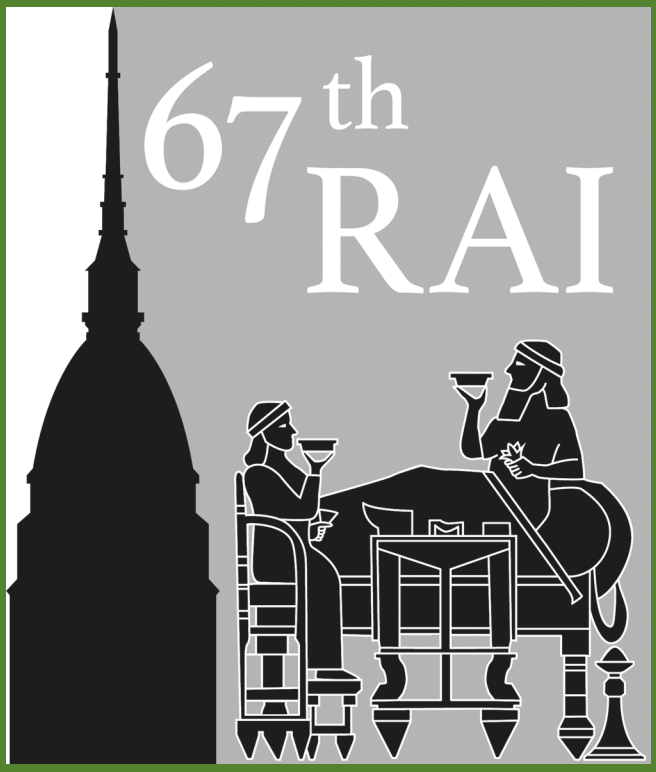

Eating and Drinking in the Ancient Near East

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Some Notes on the Role of Waxed Boards in the Historical Development of Early Mesopotamian Bookkeeping

Massimo Maiocchi[*]

1. Introduction

An administrative system, be it ancient or modern, does not exist in a void – it is deeply conditioned by environmental, technological, and social factors. Accordingly, it is only through an interdisciplinary approach that takes in due consideration the complexity of human interactions with its ecological premises that one may make sense of the problem of administration in antiquity, especially when it comes to the management of alimentary items. The foundations for such study have already been laid in the past 50 years, thanks to important contributions tackling the questions from various angles.[1] Still, the topic of administration, broadly understood, remains a hot one nowadays, due to constant advancement in methodologies for landscape archaeology, artifact analysis, and the ever increasing amount of epigraphic data available to modern scholars. For reasons of personal competence and in the interest of time, the scope of the present contribution is limited to the interplay of technological aspects, written records and administrative patterns, mostly belonging to late third millennium BCE southern Mesopotamia.[2] More in detail, the impetus for this paper came from the recognition that the terminology involved in the cuneiform sources dealing with alimentary items is rich and poorly studied.

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[*] CNRS Nanterre.

[1] The literature is vast, see many contributions in Lipiński, 1978; Zaccagnini, 1981, in turn drawing on Weber and his school; Gibson / Biggs, 1991; Brosius, 2003.

[2] The primary sources one may study are in fact not merely linguistic in nature: evidence from the archaeological record, such as cretulae from the prehistoric period onward, provide us with a complementary set of data very relevant to such an inquiry (Fiandra / Frangipane, 2007). Architectural analysis is also very important, in order to achieve a better idea of how the facilities for the processing and storage of primary production worked in antiquity, with special reference to the spaces where the distribution of food and commodities occurred.

2. Administrative procedures: selected evidence from the Ur III period

The richest data set comes from the Ur III period, which will serve as a case study. Let us consider here a cuneiform text from Ur dated to the early reign of Ibbi-Suen, concerning dates:

> **UET 3 1097**: 60 liters of (dried) dates (zu_2-lum): PN_1; 60 liters: PN_2; 60 liters: PN_3; 60 liters: PN_4: PN_5 the garden manager (santana);[3] 60 liters: PN_6; 60 liters: PN_7; 60 liters: PN_8; 60 liters: PN_9: PN_{10} (=PN_9) the garden manager; 240 liters: PN_{11}: PN_{12} the garden manager. Total: 720 liters of dates, delivery of the gardeners (nu-^{ĝeš}kiri$_6$-ke$_4$-ne). On behalf of Šulgi-iriĝu [PN] received (the items). Via Ur-mes, the sukkal-official. Expenditure, month Šu'eša. Year following the year "the great wall was built" (=Ibbi-Suen 7). (These items) were not accounted for (as debit) on waxed wooden board(s) (le-um-ma nu-ub-ĝar).

