāni is attested in BE 14: 73 obv. 11 and in PBS 2/2: 91 obv. 8, which date to king Nazi-maruttaš (see Hölscher 1996: 158). Since the son in PBS 1/2: 77 rev. 6–10, claims that his father was conscripted under king Burna-Buriaš II. and not under king Nazi-maruttaš, it is unclear, why Hölscher (1996: 158) alleges that the

However, he rejects their claims, since their fathers' names were apparently not written down on the writing board (obv. 6': *ul ša-aṭ-ru*, "they are not written down there"). Two of these three sons claim that their fathers were conscripted during the reign of two preceding kings, Burna-Buriaš II (1359–1333) and Nazi-maruttaš (1307–1282, see Brinkman 2017: 36). One son, however, appears to mention the conscription of his father in the context of irrigation work (see above the commentary to b.e. l. 1).

Between the 22nd year (1338) of king Burna-Buriaš II (1359–1333) and the 22nd year (1286) of king Nazi-maruttaš (1307–1282) there is a time span of 53 years. This is an indicator that writing boards and more importantly the inscriptions on writing boards were archived for at least half a century. Furthermore, if one could demand from officials of a temple or the provincial administration that he would check entries on a writing board more than half a century later, then this means the inscriptions were permanent.

It is highly probably that the letter PBS 1/2: 77 was written and sent no less than two years after the 22nd year of Nazi-maruttaš, because expressions such as "this year" and "last year" are attested in Old Babylonian and Kassite letters as well as Amarna letters: The expression "(of/in) this year" is expressed with *šatta/šattu, ina/ša šatti, ina/ša šatti annīti, šattu annītu, šattu agā*, see e.g. the Amarna letter EA: 11 from Kassite King Burna-Buriaš II rev. 17: *ina libbi šatti šannīti*, EA: 162: obv. 44: *ina šatti šannīti*, EA 287: obv. 20: *ina šatti šannīti*). The expression "(in/of) last years" is expressed with *šaddagda, ša šaddagda/i, šaddagdiš*, see e.g. the Old Babylonian letter CT 4: 28 from Sippar-Jahrurum (mod. Tell Abu Habbah) rev. 4–5: *ul šadaqda ul šatta*, "nor (for) last year nor (for) this year" or the Kassite letter BE 17: 34: obv. 14: *kī pī ša šaddag[da]*, as well as PBS 1/2: 16 obv. 18; 52 obv. 11. The *terminus post quem* is, therefore, 1284, which means that the writing boards were kept for at least 55 years.

Hölscher (1996: 56, 108, 149, 156, 158) tentatively dates PBS 1/2: 77 to the reigns of Kadašman-Enlil II (1263–1255) or Kudur-Enlil (1254–1246, "<KaE II/KuE>" or "und.", i.e. "not dated"). The reasons for this dating are unclear. Following Hölscher, the letter PBS 1/2: 77 was sent more than 76 years after a scribe made an entry in a writing board in the 22nd year (1338) of king Burna-Buriaš II (1359–1333). This is a strong indicator that writing boards were used as a lasting writing medium, and not merely for temporary notes that were later fixed on clay. It is attested that writing boards served as a permanent medium both for administrative and scholarly texts in the first millennium (Finke 2003: 58; Jursa 2004: 170–178; Kozuh and Nielsen 2021: 148–145; Parpola 1983: 4; Robson 2019: 126). Thus, PBS 1/2: 77 is proof that writing

Ninurta-rīm-ilāni mentioned in PBS 1/2: 77 rev. 6–10 is identical with the men of the same name in BE 14: 73 obv. 11 and in PBS 2/2: 91 obv. 8. There are 26 years between the reigns of Burna-Buriaš II (1359–1333) and Nazi-maruttaš (1307–1282, see Brinkman 2017: 36).

boards served this purpose already in the second half of the second millennium BC in Mesopotamia.

2.3 The Kassite Letter CBS 4773 (P261042)

obv. 1	<i>a-na¹ be-lí-ia¹ qí-bí-ma</i> [umma PN]	Speak to my lord: [the following (says) PN]
obv. 2	URDU-ka-ma a-na di-na-an ¹ [bēlīja lullik]	your servant: I shall go as my lord's substitute!
obv. 3	[...]f.MEŠ ša ¹ [x] 'x(-)šap ² -ra [...]	[...] ... of [...] ... sent (?) [...]
obv. 4	[...] 'x ¹ [...]	[...] ... [...]
rev. 1'	[...] 'x ¹ [...]	[...] ... [...]
rev. 2'	[...] 'x x ¹ [...]	[...] ... [...]
rev. 3'	[...] 'ka ¹ En-líl ú ² a-[...]/'ki ² ka ¹ [...]	[...] ... Enlil ... [...]
rev. 4'	[...] 'x ¹ ik-ri-ku ù šum-[ma ² ...]	[...] (s)he hindered you and 'if' [...]
rev. 5'	[...] 'be ¹ -lí í-ḫe-er-ri li-'x ¹ [...]	[...] my lord (?) is going to dig up. He shall ... [...]
rev. 6'	[...] ša BAD ₃ -Gu-la 'ša ¹ [...]	[...] of Dūr-Gula '(which)/of' [...]
rev. 7'	[...] '2 ¹ ḡiš-tu šu-ub-bu-ru [...]	[...] two broken writing boards [...]
t.e. 1	'ú ² li-š-pur-am-ma 'x ¹ [...]	'and (?) ¹ he shall send (a letter) and ... [...]
t.e. 2	lu-uš-ši-ma lu-za-'iz ² [...]	I shall carry and I shall distribute [...]

obv. 3: The lower parts of the signs 'x(-)šap² are broken off; the reading of the sign šap is likely, but due to the damage, other readings remain possible.

rev. 1': *ik-ri-ku* from *karāmu*, “to hinder, slow down” (CAD K: 200b–201a).

rev. 7': The Akkadian term *gišṭu* is attested in Neo-Assyrian colophons (AHw: 294; CAD G: 110a; e.g. in KAR: 164 (Enūma eliš) or KAR: 307 (mythical explanatory text) of Standard Babylonian texts. Standard Babylonian (SB) refers to the language of Akkadian literature from the second half of the second millennium BC to the end of the cuneiform tradition. However, in KAR: 164 and 307 *gišṭu* is written *ḡiš-tu-u*, here it is lacking the last sign *-u*. *gišṭu* (Sumerogram: GEŠ.DA), ‘wooden writing tablet’, is supposedly a loanword from Sumerian ^{ges}da, ‘wooden writing board’ (CAD G: 110a).

Although the verb *šapāru* regularly appears in the Kassite letters from Nippur, a D-Stem of *šapāru* (hypothetical: *šappuru*) is neither listed in the AHw: 1170a–1171b nor in the CAD Š/1: 430b–448b. However, the D-stem of the verb *šebēru*, ‘to break, to fracture, to shiver,’ *šubburu*, ‘to break, smash, demolish, to injure severely, to grind (?)’ is attested (see CAD Š/2: 246b–250b). The D-stem builds the stative *šubbur*, subordinated *šubburu*, and the verbal adjective *šubburu*. Note that the D-stem of *šebēru* means specifically “to break wooden objects” according to the CAD Š/2: 249b, s.v. *šebēru*, such as wagon wheels or house gates.

The Kassite letter CBS 4773 from a subordinate to his lord in Nippur is strongly damaged. The sender writes about possible digging work of his lord and mentions the settlement Dūr-Gula, which lay near Isin.

In rev. 7 the sender then refers to “two broken writing boards” with the Akkadian term *gištū*, which is only attested in Neo-Assyrian colophons. In the following line, the sender asks his lord to send something, which could either be a written command per letter or other goods. It could be speculated whether the sender asked for a replacement for the broken writing boards. In the second line following the mention of the writing boards, the sender announces that he wants to distribute something. The most feasible context is that the sender wants to distribute rations to workers.

2.4 The Cattle Account Table BE 15: 199 (P259820)

On the reverse of the Kassite tablet BE 15: 199, in rev. 12, a wooden writing board is mentioned (in the same passage clay tablets containing a “list of names” are mentioned, as well). BE 15: 199 is a cattle account table and dates to Kurigalzu II (for a complete translation, see Huang 2020: 118–119, 287–292 and Torczyner 1913: 52–54). The account documents the whereabouts and responsible officials of the cattle herds, because the *šandabakku* and his provincial administration were in certain contractual relationships. Contemporary Kassite herding contracts show that the *šandabakku* could act as a contractor, i.e. that a part of the cattle in his herds was entrusted to him, and that temples could be some of his clients (see Huang 2020: 96–102).

BE 15: 199 has a “low” CBS-number, CBS 3446; however, it does not appear in Sassmannshausen’s list of tablets from the area WA (Pedersén’s archive “Nippur 2”, see Pedersén 1998: 115, and Sassmannshausen’s “Archiv des Speichers”, which may have belonged to the Gula temple, see Sassmannshausen 2001: 186–187. Thus, BE 15: 199 may stem from the provincial palace in Nippur (area WB), i.e. the *šandabakku*’s administrative archive(s).

On the reverse of BE 15: 199, there are two columns. In the left column the number of cattle is given. The right column contains detailed qualitative or descriptive information about the cattle, including the responsible *ḫazannu* official, the origin and destination of the cattle, and previous extractions out of the herd (TA) etc. In order to understand the context, in which the wooden writing board is mentioned, in this section (1.4) the passage BE 15: 199 rev. 11–18, is analysed in detail:

The relevant passage, BE 15: 199 rev. 11–18, consists of three entries of numbers of cattle (rev. 11, l. 14, l. 16), which are each followed by explanatory notes in the right column. The explanatory notes stretch across two lines (rev. 14–15 and 16–17) and three lines each (rev. 11–13). The fourth entry does not contain a number in the left column (rev. 18).

According to the reverse l. 4, the total of 719 *bīru* cattle (^{GU4}INDA, see Attinger 2021: 573–574) belong to the *nakkamtu*, the “storehouse”, or in this context more

suitable, “barn” (see Sassmannshausen 2001: 172).¹⁵ The term *bīru* designates young cattle up to three years of age (CAD B: 266a-b, s.v. *bīru* B). That *bīru* cattle, which is kept in a *nakkamtu* stable, is given out as draft animals for ploughing (with a seeder plough, see e.g. BE 15: 199 rev. 14, 16, 17), as price for the purchase of *amīlūtu* (see e.g. BE 15: 199 rev. 7: TA 30 *ša a-na SAM_x a-mi-lu-ti na-ad-nu*) and of barley (see e.g. BE 15: 199 rev. 13, 18) and for slaughter (see BE 15: 199 rev. 8), and it is transferred from one province or town to another (see e.g. BE 15: 199 rev. 11 and 12). In BE 15: 199: rev. ll.13, 18 each *bīru* is equivalent to ca. 2400 l of barley (in case on BAN₂ equals 10 SILA₃, see rev. 13, 18: *ša 1 GU₄ 8;0.0.0 GUR ŠE*, “for (=that of) one oxen is 8;0.0.0 gurs of barley”).

-
- rev. 11 26 GU₄.INDA *ša i-na MU-7-KAM TA A.AB.BA il-qú-ni ŠU^{ld}AMAR.UTU-^rURU₄¹ DUB šu-ma-ti^rma-ḫi^r-ir is-si-ra-am-ma a-na mu-uḫ x [...]*
- 26 young oxen which they had taken in the 7th year out of the (province ?) Sealand (?). Under the administration of Marduk-nāšir.
The tablet with names has been received. He will collect (it), [and he will] ... upon ... [...]
- rev. 12 TA 19 *ša¹LU₂^dAMAR.UTU a-na mu-uḫ ša^{URU}URDU-GAŠAN^{KI} ru-ud-du-ú^rTA^r 8 ša^{ld}Nin-urta-muballit i-na^{GES}LI.U₅.UM(-)^ršú²-x/ra²¹[...]*
- After 19 from Amīl-Marduk are added to those of the town Arad-bēlti; ‘after’ eight of Ninurta-muballit are [...] on the (his) wooden writing board [...];
- rev. 13 TA 12 *ša¹ŠUM^d.GUR a-na mu-uḫ-šu ru-ud-du-ú*
TA *ša 20 GU₄.^rNÍNDA 1 ME DIŠ.ŠU(=60)¹;0.0.0 ŠE ša 1 GU₄ 8;0.0.0 GUR ŠE ša¹Ib-ni^dKUR ŠUM-na a-na [...]*
after 12 of Iddin-Nergal were added to his (ones);
after for (=that of) 20 young oxen 160;0.0.0 gurs of barley, for (=that of) one oxen is 8;0.0.0 gurs of barley, of Ibni-Amurru were given.
To [...]
- rev. 14 25 GU₄.INDA *ša BAD₃-Ku-ri-gal-zu ša i-na MU-17-KAM a-na e-re-ši ù tu-ur-ri na-ad-nu TA 24 ša a-na er-re-ši ša^{URU}URDU-GAŠAN^{KI} [...]*
- 25 young oxen of Dūr-Kurigalzu which were given in the 17th year for seeding (by means of a seeder-plough) and for returning them (or: for returning the earth = covering, see CAD E: 287a, s.v. *erēšu* B).
After 24, which were for seeding (by means of a seeder-plough) of the town Arad-bēlti, [...]
- rev. 15 *i-na DUB ša^{URU}URDU-GAŠAN^{KI} ša-aṭ-ru šu-lu-ú ŠU¹LU₂^dAMAR.UTU DUB šu-ma-ti ma-ḫi-ir is-si-ra-am-ma a-na^{ld}AMAR.UTU-^rURU₄¹ i-^rnam¹-dinⁱⁿ*
are written on the tablet of the town Arad-bēlti. They were substracted.
Under the administration of Amīl-Marduk.
The tablet with names has been received. He will collect (it), and he will give (it) to Marduk-nāšir.

¹⁵ BE 15: 199: rev. 1–4 says: *bīru nakkamtu 360 Ibašši-ilu 359 Laḫḫabu napḫar 719 bīru nakkamtu*, “young oxen of the *nakkamtu* stable, 360 of Ibašši-ilu, 359 of Laḫḫabu, a total of 719 young oxen of the *nakkamtu* stable”.

(continued)

-
- rev. 16 30 GU₄.INDA ša TA A.AB.BA *il-qú-ni a-na* DUMU¹*Ki-lam-da-^ršur¹ ka-an-gu a-na e-re-ši ù tu-^rur¹-ri na-ad-nu* DUB šu-ma-ti^r ^{1d}*En-x¹* [...]
- 30 young oxen which they have taken out of the (province ?) Sealand (?), were sealed for the son of Kilamdašu. They were given for seeding (by means of a seeder-plough) and for returning them (or: for returning the earth = covering, see CAD E: 287a, s.v. *erēšu* B). The tablet with names (of?) ... [...]
- rev. 17 *is-si-ra-am-ma a-na*^{1d} AMAR.UTU-URU₄ *i-nam-dinⁱⁿ* 1 GU₄ DUMU^{1d} *IM-ša-gim ta-kal-ta-šu i-nam-dinⁱⁿ* *a-na*^{1d} *Nin-urta-ŠÚM-na* [...]
- he will collect (it) and he will give (it) to Marduk-nāšir. The son of Adad-šāgim has given one oxen as his replacement. To Ninurta-iddina [...]
- rev. 18 GU₄.INDA ša *i-na* MU-15-KAM TA A.AB.BA *il-qú-ni TA ša* DIŠ.ŠU(=60) +7 (=67) GU₄.INDA 536;0.0.0 ŠE ša 1 GU₄ 8;0.0.0 GUR ŠE ša¹ LĀL¹-Ē-kur *i-si-ru*
- Young oxen, which they have taken in the 15th year out of the (province ?) Sealand (?). After for (=that of) 67 young oxen are 536;0.0.0 GUR of barley, for (=that of) one oxen is 8;0.0.0 Gur barley, of LĀL-Ekur, they have collected.
-

rev. 12: TA is the equivalent for Akkadian *ištu/ultu*, which is either the conjunction “since, after, as soon as,” see CAD I: 284b–286a, s.v. *ištu*, or the preposition “from (a point in space or time), out of (a place, an object, a quantity), since, after,” see CAD I: 286a–288a (both the preposition and conjunction are written with the Sumerogram TA). TA marks extractions from the herd in the interlineary comments, which break down the number of cattle in the previous line(s), see Huang (2020: 128).

TA/*ištu/ultu* cannot be translated as the preposition “out of” and it cannot be understood as “out of these (=the aforementioned).” Instead, it needs to be translated with “after”, because the transactions introduced with TA must have occurred before the number of cattle was recorded in the table. This can be demonstrated in BE 15: 199 rev. 11–13. BE 15: 199, rev. 11 lists 26 young oxen under the administration of the *ḫazannu* Marduk-nāšir.

