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An Ivory Rod with a Cuneiform Inscription, Most Probably Ugaritic, from a Final Palatial Workshop in the Lower Citadel of Tiryns

Archaeological Context and Description of the Object

In 2002 and 2003 the investigation of an architectural complex situated in the northernmost part of the Lower Citadel of Tiryns was resumed, which had been partially excavated and designated as Building XI by Klaus Kilian¹. According to the results of the new excavation this building had been in use only for a very short time of the palatial period. Building XI was constructed at the beginning of sub-phase LH III B Final as part of an architectural program radically restructuring the area of the northern tip of the Lower Citadel. In the course of this program the North Gate was inserted into the Cyclopean fortification and Buildings XI and XV separated by a passage way leading to this gate were created (fig. 1). However, already at the end of LH III B Final both buildings were destroyed in the general conflagration of the palatial settlement in the Lower Citadel².

Besides the three rooms (Rooms 78 a, 78 b and 78 c) already known from Kilian's excavation³ two additional rooms of Building XI were identified in the new investigation (fig. 1: Rooms 1/02 und 4/02). In contrast to Rooms 78 b and 78 c which had been completely uncovered by Kilian, only the western part of Room 78 a was touched by the earlier excavation. In this part of the room Kilian uncovered a fireplace in and around which a find assemblage sealed by the destruction debris at the very end of LH III B Final came to light⁴. Among the finds were one small fragment of thin gold foil⁵, a knob-shaped terracotta object with a tiny piece of gold foil adhering to its surface⁶, one small fragment of sheet bronze/copper, and three tiny lumps of bronze/

1 Kilian 1984; Kilian 1988. The authors would like to thank Dipl.-Arch. Maria Kostoula for taking the photographs and remastering them as well as for preparing the plan and the graphics of the reconstructions of the inscription. Thanks are due to Klaus Messmer for inking the pencil drawing of the object by Joseph Maran. To Dr. Olga Krzyszkowska we are very much indebted for visiting Tiryns in September 2010 and identifying the material of the object. We are grateful to Prof. Dr. Eva Cancik-Kirschbaum (Berlin), Prof. Dr. Peter Miglus and Prof. Dr. Joachim-Friedrich Quack (both Heidelberg) for helpful suggestions on literature dealing with Ancient Mesopotamian and Egyptian

metrology. The research undertaken by Joseph Maran was carried out within the framework of the Heidelberg Cluster of Excellence »Asia and Europe in a Global Perspective«.

2 For a comprehensive report on the results of the recent excavations see Maran 2008.

3 Kilian 1984; Kilian 1988, 111.

4 Kilian 1984. For an overview of the finds see Rahmstorf 2008, 240f.; Kostoula – Maran (forthcoming).

5 Rahmstorf 2008, 241 no. 1739. Two additional pieces of gold foil were found in the neighboring Room 78 b.

6 Kilian 1984, fig. 3, 9; Rahmstorf 2008, 83 no. 1786; 241.

copper⁷. During the new investigation of the remainder of Room 78 a additional objects of the room's inventory were recovered: The find assemblage included four fragments of faience vessels, a small lump of lead, a grinding stone, two bronze/copper tools as well as fragments of at least two wall brackets⁸.

However, the most extraordinary object from Room 78 is the fragment of a cylindrical rod with a preserved length of 3.7 cm and a round section with a diameter of 1.0 cm (figs. 2, 3)⁹. According to Olga Krzyszkowska, who kindly agreed to inspect the object and identify its material, the rod is made of hippopotamus ivory (fig. 2). Its original length cannot be determined since only one flattened and polished end on its right¹⁰ side is preserved. Originally, the rod had a carefully smoothed and polished surface, which, at its best preserved part, shows a sequence of six cuneiform signs cut into it¹¹. On the side opposite to the inscription the surface has to a large degree flaked off, but in the places where it is preserved, there are no traces of additional signs.

J. M. – M. V.

Reconstructing the Inscription

The extant form of this inscription¹² includes five legible cuneiform signs (or portions of signs) and the unclear traces of one additional sign (the six signs are numbered 1–6 in the drawing below [fig. 3] and will be so designated throughout this discussion). There is no extant physical evidence for any additional signs. While the reconstruction below at the beginning of the inscription seems quite plausible (see section I.1 below), the physical condition of the rod at the end of the inscription and its polished right side indicate that there were apparently no additional signs after the letter *t* (sign no. 6). This inscription may be best reconstructed and interpreted according to either of the following two reconstructions (A and B immediately below) together with either of their two respective interpretations (see section III below):

7 Rahmstorf 2008, 240 f. no. 362.

8 For a comprehensive list of objects and their exact find-spot in the Building XI see Kostoula – Maran (forthcoming).

9 The artefact was found during the campaign 2002 in square LXIII 34/91 and inventoried as Ti 02 LXIII 34/91 VI d12.80 with the other small-finds of that year in the Tiryns-storerooms.

10 The object can be oriented according to the direction of the inscription which runs from left to right.

11 While the rod fragment was recognized during the excavation, thus allowing a three-dimensional documentation of its find position, at the moment of discovery the object was regarded as a regular bone tool. After the object had been cleaned, Melissa Vetter became aware of the signs and raised the possibility that they may represent cuneiform writing. After a thorough inspection of the object by the authors in August 2005 only the six marks were identified as representing cuneiform signs.

The following scars and scratches on the surface of the object (cf. fig. 2) constitute in our view damages or natural cavities and are thus omitted from the discussion of the cuneiform signs and not included in the drawing (fig. 3): First a short and nearly horizontal elongated scar to the right of sign no. 2. Second, a short, oblique scar immediately below sign no. 5. Third, a long, oblique scratch running from the leftmost tip of the upper wedge of sign no. 6 downwards.

12 I hereby offer my heartfelt gratitude to Prof. Dennis Pardee of the Oriental Institute at the University of Chicago, who spent many hours looking over the photographs of the Tiryns inscription and answering many of my questions based on his widespread experience in the reading of the Ugaritic texts. Prof. Pardee also gave me some important detailed responses to an earlier version of this paper, which resulted in extensive modifications in the present version. Of course, Prof. Pardee bears no responsibility for any remaining shortcomings.