The tablet most likely stems from secondary context in the monumental area, within the Dublamah building (Widell, 2003: 91–95, 98; Jacobsen, 1953: 125–126). It belongs in a large miscellaneous group of roughly 1.100 texts related to an institution named e_2-kišib$_3$-ba – a very large administrative unit in charge of the management of the granary, as well as of agricultural and animal products, raw materials and finished products (Widell, 2018: 28, 31).

It appears that the figures in our text are all round. This is almost certainly due to the fact that the tablet does not record the actual production of dates for the given year. Instead, it reflects the administrative point of view on such matter (Steinkeller, 2004). In other words, it is to be considered as an administrative fiction, providing data which may be inaccurate in the eyes of modern scholars, but acceptable to the officials in charge of the management of alimentary items in third millennium BCE. One may reconstruct the events in the tablet under present scrutiny as follows:

1. Income of dates: sometime before this very tablet was produced – possibly months – the garden managers deliver a certain amount of dates to the e_2-kišib$_3$-ba bureau.
2. Delivery request: Šulgi-iriĝu, which is located somewhere far from the administrative center in Ur, is to get 3 gur of dates. He is either not able to reach the local institution there via a direct channel, or he reached first another storage facility, which ran out of goods and redirected him to the e_2-kišib$_3$-ba. A man named ⌜x⌝ is therefore sent to carry out his request.

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[3] For an understanding of santana-officials in terms of garden managers within the provincial administration system see Greco, 2015: 88–114; 292–297. See Greco, 2015: 44 for nu-^{ĝeš}kiri$_6$ as a designation of skilled personnel perfoming work in gardens. On gardens see further Focke, 2015.

3. The bureau acknowledges the request, and produces the tablet under present scrutiny: its immediate function is to explain, in case of inspection, the fact that 3 gur of dates are not at hand anymore. The now missing dates are also supposed to be annotated on a waxed wooden board, but for some reason this turns out to be impossible.
4. Finally, the e_2-kišib$_3$-ba sends Ur-mes as intermediary in the shipment of dates to ⌜x⌝. In turn, ⌜x⌝ will deliver the items to Šulgi-iriĝu.

Some comments on the individual points outlined above are in order.

1. We do have at hand the primary sources concerning income of dates.[4] Contrary to UET 3 1097, the amounts of dates in such records are not rounded up or down.
2. The man operating on behalf of Šulgi-iriĝu should have with him a mean to verify his identity, as well as the one of Šulgi-iriĝu – ideally in the form of a sealed document, which however has not been recovered from excavation.
3. This and similar documents have also a long-term function, as primary sources for the redaction of balance accounts covering several years, or for the estimate on production for the years to come.
4. If this reconstruction of the events is correct, it is conceivable that the full set of documents involved in the delivery of dates included: sealed cretulae on dates containers to be opened by the e_2-kišib$_3$-ba official in order to get the dates in the storage area; the original request of dates by Šulgi-iriĝu; a document proving that ⌜x⌝ (be it a PN or institution) acts on the behalf of Šulgi-iriĝu (this may be in the form of a cylinder seal, a sealed document, or the like); tags attached to the actual dates containers, stating the provenance and exact amount of the items being shipped, and possibly mentioning Ur-mes as well. Although this is not stated in the present text, copies of the documents issued to the recipient may be produced in the e_2-kišib$_3$-ba as well, as stated in another tablet from the same archive.[5]

A question may arise at this point: why did the scribe produce a document with both incoming and outgoing items in the first place? The answer is that this practice must be useful for accounting purposes, namely to keep track of goods whose data are to be entered in the waxed wooden boards containing running accounts.[6] In fact, the colophon of UET 3 1097 implies that such boards were regularly used as accounting tools in daily scribal practice. When this very tablet was written down, something unexpected must have happened, prompting the writer to be more explicit than usual on the nature of the procedure.

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[4] See for instance BBVO 11, 279, income (mu-ku$_x$(DU)) of [x]+4 gur and 150 sila of dates from Ur-Baba, sealed.

[5] SAT 3, 2027, l.e.: gaba-ri kišib$_3$ ga-ti-e.