However, a close look at the sentences introduced with the sign TA shows that the cattle was not extracted out of a total of 26 oxen, but that the 26 oxen were the remainder of previous extractions. If TA/*ištu/ultu* marks extractions, then according to rev. 12 and 13 these extractions are explicitly “added” (*ru-ud-du-ú*) to other herds, once to the herd(s) of the town Arad-bēlti (rev. 12) and, secondly, to those of Iddin-Nergal (*a-na mu-uh-šu*, see rev. 13). If one adds up these numbers of oxen, which are clearly marked as “added” to other herds in rev. 12 and 13, then the 19 oxen from rev. 12 and the 12 oxen from rev. 13 result in 31 oxen. Furthermore, TA marks 20 oxen, which were “given” in exchange for barley, and 8 oxen, which were written on a writing board, as extractions – this would result in a deduction of 59 oxen. Obviously, a total of 59 oxen, marked as “extracted” with the sign TA, cannot be taken out of a herd of 26 oxen.

Furthermore, TA/*ištu/ultu*, “out of (a place, an object, a quantity)” i.e. “out of these,” should not be misunderstood as an introduction to a sub-category of an aforementioned number or amount. Sub-categories of a number or amount of cattle were introduced with EN. This can

demonstrated with the help of BE 15: 199 rev. 11–13, as well: if the herds of town Arad-bēlti (rev. 12) and Iddin-Nergal (*a-na mu-uh-šu*, see rev. 13) were sub-categories of the 26 oxen under the administration of the *ḥazannu* Marduk-nāšir in rev. 11, then 31 oxen were added to Marduk-nāšir's herds and 20 oxen would be deduced in exchange for barley (rev. 13), resulting in 11 oxen. It would then be unclear, whether the 8 oxen on a writing board should be deduced (resulting in three oxen) or added (resulting in 19 oxen). In any case, the totals would not match the number 26 in rev. 11.

rev. 17: Note that in *ta-KAL-ta-šu*, the sign KAL can be read *rib*. According to Hruška (2005: 512) *takaltu* is a container attached to the seeding plough or the handle of the plough (“Sterz”). Cf. the tablet CBS 1354 l. 24, which is line 15 of the Farmer’s Almanac in Civil (1994: 28–29, 42–43, 72). The second possibility is the reading *ta-rib-ta-šu*. *tarībtu* means “replacement”, but only occurs in personal names (see CAD T: 230a). However, note that in another Kassite cattle muster, BE 14: 168: obv. 34 the term *ta-rib-ti*, the “replacement” of a ploughing-ox, appears as well. Note the term *pillati* for replacement oxen in documents concerning cattle from Ur (Gurney 1983: 65, 123).

rev. 18: For the name ¹LAL₃¹-*É-kur* see Hölscher (1996: 130).

The *ḥazannu* Marduk-nāšir (see Hölscher 1996: 138), who appears on the obverse ll. 3, 6 as a responsible *ḥazannu* for two herds, does also appear several times on the reverse, working for the *šandabakku* Amīl-Marduk.¹⁶

In order to determine the function of the writing board in the management of cattle, let me explain the meaning of the entries in rev. 11–18: the oxen in rev. 11, 16, and 18 originate from the Sealand province (in rev. 11 26 oxen and in rev. 16 30 oxen), whereas the 25 young oxen in rev. 14 come from Dūr-Kurigalzu. These oxen from Dūr-Kurigalzu in rev. 14 were transferred to the administration of Nippur for seeding (by means of a seeder-plough) and for returning (*ana ... turrī*); although this could imply that these oxen would have had to be returned to Dūr-Kurigalzu after they had been used as draft animals, the CAD E: 287a, s.v. *erēšu* B, understands *ana erēši ū turrī nadnu* in BE 15: 199 rev. 14 as “given for drilling and covering the seed (lit. turning back).” According to rev. 14–15, previously 24 oxen had been extracted and transferred to the town Arad-bēlti for seeding, and this transfer was documented on “the tablet of the town Arad-bēlti.” This transfer occurred under the control of Amīl-Marduk.

Furthermore rev. 15 informs us that a “tablet with names” (DUB *šu-ma-ti*) was received and that someone is going to collect “it” and that “it” should be given to Marduk-nāšir. One possibility is that the object, which shall be collected, is this “tablet with names”. The extracted cattle was recorded on additional lists, which we

¹⁶ On the reverse, Marduk-nāšir collects a number of cattle which the *šandabakku* Amīl-Marduk had received (rev. 6–7), and manages the cattle out of which a number had been butchered for the arrival of the king and as offering to Ištar (ll. 8–9).

have preserved. One example is BE 14: 89, which records the *šabittu*¹⁷-cattle, i.e. the “deposited” cattle, which had been marked with TA as being extracted from the herds in BE 14: 99a rev. i and vii, ll. 2, 3, 4, 6, 7, 16, 17, 19, and 21. The numbers of rams and bucks, i. e. male sheep and goats, and the herdsman attributed to the cattle in BE 14: 99a appear in the same order in BE 14: 89, presumably to designate that the cattle originated from their herds (for more details see Huang 2020: 128–131).

Incidentally, a list of cattle, probably destined for a town such as Nippur, was found in a Kassite settlement in the Sealand province, modern Tell Kurbāsi (see Kessler 1992: 95). The Sealand province appears in several cattle accounts as the source for cattle, see Kessler (1992: 95–97). Kessler (1992: 96) suggests that the Nipurean temple administration received their livestock from the royal centre at Dūr-Kurigalzu and from their own temple land in the Sealand province.

Not only the cattle in rev. 11, but also the cattle in rev. 16 and 18 originated in the Sealand province. According to rev. 18, 67 oxen had been exchanged for barley; rev. 18 also contains the exchange rate.

One could speculate whether the term *ṭuppi šumāti*, the “tablet with names”, designated such a record of extracted cattle or cattle to be extracted together with the names of the herdsmen, whose herds were the origin of the cattle that has been extracted or was about to be extracted.¹⁸ Such a detailed list of responsible officials was necessary, since an account such as BE 15: 199 was used by the *šandabakku* of Nippur to monitor the location of the herds under the administration of several provincial officials, so that the clients could extract their cattle back at some point from the responsible official or herdsman (see Huang 2020: 136–142).

¹⁷ According to van Soldt (1978: 229) *šabtu* is used in the Middle Babylonian period together with *ṭuppu*, and means ‘deposited.’ However, he admits that “[t]he exact meaning of *šabittu* in MB in connection with sheep is obscure.”

¹⁸ In rev. 11, the Sealand cattle is under Marduk-nāšir’s administration, and a “tablet with names” (DUB *šu-ma-ti*) is designated for delivery to a recipient. According to rev. 14–15 and rev. 16–17, Marduk-nāšir was going to receive a tablet with names (DUB *šu-ma-ti*) following the extraction of cattle for seeding. The broken portion in rev. 11 remains uncertain regarding its potential emendation to Marduk-nāšir as the recipient of the “tablet with names.” In rev. 14–15 the cattle from Dūr-Kurigalzu, which is given to Arad-belti, is (in) the “hand” of Amil-Marduk. In rev. 16–17 the cattle are “sealed for the son of Kilamdašu”. In both cases in which the cattle are under the control of another person, Marduk-nāšir receives a “tablet with names.” Therefore, it is possible that the “tablet with names” informed him about the herdsmen, whose herds were diminished after cattle had been extracted to be “deposited” (*šabittu* cattle), or transferred externally. If this conjecture holds, then in rev. 11 the *ḥazannu* from the area in the Sealand province, from whom the cattle had been extracted, may have received a “list with the names” of his herdsmen with diminished herds. However, then it would be inexplicable as to why he would receive such a list from Nippur. Alternatively, Marduk-nāšir could have received a “tablet with names” of herdsmen under his supervision, now managing the Sealand province cattle. While speculative, this warrants consideration.

However, that which was going to be collected and given after the “tablet with names” had been received, could also refer to the cattle. The officials and their subordinates, who had to physically remove the cattle out of their herds, would have received the “tablet with names” of the herdsmen, out of whose herds they were supposed to remove the cattle. Then, they would “collect” the cattle from the herdsmen, who owed the cattle to the clients of the provincial cattle administration. After the “collection” (*esirtu/isirtu*), “it” (= the cattle) could be given (*i-nam-din*) to Marduk-nasir who managed the extraction. *esēru*, “to collect” or “press for payment due” (CAD E: 332b-334a), is used in other texts concerning livestock to describe extractions of goods and animals, see e.g. herding contracts such as CBS 10738: rev. 11, CBS 11060: rev. 4’ or CBS 11104: rev. 7 or the cattle account table BE 14: 168: obv. 35 or rev. 9–10 (*esirtu/isirtu*, “collection of payment”, see CAD I: 197b–198a).

However, in BE 15: 199: rev. 14 and 15, the cattle are given explicitly “for seeding (by means of a seeder-plough)” – a second possibility to interpret the ominous “tablet with names” is that the “names” were the names of the ploughmen, who used the oxen for ploughing (see the reference to the *iššakku*-farmers (lessees) in rev. 19, who gave old male oxen for checking).

These speculations must be treated with caution, since the exact nature of the *tuppi šumāti*, the “list with names,” remains unclear. However, they result in two reasonable hypotheses:

- 1.) Perhaps, the “tablet with names” (DUB *šu-ma-ti*) was a record of extracted cattle, similar to BE 14: 89 and the Tell Kirbāsi-tablet.
- 2.) Another possibility is that the “tablet with names” (DUB *šu-ma-ti*) of the ploughmen, who made use of the plough-oxen for seeding with the seeder plough, was given to the *ḫazannu* or *šandabakku* ahead of the physical transfer of the cattle.

The oxen in rev. 14 are not the only ones, which are given “for seeding”: in rev. 16–17, 30 young oxen, which came from the Sealand province, are given for the same purpose and “a tablet with names” is received. The extracted cattle is to be given to the *ḫazannu* Marduk-nāšir. According to rev. 17, one of the extracted oxen is replaced. According to rev. 12–13, previously cattle had been extracted and transferred to herds of the town Arad-bēlti and of a man called Iddin Nergal. Furthermore rev. 13 contains the entry that previously 20 oxen had been exchanged for barley; for the same exchange rate as rev. 18.

In this context, among the list of extractions, which had happened previously, an extraction (introduced with TA) is phrased as having been written on a wooden writing board (rev. 12): “‘after’ 8 of Ninurta-muballiṭ are [...] on the (his) wooden writing board [...]”. The line is damaged, but one could propose that the writing board contained a similar record as the “tablet with names” (DUB *šu-ma-ti*), i.e. a list

of the transfers of cattle and of herdsmen, whose cattle is extracted.¹⁹ However, a counter-argument to this hypothesis is that the other “tablets with names” appear to have been written on clay. A good argument for the use of a wax-covered writing board in this administrative context is that a record written in wax can be continuously modified, rewritten and revised, whereas clay would dry. A running record of transfers of cattle with the information of the responsible officials and herdsmen on a writing board could have been frequently updated by the provincial administration. Thus, the writing board mentioned in BE 15: 199 rev. 12 would have contained an entry regarding the eight young oxen, which were extracted.

3 The Production and the Sealing of a Writing Board

Before proceeding to examine the use of writing boards in Kassite Nippur, it is important to consider the availability of the materials needed to produce a writing board in Kassite Nippur: wax and wood (see Section 3.1 below). Furthermore, the question remains, whether archaeological evidence from Kassite Nippur, such as sealed clay bullae could point to their use (see Section 3.2 below).

3.1 Trade and the Materiality of Writing Boards in Mesopotamia

The initial inquiry pertains to the materials that must be evidenced in sources from Kassite Nippur for the production of writing boards. Writing boards were made of wood or ivory, and filled with a paste of beeswax and ochre or orpiment. The only archaeological evidence of writing boards in Mesopotamia is a small selection of writing boards from the Neo-Assyrian period from Nimrud (16 wooden and 16 ivory writing boards from the late 8th century BC forming polyptychs)²⁰ and Assur (three

¹⁹ As opposed to the “tablet with names” (DUB *šū-ma-ti*) in rev. 11, which concerned the extraction of cattle from the Sealand province, the writing board in rev. 12 must have recorded information about a different extraction.

²⁰ The wooden writing boards from Nimrud were “of three different sizes, two apparently larger than the ivory boards” (Wiseman 1955: 4, fn. 22). It is assumed that the Nimrud ivory leaves formed a polyptych. They were attached to each other with hinges of precious metals, and could be folded in a Z-fold for storage (Howard 1955: 14–20). “The cover inscription states that the copy of the series Enūma Anu Enlil was expressly made for the palace which Sargon II commenced to build at Khorsabad in 712 B.C.” (Wiseman 1955: 8). “[T]he text was written in two columns down the long axis of the

diptych leaves and hinge elements of ivory from the 8th or 7th century BC),²¹ as well as two writing boards from the shipwreck Ulu Burun from the 14th century BC.²²

The Nimrud ivory leaves still contained wax flakes inscribed with cuneiform (Cammarosano, Jendritzki, and Streckfuss 2019a: 151, 154; Howard 1955: 14; Mallowan 1954: 99; Nemet-Nejat 2000: 256 fn. 18; Volk 2016: 609; Wiseman 1955: 3). The use of beeswax is securely attested in Mesopotamia since the third millennium BC, for example for the creation of moulds for the casting of metal objects (Volk 1999: 288–289, fn. 91; for the Ur III period see in detail Dercksen 2017: 108–112). Beeswax (GABA.LAL₃ or LAL₃.HUR, cf. Volk 1999: 289, fn. 85–87, *iškurum*) was not a domestic produce in Babylonia (San Nicolò 1948, 69–70),²³ but it was imported from Anatolia, from what is now northern Iraq, and from Elam (San Nicolò 1948: 70; Volk 1999: 290, fn. 94). A Sumerian or Akkadian term for beekeeping does not exist. There are no depictions of apiculture in Mesopotamian iconography, such as is attested in ancient Egypt (Volk 1999: 281). In the 8th century BC the local governor of Mari and Suḫu, Šamaš-rēša-ušur, claims to have introduced apiculture to Mesopotamia from the Iranian plateau (cf. Frame 1995: 281–282; Na’aman 2008: 235; Volk 1999: 281–282, fn. 24). Sargon II’s claims in his standard inscription from his palace in Khorsabad, l. 170, that

boards. The script is small and neat and reminiscent of the Nineveh Library copies of the same series, which may have been written by the same scribe” (Wiseman 1955: 7).

21 In 1912 an ivory leaf of a diptych (VA Ass 3541) was found in Assur close to the surface in the area (hC8I West) of the “exorcist’s house.” The ivory leaf from the “exorcist’s house” is made of hippopotamus ivory and dates to the end of the 8th or 7th century BC (Klengel-Brandt 1975: 169–171; Wicke 2010: 202). See an experimental reconstruction in Cammarosano, Jendritzki, and Streckfuss (2019b: 203–220).

Presumably from the same excavation of Andrae (1903–1914) two Neo-Assyrian ivory leaves of a second diptych (VA Ass 3545.1–2; V.7–8) with hinge elements made out of bone (VA Ass 3542.22–24; V. 81–83) and two bars of unknown function (VA Ass 3545.3–4) have been excavated in the sarcophagus 884 in sector cD6III (Wicke 2010: 202–203, 219). The ivory boards from the sarcophagus have less than half the length and only about a third of the width of the Nimrud ivory boards (Wicke 2010: 202–203).

22 In 1986 fragments of a wooden writing board from the 14th century BC were found in the shipwreck of Ulu Burun (ca. 9.7 km southeast of Kaş) in south west Turkey. The writing board was a small diptych out of boxwood, thus portable, well suited for travel, and only a quarter of the size of the Neo-Assyrian writing boards from Nimrud (Pendleton and Warnock 1991: 110). It was a luxury object with ivory hinges (Payton 1991: 101–103, 106). A leaf of a second writing board, presumably of a diptych, was found in 1994 near a pithoi of the Ulu Burun ship. It was narrower and taller than the first diptych and lacked the ivory hinges (Pulak 1994: 11).

23 As opposed to Mesopotamia, Anatolia and Egypt were famous centres of apiculture. Consequently high penalties are imposed in the Hittite laws §§91–92 (see Hoffner 1997: 90–91) for the theft of bee swarms and beehives (San Nicolò 1948: 70; Volk 1999: 281, 290, fn. 94).

lallāru, “white honey”²⁴ is a produce from the mountains (Volk 1999: 282, fn. 25; Winckler 1889: x, 132–133).²⁵

The writing boards found in Nimrud were covered with a mixture of beeswax and 25 % arsenic sulfide, which naturally occurs in Mesopotamia in the form of orpiment, a deep-coloured, orange-yellow mineral (*lēru*, Sum.: IM.KU₃.GI, and *šīpu*, Sum.: IM.ŠIM.BI.KU₃.GI). Orpiment/arsenic sulfide coloured the beeswax yellow, and made the surface texture more plastic and easier to inscribe (Mallowan 1954: 99; Volk 1999: 286, fn. 61; Wiseman 1955: 5). Furthermore, the ancient vessels found at the Turkish coast carried orpiment as well.²⁶ However, Neo-Babylonian expenditure

24 Volk speculates that the references to Akkadian *dišpu*, LAL₃ in the 2nd and 3rd millennium BC referred to any sweetener, which could either be date syrup or honey (Volk 1999: 282–285, 290). For LAL₃ as “honey” see Attinger (2021: 675, fn. 1964), in which he cites an e-mail from Brunke (2011): “Dass *lal₃* auch schon Ur III-zeitlich auch noch etwas anderes als Sirup bezeichnet haben muss, schliesse ich aus den recht zahlreichen Belegen für die relativ extrem hohen Preise (siehe z.B. Snell, Ledgers and Prices) in Händlerabrechnungen. Das deutet auf ein sehr kostbares Produkt, das ziemlich sicher importiert wurde. Damit ist die Deutung als «Honig» zwar noch nicht absolut zwingend, aber m.E. aufgrund der Identifizierung in späterer Zeit plausibel. Ich vermute, dass es sich bei *lal₃* um einen übergeordneten Begriff handelt, der allgemein süßes, klebriges, hochviskoses . . . , also sowohl Honig wie auch Sirup bezeichnen kann. Welche dieser beiden Substanzen in den Rezepten tatsächlich vorliegt, ist damit zwar noch nicht eindeutig klar, aber für Honig spricht m.E. erstens, dass es sich um eine sehr erlesene Süßspeise handelt, zweitens die verglichen mit den anderen, ebenfalls kostbaren Zutaten recht geringen Mengen von *lal₃* in den Rezepten, und drittens (wenngleich weit weniger zwingend), dass eigentlich alle Früchte, aus denen man Sirup hätte herstellen können, bereits ‘unversirup’ in den Rezepten vorkommen . . .”