I. Notes on the Two Possible Reconstructions

I.1. The signs at the beginning of the text appear to be in the MB Akk. script which was commonly used for the writing of numbers in Ug. alphabetic texts from Ugarit and Ras ibn Hani¹³. This is apparently the first attestation of such logographic writing of numbers in a Ug. text found outside of Ugarit or Ras ibn Hani. Since numerical units are written in descending order, the second visible vertical wedge (sign no. 2 before the two *Winkelhaken* signs each representing »10«) must represent »60« (rather than »1«)¹⁴. The first extant wedge (sign no. 1), immediately preceding *me-at* »100«¹⁵, must then be either the end of an *-at* sign (𐎠𐎵) for the end of the word *me-at* »100«¹⁵, or the end of an *-im* sign (𐎠𐎶) for the end of the word *li-im* »1 000«. Since there is no visible trace of a horizontal line through this wedge (as is required for the last wedge of the *-im* sign), the only viable reconstruction is [*me-a*]t. There is of course no way of knowing what number (x) preceded the word *me-at* »100« (even if the minimum number 100 was intended, the sign »1« would still have to be written)¹⁶. Therefore, the suggested reconstruction is [x *me-a*]t »100 x«.

I.2. The last sign (sign no. 6) is best read as Ug. *t*, the unique qualities of which (both paleographically and phonologically)¹⁷ constitute the most crucial evidence identifying this text as Ug. Paleographically, while the letter *t* is written in several different ways¹⁸, the form here seems closest e.g. to the *t* in the word *kt* in KTU² 4.61: 4 (= CTA 143 B: 4) or in both cases of this letter in the word *lt* »three« in e.g. KTU² 4.89: 1 (= CTA 144: 1) and KTU² 4.43: 1 (= CTA 147: 1)¹⁹. In all these cases (and in many more), the upper angle wedge (*Winkelhaken*) part of this sign virtually covers the upper part of the regular vertical wedge, as in the present inscription²⁰.

I.3. With regard to the understanding of the traces of the next to the last sign (sign no. 5) according to reconstruction A, this possibility came to light when the inscription itself was restudied at the site of ancient Tiryns in August, 2005 by the present authors. What was jointly determined was that these traces (together with space considerations) might well be understood as the beginning of another Akk. *Winkelhaken*-sign (= »10«), which the scribe began carving, but stopped in the middle when he realized that the previous two were what was required and the third one he had begun writing was a mistake! In other words, what he realized was in fact correct was the number 100 x + 80 (see the previous section), rather than 100 x + 90 (probably some sort of dittographic error). It was noted materially that the traces of this sign were indeed particularly shallow, which could certainly indicate an unfinished sign, in this case an unfinished *Winkelhaken*! When the complete sign is reconstructed based on the extant traces, the spacing is just what is ex-

13 For this logographic writing of cardinal numbers (together with the Akk. words *me-at* »100« and *li-im* »1000«) in Ug. alphabetic texts, see especially Márquez Rowe 1992, 259–262; Tropper 2000, 85f.

14 Cf. the very convenient summary of the Mesopotamian numerical system in De Odorico 1995, 4.

15 Cf. e.g. the Akk. summary at the end of KTU² 4.232: 50: 1 *me-at* 55 »155«.

16 See e.g. KTU² 4.232: 50 quoted above and cf. Huehnergard 1989, 71 for many examples from Akk. texts found at Ugarit.

17 On the unique qualities of the *t* sign in Ug. (both phonological and paleographic), see in general Tropper 2000, 19. 26. 108–113. Here it should be noted that were it not for this sign, the entire inscription could just as well be analyzed as MB Akk. since all other extant cunei-

form signs are also used numerically in precisely the same way in Akk. texts. The present sign no. 6, however, can only be Ug.

18 See especially Tropper 2000, 26.

19 Cf. also the first sign of line 5 in the latter text.

20 Cf. approximately, the third variant in the paleographic chart in Tropper 2000, 19.

pected given the spacing between the two previous *Winkelhaken*. Due to the hard surface of the ivory rod the regular method of erasure in Ug. (and Akk.) cuneiform texts was not feasible in this case. If this reading is accepted, what remains after the incomplete additional *Winkelhaken* sign is only the last Ug. sign \underline{t} (sign no. 6 – see the previous section), which would then best be interpreted as an abbreviation for Ug. $\underline{t}^c t$ »a measure of capacity and a container« (apparently equivalent to $^{1/12} kd$) attested seven times in the singular form $\underline{t}^c t$ and once in the plural form $\underline{t}^c dt$. For the Ug. usage of this term and its Akk. and Egyptian parallels, as well as the precedents for such an abbreviation, see section II.1 below.

I.4. As for the alternative hypothetical reconstruction of $[k^?]\underline{t}$ (according to reconstruction B above), once the final original sign (sign no. 6) is read as \underline{t} (see section I.2 above), if no scribal error is assumed (for which see section I.3 above) this is the only possibility contextually (according to known two letter words in Ug. ending with \underline{t})²¹. While the traces of the previous letter (sign no. 5 – see the photo) certainly do not provide any positive evidence for this reconstruction, they also do not absolutely preclude it. In fact, other than the previously discussed possibility (see section I.3 above), it may be said that these traces provide positive physical evidence only for the existence of no more than one letter. Ug. $k\underline{t}$ »a measure and a container (»flask, bottle, jar)« is apparently attested some eleven times²². Its extant forms are $k\underline{t}$ (singular), $k\underline{t}m$ (dual), and $k\underline{t}t$ (plural). For the Ug. usage of this term and its Akk. parallel $kiššû$, see section II.2 below.

II. Philological Evidence for the Usage of the Two Possible Key Terms $\underline{t}^c t$ and $k\underline{t}$

Once the two above readings are accepted as the most likely reconstructions, the main philological issue relating to an appropriate interpretation of this text is the determination (see sections II.1. 2 below) of any possible relationship between the attested usages of the two aforementioned key Ug. terms $\underline{t}^c t$ and $k\underline{t}$ (and their respective cognates in Akk. and Egyptian) and their possible usage in the context of the present inscription.