[6] Cf. Jursa, 2004: 179 wn 79 for a similar conclusion based on first millennium evidence.

3. Waxed boards in the late third millennium BCE

The only archaeological evidence concerning waxed boards from the third millennium BCE is presently limited to the possible representation of such devices in two Gudea's statues (B and F).[7] The earliest textual reference to a waxed board (le-um) is dated to the same period, being mentioned in Gudea's cylinders (cyl. A v 3 and vi 4). There, the context is clearly not representative of daily practice: the object is in fact made of lapis lazuli (za-gin$_3$), and is being held by the god Nin-dub(a). The board is told to contain the plan of the new temple to be erected for the god Ningirsu. As for the use of such devices in administration, the earliest evidence dates back to the Ur III period (Molina / Steinkeller, 2023: 29–37). In such context, le-um objects must have been made of a wooden frame containing a malleable substance, presumably a mixture of wax and ochre (or orpiment), as in later periods.[8] Waxed wooden boards are in fact rarely attested in Ur III documents. However, it appears that they played a key role in daily bookkeeping practices, as suggested by the technical lexicon associated with them. The actions of entering, removing, and checking information (see discussion below) speak in fact for a complex system, featuring both complementarity and redundancy of data.

3.1 Transfer of information

The technical term expressing the transfer of information is dib, which is equated with both Akk. *bâ'u* "to walk along, to go through, etc." and *etēqu* "to pass along, through, by, etc.". The meaning "to transfer" belongs to the Š forms of both roots, although it seems that the G form of *etēqu* may also be used in first millennium sources to express such a meaning, perhaps with a nuance that however remains difficult to clarify (see examples in CAD E, 386 s.v. *etēqu* A c) 4'). As for dib, it

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[7] Cammarosano *et al*., 2019: 129–130. The interpretation rests on the identification of the associated styli as spatulae, as well as on the fact that the boards bear an architectural plan, which is in agreement with textual information (see infra).

[8] As in the famous ivory boards from Nimrud, dated to the eight century BCE (Cammarosano *et al*., 2019: 153–154). As a substance, wax was known in Mesopotamia at least since the Sargonic period, as one may infer from the fact that the bronze statues of Sargonic kings were in fact made using the lost wax process. However, no evidence from such period points to the use of wax for other purposes, most notably as a writing medium. Indeed, the very word for wax – Akkadian *iškurum*, possibly a foreign word, also written logographically as LAL$_3$.HUR e GABA.LAL$_3$ in Old Babylonian sources – never occurs in textual sources from before the Ur III period (see most recently Molina / Steinkeller, 2023: 29–30 with previous references). Of course, one may imagine that the substance used in the boards was not actualy wax, but a surrogate (Steinkeller, 2004: 76 wn 18) – this is however not relevant for the present discussion. Experimental results by Cammarosano *et al.*, 2019: 157 show that the use of tallow is excluded, but this does not rule out other options.

occurs in the colophon of two tablets, namely MVN 11, 93 (BDTNS 24222, P116107) rev. 17 and ASJ 19, 138 122 (BDTNS 44687, P102679) rev. ii 10. Both documents record data concerning subsistence plots (šuku du_3-du_3-a), which are told to have been transferred from the waxed wooden board (le-um-ta dib-ba). The action presumably implies that the information on such devices was subsequently erased.

3.2 Checking information

The verb gi-in = Akk. *kânu* "to be firm" is used to refer to the action of verifying the content of a document. It is attested in TJA pl.53, IOS 15 (BDTNS 14315, P134109) rev. 2: (sheep) not checked against the waxed wooden board (le-um-ma nu-ub-gi-in). The presence of the negative prefix nu- seems to suggest that the norm in Ur III administration involved (cross-)checking of the content on waxed wooden boards and clay tablets.