The OB letters from Mari tell us that *dišpu* was delivered from Susa, Ašnakku, Aleppo, Karkemiš (Volk 1999: 285). In the 15th century BC Thutmosis III received honey from Syria and Palestine (Volk 1999: 286). Regarding the term *dišpu* in the (Middle) Assyrian context Postgate (2013: 112–113) points out that dates and date syrup were probably not produced in Assyria. The *dišpu*, which was mentioned in Babylonian context and which was imported from Babylonia to Assyria, may have been date syrup.

25 Scant mentions of honeybees (*apis mellifera*) appear in lexical lists from the 1st millennium BC, such as *nūbtu*, *lallartu* (“the moaning/whining one”), *zumbi dišpi*, sum. NIM.LAL₃, “fly of the sweet” (in UR₅.RA = *hubullu* XIV, ll. 10, 327), and possibly also in other sources than of lexical texts *habubūtu* (“the humming one”, Volk 1999: 281).

26 Several ancient vessels at the Turkish coast carried orpiment (Bass 1986: 278, 2004: 279–281; Bass and van Doornick Jr. 2004: 266). Bass (1986: 278) writes “Another amphora, KW 48 in area M-12, contained, among other things, orpiment, or yellow arsenic, a common pigment in Egypt in the 18th Dynasty and later.” Note that Cammarosano, Jendritzki, and Streckfuss 2019a: 149 strongly oppose the idea that the amphora of orpiment on the ship (KW 48) could be connected to the production of a wax-covered writing board. Regarding the use of orpiment for the colouring of glass and as a pigment for paint and ink see Bass (1986: 278, 2004: 279–281) and Bass and van Doornick Jr. (2004: 266). The two other shipwrecks found near the Turkish coast carried orpiment as well, including the 11th century AD Serçe Limani shipwreck, which was located just opposite Rhodes. Rhodes was the supposed destination of the shipwreck of Ulu Burun, which carried the wooden writing board, cf. Bass (1986: 278, id.

accounts tell us that *kalû* (IM.GA₂.LI), yellow ochre, and not orpiment, was used to fill wax-covered writing boards (Nemet Nejat 2000: 249–259).²⁷ Regarding the ratio of wax and ochre in Neo-Babylonian expenditure accounts for wax board production see Cammarosano, Jendritzki, and Streckfuss (2019a: 153–154).

Volk (1999: 286) and Cammarosano, Jendritzki, and Streckfuss (2019a: 51, fn. 287, 52–53, 76) suppose that the valuable ivory boards from the king's library in Nimrud used the expensive orpiment to colour the paste gold, whereas the writing boards recording less important contents were only filled with a paste containing ochre. On the one hand, Neo-Babylonian notes referring to *kalû* as a component of a wax covered writing board also stem from the Eanna temple (San Nicoló 1948: 67), and, thus, belong to a wealthy environment. It is a reasonable assumption that if orpiment was a luxury addition that it was used in the context of the Eanna temple as well. On the other hand, the Neo-Babylonian references to writing boards make it likely that they were used for book-keeping within the temple (see Jursa 2004: 172–174, id. 2011: 195–196; MacGinnis 2002: 225), as opposed to the revered prestigious or representative objects, such as the Nimrud ivory boards containing the astrological series Enūma Anu Enlil from the royal library.

Can we identify evidence for the existence of wax in Kassite Nippur? The answer is affirmative; we have documentation from the local administration of Kassite period Nippur, specifically two documents that make reference to the presence of beeswax: PBS 1/2: 27 + 54 and MUN 406.

The Kassite letter PBS 1/2: 27 + 54 (CBS 4749 + CBS 12526): rev. 2–5 notably mentions the delivery of 6 minas of wax:

rev. 2	<i>a-na</i> ¹ ÚRDU-U ₄ -ĒŠ.ĒŠ ARAD-ka 3 i- me-rī-ia	After I had sent three donkeys to Arad-eššēši, your servant,
rev. 3	<i>ki-i aš-pu-ru</i> 6 MA GAB.LÀL [...] (I found that) six minas of wax [...]	
rev. 4	<i>i-na</i> ^{NA4} KIŠIB-ŠÚ ka-ni-ik ki-i ú-še- ¹ bī- la	he had sealed on his sealed document. After he had let them be brought,
rev. 5	<i>a-na be-lí-ia uš-te-bi-la</i>	I have let them be brought to my lord.

It appears that Arad-eššēši, the debtor, had sealed a legal agreement which stipulated that he owed the wax to the sender. The party who enters into a commitment seals a

2004: 266, 279–281). Orpiment was also part of the wax-layer on multiple Mediterranean wax-covered writing boards, all found outside of Mesopotamia (Volk 2016: 608).

²⁷ These expenditure accounts explicitly list beeswax (GABA.LAL₃) and yellow ochre (*kalû*, IM.GA₂.LI) “for the filling of writing boards”. Nemet-Nejat (2000: 254) assumes that the term *kalû* was used for the archaeologically attested orpiment, as does Wiseman (1955: 6). However, Stol (1998: 347) alleges that there is no evidence that *kalû* means orpiment; however, there is linguistic and archaeological evidence that *kalû* designated “yellow ochre”. Orpiment is called *lêru* (IM.KU₃.GI) and *šīpu* (IM.ŠIM.BI.KU₃.GI) in Akkadian (Stol 1998: 347).

legal agreement, whereas the other party keeps the document of proof for the amount owed. Thus, in PBS 1/2: 27 + 54 the sender, who had access to the document proving the debt, may have been the creditor. PBS 1/2: 27 + 54 shows that (bees)wax was obtainable by the elite of officials in the Kassite kingdom, though the extent of its availability is unknown.

The accessibility of beeswax in Kassite Nippur is supported by another administrative document. In the Kassite receipt MUN 406 a goldsmith receives 1/3 mina of wax, perhaps used for the creation of moulds for metal (gold) casting.

The value of beeswax in the Kassite period remains unclear, since no standard value equivalent is given, which we could compare to prices of other commodities at that time.

In the Ur III period 2 minas (= ca. one kilogram) of beeswax had the worth of one shekel (8.3 g) of silver²⁸ (Powell 1987–1990: 510; Volk 1999: 287; note the mistake in Volk 2016: 609: one mina beeswax equals 4.15 g of silver, which is half a shekel, as one shekel weighs ca. 8.3 g).²⁹ In a late Babylonian text from Sippar a temple buys 6 minas (3 kg) of beeswax for three shekels (24.9 g) of silver, cf. MacGinnis 2002: 226, fn 50). This equals the Ur III price (as opposed to Volk 2016: 609), as this means that also in this late period (under Nebuchadnezzar/Darius) 2 minas (=one kilogram) of beeswax had the worth of one shekel (8.3 g) of silver (Powell 1987–1990: 510). Since it is generally assumed that prices increased 30–50 % from the Old to the Neo-Babylonian period,³⁰ this might imply that beeswax became cheaper compared to other

28 This is the same equivalent as copper had to silver in the Ur III period (Volk 1999: 287). This means that beeswax was not a very cheap product (Volk 1999: 284) at the end of the third millennium. The same amount of silver equalled 300 L of dates (however date prices fluctuated strongly depending on the harvest period etc. Meissner 1936: 9–11), 5 L of good oil, and 1 L of butterfat (Volk 1999: 284–85). This also means that beeswax was significantly more expensive than common bitumen used to attach inlays, which was another product used to produce luxury items (Volk 2016: 609).

29 The reading of LAL₃.HUR (which is a term for beeswax, see Volk 1999: 289, fn. 85–87), on an account quoted by Snell (1982: 124; AS8viiUrDZ:4:5; MVN 1: 240: iv: l. 5) from the reign of the Ur III king Amar-Suena (AS 8) appears to be insecure. See P113273 in the CDLI-database.

30 According to Kleber (2016: 39) silver had a much lower purchasing power in the Neo-Babylonian period than in the Old Babylonian period: prices were 30–50 % higher. “Towards the end of the second millennium, or more precisely in the 11th century, prices apparently skyrocketed at the same time when Babylonia returned to a general silver standard after the gold interlude in the Kassite period” (Kleber 2016: 39). Following the use of gold as equivalent, i.e. measure of value, in the Kassite period, silver became available again in the Isin II-period. However, the silver, which had just been reintroduced as a measure of value, lost its value compared to copper and gold prices at the end of the Kassite period (Kleber 2016: 46–47; Paulus 2014b:142, 286). „Die Preise scheinen zunächst eine klare Preissteigerung in der Isin-II-Zeit zu belegen. [...] Die Preise haben sich also im Verhältnis zu ihrem Wertmesser nicht verändert, sondern lediglich das Verhältnis von Gold zu Silber hat sich verschoben. Daher liegt im Grunde keine Verteuerung vor“ (Paulus 2014b: 142). Paulus (2014b: 142) observes a stabilisation of silver prices from the late Isin II-period onwards.

commodities in the Neo- and Late Babylonian period, possibly because it was more widely available and used for writing boards in the context of temples and the (palaces) administration in the first millennium. Unfortunately the prices of commodities and value of the commonly used standard equivalents silver, gold and copper fluctuated³¹ and changed substantially in three millennia of Mesopotamian history, so it is difficult to draw conclusions for the prices of beeswax in the Kassite period.³²

Now, we turn our attention to materials other than wax, ochre, or orpiment that would have been essential for the production of writing boards in Kassite Nippur. The Nimrud writing boards were made out of walnut and ivory (elephant and hippopotamus, see Cammarosano, Jendritzki, and Streckfuss 2019a: 146; Volk 1999: 286; Wiseman 1955: 3), and the Ulu Burun writing boards were made of boxwood (^{GEŠ}DAŠGARI(-N), *taskarinnu*, AHw: 1336–1337; Attinger 2021, 239; CAD T: 280–282; Pendleton and Warnock 1991: 107–110). Assyrian texts tell us that tamarisk (*bīnu*, ^{GEŠ}SENEG; Attinger 2021, 986; CAD B: 239–241), cypress (*šurmēnu*, ^{GEŠ}ŠUR.MIN₃, ^{GIŠ}ŠU-UR₂.MIN₃, ^{GIŠ}ŠU-UR₂.ME; Attinger 2021, 1006; CAD Š/3, 349–353) and cedar (*erēnu*, ^{GEŠ}EREN; Attinger 2021, 357; CAD E, 274–279) woods were used to make writing boards (Wiseman 1955: 3, cf. fn. 11–13). While the tamarisk is native to Mesopotamia (Streck 2012, 428–431), the cedar was imported from the Cilician Taurus mountains, the Amanus mountains, the Lebanon and Cyprus (Streck 2017a: 236–239), and the cypress was imported from coastal Turkey and Levant, the eastern Taurus, and from Northern Iran (Streck 2017b: 371–372).

Regarding the sources of boxwood, out of which the Ulu Burun writing boards were made, Pendleton and Warnock (1991: 110) assume that “the Amanus mountain range in coastal northern Syria was the major recorded supplier of boxwood for the

31 By looking at the prices stated in Meissner (1936) (“Warenpreise in Babylonien”) one can see an increase in prices for clothes, oil, and barley in the Kassite period compared to preceding periods (Meissner 1936: 5, 8, 25). Whether this is based on inflation or the loss of value of the real metal prices of the standard value equivalents, or other factors – fluctuations due to famines, crises etc. as well as regulations by the state might have influenced these (cf. Kleber 2016) – is unclear (Powell 2003–2005: 609–611). Thus, it also does not help us to observe that the prices for honey were reduced by half from the third to the first millennium: in the third millennium you could buy 2 L of honey for one shekel, in the late Neo-Babylonian period 4.5–5 L of honey for the same amount of silver, cf. Meissner (1936: 15).

32 Generally speaking the common equivalent, i.e. measure of value, in Mesopotamia was silver. However, in the Kassite period gold became the standard equivalent in Babylonia (silver continued to be in use outside of Babylonia), and in the late Kassite/Isin II period copper was used as standard equivalent in Babylonia (Paulus 2014b: 139–140).

The use of gold in the Kassite period has been connected to the influx of gold through trade with Egypt, its prestige as a luxury good, and a preference for gold by the Kassite kings. The replacement of gold with copper as index of value has been connected with the break-down of these trade relations at the end of the Kassite period (Edzard 1960: 54–55; Kleber 2016: 41, 44–45; Paulus 2014b: 140).

Egyptians and the various Mesopotamian empires,³³ with Cyprus as a possible minor source” in the 14th century BC.³⁴ The Amarna letter EA: 25, a list of luxury items sent from Tušratta of Mittani (mid-14th century) to Egypt, documents that boxwood (EA: 25 iv 23, 25, 63, together with *elammakku* wood) was sent from Mittani to Egypt.³⁵ It is speculated that Mittani may have controlled the Amanus mountains at that time (Pendleton and Warnock 1991: 109).³⁶

3.2 The Sealing of Writing Boards

Having discussed the archaeological evidence and the availability of the raw materials to produce writing boards in Kassite Babylonia, let us now address the

33 King Yaḥdun-Lim of Mari (ca. 1810–1794 BC, Middle Chronology) claims in a famous inscription that he has conquered the cedar mountains: “Since the distant days when the God built Mari, no king living in Mari had reached the sea, had conquered the mountains of cedar [...] and box, high mountains, and had not cut their trees. Iaḥdun-lim, son of Iaggid-lim, the brave king, the wild ox [...] among kings, with force and power went to the shore of the sea. [...] He penetrated into the mountains of cedar and box, high mountains of box, cedar, surmenu [...] and elammaku; these trees he cut” (Brown 1969: 177–178).

This is supported by the much younger, Neo-Assyrian annals of king Tiglath-Pileser III (745–727 BC). Tiglath-Pileser III reports in the 8th *palū* of his annals (Campaign against Media) that he went on a campaign to the “Mount Amanus, the boxwood mountain” (Pendleton and Warnock 1991: 109).

34 The Amarna letter (EA: 40 14) from the ruler of Cyprus to the Egyptian pharaoh tells us that boxwood was also shipped from Cyprus (Alashiya). The Ulu Burun ship (ca. 9.7 km southeast of Kaş) transported copper and other goods, e.g. Syro-Palestinian pottery, Canaanite amphoras, tin from further east (Susa, Ešnunna, or the Taurus mountains, see Bass 1986: 294), and ox-hide copper ingots presumably from Cyprus from the East to the West, i.e. from the Syro-Palestinian coast and from Cyprus either to Rhodes, to one of a Mycenaean towns on the coast of Asia Minor, or even to the Greek mainland (Bass 1986: 294–295; Pendleton and Warnock 1991: 110). These trade routes are supported by the findings of several other bronze age vessels and copper ingots between Haifa and along the coast of southeast Turkey, between the bay of Antalya and Deveboynu Cape at the end of Datça Peninsula (Bass 1986: 270–72), with the other bronze age vessel dating to the 16th/15th century BC and the Gelidonya wreck from the 1200 BC.

35 Boxwood appears to have reached the port of Ugarit from the Amanus mountains, and perhaps traders from Byblos were involved as well (Pendleton and Warnock 1991: 109). Rib-Haddi (14th century), the ruler of Byblos, wrote to the Egyptian pharaoh (EA: 126): “Inasmuch as my lord has written for boxwood, it is from the mountains of Saḥu and from the city of Ugarit that they are brought. I am unable to send my ships there because Aziru [of Amurru] is at war with me and all the city rulers are at peace with him. Their ships go about as they please and they bring whatever they need” (Rainey Z¹ 2015: 656–57).

36 Regarding the sphere of influence of Mittani in the 16th, 15th and 14th century BC see Wilhelm (1993–1997: 291–96).

possibility that a writing board could function as an official sealed document in Kassite Nippur.