II.1. As regards the attested Ug. usage of the term $\underline{t}^c t$ and its appropriateness in the present context, the following points are relevant:

²¹ See DULAT. The only other two letter words that I found were as follows: a) The verbs $/b-\underline{t}/$ (DULAT, 251 f.), $/d-\underline{t}/$ (DULAT, 283), $/q-\underline{t}/$ (DULAT, 721), and the particle of existence $^c i\underline{t}$ (DULAT, 123 f.), all of which must be considered as unacceptable syntactically (only a substantive indicating a commodity or a measure would fit the context of this inscription). b) The Ug. number $\underline{t}t$ »six« (DULAT, 936 f.), which certainly could not follow the number »100 x + 80« written in Akk. logographic signs. c) The substantives $m\underline{t}$ »infant« (DULAT, 604) and $r\underline{t}$ »mud« (DULAT, 749), and the syllable or perhaps pseudo-morpheme in a scribal exercise $p\underline{t}$ (DULAT, 687), none of which is semantically appropriate. d)

Only the substantive $h\underline{t}$ (DULAT, 377) is not absolutely excluded because of its occurrence in the ritual text KTU² 1.41: 22 in the phrase $w\underline{t}n h\underline{t}m$ with the number $\underline{t}n$ »two« preceding. It must be emphasized, however, that this is its only occurrence, and both its meaning and its reading are still a matter of dispute among scholars. The treatment in DULAT, 377 (mentioning only the meaning »unleavened bread« seems woefully out of date. For the latest discussions (including previous bibliography), see Levine – de Tarragon 1993, 92. 96 (»cage«); del Olmo Lete 1999, 109 (»unleavened loaf« without discussion); Levine – de Tarragon – Robertson 1997, 300 and n. 18 (»cage«); Wyatt 1998, 352

and n. 34 (»basket«); Pardee 2000, 150. 178 f. (either emend to $h\underline{t}^c m$ »wheat« or leave untranslated); Clemens 2001, 516 n. 1879 (= $h\underline{z}$ »arrow«); Pardee 2002, 63 (left untranslated). In light of these diverse opinions and the single occurrence of this term, such a reconstruction in the present text seems extremely precarious.

²² See DULAT, 470. Remove from that list KTU² 1.101: 8 (reading $k\underline{t}t \underline{g}bt$ »like two clouds« with e.g. Pardee 1988, 147 f.) and possibly add KTU² 4.161: 7 (broken context). This term has also been reconstructed in the following four texts: KTU² 4.60: 8 (second occurrence); 4.594: 4 (first occurrence), 5; 4.707: 6.

a) For both possible key Ug. terms \dot{t} and $k\dot{t}$, the polysemous relationship between the two attested meanings (namely as both »container« and »measure«)²³ is based on a well known semantic development with several precedents in both Ug. and Akk.²⁴ Ug. examples include *dd* (meaning »container – cruet« and »measure of capacity – cauldronful«)²⁵, *kd* (meaning »jar« and »measure of capacity for liquids«)²⁶, and apparently *lg* (meaning »jar« and »measure of capacity for liquids«)²⁷. The classic Akk. example is the term *karpatu* (meaning »earthen container, pot« and »measure of capacity – $\frac{1}{4}$ *naruquu*«)²⁸, the semantic equivalent of Ug. *kd*²⁹.

b) Both possible key terms \dot{t} and $k\dot{t}$ are sometimes preceded by numbers in both their meanings³⁰.

c) The large number (at least 180 – see section I above) of \dot{t} according to this reading may in fact be explained if we assume Egyptian commercial influence. Michael Heltzer has recently claimed that the Ug. \dot{t} measure »was $\frac{1}{12}$ of the *kd* »jar« of 22.5 litres, and that this unit of measure comes from Egypt, where it was $\frac{1}{12}$ of the Egyptian *deben* of 92–94 grams and known as $\dot{s}^c t$, $\dot{s}^c(t)$, *sniw*³¹. This adoption of metrological units facilitated trade relations with Egypt«³². In fact (as noted by Heltzer and several other scholars), this measure also occurs once in an Akk. text at Ug. in the form $\dot{s}a^{\prime}itu$ ³³, making this measure perhaps the most international measure to be used in the Ug. texts. It should further be noted that the usage in this single Akk. text is as a liquid measure, equivalent to less than $\frac{1}{4}$ of a jar of oil, exactly as it is used in the Ug. alphabetic texts (where as stated above Heltzer has suggested the equivalence of $\frac{1}{12}$ *kd* based on the Egyptian parallel)³⁴. Thus,

23 See DULAT, 470. 893f.

24 For this semantic development, see in general Powell 1987–1990, 492–508.

25 DULAT, 265f.

26 DULAT, 429f.

27 See DULAT, 494. The proof for the meaning »jar« is KTU² 4.34: 3. 4. 6. 9: *l* (+ PN) ... (+ x) *spm w* (+ y) *lgm*. The term *lgm* (plural) occurs four times in this text together with *spm* »bowls«, where in each case a number (x) of *spm* and a different number (y) of *lgm* are attributed to individuals according to their personal names (PN). In this context, just as no commodity is ever mentioned immediately after the term *spm*, so no commodity is ever mentioned immediately after the term *lgm*.

28 See CAD, K, 219–221; CDA, 149; Powell 1987–1990, 499. 504f.

29 For this equivalence, see DULAT, 429f. and the literature cited there. Note especially Heltzer 1989, 203–205. Note also that while Ug. *krpn(m)* »cup, goblet« (see DULAT, 456f.) seems to be etymologically related to Akk. *karpatu*, the meanings are quite different and the Ug. term has no administrative usage whatsoever. Ug. *krpn(m)* occurs thirteen times only in the three major epics (B¹l, Krt, and ³aqht), and aside from the phrase *krpn l krpn* »cup after cup« (KTU² 1.17 VI 6 [broken context]), all other

eleven occurrences are in parallelism with, and as a poetic semantically equivalent B-word to, the regular Ug. A-word *ks* »cup« (see DULAT, 459f.), which occurs in all genres of Ug. literature.

30 As regards the term \dot{t} , in one occurrence the number five is used before the plural form (*lhmš l dt*), in two occurrences the text reads »one jar (*kd*) of oil less one \dot{t} (\dot{t} *l hsr*)« and in five occurrences the number one is implied (see DULAT, 893f. and nn. 33 and 34 below); with respect to the term $k\dot{t}$, virtually all the occurrences in well-preserved contexts (see n. 22 above) either specify numbers (from 3–10), are in the dual form (*ktm*), or imply the number one.

31 The attested forms in Egyptian are apparently $\dot{s}^c t(y)$, $\dot{s}n^c(ty)$, and *sniw*. On this Egyptian measure = $\frac{1}{12}$ *dbn* (= approximately 91 grams), see especially Peet 1932, 122 n. 1; Peet 1934, 185–199; Gardiner 1957, 200 and nn. 14. 15; Faulkner 1962, 262; Helck – Westendorf 1980, 1202. 1207; Castle 1992, 255. 257. 263–270; Allen 2000, 101f. Chronologically, according to Allen 2000, 101, this measure »is generally replaced by the quite [Egyptian *qdt* = $\frac{1}{10}$ *dbn* – C.C.] after Dynasty 18«. This would correlate approximately with the presumed date of the writing of the Tiryns inscription c.