3.3 Entering information

3.3.1 As debit

The technical term referring to the action of entering information as credit is ĝar "to place (as debit)". It is attested in UET 3 1097, left edge: (dates) not placed (as debit) on the waxed wooden board (le-um-ma nu-ub-ĝar). One must note the technical nature of the terminology implied here. In fact, the action of "placing" information (ĝar) concerning alimentary items has a more nuanced meaning compared to the action of "writing" *tout court* (expressed by sar = Akk. *šaṭāru*).[9] This applies also to the Akkadian equivalent of ĝar, namely *šakānu* (see CAD Š, *s.v.*, lexical section, 116–119), whose basic meaning is again "to place", but in technical context it means "to deposit into an account", and "to charge to someone, to debit".[10]

3.3.2 As credit

The verb for entering information as credit is tur = Akk. *ṣeḫēru*, whose basic meaning is "to be small". Again, the term must be interpreted in technical context as "to count as credit" (CAD Ṣ, 120–121), *i.e.* in complementary sense to ĝar (see above 3.3.1). It is attested in MVN 11, 91 (BDTNS 24220; CDLI P116105), rev. 3: (land) deducted (as credit) from the waxed wooden board (le-um-ta mu_2-a im-

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[9] Verbal forms belonging to **škn* and **šṭr* alternate in mathematical texts from later periods as well. There, the former root may also have a precise technical meaning, but its nature remains difficult to ascertain (Høyrup, 1990: 57–58).

[10] Also "to add to", and (mostly in the stative) "to be present, exist, be available, to be located at a certain spot". In addition, one notes the existence of the expression *ina ṭuppi*/*kanīki šakānum*, which is comparable with the above mentioned expression le-um-ma … ĝar.

ma-an-tur).[11] Quite interestingly, MVN 11, 91 features several erasures, as well as a set of cuneiform numbers in an otherwise large uninscribed space. Apparently, something went wrong in the standard procedure, forcing the scribe to double check calculations, as well as to provide an explicit mention of the current status of the waxed wooden board. This implies that such device was commonly used for acconting purposes within local administration.

3.4 Further remarks

Interestingly, the operations described above are attested not only with reference to waxed boards, but also to DUB-objects,[12] clay tablets (im),[13] and in connection with technical terms related to accounting practices.[14] Accordingly, the specificities of waxed wooden boards with respect of other media are not as clear-cut as one may think in the first place. This is overwhelmingly clear in first millennium administration, where transfer of information is bidirectional from clay to wax and the other way round.[15] Although it is difficult to state a final word on such matter, the advantage of the waxened boards over clay tablets would be that it meets all the following criteria at the same time: 1) under the right conditions, the medium remains indefinitely writeable; 2) it is easy to carry around and trans-

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[11] For a different interpretation see most recently Zimmerman, 2022: 41 (size of land being reduced).

[12] Here I intentionally avoid the translation "(clay) tablet" for DUB, which is commonly found in Assyriological literature. The reason is that DUB may refer not only to clay tablets, but to different inscribed objects as well, depending on the textual corpus where it occurs, as well as on context, an analysis of which is beyond the purpose of this paper. The disambiguation between the possible readings of DUB as dub and kišib$_3$ "seal, sealed document" is also often difficult, and it must be made on a case by case basis, therefore further complicating analysis. In this regard, it must be stressed that the current understanding of DUB as either dub "clay tablet" or kišib$_3$ "seal" is flawed by a *tertium non datur* fallacy. A cursory overview of the evidence from the Sargonic period onwards in fact reveals that DUB may refer to any type of inscribed artifact or medium (see preliminarly examples quoted in CAD Ṭ, 129 ff. *s.v. ṭuppu* A). This fact allows for a broader meaning for DUB, in terms of "document" or "insciption" of any kind, including those on perishable media. On the basis of this simple (albeit often neglected) evidence, an in-depth re-analysis of all occurrences of this term is needed, in order to avoid the risk of cyrcular arguments and unwarranted assumptions. The present contribution is agnostic in such respect, therefore maintaining DUB as preferred reading.

[13] See for instance: SNAT 506 rev. 4 (fields): im-bi nu-ḫa-la nu-gi-in; SANTAG 6 115 rev. 6: im tug$_2$-ba e$_2$-gal-ka nu-ub-gi-in.

[14] In terms such as "account" (niĝ$_2$-ka$_9$), "capital amount" (saĝ), and "balance section" (ugu$_2$), see for instance: UET 3 295 obv 5: DUB-ba-ni nu-ta-tur; SNAT 390 rev 2: niĝ$_2$-ka$_9$ ak-bi nu-u$_3$-ta-tur; ASJ 2, 20 58: rev. 11: ⌜ugu$_2$⌝-a nu-u$_3$!(DIB-)ĝar; BBVO 11, 299, 6N-T827: rev. 1: niĝ$_2$-ka$_9$ nu-u$_3$-ĝar; BPOA 6, 1293 obv. 6: saĝ-bi nu-u$_3$-ĝar-še$_3$.