Postgate (1986: 23) argued that MDP 10: pl. 11 i 17, a late Kassite *kudurru* from Meli-Šipak (MŠ 3 in Paulus 2014b: 390–401), mentions the sealing of a writing board. However, the transliteration of MDP 10: pl. 11 i 17, to which Postgate referred, is now outdated. In the past, the combination of DIŠ.Ú was read as *li_x-ú*, which was interpreted as *lē'u*, “writing board.” This reading has been disproven. Instead, DIŠ.Ú is to be read as 1.KÜŠ, Akkadian *ammatu*, to designate a land survey document. The CAD L: 157a, s.v. *lē'u*, transliterates and translates MDP 10: pl. 11 (MŠ 3) i 17 incorrectly with [*li_x*]-ú.MEŠ ... *ik-nu-uk-ši*, “he sealed the writing board.” The correct transliteration and translation, however, is supposed to be [...]’ù [1] KÜŠ.MEŠ *bi-rim*^{NA4} KIŠIB-šu *an aḫ-rat u₄-mi ik-nu-uk-ši*, ‘And he sealed the land survey document with the impression of his seal for the future days’ (see Charpin 2002: 179, fn. 61; Paulus 2014b: 102, fn. 270, 394, 398; Sommerfeld 1984: 304; Zimmermann 2023: 84, fn. 50). Therefore, the reference to Postgate (1986: 23) in Zimmermann (2023: 96–97) is incorrect.

However, is there additional archaeological evidence in Kassite Nippur supporting the use of writing boards for legal or administrative purposes? With regard to first millennium writing boards and Hittite writing boards, sealed clay bullae are often quoted as archaeological evidence for sealing writing boards. It is a widely held view in the field of Hittitology that bullae/cretulae found in the northern part of the Upper City (Oberstadt) of Boğazköy and “Building D” on the acropolis Büyükkale were used to seal economic and legal texts (possibly land deeds), which are assumed to have been written on writing boards that are not preserved (Mora 2010: 97; van den Hout 2020: 218–23; Waal 2014–2016: 316).³⁷ For criticism of this theory see Mora (2007: 535–59, ead. 2010: 96–97, ead. 2012: 59–76) and van den Hout (2020: 225–33).

The fact that Hittite writing boards were sealed is attested in Hittite textual sources: one example are the Hittite “Instructions for Temple Personnel” (KUB 13: 4 ii 42–44), in which a list of alienated goods on a GEŠ.HUR shall be sealed twice. Another example is the Hittite court document CTH 293, in which a *LĒ’U* writing board is sealed, and the purchaser promises to seal the received horses and mules in the future “in the same way” (Cammarosano, Jendritzki, and Streckfuss 2019a: 137–138).

³⁷ “The reconstruction by Marazzi and Herboldt comes close to answering at least partially Heinrich Otten’s question of 1959 where the Hittite “state archives” had been. In spite of all the treaty texts that we have and of all references to their originally sealed status Otten observed that we only seem to have drafts and never the sealed originals. As we already saw (Chapter 8.4), apart from the charters, sealed tablets are extremely rare in the Hittite tablet collections” (van den Hout 2020: 223).

Mora (2007: 535–59, ead. 2010: 96–97, ead. 2012: 59–76) suggests that sealed writing boards, which accompanied incoming goods, functioned as packing lists. “The *cretulae* had probably sealed the documents (on wooden tablets?) that referred to the incoming goods and, perhaps, the containers of the goods” (Mora 2010: 97).

It is commonly assumed that writing boards were sealed in the following way: a cord was wrapped around the board and tied into a knot, to which a clay bulla was attached, which was then sealed. Hence, the bullae have string holes near the apex, and breaking the string damaged the seal, exposing unauthorized tampering with the document's content (MacGinnis 2002: 223; Postgate 1986: 23; Symington 1991: 120–1; Zimmermann 2023: 96). The Ulu Burun diptych shows that writing boards could also be fastened with a cord wrapped around a hook out of wood, metal, or ivory (Nemet Nejat 2000: 255). The Hittite clay bullae from the Nişantepe archive at Boğazköy were wrapped around the loosely hanging knot (Herbordt 2005: 25).

The references in Hittite texts demonstrate that sealing a writing board was possible. However, Mesopotamian sealing practices with regard to writing boards may have differed from Hittite sealing practices – after all, some researchers speculate that Mesopotamian writing boards may also have differed from Hittite ones (see Waal 2011, ead. 2012).³⁸

If the debate is to be moved forward, then it is important to consider that the Old Assyrian *işurtum* debt-notes of the native population in Anatolia must have been sealed to be legally valid. This means that the Assyrian traders were well aware of Anatolian sealing practices. Consequently, the possibility exists that they either copied or adapted the practice with some changes or (had) developed a separate tradition of sealing writing boards in Mesopotamia (see Dalley and Postgate 1984: 75 below). One argument raised against the existence of wooden documents in the Old Assyrian Period is the absence of large archives of clay bullae at Kültepe as opposed to Hattuša. Waal (2012: 309) argues that the Old Assyrian *işurtum*-documents may not have been sealed like the Ulu Burun writing board (likely of Mycenaean origin) or like the presumed sealing practice of first millennium BC writing boards. Therefore, no such clay bullae were found at Kültepe. Further, it has been discussed whether some of the clay bullae from Hattuša might have been attached to other perishable goods as well (Mora 2007: 535–59, ead. 2010: 96–97, ead. 2012: 59–76; Waal 2012: 308–309).

Having highlighted the controversy surrounding Hittite sealing practice and the possibility that there were differences between Hittite and Assyrian sealing practices, I would now like to draw the attention to Dalley and Postgate's (1984: 75) analysis of the stamped bullae from Fort Shalmaneser. Dalley and Postgate (1984: 75) suggest that a Neo-Assyrian group of clay lumps from Fort Shalmaneser with stamp seal impressions and with a flat reverse, which bear wood and string impressions,

³⁸ “Within the Hittite empire there is evidence that officials travelling on state business might be given sealed boards authorizing them to withdraw state commodities from various places”, which is “different from the attested Assyrian usage, and sounds like the equivalent of the sealed tablets in a sealed envelope [...] now known from both Tell Chuera and Sabi Abyad” (Postgate 2003: 136).

may have been used to seal writing boards. However, the clay bullae of Fort Shalmaneser would be attached in a different way than the alleged Hittite sealing practice: the Neo-Assyrian bullae would be pressed to the point at which the cords, which are wrapped around the board, cross (the reconstructions in Cammarosano, Jendritzki, and Streckfuss 2019a: 148, Figure 10). The clay lumps date to the period between Sargon II and Sennacherib, when stamp seals became more popular on clay bullae (Dalley and Postgate 1984: 3, 73–75; see also MacGinnis 2002: 223).

Note that these Neo-Assyrian clay lumps contain the inscription ERIN₂.MEŠ MAN, the “troops of the king” (Dalley and Postgate 1984: 3, 73–75, nos. 21–23). This is reminiscent of the Middle Assyrian sources, which indicate that the documents termed *lê'u ša PN*, “the writing board of PN”, contained contingents of ERIN₂.MEŠ (work) troops, which belonged to high-ranking officials or the king (see Bloch 2013: 194, fn. 9; Freydank 1974: 55–89, id. 2001: 104, based on Cancik-Kirschbaum).

[T]hey were all apparently applied to a wooden object with a flat surface, which had been secured with string. One obvious candidate is a box, but it is perhaps likelier, as suggested in TCAE p. 26, that they were the sealings of wooden tablets inscribed with lists of soldiers. This can hardly be proved, but it does at least provide a single adequate explanation of the string and wood impressions on the reverse, the inscriptions on the obverse, and of the royal seal. Why the lists should have required tying up and a formal sealing, we do not know, but it presumably reflects the existence of some kind of administrative obligation between the officers named and the palace (Dalley and Postgate 1984: 75)

MacGinnis (2002: 223) addressed the question whether writing boards could have functioned as sealed legally authoritative documents in Mesopotamia in a similar capacity as they did in the Hittite realm. He comes to the conclusion that Mesopotamian legal practice, which was tied to traditional sealing practices, was “perfectly adapted to use on clay tablets,” while sealed writing boards had disadvantages in comparison. According to MacGinnis (2002: 23), traditional clay tablets, once dried, prevented alterations in contracts and allowed for the inspection of sealed contracts without damage; in contrast, sealed writing boards required the destruction of the seal or its string for inspection. Cammarosano, Jendritzki, and Streckfuss (2019a: 124–125, fn. 25), when discussing this possibility, point out that in specific periods of Roman history, wax boards were considered suitable for legal contracts, later replaced by alternative media; however, the shift was unrelated to enhanced security against alterations, as both wax boards and parchment offer similar safeguards when sealed.

Considering the probability that the stamp sealed and inscribed clay lumps from Neo-Assyrian Fort Shalmaneser sealed writing boards that recorded “reviewed” ERIN₂.MEŠ MAN, “troops of the king” (Dalley and Postgate 1984: 3, 73–75, nos. 21–23), we could consider whether a similar practice can be assumed for Kassite Nippur. So

far, the sealed clay lumps and bullae from Kassite Nippur have not been associated with sealings of writing boards.

However, there is archaeological evidence from Nippur, which can cautiously be interpreted as pointing to the possibility that writing boards were sealed with clay bullae: five Kassite clay objects and tablets from Nippur bear stamp seal impressions from seal rings. One of these clay objects/tablets from Nippur, a bulla with a stamp seal impression, also bears a cord/string impression. As I argued before (Zimmermann 2023: 97), in the late Kassite period the seal ring, *unqu*, is attested (see Stiehler-Alegria Delgado 1996: 47–48). The *unqu* ring contained a stamp seal and, occasionally, the impression of an ellipsoidal bezel is visible in the clay (however, the most common seal type in the Kassite period is the cylinder seal). Further, Stiehler-Alegria Delgado notes that in the Kassite period some cylinder seals were not rolled over the clay, but pressed into it like a stamp seal (Stiehler-Alegria Delgado 1996: 44).

There are five stamp seal impressions from Nippur: Matthews (1992: nos. 182, 183, 184, 185, 186) and Stiehler-Alegria Delgado (1996: nos. 329, 338, 338a).

Although Matthews (1992: 57) notes that the ring stamps most often occur on bullae, not on tablets or envelopes, out of the five stamp seal impressions from Nippur, two stamp seal impressions of ring-seals, Matthews (1992: nos. 183 and 184) (14 N 244 and 14 N 248), are actually to be found on clay tablets. The clay tablets are most likely a dated legal document (perhaps, a receipt etc.) and an administrative (ration ?) list. The seal impressions belong to the “Second Kassite Group,” which is attested since the time of Burna-Buriaš II (1359–1333), see Zettler (1993: 87). The tablet 14 N 244 (IM 80135; P349375), on which the seal ring Matthews (1992: no. 183) is impressed (on the right and left edges), dates to the 20th day of the month *ajjaru* (2nd month) of the accession year of Šagarakti-šuriaš (1246 BC, see Brinkman 2017: 36, see the visible signs in Zettler 1993: pl. 101b). An ellipsoidal bezel of the seal ring is partly visible on the right edge of 14 N 244 (Zettler 1993: 89, see pls. 92a and 101b). The second seal ring impression is visible on the upper edge of the undated tablet 14 N 248 (IM 80137; P349379). 14 N 248 is an administrative list, perhaps, a ration list (see the preserved amounts in the first two columns and rests of – presumably – personal names in the third column in Zettler 1993: pl. 102b).

The other three seal ring impressions from Nippur are impressed on two bullae (one with string marks, one with a flat surface) and on a clay object, which had been attached to a vessel:

1. The seal ring impression Stiehler-Alegria Delgado (1996: no. 329) (13 N 518, Matthews 1992: no. 186) was impressed 17 times on a plano-convex object, which was attached to the rim of a vessel – thus, it is clear that this object was not used to seal a writing board.
2. The second seal ring impression Stiehler-Alegria Delgado (1996: no. 338) and (Matthews 1992: no. 185) is on a bulla with string marks.

3. The third seal ring impression Stiehler-Alegria Delgado (1996: no. 338a) (CBS 8503; Matthews 1992: no. 182) can be found at least six times on a half-cylindrical bulla with three string holes on one end (Matthews 1992: 128 suspects a fourth hole on the flat side), which join and form one large hole at the other end.

At least one (possibly two) stamp seal impression from Kassite Ur is impressed on a contract (and, possibly, on a receipt). The seal ring impression Stiehler-Alegria Delgado (1996: no. 335) is visible on the legal agreement UET 7, 26 (IM 85497; Gurney 1974: no. 26, date: Marduk-apla-iddina I, year 5 = 1167 BC) from Ur on the reverse and the left edge (see Gurney 1974: pl. 13, no. 26, pl. 79, no. 26). The legal agreement concerns an exchange (a baby for five (?) garments, see Gurney 1983: 86–87). A second possible seal ring impression from Ur (it is unclear whether this is a damaged cylinder seal impression or a stamp seal impression, see Stiehler-Alegria Delgado 1996: no. 334) is preserved on the late Kassite receipt UET 7, 69 (IM 85540; Gurney 1974: no. 69, in which brewers confirm the receipt of corn as their *maššartu*, see Sassmannshausen 2001: 309–310; possibly dating to Adad-šuma-ušur, 1216–1187).

The fact that seal rings are used to seal legal and administrative documents on clay from the 13th century onwards in Kassite Babylonia, make it at least theoretically possible that a sealing practice similar to the practice assumed in Neo-Assyrian Fort Shalmaneser (Dalley and Postgate 1984: 3, 73–75, nos. 21–23) existed. The string marks on the stamp-sealed bulla Stiehler-Alegria Delgado (1996: no. 338) and (Matthews 1992: no. 185) and the string holes in the stamped bulla Stiehler-Alegria Delgado (1996: no. 338a) and (Matthews 1992: no. 182) imply that they were attached to an object with a string, possibly, to any goods or to a writing board. Furthermore, since cylinder seals were still predominantly in use in the Kassite period, one could imagine that they were used to seal clay bullae attached to writing boards. Obviously, further work is required to investigate the possible objects to which the clay bullae and lumps from Kassite Nippur had been attached.

4 Writing Boards in Contemporary Sources

So far, this paper has focused on Kassite references to writing boards and on the materiality of the writing boards. The following section (4) will discuss evidence for the use of writing boards from contemporary textual sources in neighbouring regions (Assyria, the Hittite kingdom, Emar and Ugarit). It is important to bear in mind different organisational structures in these realms as well as the differences in access to natural resources (beeswax, wood). Thus, the findings below are only transferable to a limited extent. Nevertheless, cultural and economic contact to differing degrees warrants an inclusion of these sources from Anatolia and Assyria.

4.1 Writing Boards in Middle Assyrian Sources

The Middle Assyrian references to *lē'u* are usually written without the GEŠ determinative for wooden objects (Postgate 1986: 23). Therefore, it is unclear whether the Middle Assyrian references to *lē'u* designate writing boards made of wood or large clay tablets (Postgate 1986: 23). Postgate argues that the visibility of writing boards and styli on Middle Babylonian *kudurru* monuments as the symbol for the deity Nabū supports the interpretation of *lē'u* in Middle Assyrian sources as writing board.

The term *lē'u*, present in the Middle Assyrian administrative texts, primarily serves three (presumed) functions, which exhibit distinct parallels to contemporary Kassite sources discussed above:

4.1.1 Animal Herding and Listing of Foodstuffs in the Temple

Postgate (1986: 23–24) suggests that Middle Assyrian *lē'u* boards contained long cumulative lists of incoming and expended goods, e.g. foodstuffs, animals, and animal products, e.g. for temple offerings. He places them in the temple administration, specifically in the “offerings house” of the temple of Assur (Postgate 2013: 90–93, fn. 13). There, they functioned “as a source of details for the compilation of administrative book-keeping” (Postgate 1986: 24). Two of his examples concern livestock: the first example, VS 21: 19, an account of sheep skins of the chief feltmaker over a time span of two years was written down “according to the writing boards of the offerings of the animal fattener, which he repeatedly received” (rev. 11'–12': *ša pī lē'āni ša niqē ša ša kurultie ša imtaḥḥurūni*). In a second example, which also concerns sheep and goats, KAJ: 120, accounts are settled “in accordance with writing boards” (Postgate 1986: 24). Postgate (1986: 24) suggests that the shepherd may have updated the writing board used as a source for the official responsible for the sheep, who compiled the official accounts. If correct, this supports the usage of writing boards in animal husbandry, as seen in the Kassite cattle account BE 15: 199 (see above).

4.1.2 Official Counts and the Provision of Deported Population

Middle Assyrian writing boards may have played a role in official counts or surveys of the population, i.e. the manpower or workforce in the new conquered territory and of deported population during the expansion of the Middle Assyrian kingdom after Adad-nirāri I (Freydank 2001: 110–111). Apart from official counts, writing boards recorded disbursements of corn to deported population.

The Middle Assyrian archive Ass. 14327 is concerned with corn issues to a deported population (Postgate 1986: 23); the two texts KAJ: 109 and 113 out of this

archive mention that the original record of the issue of large amounts of corn to be given as rations was written on 13 and 5 wax-covered writing boards respectively. This indicates that a high number of individual disbursements were inscribed on the writing boards (Postgate 1986: 24). Paulus (2014c: 224) had noted possible integration of prisoners of war in Kassite ERIN₂.MEŠ work troops from Kassite Nippur based on ration lists (see Paulus 2014c: 218). BE 17: 51 implies that *awilūtu*-workforce was listed on writing boards; in PBS 1/2: 77 it is unclear, which status the fathers of the two men had, who claimed they were listed on writing boards. If ERIN₂.MEŠ workers in the Kassite kingdom were recorded on writing boards, just as the Middle Assyrian ERIN₂.MEŠ workers, then this Middle Assyrian writing board usage aligns remarkably well with their use described in the Kassite letters (see above).