1200 B.C.E. during Dynasty 19 (given the archaeological context of the find-spot of this artifact).

32 See Heltzer 1999, 448; and especially Heltzer 1994, 318–321 and the additional studies listed there.

33 See CAD, Š/1, 112; AHw, 1134; CDA, 348. For the text, see Nougayrol 1968, 407 text no. 99: 10 (and the note there by J. Nougayrol on page 193, n. 2). See also Huehnergard 1987, 188; DULAT, 893f. and the additional bibliography listed there. Here it should be noted that the assumed lengthening of the *i* vowel in the Akk. parallel term $\dot{s}a^{\prime}itu$ (= * $\dot{s}a^{\prime}ittu$) is in accordance with the single attestation of the Ug. plural form $\dot{t} dt$ in KTU² 4.150: 5 (for the context, see the next note). This form clearly implies that the *d* is here a root letter and that the Ug. singular form \dot{t} must be read $\dot{t}a^{\prime}ittu$ < * $\dot{t}a^{\prime}idtu$. For this assimilation in Ug., see esp. Tropper 2000, 142f.

34 The sole Akk. usage of this measure is with reference to oil just as are seven of the eight occurrences of Ug. \dot{t} (DULAT, 893f. [six texts] and Pardee 2003/2004, 75f. [two additional attestations] – the eighth occurrence refers to *nbt* »honey«). For the same Ug. usage of \dot{t} as a small fraction of a *kd šmn* »jar of oil«, see especially KTU² 4.150: 5 (*lhmš*

it is suggested here that according to this reading of the Tiryns inscription, instead of a quantity of 15 *kd* jars of oil, it was deemed more appropriate to use the equivalent of 180 \dot{t} (or more correctly \dot{t} *dt* in the plural) as a result of Egyptian commercial influence (i. e. the existence of the latter term as a corresponding measure in ancient Egyptian, while the former term was not extant in that language).

d) The most significant obstacle for understanding the single consonant *t* as an abbreviation for the measure \dot{t} *t* is the lack of such abbreviations in Ug. until now. It is important to note, however, that such abbreviations (of not only measures, but also other technical terms, and even some general terms) are very common in both the 2nd millennium B.C.E. (especially in Akk. and once in Old Canaanite) and in the 1st millennium B.C.E. (in Akk., Aram., and extra-BH inscriptions). Note the following examples³⁵:

In Akk. – *a* for *akāmu* »cloud of dust, mist« (CAD, A/1, 259) [SB]; *al* for *alla* »over and above, beyond« (CAD, A/1, 350) [LB astronomy]; *ar* for *arnu* »wrongdoing, crime, punishment« and in the phrase *amēl arni* »evildoer, traitor« (CAD, A/2, 295. 299) [EA]³⁶; *aš* for *ašqulālu* »atmospheric phenomenon, whirlwind« (CAD, A/2, 452); *be* for *bēlu* »lord, master« (CAD, B, 191)³⁷; *be/bi* for *bennu* »epilepsy« (CAD, B, 205 f.; CAD, Š, 163; CDA, 43) [NA]³⁸; *bi/be* for *birītu* »elongation, (angular) distance« (CDA, 45) [NB astronomy]; *bir* for *biršu* »woolen fabric with raised nap« (CAD, B, 261) [NA]³⁹; *ehē* for *ehēle* »a type of land tenure« (CDA, 67) [Alalah]⁴⁰; *e* for *elēn* »above« (CAD, E, 83; CAD, Š/1, 460) [LB astronomy]; *e* for *elū* »upper« (CAD, E, 112); *gum* for *gummurti* in the phrase *ina/ana gummurti libbi* »wholeheartedly, loyally« (CDA, 96)⁴¹; *ku* for *kumānu* »a surface measure« (CAD, K, 532) [Alalah and MA]⁴²; *kun₈* for *kunšillu* »textile worker using the teasel« (CAD, K, 542; CDA, 167) [MB]; *li* for *līmu* »1000« (CAD, L, 197; CDA, 182) [OB and Alalah]⁴³; *ma* for *manū* »mina, ca. 480 grams« (CAD, M/1, 219; CDA, 195) [MB, MA, and rarely in NB]; *mi-ši* (and once *mi-ši-ir*) for *mīširtu* »portion of meat in the amount of one sila, provided to *nadītu*-women« (CAD, M/2, 119; CAD, Š/1, 104); *mu-ut* for *muttarrittu* »perpendicular« (CAD, M/2, 310; CDA, 225) [MB]; ^(g₁₃)*pa* for ^(g₁₃)*parīsu* »measure of capacity, ½ gur« (CAD, P,

šmn w hmš \dot{t} *dt* »5 [jars of] oil and five \dot{t} parts [of a jar]« – implying that the \dot{t} measure can be no larger than 1/6 *kd* (*šmn*); 4.778: 5 and 4.782: 7–8 (*kd šmn* \dot{t} *dt* *hsr* »one jar of oil less one \dot{t} part [of a jar]« – implying that such an amount was so close to one full jar of oil that it made more sense to quantify according to a full jar less a miniscule part rather than to positively state the number of \dot{t} *dt*). This second text, in comparison with the first, seems also to indicate that the \dot{t} measure is considerably smaller than 1/6 *kd*, because only then would five \dot{t} parts be so far away from a whole *kd* so as to justify the positive quantification in the first text (rather than writing »6 [jars of oil] less x \dot{t} *dt*). On the usage of the Ug. \dot{t} measure (of unknown etymology but in light of the plural form \dot{t} *dt* clearly derived from singular feminine **ṭa idtu* > *ṭa idtu* = Akk. *šāitu* [with long *ī* reflecting the double *t*]), note especially

the following recent studies: DULAT, 893 f. and the additional studies cited there; Heltzer 1994, 318–321; Heltzer 1999, 448; Pardee 2000, 57. 59; Pardee 2003/2004, 75 f.; Tropper 2000, 142 f. 375. 420.

35 As far as I know, the following list (not including the many abbreviated PNs or Sumerian abbreviations) is the most extensive list of abbreviations in ancient Semitic texts of the 2nd and 1st millennia B.C.E. that has ever been published. It should be compared with the usually quoted studies, such as Driver 1960, 112–114; and more recently: Lieberman 1987, 202 f. While the most important abbreviations for comparison with the similar phenomenon which may be present in the new Tiryns inscription are surely those from the second half of the 2nd millennium B.C.E., the absence of any such published extensive list of abbreviations from Semitic texts of the

2nd and 1st millennia B.C.E. led to the decision to include here the entire list.