[15] MacGinnis, 2002: 223–227; Jursa, 2004: 174–178.

port;[16] 3) its writing surface may be extended adding further "leaves" to a polypticon;[17] 4) one may seal a very long document contained in a polypticon with a single seal, instead of having several tablets to be individually sealed. Of course, clay tablets are also easy to transport and under the right conditions remain writeable, but these two properties do not happen at the same time – if one is to carry a tablet while still wet chances are that the readability of inscription might be affected. The above-mentioned characteristics make waxed boards ideal for running accounts and field surveys, as attested in cuneiform sources. On the down side, it must be noted that wax in the late third millennium BCE was a quite expensive commodity, albeit well within the fiscal capacity of Ur III administration.[18] However, the potential re-usability of waxed boards may contribute in lowering the final cost. The fact that access to wax was limited may actually be used as an argument in favor of its adoption for official purposes, as it was arguably harder to produce a fake le-um than a fake clay tablet, but this remains speculative.

4. Conclusions

Although the very introduction of le-um boards in Gudea's time seems intimately connected to architectural drawing rather than writing down administrative data, the use of such devices within Ur III bureaucracy appears to be restricted to the annotation of primary production and related matters, i.e. alimentary items and subsistence land. The reason perhaps lies in the fact that such information is more prone to changes of contingent nature, therefore forcing administration to frequently update its global records. Of course, generalizations should to be avoided when dealing with accountable systems in antiquity, as each archive shows its own features and quirks. However, it seems that by the very end of the third millennium BCE bureaucracy in southern Babylonia entered a phase characterized by a continuous mode of accounting, long time reporting to a higher authority (possibly indefinitely), as well as a punctual mode of control, meaning that each person in the operational chain has to justify its activities on the spot, if need be, on the basis of official documents. The new accounting mode makes sense only on the premises hinted at in the beginning of this paper: without the long process of selection of alimentary items suitable for long term storage, and the development of technologies for food processing such system can't possibly develop. A system that aims at tracing every single step in the movement of products does so not only in order to maximize efficiency, but also to avoid frauds, which were perhaps the norm. Cultural factors may thus contribute significantly in the establishment of an intensified administration, as outcome of the long term interactions

[16] As noted by Zimmermann, 2022: 7, 42 wn 69.

[17] A set of 18 dyptich boards (^{ĝeš}li$_2$-u$_3$) is attested for instance in PPAC 5 400 obv. 3.

[18] $^1/_2$ shekel of silver for 1 mina of wax, as noted by Volk, 1994: 284.

between the urban phenomenon and its landscape, which started more than a millennium earlier, in the Uruk period.

The introduction of waxed wooden boards at the end of the third millennium BCE must be framed as a technological response to the need of such an intensified bureaucracy. The same is probably true for other innovations brought about by the Ur III dynasty, such as the frequent use of envelopes, and seal impressions on clay tablets, which is a huge topic which would require more space than it is here permitted. Suffices to say that without such developments the system probably loses an important boost and a sharp mean of control, reverting to a looser regime, as for instance the one in use during the Sargonic period. In turn, le-um boards must be framed in a larger bureaucratic space, whose material culture reflects the complicatedness of human social relationships. Although many features of the Ur III administrative system were already operative in the Early Dynastic period, it is only in the last century of the third millennium BCE that administration appears not only mature, but also robust in terms of dealing with possible issues. This is achieved by technological innovations, introduction of new procedures, as well as by an increased redundancy in document production, especially when it comes to the administration of alimentary items.

Finally, the use of waxed boards brings about cognitive implications as well: the ease of adding, removing, and replacing information in such devices impacts on the practitioner's vision of the administrative world. Fictional as it may be, this deeply interpreted reality results in a much more dynamic entity, compared to the fixity of records on clay and other media. Whereas the perception of past administrative events was certainly strong since the very introduction of writing and accounting, it is only in the late third millennium BCE that the present dimension of accountable procedures emerges with clarity to the eyes of the administrators, as in a constantly up-to-date snapshot of what goes in and out of their sphere of competence. In it, I see a huge leap forward in the long process of externalization of human thought. The ability of creating indexes and conceptual bridges within live data was essential to navigate the complex layers of administration in the Ur III period, as it is in our own society.

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