The unsealed note KAJ: 260, reports that the officials checked writing boards for past issues of corn to one recipient: *ina lē'ē ša šē'i maḥri pānie ū urki'e ēmure*, “they have looked in the earlier and the later *lē'u* writing boards of the received corn” (Postgate 1986: 23). This points to the practice of keeping writing boards over longer periods of time, so that officials were able to look up entries on “earlier” and “later” writing boards. In accordance with this, in MARV 4: 27 18–19, *šābu ša lē'ani lū pāniūte ulū urkiūte*, “*šābu* workers of the writing boards, may it be earlier or may it be later ones” are mentioned. Freydank (2001: 110) believes that this means that entries on the writing boards were changed or emended. An advantage of wax over clay is that entries can be emended, erased and added (e.g. to the end of a list) after long periods of time, as wax does not dry as fast as clay (see Zimmermann 2023: 57–58). Further, additional leaves could be added to a polyptych at the end of a list. At some point, however, it appears that writing boards would be archived and functioned as a reliable source of information that could be controlled when in doubt. In my opinion, MARV 4: 27: ll. 18–19 implies that the writing boards themselves were “older” or “younger”. This means that the old entries remained unchanged – otherwise the information on the writing boards would not have been trusted. In the first millennium, it is attested that writing boards served as a permanent medium for scholarly texts (see Zimmermann 2023: 58). This Middle Assyrian reference to “earlier” and “later” writing boards aligns with the writing boards in the Kassite letter PBS 1/2: 77 mentioned earlier, as those Kassite boards, subject to inspection, are also categorised as “older” and “younger,” with a 53-year gap in between.

4.1.3 The Provision of Work and Military Troops (ERIN₂.MEŠ)

The so-called provision protocols, which contain lists of allocations of food to men in service of the king (“Verpflegungsprotokolle, die über die Zuwendung von Nahrungsmitteln an Mannschaften im Dienste des Königs berichten”, cf. Freydank 2001: 103), contain references to writing boards. The high-ranking Middle Assyrian officials

and the king registered their labour and military force in continuously updated lists for a longer period of time on writing boards, which were still in use in the second half of the reign of Tukulti-Ninurta I (Freydank 2001: 111). This parallels the Kassite letter PBS 1/2: 77 (see above), suggesting an organization of the worker list based on the king's regnal years, indicating ongoing use and annual updates.

The owners of the Middle Assyrian *lē'u* writing boards were the highest-ranking (military) officials,³⁹ who put the (work) troops they commanded (the ERIN₂.MEŠ of their writing boards, see Freydank 1974: 55–89) at the disposal of the king for the purpose of carrying out royal service, either on military campaigns or in public works. Through their direct connection with the king they reflect a system that ensured that the crown had access to versatile personnel for a variety of work duties, not only for military duty (Freydank 2001: 103, 110). According to Freydank (2001: 103–104), these writing boards of high officials were an indispensable medium of Middle Assyrian administration.

The phrase *lē'u ša ...*, “the writing board of ...” was, perhaps, even used figuratively as “the register/contingent of ...”. The *nāgirē ša lē'āne*, the “heralds of the registers,” appear to be royal officials tasked with mobilizing the individuals assigned to each contingent for service (Bloch 2013: 194, fn. 9; Freydank 2001: 104, based on Cancik-Kirschbaum). Accordingly, the *šulmānu* text KAJ: 91 tells us that men could be “poured to the writing board” of a (high) official (KAJ: 91 16–18: *ana lē'i ša PN tabākušunu*), which means that they were put under the ultimate military command for military or state (work) service of the owner of the *lē'u* (Postgate 1986: 24).

Freydank discusses in detail the provision protocol MARV I: 1 (=VS 19: 1; VAT 17999) from Kār-Tukulti-Ninurta (Freydank 1974: 55–79, id. 2001: 104–106), which contains a long list of corn allocations, including rations, issued by the palace to a large number of officials, each listed with a name, temple personnel/priests/priestesses (e.g. obv. i 38'–39'), craftsmen (e.g. obv. i 47'), by order of the king as a “present” (e.g. obv. i 48', ii 10', rev. iii 42), and rations for work troops (e.g. obv. i 58') and especially Kassite work troops and singers (e.g. rev. iv 6), who are “captives from Babylonia, who dwell in Kār-Tukulti-Ninurta”, see MARV I: 1 obv. i 43'–46'.

In one passage, MARV I: 1 rev. iv 27–38, the corn is issued to the *lē'u ša šarri*, “the writing board of the king” (rev. iv 27), and to four *lē'u ša PN*, “writing board of PN” (rev. iv 28–31). In this passage, corn is delivered to troops and draft animals that went with the king on a campaign (*hurādu*) against Babylonia (see MARV I: 1 rev. iv 34, 37–41 and Bloch 2013: 194–195). According to MARV I: 1 (=VS 19: 1) rev. iv 32–35, a total of 447 assloads and 4 BĀN of barley *ana nāgirē ša lē'āni ša ummānāte ša qātīšunu bariūte ša ana hurādi ša Karduniaš illikūninni ina Libbi-āli ašrūni ana tadāni maḥru*,

39 The writing boards may have carried the names of these officials, even after the troops noted down on them were already commanded by their sons/heirs (Freydank 2001: 109).

“(have been) received to be given out to the heralds of the writing boards, to the hungry military troops, which are under their administration, who have gone as *hurādu* soldiers (=to the campaign, Freydank 1976: 111–112) of (=against) Karduniaš, (and who) were inspected in Libbi-āli” (see Bloch 2013: 193–194, fn. 9; Freydank 2001: 105). Several of the owners of a *lē’u* mentioned in MARV I: 1 (=VS 19: 1) rev. iv 28–31 appear as *lē’u*-owners in other documents.⁴⁰

A second example, MARV 2: 17, notes that workers from the official Adad-šamši’s *lē’u*, alongside those from eight other towns, fulfilled work duties in Assur and Kār-Tukultī-Ninurta (Freydank 2001: 106; 111; Postgate 1986: 24–25). This suggests that high-ranking officials contributed their troops for the royal building program in Kār-Tukultī-Ninurta (Freydank 2001: 109–111). MARV 2: 17: obv. 1–11 enumerates building specialists and craftsmen with work crews on the king’s *lē’u* in Kār-Tukultī-Ninurta. These crews stationed at the palace were likely selected for the royal building programme in Kār-Tukultī-Ninurta (Freydank 2001: 111).

These Middle Assyrian sources imply that the work and military troops belonged to each writing board of a high official. An interesting similarity is that it says in the Kassite letter BE 17: 51 rev. 6’ (cited above) that the *awilūtu* workers were on the writing board of the lord, the ^{GES}.U₅.UM *ša be-lī-ia*.

4.2 Writing Boards in Sources from Anatolia, Emar and Ugarit

To support the hypothesis of writing boards being employed in the Kassite administration for bookkeeping (especially for the workforce and cattle management), this section will present evidence from the regions in the north and northwest of the Kassite kingdom, including their use for contracts and debt notes in the Hittite kingdom, for bookkeeping in Emar, and for letter writing in Ugarit. One caveat needs to be noted regarding the Hittite realm and the regions under Hittite influence: due to the difference between Mesopotamian and Hittite scribal and sealing practice, the function of writing boards in Hittite society may only be applicable to Kassite Babylonia to a limited extent.

⁴⁰ The receipt KAJ: 247 (VAT 8971) says, *22 šābu urāsu ša šakulti ša Kūbe-eriš lē’u ša Sin-ašarēd ina bīt ili ina qāt Bunija epša qēpātu mahṛū*, “22 *urāsu* workers/soldiers to be provided for (with food), belonging to Kūbe-eriš, (of) the writing board of Sin-ašarēd, in the temple, under the administration of Bunija, carried out. The *qīpu* officials have received them (=the *urāsu*)”. Šamaš-aḥa-iddina, may be identified with a man commanding *šiluḥlu* troops, or with a man entering in a lot of contracts with deported persons (Freydank 2001: 107–108). Adad-šamši, is mentioned with Šamaš-aḥa-iddina and the king as owners of *lē’u* writing boards in KAJ 245 (VAT 8827); all three are called *tartennu* military commanders (CAD T: 489–90; Freydank 2001: 108–109). Among the listed workers on KAJ: 245, who are “returned to their *tartennu* commanders”, some women are listed. “It would be advisable therefore to consider the boards as listing persons assigned to each corps for ‘state service’ rather than always service in the army” (Postgate 1986: 25).

However, the exceptionally numerous Hittite references provide us with an idea of the type of documents inscribed on writing boards as well as their sealing practice. Thus, in my opinion, it is useful to include a section on Anatolian writing boards in this study.

Notwithstanding the fact that the Hittite tradition of writing on wax and wood is to be distinguished from Mesopotamian traditions, textual sources from Kültepe suggest close contacts between Anatolians and Assyrians in the early 2nd millennium. Hittite sources make use of the akkadogram *ušurtum* and the sumerogram GEŠ.HUR; furthermore the Akkadian term *išurtum* is attested in Kültepe (see below). Hittite sources distinguish between two groups of scribes, the ^{LU2}MEŠ DUB.SAR, “scribes,” and the ^{LU2}MEŠ DUB.SAR.GEŠ, “scribes on wood” (Cammarosano, Jendritzki, and Streckfuss 2019a: 145; van den Hout 2009–2011: 273–74; Waal 2011: 22, ead. 2012: 297).⁴¹ Although the Hittite influence on the Middle Euphrates region may have accelerated the use of wooden writing boards, the use of writing boards in the context of the palace and temple administration also appears to have been an ancient Mesopotamian tradition (Symington 1991: 111–12).

The Hittite ^{LU2}DUB.SAR.GEŠ is attested in sources from 13th century Emar. In the Emar letter Arnaud (1985–1987: No. 261), the diviners Kapi-Dagan and Šaggar-abu ask for oil for offerings to the gods.⁴² The letter Arnaud (1985–1987: No. 261 17–25) reads the following:

inanna kīnē ešēti igammarū šūlāmma ella ištū lit Ṭuppi-[Teššub] LU₂.DUB.SAR GEŠ ša ina Šatappi ašbu šupuršu lilqū, “Now, because of the fact that they have used up these (f.) few, have it come up (=take it away, cf. CAD E, 133, s.v. elū), and send to him the oil out of the assets of Ṭuppi-[Teššub], the scribe-on-wood, who lives in the city of Šatappi. They shall take (it)!” (Arnaud 1985–1987: No. 261 17–25)

⁴¹ Van den Hout (2010) believes that the GEŠ in ^{LU2}DUB.SAR.GEŠ refers to a wooden container, and that the ^{LU2}DUB.SAR.GEŠ was responsible for the storerooms. Waal (2011: 22) considers this interpretation to be “somewhat artificial.” In the field of Hittitology it is debated whether the scribe-on-wood was a “simple” clerk, occupied with bookkeeping activities in an administrative context (Cammarosano, Jendritzki, and Streckfuss 2019a: 145; van den Hout 2010). Van den Hout (2010: 262) states that the “scribes-on-wood” are not attested on the seal impressions on clay bullae from Boğazköy.

It was previously assumed that the ^{LU2}DUB.SAR.GEŠ, the “scribe on wood,” corresponds to the Luwian hieroglyph L.326 (see e.g. Waal 2011: 22 and the overview in van den Hout 2020: 342, fn. 6 with references to Laroche and others). The Luwian hieroglyph L.326 was traditionally read SCRIBA, and it is attested on seal impressions on clay bullae. As opposed to previous hypotheses, van den Hout (2020: 341–374) proposes a connection between the sign L.326 and a seat in front of the king, i.e. a sign for a high office with royal affiliation. Therefore, he suggests the reading SELLA (van den Hout 2020: 359; with the extension of the middle vertical MINUS, see van den Hout 2020: 367). Cammarosano, Jendritzki, and Streckfuss (2019a: 143) discuss these findings, as well. Thus, the sign L.326 on seals may, in fact, not be connected to the “scribes on wood.”

⁴² The family of diviners of Emar wrote letters to representatives, officials or Hittite officials. The recipient of this letter no. 261 is a superior addressed as AD.DA (replacing *abī*, “my father, cf. Michel 2014: 253–254).

4.2.1 Writing Boards in Anatolia

The use of writing boards in Anatolia is attested in Old Assyrian sources, and later in Hittite texts. In Old Assyrian sources, writing boards with a wax filling appear twice with the expression *tuppum ša iskuri*, “tablet of wax” as early as the 19th century BC (Dercksen 2017: 108).⁴³ One Old Assyrian letter (Kt 92/k 233, see Veenhof 2010: 99–101, no. 11), which had been sent from Assur, mentions a running account of a trader managed by his wife in Assur written on a *tuppum ša iskurim*, “tablet of wax.” A second reference to a *tuppum ša iskurim* appears in a list of cultic equipment of a “private” shrine in Kültepe (Kt 94/k 670, see Larsen 2013: 275–276, no. 468). Note that the Assyrian sources call the writing boards *tuppum*, “tablet.”

tuppum ša iskurim is a different term than the one used to refer to wooden boards applied by the local Anatolian population in Kültepe, *işurtum*, a semantic loanword from Sumerian/Akkadian (Schwemer 2005/2006: 224) that acquired a different meaning in the Hittite context and referred to their own tradition of writing on wooden writing boards.⁴⁴ The term *işurtum* can be connected with the GEŠ.HUR/ UŞURTUM/gulzattar documents from the later Hittite kingdom (Veenhof 1995: 312; Waal 2012: 296–297).

43 For the use of wax in the Old Assyrian period see Cammarosano, Jendritzki, and Streckfuss (2019a: 126–127). Two other Old Assyrian tablets mention wax: in one “memorandum” a merchant accepts wax additionally to silver as the price for sold tin (Kt c/k 189; Dercksen 2017: 105–107). The second one contains a reference to five sticks of wax, perhaps from a place named ̂uturut (Prag I 488: 21–22; Dercksen 2017: 108).

44 Akkadian *işurtum* derives from *eşerum*, “to draw, to make a drawing” (Veenhof 1995: 316; Waal 2012: 291–292). Although Akkadian, *eşerum*, “to draw,” is distinguished from *šaṭarum*, „to write,“ see Veenhof (1995: 316) and Waal (2012: 291–292), the expression *işurtam ešā/erum* does not necessarily indicate that Luwian hieroglyphs were “drawn.” The expression *işurtam ešā/erum* is attested twice in sources from Old Assyrian Kültepe with the meaning “to establish new regulations” (Veenhof 1995: 328–329; Waal 2012: 295–296). This meaning is the same as in Old Babylonian context (i.e. “to establish regulations” etc.). „It is thus seen that in strictly Assyrian context *işurtam ešā/erum* is used in the same meaning as elsewhere in Mesopotamia, while referring to the writing of documents only in Anatolian context“ (Waal 2012: 296).

However, apart from the meaning „to establish regulations,“ this phrase, *uşurtam ešerum*, can actually mean “to draw,” e.g. “to draw a ground plan (of a building)” or “to make a drawing” in Babylonian and Assyrian sources, see CAD E: 346b–349a. According to Schwemer (2005/2006: 223–224), the Assyrian traders in Kültepe were influenced by the Anatolian expression *gulzattar gulš*, “to make a drawing, to write a document,” and used the phrase *işurtam ešā/erum* in a different meaning in the context of their Anatolian surroundings (i.e. as a “semantic loan”) to express “to write a(n *işurtum*) document.” Cammarosano, Jendritzki, and Streckfuss (2019a: 136) argue that the theonyms Kulziya and Kulziyar, attested in the Old Assyrian period, show that the Anatolian population already used the word *gulzattar* and the related phrase *gulzattar gulš*- or something similar to designate “writing” on “writing boards”.

The *iṣurtum* designated a special kind of sealed (and therefore legally valid) debt-note recording debts from the native population in Anatolia. Whereas Veenhof (1995: 311–32) had considered *iṣurtum* documents to be clay tablets (while admitting that a clay tablet labelled as *iṣurtum* had not been identified),⁴⁵ he changed his opinion in 2020: 225–243 and considered the possibility that *iṣurtum* documents were writing boards (see especially Veenhof 2020: 242–243). Waal (2012: 287–315) argues that references to *iṣurtum* documents in Old Assyrian texts from Kültepe refer to documents written in Luwian hieroglyphs (see also Veenhof 1995: 313–314, id. 2020: 226–227, 237, 241–243) on wooden writing boards, which have not been found, as wood was a perishable material.⁴⁶ In contrast with Waal (2012: 287–315), Cammarosano, Jendritzki, and Streckfuss (2019a: 135–136, fn. 136) believe that the term *iṣurtum* designated “debt-notes related to Anatolians and written (in cuneiform) on wax boards”, and not writing boards inscribed with Luwian hieroglyphs.