36 On this abbreviation, see also Knudtzon 1915, 1380.

37 For further references to this abbreviation, see SAA V, 221.

38 On this abbreviation, see also Stol 1993, 10 n. 48.

39 For further references to this abbreviation, see SAA VII, 210.

40 On this abbreviation, see also Giacomakis 1970, 72.

41 For references to this abbreviation, see SAA III, 16 no. 5: 11 (cf. line 20); 39 no. 16: 22; SAA VIII, 127 no. 232: 12 (reconstructed).

42 On this abbreviation, see also Giacomakis 1970, 83. For the usage of this term also as a linear measure in Assyrian, see Powell 1987–1990, 476 f.

43 For further references, see Giacomakis 1970, 85.

186; CDA, 266) [OB Alalah, Emar, and as an Akkadogram in Hittite]⁴⁴; *qú* for *qutrīnu* »incense« (CAD, Q, 324) [OB and SB]; *re* for *rebītu* »one fourth, one quarter« (CAD, R, 221) [OB]; *ru-ra-qu* for *ruqanuraqu* »type of bread« (CAD, R, 415) [Emar]; *ru* for *rūtu* »span, half a cubit« (CAD, R, 438) [NA]⁴⁵; ^{sal}*sek* for ^{sal}*sekretu* »a woman of high rank, possibly cloistered« (CAD, S, 215 f.; CAD, N/1, 342); *sí* for *sikkat šēli* »rib (-cage) [usually of sheep, occasionally human]« (CAD, S, 246 f.; CAD, Š/3, 268) [mainly OB extispicy]⁴⁶; *sip* for *sippu* »a part of the sheep's liver, lit. doorframe« (CAD, S, 300. 303) [OB and NA extispicy]; *ša* for *šahurtu* »youth, adolescent« (CAD, Š, 238; CDA, 340) [NA]⁴⁷; *ši* for *šēlu* »rib« (CAD, Š, 124 f.; CAD, T, 488) [OB extispicy]⁴⁸; ^{gada}*šal* for ^{gada}*šalhu* »a piece of linen fabric« (CAD, Š/1, 242 f.) [NB]; *šil* for *šiltāhu* »the Arrow constellation, also the star Sirius, lit. arrow« (CAD, Š/2, 451) [NB astronomy]; *šul* for *šullāmu* »a breed of or way of training horses« (CAD, Š/3, 240) [NA]; *šu* for *šuplu* »depth (as mathematical term)« [OB mathematical texts]⁴⁹; (1) *šu* for (1) *šūši* »60« (CAD, Š/3, 380 f.) [MB and NB]; *ta* for *tarahlu* »slope of an earth heap (as mathematical term)« (CAD, T, 203) [OB mathematical texts]⁵⁰; *ana tar* for *ana tarši* »corresponding to, lit. opposite« (CAD, T, 243) [LB astronomy]; *taš* for *tašpiltu* »difference (between two numbers)« [CAD, T, 295; CDA, 402] (LB astronomy).

In Aram. – a) Aram. documents from Egypt (mainly from the 5th cent. B.C.E.): *š* for *šqel* »sheqel« occurs more than 250 times out of a total of 327 occurrences of the term *šqel*⁵¹; b) Aram. ostraca from Idumaea (from the 4th cent. B.C.E.) include ten different abbreviations as follows: *ח* for *חנטן* »wheat«; *כ* for *כר* »kor (measure of capacity for grain)«; *מ* for *מעה* »obolos (= 1/12 sheqel as payment for commodity)«⁵²; *ס* for *סאה* »seah (measure of capacity for grain)«; *פ* for *פלג* »one half (fraction)«; *ק* for *קב* »qab (measure of capacity for grain)«; *ר* for *רבע* »one quarter (fraction)«; *ש* for *שקל* »sheqel«; *ש* for *שערן* »barley«; *ת* for *תומנה* »one eighth (fraction)«⁵³.

In Old Canaanite and Extra-BH Inscriptions – a) The earliest northwest Semitic abbreviation until now is apparently the oldest attestation of the abbreviation *ש* for *שקל* »sheqel« in the Old Canaanite Qubūr el-Walaydah Bowl inscription dated by F. M. Cross to c. 1200 B.C.E.⁵⁴; b) The following four abbreviations are currently the most accepted ones in extra-BH inscriptions⁵⁵: *ב* for *בקע* »1/2 sheqel«; *ב* for *בת* »bath«; *נ* for *נצר* »one half«⁵⁶; *ש* for *שקל* »sheqel«.

44 On this abbreviation, see Giacomakis 1970, 94; and especially Westenholz 2000, p. XIV.

45 On this abbreviation, see Postgate 1973, 179 (note to no. 113: line 2').

46 Here it should be emphasized that the abbreviation *sí* is only used for the phrase *sikkat šēli* »rib (-cage)«, never for the substantive *sikkatu* »peg, nail« alone. On the other hand, the term *šēlu* »rib« is sometimes abbreviated as *ši* (CAD, Š, 124 f.; CAD, T, 488).

47 For this abbreviation and many additional references, see also SAA XI, 167. The CAD comment concerning this abbreviation at the end of the article *šahurtu* (p. 238) needs to be corrected in accordance with the new edition of the text involved (ADB, no. 5) in SAA XI, 144 no. 219. In one case (line 14), the regular abbreviation *ša* (= *šahurtu*) is

found, while in all other cases (lines 6, 11, 15, 18), the reading is *za-ma[r]* or *za-[mar]* meaning »fruit« (= NA form of *azamru* – see e.g. CDA, 33; SAA XI, 170).

48 See also n. 46 above.

49 For this abbreviation and additional references, see also Neugebauer – Sachs 1945, 88.

50 For this abbreviation and additional references, see also Neugebauer – Sachs 1945, 88. The technical meaning »slope of an earth heap« is according to CDA, 399.

51 For this abbreviation, see e.g. Muraoka – Porten 1998, 7. For all the more than 250 references, see Porten – Lund 2002, 303–307.

52 This weight also occurs in Akk. in the form *maḥat* as an Aram. loanword in LB (CAD, M/1, 91; CDA, 190). See especially Powell 1987–1990, 512, who claims that the same abbreviation occurs

in Akk. as well (*ma* for *maḥat*).

53 See especially Eph'al – Naveh 1996, 11: »The type of grain, its measures and amounts are generally written in abbreviated form: *ש* stands for *שערן* (barley), *ח* = *חנטן* (wheat), *כ* = *כר* (*kor*), *ס* = *סאה* (*seah*), *ק* = *קב* (*qab*), *פ* = *פלג* (half), *ר* = *רבע* (quarter)«. For all the references to the ten abbreviations listed in the above text, see pages 95–98.

54 See especially Cross 1980, 3 f. See also Renz 1995, 47; Pardee 1996, 56.

55 For these four abbreviations and most references to them in extra-BH inscriptions, see most recently Aḥituv 2005, 431 (ב for בקע); 432 (ב for בת); 441 (נ for נצר); 447 (ש for שקל) [in Hebrew].

56 Note that this term also occurs several times in Ug. as *nšp* (cf. DULAT, 647 and the literature cited there), but is never abbreviated.

II.2. As regards the usage of Ug. *kt* and its connection with MB (Amarna) Akk. *kiššú* (not *qiššú*)⁵⁷, the following points should be emphasized:

a) For the polysemous relationship between the two attested meanings in Ug. (namely as both »container« and »measure«) as well as the usage of numbers preceding this term in both meanings see section II.1 above, points a and b.

b) While Akk. *qiššú* »cucumber (or the like)« is well attested in Akk.⁵⁸, the term written *ki/qí-iš-šú-ú/u* or *ki/qí-iš-še-e* referring to (oil) containers is found only three times, all in the MB Amarna letter EA 14⁵⁹ and should be read and translated as follows: 1 *ki-iš-šú-ú* [*ša bīt šamni hurāši tamlú*] »1 *kiššú*-type oil container of gold, inlaid« (I: 57)⁶⁰; 1 ^{NA}*ki-iš-še-e ša šamna tāba mali* »1 *kiššú*-type container of stone, full of »sweet oil« (III: 38)⁶¹; 29 *ki-iš-šú-u ša bīt šamni* [*ša šinni pīri bašlu*] »29 *kiššú*-type oil containers heat-treated/stained⁶² with ivory« (IV: 5)⁶³. Orthographically, the sign in question KI may be read either *-ki-* or *-qí-* in the Amarna letters⁶⁴ as in the rest of Akk. literature⁶⁵.

c) In all three attestations (see in b above), the material out of which the *kiššú* is made is explicitly indicated either via the use of a determinative or through other words in the immediate context (»gold«, »stone« and »heat-treated/stained with ivory«) and in all three cases the reference is to a container of/full of oil. From this usage, it is clear that the reference is to a certain type of container, not merely to a certain novel shape. It is this usage that is in complete agreement with the aforementioned dual usage of Ug. *kt* both as »a container« and as »a measure of capacity«. To my knowledge, there are no precedents among the many examples of this semantic development (i. e. the aforementioned dual usage – see the examples in section II.1 above) that derive from terms denoting types of food or animals of a specific shape. The latter terms do indeed occasionally refer figuratively to a particular novel decorative shape of something artistically created (including containers), but never will further develop the meaning »measure of capacity« because that meaning derives from a *standard regular type of container, not a novel decorative shape*⁶⁶.

57 As opposed to all previous research cited here. See most recently e. g. CDA, 289 sub *qiššú* »cucumber«: »cucumber-shaped oil flask«.

58 See CAD, Q, 271 f.; AHW, 923; CDA, 289.

59 See already Salonen 1965, 119. Here it should be noted that the other two decorative forms of oil containers listed there by Salonen are also known only from EA 14 as follows: *alpu ša bīt šamni* »ox-shaped oil container« (IV: 14 [cf. line 17]); *turāhu ša bīt šamni* »ibex-shaped oil container« (IV: 15).

60 See most recently the edition of Cochavi-Rainey 1999, 10f. with philological note on p. 222 and now her Hebrew translation in Cochavi-Rainey 2005, 30. See also especially the English translation in Moran 1992, 28 and the reconstruction attributed to Gordon on p. 35 n. 14. See also Salonen 1965, 119 (as indicated in the previous note). This obviously correct reconstruction was not accepted in either of the two

main Akkadian dictionaries. In CAD, K, 463, this occurrence was listed under the term *kīšu* (sic!) as a *hapax legomenon* with the meaning »(a metal bowl)« and with an Egyptian etymology (»Lambdin, Or. NS 22 365«); while in AHW, 487, it was listed as a rare orthographic variant (*kīšu*) of the regular term *kīšu* »Geldbeutel, Geld«. Thus in both dictionaries, only the remaining two occurrences (see the next two notes) were included under *qiššú* »cucumber«. This unfortunate error has never ceased to lead good scholars astray even as late as 1998. See Watson 1998, 758 n. 38.

61 See Cochavi-Rainey 1999, 18f.; Cochavi-Rainey 2005, 35 (changed to line number 39); Moran 1992, 32; Salonen 1965, 119; CAD, Q, 272; AHW, 923.

62 This technical usage of *bašlu* »(literally) cooked« is not completely clear. For these two possible meanings, see CAD, B, 140f. (meaning 4); CDA, 40.

63 See Cochavi-Rainey 1999, 22f.; Cochavi-Rainey 2005, 36; Moran 1992,

34; Salonen 1965, 119; CAD, Q, 272; AHW, 923.

64 See most recently Rainey 1996, 12.

65 See now Borger 2004, 411 no. 737.

66 Compare for example the two other terms discussed by A. Salonen with respect to decorative oil containers (all occurring only in EA 14 – see n. 60 above), *alpu ša bīt šamni* »ox-shaped oil container« and *turāhu ša bīt šamni* »ibex-shaped oil container«. See Salonen 1965, 119. Just as it would be ludicrous to assume that the animal names *alpu* »ox« and *turāhu* »ibex« could come to mean »a measure of capacity« simply because they refer occasionally to a novel artistic decorative shape of an oil container, so is the semantic comparison between Akk. *qiššú* »cucumber or the like« and Ug. *kt*. Contrast e. g. de Moor 1970, 311: »*kt* – Probably a flask in the form of a gourd« (with additional literature listed in n. 40 there).

d) Therefore, on the one hand in light of the general etymological correspondence between Akk. *qiššū* »cucumber (or the like)« and all its Semitic cognates only with initial *q*⁶⁷, while on the other hand only the three occurrences in EA 14 correspond semantically to the usage of Ug. *kṭ* (always with initial *k* and which never has anything to do with the cucumber), it is best to simply separate these three occurrences in EA 14 by reading only in these three passages a separate etymologically distinct Akk. word *kiššū* »container of oil or the like« that may well be the origin of Ug. *kṭ*⁶⁸.