In the field of Hittitology, it is debated whether either hieroglyphs or cuneiform or both scripts were written on writing boards in Anatolia (see an overview of different opinions in Waal 2011: 21–22, ead. 2014b: 216–217; also Weeden 2011: 237).

In the later Hittite sources, writing boards are referred to with the sumerogram GEŠ.HUR (Akkadian *uṣurtum*, “drawing, regulation”; Hittite *gulzattar*).⁴⁷ The sumerogram GEŠ.HUR is attested more frequently than the akkadogram LĒ’U in the Hittite texts (Symington 1991: 113). A prevailing view in the field of Hittitology (based on preserved textual sources from the Hittite state administration) is that GEŠ.HUR documents (writing boards) contained religious, judicial and administrative (economic texts, such as contracts, debt notes etc.) documents. These documents had an official and legally authoritative status, but also those classified as “private”, and could allegedly be sealed with clay bullae, which is attested in textual sources (van

⁴⁵ See also Waal (2012: 295).

⁴⁶ Similarly, the reason for the lack of preserved documents from the native Anatolian palace administration in Kültepe could be that their writing material was wood (and/or wax), and is, thus, not preserved (Waal 2012: 288–290).

⁴⁷ This sumerogram/akkadogram GEŠ.HUR/UṢURTUM used in Hittite textual sources for *gulzattar* is used to express “regulation” as well as “drawing” in Sumerian and Akkadian texts from Mesopotamia (Veenhof 1995: 316–318). The verb *hur* means “to carve, incise (a plan on the ground)” (Attinger 2021: 539: “trans. ‘inciser’; ‘tracer’ un plan sur le sol”). According to Edzard (1972: 8; see Veenhof 1995: 316), the verb *geš- -hur* means “Holz einritzen” (engl. “incise/carve wood”), whereas Attinger (2021: 539) translates *geš- -hur* with “to draw”; “to be given (instructions), to be fixed (rules), to give instructions”. Based on Farber and Cohen, van den Hout (2020: 188) argues that *geš* and *hur* in combination never meant “to incise wood”, but only had phonetic value (iṣ and ur₃). The Akkadian verb *eṣērum* means “to make a drawing” with paint, paste, ink, flour on the ground etc., but also in soil, clay, wax and by engraving in metal and stone (Veenhof 1995: 314, id. 2020: 227–228). Veenhof (1995: 315, id. 2020: 228) emphasises that the verb *eṣērum* is used “to designate various grooves and linear marks” in extispicy texts.

den Hout 2020: 189, 222–223; Waal 2014–2016: 613).⁴⁸ Mora (2007: 535–559, 2012: 59–76), however, believes that writing boards predominantly bore ephemeral labels for transported goods.⁴⁹ Van den Hout (2020: 209) argues that GEŠ.HUR documents were “different kinds of administrative documents” on clay, and only those documents termed *LĒ’U* were made of wood.⁵⁰ For a detailed discussion of each term see van den Hout (2020: 184–211).⁵¹

The Hittite verb *gulš-* could both mean “to draw” and “to write”, “which is why GIŠ.HUR (‘drawing’) could end up being used with the meaning ‘writing (in hieroglyphs)’ in an Anatolian context” (Waal 2011: 25). The akkadogram *LĒ’U*, appears in the same contexts as the Sumerogram GEŠ.HUR. Therefore, the use of a term such as *ışurtum*, which derived from the verb “to draw,” and the phrase *ışurtam ešā/ērūm*, “to draw an *ışurtum*” indicate that the *ışurtum* documents, which only concerned the local Anatolian population, designated wooden boards, on which Luwian hieroglyphs were “drawn” (see Waal 2011: 25; ead. 2014–2016: 613).⁵²

48 Furthermore, in the Hittite language, different verbs may have been used to refer to writing on writing boards and writing on clay. “[T]he use of *gulš-* and *ħazziye/a-* correlates primarily with the different biomechanical acts of “drawing furrows” (*gulš-*) and “piercing, striking” (*ħazziye/a-*). Thus, *ħazziye/a-* is primarily associated with the idea of writing in cuneiform, since wedges are produced by repeatedly impressing a squared tip in a malleable material, whereas *gulš-* is primarily associated with linear scripts, where the signs are produced” (Cammarosano, Jendritzki, and Streckfuss 2019a: 144).

49 Mora (2007: 535–559, ead. 2010: 96–97, ead. 2012: 59–76), however, believes that writing boards predominantly bore temporary texts for transported goods. She emphasises the use of writing boards in the context of bookkeeping: incoming goods were first noted on writing boards, which remained unsealed and functioned as labels, and then permanently recorded on clay. However, Mora also acknowledges that sealed writing boards accompanying the sent goods functioned as packing lists.

50 “[I]n none of its 16 occurrences (in 10 compositions) is the Akkadian ^{GIŠ}LĒ’U ever determined by GIŠ. HUR instead of just GIŠ but like them it is primarily associated with cultic provisions and bookkeeping. Given its Mesopotamian origins and occurrences this is the only word that unequivocally means ‘wooden tablet’ and thus provides evidence for the use of such script carriers in the Hittite kingdom” (van den Hout 2020: 207).

51 Van den Hout bases his argument partly on a letter from queen Puduhepa to Ramses II (KUB 21: 38), in which the queen appears to refer to the same documents with *tuppum* and with GEŠ.HUR (see in more detail the discussion in van den Hout 2020: 192–193). “[E]very GIŠ.HUR is a *tuppi* but not every *tuppi* a GIŠ.HUR. This means that, if GIŠ.HUR is not necessarily a wooden tablet, the other script carriers discussed below and determined by GIŠ.HUR are not necessarily wooden tablets either” (van den Hout 2020: 192). Cammarosano, Jendritzki, and Streckfuss (2019a: 137) counter his reasoning, by arguing that the term *tuppum* is used “as a loose reference to a wooden board. It is precisely the broader semantic spectrum of *tuppi* – ranging from ‘clay tablet’ to ‘written document’.”

52 “I have therefore argued that in Hittite and Luwian the verb for ‘writing in hieroglyphs’ and ‘drawing’ is the same, which is hardly surprising considering the pictographic nature of the hieroglyphic script. [...] The ambiguous meaning of the verb *GUL-s-/gulš-*, representing both ‘to write’ and ‘to draw’, may explain the aberrant use of the Sumerogram GIŠ.HUR, ‘drawing’, for ‘writing’ in the

Since the *işurtum* documents of the Anatolian and later Hittite population bear a different name than the *ṭuppum ša iškurim*, the “tablets of wax,” in Old Assyrian sources, Waal (2011: 21–34, ead. 2012: 309–312) suggests that the Luwian speaking population wrote with ink on wooden boards. However, there is no conclusive evidence for the use of ink in Anatolia, except for possible traces of ink on one clay tablet and uncertain identifications of ink pots in reliefs (Waal 2011: 29, fn. 8).⁵³ Furthermore, the discovery of more than 20 styli in Boğazköy, Alaca Höyük, Kuşaklı, and Ortaköy, which had a flat end and pointed tip, strongly indicate that the writing material for the drawing of Luwian hieroglyphs must have included wax in Anatolia. These styli were ill-suited to impress cuneiform wedges and resemble other styli used in the Iron age, in Classical antiquity and Middle Ages to write on wax (Cammarosano, Jendritzki, and Streckfuss 2019a: 141–142; also Waal 2011: 28–29 with counterarguments).

4.2.2 Writing Boards According to Sources from Emar

The term *lē'u*, written with the GEŠ determinative for wooden objects (^{GEŠ}LI.U₈.UM), appears in several Emar texts from the 13th century (see Cammarosano, Jendritzki, and Streckfuss 2019a: 131). At the end of lists of objects it says that the transferred objects, whether received or given out, were not listed on a wooden writing board. This is reminiscent of Mesopotamian bookkeeping practices already apparent in the Ur III period. Some Ur III lists contained similar notes at the end, which appear to note “the exception that proves the rule”, i.e. that usually incoming goods or expenditures were noted on writing boards. The first example is a short inventory (Arnaud 1985–1987: No. 290) of bronze objects.⁵⁴ It ends with the statement (Arnaud 1985–1987: 290 9–11): *udû [annûtu] ina lē'i lā šaknu*, “[this] luxury equipment they have not put on the wooden writing word”. The second example is a note (Arnaud 1985–1987: No. 305) on a payment of silver for a number of vessels (*ḥissīpu* clay vessels and *ḥubu* storage jars). After the price of these objects is given, the following statement is made: *1 ḥubu Abī-kāpī mār 'a kaspu an[nû] ina lē'i el[l]â ū lā nadin*, “1

Hittite Period (Waal 2011: 25; Weeden 2011: 235)” (Waal 2012: 297).

“The Assyrians translated the Hittite/Luwian expression *gulzattar guls-*, meaning ‘to write’ or ‘to make a drawing’, with their expression ‘to make a drawing’ (*işurtum ešērum*) to refer to writing a document in pictographic hieroglyphs” (Waal 2012: 297).

⁵³ Cammarosano, Jendritzki, and Streckfuss (2019a: 145) call the evidence for the use of ink in Anatolia “dubious”.

⁵⁴ The inventory Arnaud (1985–1987: 290) lists a bow and GAGs, “arrowheads” or “Lanze/Spieß”, cf. Schrakamp (2010: 102). According to Arnaud (1985–1987: p. 285) the list ends with *pu-tuq-[qû]*, “who is constantly attentive”, often describing an individual who is attentive to the words and signs of the gods (cf. CAD P: 513–514, s.v. *puqû*). This may be a personal name.

hubu storage jar of Abī-kāpī, the son of 'a. This silver (=for it) has appeared on the wooden writing board, although it is not given.” This implies that usually purchases and more general, incoming or outgoing goods, were listed on wax covered writing boards of the cultic institutions in Middle Babylonian Emar. For the aforementioned ^{LU2}DUB.SAR.GEŠ in the Emar letter Arnaud 1985–1987: No. 261 see above, the introduction to section “4.2 Writing boards in sources from Anatolia, Emar and Ugarit.”

4.2.3 Writing Boards According to Sources from Ugarit

Apart from Emar, writing boards are notably also mentioned in sources from Ugarit. A letter from an Ugaritic scribe contains an offer to his colleague to give him a wax-covered writing board (Hunger 1972–1975: 459): *šumma ṭuppa ša iškūri tarām ū luddinakku ū ṭuppa ša ittīka ana bēlīšu tēr*, “If you loved the tablet of(= covered with) wax, then I shall give one to you. And the tablet, which is with you, return it to its owner!” (PRU VI, 18, 23–26; cf. Ahl 1973, 298–300; Nougayrol 1970: 19–20; Symington 1991: 121–122).

Furthermore, the letter RS 34.136 found at Ugarit, which stems from the ruler of Karkemiš attests to the Hittite practice of sending wooden writing boards as letters. In RS 34.136, the ruler of Karkemiš writes to the ruler of Ugarit that he had a list of gifts written on a GEŠ.HUR brought before him, which he had approved, before he sent to the ruler of Ugarit. A third attestation from Ugarit, RS 34: 136 22–23, confirms the practice of sending writing boards: *anumma ušurta ša ana muḥḥija ušēbilūni ana panīka lilšū*, “Now, the writing board which they had brought to me, let them read it out loud in your presence!”

5 Writing Boards in the 3rd and 1st Millennium

Having discussed the function of writing boards described in textual sources contemporary to the Kassite evidence from Nippur, this section (5) addresses the use of writing boards in the millennium preceding and following the Middle Babylonian period. A consistent utilization of this medium in Babylonia before and after the Kassite period would corroborate its purported use documented in the three Kassite letters and cattle account (see above).

5.1 Writing Boards in the 3rd Millennium

There is very little evidence for the use of writing boards in third-millennium Mesopotamia. The earliest references to writing boards come from the Ur III

period.⁵⁵ In the earliest attestations, writing boards are called **le-um** (a loan from Akkadian *le'um*) and ĝeš^{es} **da**, both meaning “board” or “wooden board.”⁵⁶

It appears that the provision of the workforce was already listed on wooden writing boards in the 3rd millennium BC – a remarkably similar context to the Kassite sources, especially BE 17: 51 (see above). The 3rd millennium sources tell us the following: a) **le-ums** were used for bookkeeping (to list income and expenditures), b) **le-ums** may have been used to record the work pensum of workers, c) **le-ums** were used for land surveys,⁵⁷ d) **le-ums** functioned as a reliable source for the measurements of fields, and e) **le-ums** were stored in baskets together with clay tablets.

5.1.1 le-ums in Bookkeeping

Two Ur III tablets, UET 3, 1097 and TJA pl. 53, IOS 15 concern the income and expenditure of goods. Both tablets contain a statement which says that usually such

⁵⁵ HSM: 6392; MVN 11: 93 (P116107), BM 109149 (Maekawa 1997: 117, 138, Text 122; P102679), HSM: 6388; MVN 11: 91 (P116105), UET 3: 1097 (P137422), TJA pl. 53, IOS: 15 1–11 (P134109), UTI 4: Um. 2870 (P140889), MVN 13: 241 (P117013), MVN 16: 797 (P118845).

According to the CAD L: 156b, s.v. *le'u*, **60 le-um gag** are listed in the multi column tablet RTC 221 (P216993). RTC 221 is an elaborate inventory of furniture and other goods for the use of a royal family who visited Girsu. The CAD L: 156b, s.v. *le'u*, translates it as “60 boards with pegs(?)”. RTC 221 has been dated to the reign of Gudea (Visicato 2010: 447–448) and/or the Ur III period (Steinkeller 2004: 76, fn. 17; for other attempts to date the text, and further literature cf. Foster 1980: 32; Visicato 2010: 435–452; note that the CDLI suggests the year Gudea 10 “Year: The temple of Ningirsu was built”).

RTC 221: obv. col. v, appears to contain mostly wooden furniture, copper vessels, and woollen fabrics, which were stretched on bed and chair frames, and leather waterskins. RTC 221: obv. v 9–10 lists 120 speckled darts, belonging to the king, right before **60/1(DIŠ) le-um gag**, which Schrakamp (2010: 105, 110) translates with “120 farbige Pfeile, 1 Schießscheibe,” i.e. with “120 colourful darts and 1 archery target. Such speckled/decorated darts are often attested in lists of archery equipment. RTC 221 also lists waterskins (and wooden racks for waterskins) which commonly appear on lists of military equipment (Schrakamp 2010: 43–44). The last visible item in column v 19 could be emended to “quiver” instead of a vessel. Thus, it seems highly unlikely that the **60 or 1 le-um gag** in RTC 221 refer(s) to any “writing boards”.

⁵⁶ The material of those early writing boards is unclear due to the lack of a determinative before the word **le-um**. The lapis lazuli boards are presumably a divine object and creation of literature, possibly a prestigious luxury object for foundation deposits etc. However, one sealed Ur III text from Umma, MVN 16: 797 (P118845) 2 mentions a writing board termed ĝeš^{es} **da**, which contains the determinative ĝeš for wooden objects.

⁵⁷ Maekawa does not believe that the **le-ums** used for field survey were wooden writing boards. Instead he suggests that in the Ur III period the term **le-um** referred to clay tablets – he suggests “round tablets” attested for yield assessments and sheep counting which may have been used by the scribe during the outdoor survey, and may have been discarded after their content was transferred on a proper account (Maekawa 1997: 121).

transfers were listed on a **le-um**. According to the colophon of tablet UET 3, 1097 (P137422),⁵⁸ the collected and booked-out dates were **le-um-ma nu-ub-gar** “(they were) not entered on the writing board.” TJA pl. 53, IOS 15, which documents the deliveries of sheep and goats, finishes with the statement **u₄ Ša₃-nin-ga₂ nibru^{ki}-a mu-ti-la le-um-ma nu-ub-ge-en₆**, “On the day, when Šaninga was staying in Nippur, they were not confirmed on the writing board (rev. 1–2).”

Cuneiform administrative documents, i.e. clay tablets, were usually written post factum in an administrative centre after the original economic transaction had taken place⁵⁹ (Steinkeller 2004: 68). Steinkeller suggests that notes about transactions were taken on wooden writing boards at the location where the transaction actually happened in the Ur III period, and then later in an office setting transferred onto a clay tablet, e.g. receipt, for future reference (Steinkeller 2004: 75–76). However, TJA: pl. 53, IOS: 15 and UET 3: 1097 may indicate that data from primary documents, such as receipts, was copied onto running accounts on writing boards, and not vice versa.

5.1.2 le-ums Recording the Work Pensum of Workers

The receipt MVN 16: 797 obv. 1–4⁶⁰ tells us, **3(U) la₂ 1(DIŠ) ^{gi}pisan im sar-ra ^{geš}da-a esir₂ su-ba a₂ u₄ 3(DIŠ)-ta**, “29 reed baskets for tablets and writing boards caulked with bitumen each/the result of the workload of three days” (obv. 1–3), and **1(U) 1(DIŠ) ^{gi}pisan im sar-ra a₂ u₄ 2(DIŠ)-ta⁶¹ esir₂ su-ba**, “11 reed baskets for

58 In the Ur III document UET 3, 1097 from Ur someone received (**šu ba-an-ti**) a total of 3;0.0.0 dates as **mu-ku_x(DU)**-delivery from several gardeners (each delivery by the gardeners’ subordinates is listed, followed by the responsible gardener) **mu^dŠul-gi-iri-ġu-še₃**, “for/instead of Šulgi-irigū”. The dates appear to have been transferred, i.e. booked out (**zi-ga**) immediately (see Dahl 2020: 150). “Most **mu-ku_x(DU)** deliveries were made by important members of the elite” (Dahl 2020: 137). For the term **mu-ku_x(DU)** see Dahl (2020: 137) with further literature and examples.