III. Two Alternative Interpretations of the Text Including Either Key Term

As we shall see, two different interpretations are possible for each of the above two reconstructions (see the two different translations for each of the two suggested reconstructions A and B above), but each interpretation is in need of further evidence (albeit in differing degrees) and therefore no single interpretation should be considered as reasonably assured. While it is also not absolutely certain that this inscription is written in the Ug. language, the evidence from the extant sign no. 6 (see section 1.2 above) seems very strong and does render this possibility as most probable. What must be addressed with respect to the present usage of both of the two possible key terms is the relatively large preceding number 100 x + 80, the fact that no commodity is explicitly indicated, and the fact that the inscription is written on ivory. The following two provisional interpretations of the new (apparently) Ug. inscription from Tiryns (considering both reconstructions A and B above and all the philological evidence concerning the two possible key terms in the previous section) are hereby suggested as alternative possibilities⁶⁹:

a) Understanding this inscription as some kind of a »label«⁷⁰ is advantageous in several respects. Of the three difficulties discussed above with respect to the usage of the Ug. term *kṭ* in this inscription (see at the beginning of section III), the first two are definitely alleviated (if not eliminated altogether) through a comparison with the one Ug. label that includes the term *kṭ*, namely KTU² 6.12: *šr kṭ ḥmš šr l'g* »Ten *kṭ*-measures/containers, fifteen *lg*-measures/jars«⁷¹. While the number »ten« preceding the term *kṭ* is not close to 100 x + 80 (as in the present inscription – see above), this is the highest number appearing before the term *kṭ* in any other Ug. text. Furthermore, besides the similar following phrase on this label, »fifteen *lg*-measures/jars«, there are higher numbers preceding similar terms (see section II.1 above) on other Ug. labels such as »25 *kd* or *dd* measures or jars/containers« (KTU² 6.18) and »80 *dd* measures/containers« (KTU² 6.21)⁷². The former text also pro-

⁶⁷ See e.g. the list of Semitic cognates in HALOT, 1151.

⁶⁸ It is not impossible that Ug. *kṭ* may in fact be a loanword from Akk. *kiššū* »container of oil or the like« as understood here (extant only in the three occurrences in EA 14 – see above). The evidence for this would be the absence in the Ug. term of the final original weak consonant (ʿ or one of the gutturals) leading to the contraction in the Akk. term (all three occurrences end with an additional vowel in the translitera-

tion even in the first two occurrences in the singular – a clear indication of contraction due to a final weak consonant), a phenomenon which does not exist in Ug. Contrast the correspondence Akk. *kussū* = Ug. *ks'u*, where the Ug. term (because of the existence of the ʿ) is surely *not* a loanword from Akk. For this technique in differentiating between loanwords and cognates, see most recently Mankowski 2000, 3–7 especially 4f. and the literature cited there.

⁶⁹ For the third possibility of understanding this inscription as a sort of »ally stick«, see the section »Archaeological Discussion« below.

⁷⁰ On this sub-genre of the Ug. administrative texts, see especially van Soldt 1989, 375–388.

⁷¹ On this label, see especially van Soldt 1989, 376 no. 4; Dietrich – Loretz 1976, 71 (S 281).

⁷² See the convenient chart in van Soldt 1989, 387.

vides a possible precedent for the similar usage of the *kd* measure or jar with the number 25 preceding (if this term is restored rather than the term *dd*). As noted above (see section II.1 above), we have accepted here Heltzer's suggestion that the Ug. 𐎗𐎛 measure »was $\frac{1}{12}$ of the *kd* jar of 22.5 litres«. Thus, this former text may provide an indirect precedent for such a usage of the term 𐎗𐎛 as well. For the rationale of the possible usage in the Tiryns inscription of 180 𐎗𐎛 rather than 15 *kd* see section II.1 above. Even if the term *kd* is not restored in the former text, the term *kd* is attested on one other label (KTU² 6.11) as follows: *kd*[.]*yn l prt* »a *kd* measure or jar of wine for Prt«⁷³. As for the fact that no commodity is specifically indicated in the Tiryns inscription, such is also the case in the Ug. label KTU² 6.12 quoted above and in one other Ug. label, KTU² 6.18 (see also above)⁷⁴. Of all the non-broken contexts including the Ug. term 𐎗𐎛 , the Ug. label KTU² 6.12 is the only one which does not mention any specific commodity. One remaining problem is that Ug. labels are defined as »very small pieces of clay which carry a written statement and/or one or more cylinder or stamp seal impressions«⁷⁵. While many inscribed ivories have been discovered at Ugarit and Ras ibn Hani, none of them are labels⁷⁶. This problem is somewhat alleviated by the existence of Egyptian »ivory labels attached to the gifts« from the »earliest period«⁷⁷.

b) The other possible interpretation is to look upon this object as a sort of measuring rod. Here, the non-specification of a commodity would certainly pose no particular problem, since the rod would be intended as a means of measurement with respect to several different commodities. Such a measuring vessel made of wood was called *mešēqu* in Akk. and the usage of this vessel for »leveling off« the grain was according to the Akk. verb *šēqu* »to measure (grain) by leveling off«⁷⁸. Measuring rods are also known from Egypt⁷⁹. The main difficulty with this interpretation is the number 100 x + 80, but this has already been explained at least as regards the possible usage in the Tiryns inscription of the Ug. measure 𐎗𐎛 (see section II.1 c above). There is, however, no extant Ug. documentary evidence indicating that such a large number of 𐎗𐎛 would constitute an appropriate unit of measure.

IV. Conclusions

The following conclusions are valid irregardless of which of the two aforementioned reconstructions (see sections I and II) of the new Tiryns (apparently) Ug. inscription is considered more appropriate and irrespective of which of the two aforementioned interpretations is preferred (see section III):

a) This is apparently the first Ug. text found outside of Ugarit, Ras ibn Hani, and Tell Sukas which is written without doubt from left to right in the

73 See van Soldt 1989, 376 no. 3.

74 See once again the chart in van Soldt 1989, 387. In conclusion a to that chart, the following is stated: »Almost all labels mention the quantity of the commodity, whereas the commodity itself is occasionally (nos. 4 & 9) left out [nos. 4 & 9 are two of the labels cited in the text above – C.C.]».

75 See van Soldt 1989, 375.

76 See most recently Gachet – Pardee 2001, 191–230; and previously, Dietrich – Loretz 1976, 1–11.

77 See for now Bleiberg 1995, 1381.

Here too, the connection with the 29 Akk. *kiššû*-type oil containers »heat-treated/stained with ivory« in the third EA 14 context quoted above should be emphasized. Perhaps the connection is exotic gifts (just as the gift is made out of expensive exotic materials, so is the label describing the gift and to whom it is being sent).

78 See CAD, M/2, 38 f.; CAD, Š/2, 308; CDA, 209. 367. Note also the usage of the term *qan mindati* »measuring rod«,

for which see CAD, Q, 89–90 and CDA, 284.