59 Summarising primary documents, such as receipts, in large accounts was a customary practice. “Whereas the accounts were top-level administrative documents, summarizing all other documents (except, of course, the archival documents [...]), the primary documents, the receipts, were the building blocks of the administrative machinery. These documents are also the most numerous of all of the neo-Sumerian texts, and quite possibly, of all cuneiform tablets. As noted repeatedly above, all primary documents were summarized in either the “debits” or the “credits” of the accounts” (Dahl 2020: 87).

60 I would like to thank Marie-Christin Ludwig for corrections and help with this translation.

61 The ablative of **a₂ u₄ 2/3-ta** may either be translated in separative function, i.e. “each (recording ?) the workload of three days”, or “the result of the workload of three days”. Since in obv. 3 the attribute **a₂ u₄ 3(DIŠ)-ta** follows the attribute “caulked with bitumen”, it appears that it refers to the 29 reed baskets, and not the tablets and writing boards. However, in obv. 4 the attribute **a₂ u₄ 2-ta** follows the tablets stored in the reed baskets. If the **a₂ u₄ 2/3-ta** referred in both cases to the writing material and not their containers, then this would imply that each writing board recorded the (daily) work pensum

tablets each/the result of the workload of two days caulked with bitumen” (obv. 4).⁶²

5.1.3 Land Surveys on le-ums

Two lists from Girsu, MVN 11: 93 and BM 109149, indicate that writing boards contained a list of workers who cultivated subsistence fields.⁶³ MVN 11: 93 lists subsistence fields (**šuku**) cultivated by (**du₃-du₃-a**)⁶⁴ several units of workers/soldiers (**erin₂-na**) supervised by several high ranking officials and by a number of temples in and around Lagaš.⁶⁵ This list of allotted subsistence fields ends with the statement (rev. 16–18): **šuku du₃-du₃-a le-um-ta deb-ba ša₃ e₂-dub-ba-ka**, “Subsistence fields

of workers. This, however, cannot be deduced without any doubts, as the work load could refer to the production of caulked reed baskets.

62 The receipt is for a **sa₂-du₁₁**, a “regular delivery”, of reed objects caulked with bitumen and sieves of Šara-ḫegal from Ur-Šulpa’e. It is sealed by Ur-Nungal, the archivist (**ša₁₃-dub-ba**).

63 In both lists the **erin₂** are grouped according to their overseer, high ranking officials, and occupation category. MVN 11: 93 and BM 109149 stem from the temple context in Girsu, which belonged to the central government (Maekawa 1999: 65). The term **šuku-du₃-du₃-a** appears on tablets which record (large scale) land surveys which king Šulgi ordered – possibly a regular intervals – and which are recorded on large “cadastres” from Girsu and Umma (Maekawa 1992: 199, 215, id. 1995: 196–199, id. 1999: 66). The land surveys of all public land were conducted every year at the beginning of an agricultural season.

These land surveys were conducted in the context of Šulgi’s reforms to turn formerly independent temple households in the Girsu (Lagaš) province into state institutions. These state institutions would then cultivate public fields for the state. The Girsu temple households managed and cultivated fields and their produce under the **sanga-** and **šabra-**officials, i.e. the chief administrators of Girsu (Maekawa 1999: 61–66). On the organisation of the province Umma see Dahl (2002: 330–338, id. 2007: 35–36) and Vanderroost (2008: 129–130). According to Steinkeller (1987: 17) Šulgi created a new category of land, the so called “crownland” or “royal domain”, which was “distributed in the form of allotments among the members of the military organization and among other types of royal dependents in exchange for services”.

64 **šuku du₃-du₃-a** are allotment parcels which were each held and cultivated by labourers/soldiers belonging to different public institutions (Maekawa 1997: 117–118).

65 MVN 11: 93: obv. 1–16 firstly list subsistence fields (**šuku**) cultivated by (**du₃-du₃-a**) several units of workers/soldiers (**erin₂-na**) supervised by captains (**nu-banda₃**), chief administrators (**šabra**), an **erin₂ gal**, a merchant, the son of the lord (**dumu be-lí**) etc. Then, on obv. 17-rev. 12 it lists allotted parcels cultivated by (**šuku-du₃-du₃-a**) a number of temples in and around Lagaš, and by several captains (**nu-banda₃**). In the last lines rev. 13–15, **šuku** is replaced by **a-ša₃** state institutions-fields held by the cooks, an overseer (**ugula**), and by sailors and (business)men associated with the shipyard.

currently cultivated (by someone), transferred from the writing board into the house of tablets".⁶⁶

The second Ur III tablet, ASJ 19: 112 (BM 109149), ends with the same statement as MVN 11: 93 rev. 16–18: **šuku du₃-du₃-a le-um-ta deb-ba ša₃ e₂-dub-ba-ka**.⁶⁷

We can gather from this that **šuku**, “subsistence fields”, and the current occupant who provided a service for the temple or palace and had received the field exchange for his work, i.e. the one who “held the field in possession”/“cultivated” the field (**du₃-du₃-a**), was listed on a **le-um**, a writing board. Since the subsistence fields served to provide for the servile population occupying them, this is an interesting parallel to the Kassite servile population listed on wooden writing boards. The clay tablets notably do not contain the size of the subsistence fields, and numbers of individual cultivators. Thus, these lists on clay tablets rather resemble summaries of more exact entries on a wooden writing board which they had been copied from.⁶⁸

Another interesting parallel to the Kassite use of wooden writing boards (considering that the meanings of specific terms could change over time) is that the servile population in the Kassite documents is also referred to with the sumerogram ERIN₂ in Kassite texts. The **erin₂** “soldiers/workers” in Ur III Lagaš are largely attested as doing public labour for the state institutions (temples).⁶⁹

66 Steinkeller (2004: 76–77, fn. 17) transliterates and translates MVN 11: 93: rev. 16–18 in the following way: “ŠUKU dū-dū-a li-um-ta dib-ba šag₄ é-dub-ba-ka, ‘(records of) the subsistence land under cultivation that had been transferred from the wooden tablet(s) (and subsequently stored?) in the archive’”. Note that according to Steinkeller (1989: 52–60), **du₃** can also mean “to hold (in possession), to claim ownership of”, not just “to cultivate”. In any case, the fact that these subsistence fields were held by individuals in exchange for their work for the temple/provincial administration means that they were cultivated.

67 According to Maekawa (1997: 116), both documents, MVN 11: 93 and BM 109149, were written by the same scribe in the same year.

68 Maekawa believes that the survey results of allotted parcels (**šuku/šuku du₃-du₃-a**) were recorded on “individual survey document[s ...]”, the **le-um**, and then transcribed on clay tablets in the archival room (Maekawa 1997: 117–118). The verb used here to describe the transfer of information from one writing medium to the other is **deb. deb** means “to cross, transfer, pass” (Akkadian *etēqu*, cf. Maekawa 1997: 118–119; Steinkeller 1989, 42–43). **dub- deb** appears in several Ur III documents from Umma and Puzriš-Dagan and means “to transcribe the (contents of the small) records (onto another document)” (Maekawa 1997: 118).

69 According to Steinkeller (1987: 75), the **erin₂** worked in exchange for barley rations during the latter part of the year (from the 8th/9th month to the end of the year) and held land allotments in exchange for their service.

The field size of the sustenance fields varied according to the status of the recipient, i.e. whether he was, for example, an overseer, or an **erin₂** worker/soldier (Widell 2012: 62). Based on the land survey results the provincial agricultural land was divided in cultivation units. Regarding the relationship between sustenance fields and the large domain land area, see Widell (2012: 62). The province Girsu/Lagaš consisted of 600 cultivation units. The local public institutions in Girsu cultivated 480 units of

I argued that the royal hymns and inscriptions from the reigns of Gudea, Šulgi and Lipit-Eštar indicate that writing boards were used both for architectural planning as well as field surveying (Zimmermann 2023: 93).⁷⁰ In the royal hymn Lipit-Eštar B, for example, the king receives the field measuring equipment from Nisaba together with a *lē'um*, a “writing board” (Römer 1965: 24–25; Sjöberg 1975: 174–175). On the Gudea cylinder Cyl. A: vi 3–5, Nanše explains to Gudea that Ninduba ‘inserted’ or ‘set’ the **ġeš-ḥur** (the “ground-plan”) of the temple into a lapis lazuli plate, which is notably termed **le-um za-gin₃**, see Edzard 1997: 72. The “ground plans” (**ġeš-ḥur**) which appear in Sumerian language literature are inscribed on “boards” termed “**dub**” or “**le-um**” made of lapis lazuli (see the examples in Zimmermann 2023: 93–94, fn. 67 and 68). The term **ġeš-ḥur**,⁷¹ Akkadian *uṣurtu*, or *gešḥurru* (Veenhof 1995: 316) is usually applied to a wooden writing board, “on which a ‘plan’ or anything else would be drawn” (Winter 2010: 273, fn. 3).⁷²

Veenhof (1995: 316–317, id. 2020: 229) emphasises that an “architect, surveyor or accountant” made use of a **ġeš-ḥur**. If ground plans were drawn on writing boards (termed “**ġeš-ḥur**” on a “**dub**” or a “**le-um**”), as the literary texts imply (see above), it seems axiomatic that also field surveys in the form of maps could be outlined or drawn, or at least noted on writing boards. From the Ur III period more than 30 field plans on clay are preserved. The so-called “Round Tablets” from Ur III Lagaš were not as realistic and proportionally accurate as plans of building, however, they show the “the operating procedures of the (field-)surveyors” (Liverani 1990: 148, 155, 177, fn. 6). The scribe did not calculate expected harvest levels on-site, but completed the calculations upon returning to the office. Sometimes the totals were added to a dry tablet, resulting in light scratches on the surface (Liverani 1990: 155). Since the two lists from Girsu, MVN 11: 93 and BM 109149 show that writing boards which could be

agricultural land, while 120 cultivation units were directly managed by the royal administration in Ur (Maekawa 1999: 66–67). Each unit had a size of ca. 20 bur (130 ha). Out of the 20 **bur** per unit, 10 **bur** were fallow land, while 6 bur were under the management of the public institution (**gana₂-gu₄**), while 4 **bur** were allotted as subsistence fields to workers of the public institutions, i.e. temples/temple households. These allotted units were the **šuku** fields. If these workers had not time to cultivate their land themselves they leased it out as tenant parcels (**gana₂ apin-la₂/niġ₂ gal₂-la**; cf. Maekawa 1999: 67).

⁷⁰ See cylinder A (Gudea’s temple hymn) Cyl. A col. v, l. 3, and col. vi, l. 4, and Gudea statue B (l’architecte au plan) from Girsu (Veenhof 1995: 316; Winter 2010: 273), as well as Šulgi hymn C, ll. 46 and 48.

⁷¹ “The primary meaning is ‘drawing’, ‘groundplan’ (“1. drawing, plan, engraving, picture, relief, 2. (divine) design, plan, concept, ordinance [. . .]”, cf. CAD U/W: 290b; see Veenhof 1995: 316).

⁷² According to Edzard (1972: 8; see Veenhof 1995: 316), the verb **ġeš-ḥur** means “Holz einritzen” (engl. “incise/carve wood”), whereas Attinger (2021: 539) translates **ġeš-ḥur** with “to draw”; ‘to be given (instructions), to be fixed (rules), to give instructions’. Based on Farber and Cohen, van den Hout (2020: 188) argues that **ġeš** and **ḥur** in combination never meant “to incise wood.”

continuously updated were in use, they would have better suited this purpose. However, the preserved “Round Tablets” only attest to the use of clay for this purpose.

The scale of these plans is distorted to adopt the plans to the page-format of the tablets (Liverani 1990: 148). Writing boards allowed for a larger format without breaking. The clay tablets containing drawings of ground plans of buildings do not exceed the sidelengths of ca. 10 cm (Heisel 1993: 51). The maps of cities (e.g. Nippur) are preserved on clay tablets of above-average size. The largest clay tablet with a ground-plan measures 23 × 31 cm. According to Heisel (1993: 51–52), clay tablets reaching a sidelength of more than 40 cm were probably not in use, as they would have been too heavy, fragile and cumbersome (see Zimmermann 2023: 94, fn. 69).⁷³ All in all, writing boards were more suitable for exact and large ground plans than clay tablets, because they weighed less than clay in proportion to their size and ground plans could be incised more accurately in wax than in clay.

5.1.4 *le-ums* as a Reliable Source for the Measurements of Fields

The Ur III Girsu note⁷⁴ MVN 11: 91 (HSM 6388; P116105): rev. 1–3 (**1** (šar₂) **3** (bur’u) **3** (**iku**) gana₂ a-ša₃ ambar-ŠIR.BUR.LA^{ki} **le-um-ta sar-a im-ma-an-tur**) states that the amount of **1** šar₂, **3** bur’u, and **3** iku from the field Ambar-Lagaš had been reduced after it had been written (=copied) from the writing board.⁷⁵ This indicates that the numbers of an entry about a field size had been reduced, after it had been copied from the writing board to a different medium. Someone noticed the discrepancy between the writing board and another writing medium (presumably clay). Furthermore MVN 11: 91 obv. 1–4, state that the measurements of another field have to be examined, i.e. presumably another entry on a writing board had to be checked, because someone had either increased the size of it (enlarged the numbers) or measured it.⁷⁶

⁷³ Heisel (1993: 51) observes this phenomenon also with regard to text on clay tablets: clay tablets containing texts rarely measure more than 10 cm in sidelength, and only a minority of the attested clay tablets are larger than that. The largest clay tablets with text measure ca. 30 × 20 cm.

⁷⁴ The Ur III Girsu tablet HSM 6388 (MVN 11: 91: rev. 1–4; P116105) appears to be a preliminary draft or note. It contains several blank spaces, unrelated numbers below the drawn lines, and erased lines between the inscription.

⁷⁵ Steinkeller (2004: 76) transliterates and translates the following: “60 + 10 × 3(bùr) 4(iku) gána a-ša₄ Ambar-Lagaš^{ki} ii-um-ta mú-a im-ma-an-tur NI-da mu-ni-gíd, ‘the field Ambar-Lagaš has ‘grown’ (in the records) by 90 bur (and) 4 iku of land since the (preparation of the) wooden tablet. It has now been reduced (in the records). NI-da had measured (it) out (originally)”.

⁷⁶ MVN 11: 91: obv. 1–4 says: [x] ‘iku’⁷ a-ša₃ maḥ [x]-x i₃-dab₅ ‘Ni¹-da mu-ni-gid₂ en₃-bi tar-re-dam, “[...] iku of the large field [...] he seized. Nida has measured it out (or extended (?) it). It has to

5.1.5 The Archiving of *le-ums*

Three Ur III lists of objects from Umma, UTI: 4 (274.7 I. 70; Ist Um 2870) obv. 6, MVN 13: 241 obv. 5, and MVN 16: 797 obv. 1–4 list “reed basket[s] for writing boards” (and clay tablets).

5.2 Writing Boards in the 1st Millennium

After demonstrating the diverse functions of writing boards in the southern Babylonian administration prior to the Kassite period, we will now briefly demonstrate their utilization in the post-Kassite era to look for parallels to the Kassite sources discussed above. According to Neo-Assyrian and Neo-Babylonian textual sources, long literary series and administrative lists were written on writing boards. A number of colophons indicated that Neo-Assyrian literary and scholarly texts, such as the astrological series *Enūma Anu Enlil*, were copied from writing boards (San Nicolò 1948: 63). According to the cover of the Nimrud writing boards for the royal library of Sargon II, they were inscribed with *Enūma Anu Enlil*. Based on the preserved inscribed flakes of wax Wiseman (1955: 7–8) calculates that the whole volume of *Enūma Anu Enlil* could have been written on the complete set of the polyptich leaves. An inventory from the library of Assurbanipal, which is from the 1st millennium BC, contained at least 1441 clay tablets and 69 polyptichs; as the inventory is damaged, Parpola (1983: 4, fn. 11) calculates that the library may have contained 2000 clay tablets and 300 wooden writing boards (Cammorosano, Jendritzki, and Streckfuss 2019b: 132; fn. 109; Parpola 1983: 4, fn. 11; Volk 1999: 287).

The mentions of writing boards in 1st millennium textual sources align with the administrative function seen in the Middle Assyrian period and, possibly, during Kassite use for recording goods and workers. In the Neo- and Late-Babylonian period, there are countless references to the use of writing boards in the palace and temple administration⁷⁷ as “real running accounts – the ledgers” (Jursa 2004: 170;

be examined”. The verb **gid₂** can both mean “to measure” (“mesurer, faire un mesure”) as well as explicitly “to lengthen/extend a building (“rallonger (un bâtiment)”, see Attinger (2021: 409).

⁷⁷ The following accounting practices involving writing boards are attested on Neo-Babylonian clay tablets from the temple context:

1.) the transfer of information from clay tablets to writing boards: some Neo-Babylonian debt notes and receipts contain the stipulation that the payment shall be noted on the “writing board of Šamaš”, and that this entry shall be confirmed in writing and given to the debtor (or his representative), or allow the debtor inspection of the entry on the writing board (Jursa 2004: 174).

2.) the transfer of information from writing boards to clay tablets: information was *ina/ša muḫḫi lē'i nashū*, “withdrawn” from the writing board, and copied onto a clay tablet; *nasāḫū*, to “withdraw”

Volk 1999: 287).⁷⁸ These mentions in the Ebabbar and Eanna archives attest to their use as registers of agricultural land, temple personnel, silver/gold, rations, material issued for the preparations of food offerings and prebendary income, accounts of livestock, various agricultural dues, an income derived of house rentals (Jursa 2004: 172).⁷⁹ Each writing board focused on transactions of a single type (e.g. rents, tithes, gifts, etc., see Jursa 2004: 172).⁸⁰

One notable example, a Neo-Babylonian list of prebendary income “states that the data on that list was not entered on the relevant writing board. From this one can infer that the opposite was the rule, but that exceptions were possible” (Jursa 2004: 174). This is reminiscent of the Ur III and Emar income (and a re-distribution) lists, which note at the end that the received (and possibly re-distributed) payments and levies had not been listed on a wooden writing board (see the examples above) – i.e. the exception from the rule. This highlights a notable consistency in employing

could also express that the corresponding entry on the writing board had been deleted (Jursa 2004: 174; see MacGinnis 2002: 225).

3.)the entering of information on writing boards without its first being entered on a tablet: it seems that occasionally the receipt of a payment of a debt was directly entered on the writing board of the temple, and the entry had to suffice as proof (Jursa 2004: 174).

4.)consultation: several clay tablets mention that a commodity was given out “according to the writing board”, i.e. after consulting a running account of expenditures (MacGinnis 2002: 225).

5)scrutiny: several clay tablets mention that high temple officials carried out investigations which involved the examination of records both on clay tablets as well as wooden writing boards (MacGinnis 2002: 225).

⁷⁸ According to Postgate (1986: 22) the *lê'u*, “(wooden) writing board”, is “well-known in Neo-Assyrian and Neo-Babylonian contexts as a waxed tablet on which long cuneiform texts such as literary series or administrative lists might be written. Without doubt the use of waxed boards explains why there are no vast, many-columned cuneiform tablets from the royal palaces of Nimrud or Kouyunjik, compared with their existence in the Mari or Ebla archives.”

⁷⁹ The sources from the Eimbianu temple in Dilbat distinguish between the *lê'u ša erbi gabbi*, the “writing board of all (sources) of income”, and the *lê'u ša telit gabbi*, the “writing board of all (sources) of expenditure” (Jursa 2004: 173, fn. 70). Because the writing boards mentioned on clay tablets all have a certain category attached to them, usually regarding a type of payment in kind (and fattening feed for animals), they do not appear to have contained a balanced account of debts and credits, such as the large balanced accounts preserved from the Ur III period. Only a few specific types of income and expenditure were recorded on wooden writing boards. Although accounts of livestock, agricultural dues, and land registers were recorded on writing boards, there is no reference to a writing board that contained a central account of the total costs of agricultural production (Jursa 2011: 195–196). Furthermore, no summarizing ledger on the commodities accounted for, e.g. for barley and dates, is referred to. Thus no complete balanced account of all income and expenditures could be attained (see Jursa 2004: 177, id. 2011: 195–196).

⁸⁰ “The writing board for prebendary income, for instance, would have included just that, i.e., a list of all prebendaries entitled to payments under that heading together with information on the current state of their individual accounts” (Jursa 2004: 173).

this writing medium for administrative purposes from the Ur III to the Neo-Babylonian period, supporting my hypothesis regarding the utilization of writing boards in Kassite animal husbandry and labour management.

6 Conclusion: Writing Boards in the Kassite Administration

The evidence discussed in the sections above allows for the following tentative conclusions as for the function of writing boards in the Kassite administration: the few references to writing boards from the administrative letters and the cattle account point to a similar usage as documented in the Middle, Neo-Assyrian and Neo-Babylonian period, i.e. to list conscripted workers and/or their rations, and possibly also herdsmen or cattle. The brief overview of Ur III references to writing boards suggests their use in recording the work quotas of laborers, placing them in a context of labour oversight. This documented usage from the Ur III to the Neo-Babylonian period, with fewer instances from the Old Babylonian period, provides valuable context for understanding their mentions in the three Kassite letters and the cattle account. However, with such a small sample size of references to writing boards from the Kassite period, caution must be applied. BE 17: 51 suggests the listing of *awilūtu*-workforce on writing boards; however, in PBS 1/2: 77, the status of the fathers claiming to be listed on writing boards remains unclear.

The most important limitation of any comparison between Hittite and Mesopotamian scribal and sealing practices, as described above in detail, is that both cultures had access to different natural resources (wood or ivory, beeswax)⁸¹ and may have developed their own, divergent scribal and sealing practices (see Waal's 2012: 287–315 theory that writing boards were already utilised in the Old Assyrian period for legal documents written in Luwian hieroglyphs). However, close trading connections and cultural exchange between the Hittite realm and Assyria are attested. A comparison to the contemporary Middle Assyrian use of writing boards is more feasible, although differences in state organisation and in administrative terminology imply differences in the use of writing material, as well. Comparisons of Kassite (i.e. Middle Babylonian) administrative practice with southern Mesopotamian traditions, i.e. Ur III and Sealand traditions, as described above, are therefore most useful to illuminate Kassite traditions.

⁸¹ In the Hittite kingdom, wood was available, and evidence of apiculture exists. Conversely, in Mesopotamia, the scarcity of wood and beeswax necessitated their importation.

“Considering the abundance of wood in Anatolia in the second millennium BCE, it would be a logical choice for a primary writing material.” Waal (2012: 308).

Here are the key conclusions drawn from the study presented in this paper for the use of writing boards in the Kassite administration:

1. Despite the extreme scarcity of textual references to writing boards, the archaeological depiction of writing boards as triptychs and diptychs on two *kudurrus* dated to the late Kassite king Meli-Šipak (1186–1172 BC) point to their usage.
2. Section 4 demonstrated that writing boards were not only attested in regions in the north and northwest (the Middle Assyrian kingdom, Ugarit, 13th-century Emar, and the Hittite kingdom) of the Kassite realm, but that they are specifically attested for bookkeeping and for overseeing the workforce and military troops, and in the case of Ugarit, were even used as a writing medium for letters. Despite variations in access to materials, the consistent usage of writing boards in contemporary or overlapping periods with the Kassite period supports the hypothesis of their specific use in Kassite administration, albeit possibly to a lesser extent, to oversee the workforce and, perhaps, also the staff managing animals.
3. The Kassite letters BE 17: 51: rev. 5'–9' and PBS 1/2: 77 reveal that *amīlūtu* workers were listed on writing boards and that these writing boards were archived and checked by officials whenever an issue arose. There is little context due to the damage to the Kassite letter CBS 4773, but lines following the mention of the broken *gištū* (CBS 4773: rev. 7'-t.e. l. 2) indicate the distribution of a resource (t.e. l. 2: *lu-za-iz²*), which could refer to the allotment of rations to workers. This invokes certain parallels to Middle Assyrian and Neo-Assyrian evidence of the use of writing boards. Neo-Assyrian clay bullae from Fort Shalmaneser, which presumably sealed writing boards, are inscribed with ERIN₂.MEŠ MAN *áš-ru-te*, the “troops of the king, reviewed” (Dalley and Postgate 1984: 3, 73–75, nos. 21–23). This appears to indicate that the lists of the ERIN₂-troops were “reviewed” and sealed thereafter. Similarly, Middle Assyrian documents termed *lē'u ša PN*, “the writing board of PN”, contained contingents of ERIN₂.MEŠ (work) troops, which belonged to high-ranking officials or the king (see Bloch 2013: 194, fn. 9; Freydank 1974: 55–89, id. 2001: 104). Further, Middle Assyrian writing boards recorded disbursements of corn to dependent work/military troops (ERIN₂.MEŠ) and deported population (Postgate 1986: 23–24). This is a parallel to the alleged presence of prisoners of war in Kassite ration lists for ERIN₂.MEŠ (see Paulus 2014c: 218), which may very well be the context of some of the workforce listed on the Kassite writing board in BE 17: 51, which shows that local *hazzannus* (possibly in the area of Lubdu) controlled *amīlūtu* workers, among which, perhaps, also were Hurrian or other deported servile workers.

The listing of workers on writing boards is supported by sources from the Ur III period: the receipt MVN 16: 797 obv. 1–4, mentions writing boards in reed baskets (together with clay tablets), which are “each (recording ?) the workload of three days”, or “the result of the workload of three days”.

Furthermore, MVN 11: 93 and BM 109149, show that *šuku*, “subsistence fields”, and the current *erin₂* worker who provided a service for the temple or palace (*du₃-du₃-a*), were listed on a *le-um*, a writing board. This is an interesting parallel to the Kassite servile population, the *amīlūtu* or *ERIN₂* workers, listed on wooden writing boards.

Obviously, we cannot simply extrapolate the use of writing boards from Ur III, Middle Assyrian or even the younger Neo-Assyrian sources to the Kassite kingdom. However, a few striking similarities emerge from the comparison of these geographically and chronologically different sources: *amīlūtu* or *ERIN₂.MEŠ* military/work troops were listed on writing boards.

4. As PBS 1/2: 77 illustrates, writing boards were considered to be a reliable source, which was reviewed or checked whenever an issue arose. In case the men allegedly listed on writing boards in PBS 1/2: 77 are Kassite servile workers, just as the workers on writing boards mentioned in BE 17: 51, it is possible that these lists of *ERIN₂.MEŠ* workers on writing boards were sealed after a review, as the Neo-Assyrian clay bullae may imply (see above point 3).

The fact that writing boards could be considered the authoritative source compared to a clay document is supported by three third millennium sources from the Ur III period: MVN 11: 91 (HSM 6388; P116105) states that someone had changed field sizes after they had been copied from a writing board; this indicates that the writing board was considered to be the reliable source, which was checked and compared with the copy. Accordingly, two Ur III documents (TJA pl. 53, IOS 15 and UET 3, 1097) may indicate that data from primary documents, such as receipts, was copied onto running accounts on writing boards, and not vice versa. This means the more authoritative record was considered to be the writing board, and not the clay document.

Similarly, 13th century Emar inventories or notes and a Neo-Babylonian list of prebendary income (see Sections 4.2.2 and 5.2 above) imply that usually incoming goods or expenditures were listed on wooden writing boards that were checked before compiling clay documents – the exceptions from this apparent normal practice were noted on the preserved clay documents. Thus, evidence from the 3rd millennium, contemporary material from a distinct region, and later sources in the 1st millennium collectively reinforce the hypothesis that writing boards were considered a dependable source of information in the Kassite period. In light of this context of three millennia, the Kassite letters BE 17: 51 and PBS 1/2: 77 suggest that Kassite lists on wooden writing boards, possibly detailing rations or the servile population, were deemed highly reliable for verifying claims about information spanning a minimum of 50 years.

5. The possible sealing of writing boards, which prevented alterations and could give them legal authority, cannot be ruled out in the Kassite period. I had suggested that the writing boards mentioned in *kudurru* inscriptions could have contained the sealed *ammatu* document, a land survey document⁸² sealed before witnesses (Zimmermann 2023: 83–97). Since land surveys were traditionally done on writing boards, as it is, for example, attested in the Ur III period (see e.g. MVN 11: 93 and BM 109149) under Šulgi, this is a possible hypothesis. The observed appearance of stamp seal impressions in the late Kassite period could be attributed to the sealing of clay bullae, which were not only used to seal goods, but also writing boards, as it is assumed in the Neo-Assyrian period. The practice of sealing writing boards is the subject of intense debate within the fields of Hittitology and Assyriology.
6. Writing boards were used in the management of livestock, as indicated in BE 15: 199. The context provides some support for the premise that writing boards contained lists of herdsmen and/or transfers of cattle. Their use in the context of sheep herding may also be hinted at in the Middle Assyrian sources (see above Postgate 1986: 24 regarding KAJ: 120 and VS 21: 19).
7. The Kassite letter CBS 4773: rev. 7'-t.e. l. 2 attests to the breaking of writing boards.
8. The use of writing boards is attested in the palace or temple administration in southern Mesopotamia since the late 3rd millennium, i.e. since the Ur III period (see above). The origin of their use, whether imported or developed in Babylonia, remains unclear. This is further complicated by debates about the earliest use of writing boards in Anatolia (see above) and the temporary extension of the Ur III influence into south-eastern Anatolia (see Lafont 2009: 2). Even though apiculture never took hold in Mesopotamia, beeswax was available and its use is attested, for example, both in the Ur III and Kassite period. The fact that both wood and beeswax had to be imported indicate that writing boards were a luxury product only available to officials working for wealthy institutions, such as temples or palaces (see Zimmermann 2023: 58). Perhaps, the worth of the imported raw materials contributed to their authoritative status in the administration.
9. PBS 1/2: 77 demonstrates that writing boards were archived for at least 55 years (or even more than 76 years, according to Hölscher 1996: 56, 108, 149, 156, 158). This finding shows that writing boards were used as a lasting writing medium. The Middle Assyrian sources tell us that officials were able to look up entries on “earlier” and “later” writing boards (see above KAJ 260 and MARV 4: 27) as well. In the first millennium writing boards were considered to be a permanent medium both for administrative and scholarly texts (Cammarosano, Jendritzki, and

⁸² The materiality of writing boards, i.e. that they could be of a larger format without breaking, that drawings could be incised in more detail in wax, and that they were lighter and easier to carry when measuring fields (Heisel 1993: 51–52), makes them more suitable for land surveys than clay tablets.

Streckfuss 2019a: 124; Finke 2003: 58; Jursa 2004: 170–178; Kozuh and Nielsen 2021: 148–145; Parpola 1983: 4; Robson 2019: 126; Zimmermann 2023: 58). PBS 1/2: 77 is an indicator that this was already the case in the second half of the second millennium BC in Babylonia.

The longevity of Kassite writing boards contradicts Mora (2010: 96–97) and van den Hout's (2020: 224) belief that writing boards were destined for ephemeral notes, although their arguments notably concern Hittite writing boards, not Kassite ones.

As most authors agree (see §11.3), wooden script carriers are typically used for ephemeral business. Now, with seals of the last known Hittite king Suppiluliuma II of around 1200 BC as the most recent items in the collection and the charters of Telipinu from the end of the sixteenth century BC as the earliest, the total time span amounts to about 400 years. Judging by the earliest seal impressions on the bullae and clay lumps from the reign of Suppiluliuma I (ca. 1350 BC) onwards some of the wooden tablets would have been about 150 years old. (van den Hout 2020: 224)

The fact that most wooden writing boards are not archaeologically attested has led to the misconception that already in antiquity wooden writing material was considered to be ephemeral. Just because most writing boards were not preserved over several millennia does not indicate that a writing board, which was archived in a reed basket or shelf of a palace or temple, could not last several centuries. The Ur III and Kassite references above prove that even after more than half a century writing boards were considered to be authoritative sources. The archiving of writing boards in reed baskets together with clay tablets is already mentioned on three tablets from Umma from the Ur III period.

The origin of this misinterpretation is that writing boards had different qualities than clay tablets as a writing material: additions to a list in wax could be added after hours, days or longer periods, as San Nicolò (1948: 65–66) had already emphasised in 1948. The biggest advantage of wax over clay is the possibility to add to a list after days or months (see Zimmermann 2023: 58). This made writing boards suitable for running accounts (see also Cammarosano, Jendritzki, and Streckfuss 2019a: 124–125). It may be the reason, why conscripted workers and their work pensus or rations were listed there, as entries could be continuously amended or added, if death, illness, non-attendance, escape or disobedience caused shortfalls. Clay tablets from all three millennia of Mesopotamian history show that scribes attempted to write on already dried clay, whenever a period of time had passed between the entries, such as when they had to wait for yields or astronomical phenomena. The flexibility of the writing material wax (as opposed to clay), however, should not be mistaken as a proof that writing boards – and

especially already existing entries – were constantly amended.⁸³ The fact that they were apparently checked when a problem arose indicate that the entries were deemed reliable. Additionally, sealing the writing board prevented alterations (see above) and made writing boards suitable for contracts – even if one could not read the contents as it was possible on clay envelopes (see MacGinnis 2002: 223; Symington 1991: 11).⁸⁴

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83 See also the evaluation of the role of wax boards as compared to other media by Cammarosano, Jendritzki, and Streckfuss (2019a: 124–125).

84 “There are distinct advantages in (waxed) writing boards over clay tablets: they were lighter, less fragile, they were easily updated and could be re-used. On the other hand writing boards were relatively expensive to produce and their written contents could be easily falsified, hence the references to wooden documents being sealed” (Symington 1991: 11).

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