79 For now, note especially the Egyptian term *m3wt* »measuring-rod(?)« listed in Faulkner 1962, 102 (last line), where he also cites Gardiner 1955, 16. Cf. also *mw* »weight« listed in Faulkner 1962, 106. Note also Dilke 1987, 7 f.; Robins 1995, 1810. This issue requires more extensive study by professional Egyptologists. For an extensive study of the archeological aspects of this important issue, see the section »Archaeological Discussion« below.

regular Ug. long alphabet⁸⁰. This is indicated by the existence of one of the regular forms of the letter *ṭ* in this inscription (see section I.2 above) and by the Akk. logographic numerical signs (see section I.1 above).

b) This is apparently the first Ug. text found outside of Ugarit, Ras ibn Hani, and Tell Sukas, which employs Akk. logographic numerical signs (including the term *me-at* »100« – see section I.1 above).

c) This is apparently either the first Ug. label or the first Ug. measuring rod likely to consist of ivory (see section III above).

d) The usage either of the term *kt* or the term *ṭt* in this inscription is in accord with the regular Ug. polysemous usage of such terms as both »a container and a measure of capacity« (see section II.1 above).

e) The possible usage of the term *ṭt* in this inscription has led us to posit the possible first usage of an abbreviation in the Ug. texts. This would be in accord with the widespread usage of such technical abbreviations in Akk., Aram., and extra-BH inscriptions in both the 2nd and the 1st millennia B.C.E. (see section II.1 above).

f) Finally, the possible usage of the term *kt* in this inscription should also be compared to the thrice attested MB Akk. term *kiššū* »container of oil or the like« that occurs only in EA 14, once in the context »29 *kiššū*-type oil containers heat-treated/stained with ivory«. This Akk. term must be lexically separated from the term *qiššū* »cucumber« for clear semantic reasons. It is not impossible that the origin of Ug. *kt* is as an Akk. loanword from *kiššū* (see section II.2 above).

C. C.

Archaeological Discussion

Objects with cuneiform inscriptions are so rare in Mycenaean Greece that the evidence published so far almost exclusively consisted of the group of Lapislazuli cylinder seals from the palace of Thebes⁸¹. Although the rod from Tiryns and the cylinder seals from Thebes were both used as media for writing, the usage of these objects seems to have been motivated by different reasons. In the case of the cylinder seals these were apparently valued for their raw material and regarded as precious exotica, but had lost their original sphragistic function⁸². In contrast to the cylinder seals an appreciation of the Tiryns ivory rod because of its intrinsic value can probably be discounted.

Any interpretation of the function of the object should not be based solely on its shape, but must above all account for the appearance both of letters of the Ug. alphabet as well as numbers. In our opinion these features alone are strong indications against assuming that in its current state the object could

80 See the English summary of Profs. Dietrich and Loretz concerning »the Alphabetic Texts from outside Ugarit« in Dietrich – Loretz 1989, 108f. As stated there (p. 109), the short alphabet expressed *š* and *ṭ* together with the »trou circulaire«. Of all the other Ug. texts found outside of Ugarit, Ras ibn Hani, and Tell Sukas, only KTU² 6.2 from Kāmid el-Lōz is an additional candidate for the long alphabet written in the left–right direction. This, however,

can not be proven because the preserved letters (*d*, *r*, *b*) are not differentiated within the two alphabetic traditions. Likewise, the controversial direction and reading of KTU² 5.24 (= 8.1) from Beth-Shemesh (see Sass 1991, 315–326 especially 324f.) seems now to be settled (very similar to the order of the South Semitic alphabet but in the right–left [in this case counterclockwise] tradition) due to the recent discovery at Ugarit of a closely parallel abecedar in the

South Semitic order. See especially and most recently Bordreuil – Pardee 2001, 341–348 and the literature cited there.

81 Porada 1981/1982; Cline 1994, 53f.; Cline 2007, 191–193.

82 The status of the Theban cylinder seals as exotica is attested by their various places of origin, their chronologically heterogenous time of manufacture as well as by the signs of a refitting or reworking of some of the seals.

have simply been a part of a handle, for instance of a mirror, or could constitute the fragment of a shaft of a spindle⁸³ or of one of the rods with pomegranate or opium poppy finial that are known from Late Bronze Age contexts on Cyprus and the Near East⁸⁴. Although the rod could represent the reused part of a shaft or a handle of such objects⁸⁵, its final purpose must have been a totally different one. In the following, three alternative interpretations are considered, namely a function as a measuring rod, a ›label‹, or a ›tally stick‹.

Even before the signs had been deciphered, it was suggested that the rod may have served as a measuring device⁸⁶. This interpretation, however, raises unsolved archaeological problems. Cubit rods are known in Egypt from the Middle Kingdom onwards, and according to Adelheid Schlott-Schwab they can be differentiated into three groups⁸⁷. The first group comprises objects which were actually used for measuring. They usually consist of wood and have a pentagonal section, but there are also cases of rods with a rectangular or round section. Typically, cubit rods of group 1 do not carry any inscriptions, but are simply subdivided by carved or painted lines into units⁸⁸. Rods of the second group are made of wood or stone, correspond morphologically to the measuring devices and also show a subdivision into smaller units. However, since they also bear ritual inscriptions and personal names or titles, they are unlikely to have been employed as metrological devices by craftspersons⁸⁹. The third group of cubit rods encompasses objects that also have a pentagonal section and a subdivision into units, but are called votive cubit rods, because they are always made of stone and bear votive inscriptions of various types⁹⁰.

The only actual find of an elongated measuring device from the Ancient Near East is, to our knowledge, a bronze bar with a weight of 41.5 kg and a length of 110.35 m from Nippur which dates to the late 3rd millennium B.C.E. This so-called Nippur Cubit is subdivided into seven sections of differing lengths and may have served as a measuring standard⁹¹. Moveable measuring instruments must have also existed, since such devices are shown on the lap of two statues of Gudea of Lagash from Tello (Girsu) also dating to the late 3rd millennium B.C.E.⁹². The scale on both of the depicted measuring instruments is subdivided by groups of vertical strokes into units⁹³. It is unknown what materials the actual Near Eastern measuring rods or rules were made of and if ivory was among these materials and also if, in addition to the vertical subdivision into units, they were inscribed with cuneiform signs.

In summary, the comparison to actually preserved objects with a proven or possible function as measuring instruments leads to inconclusive results. While examples for measuring rods with a circular section are attested in Ancient Egypt, neither these nor the other mentioned rods or rules form a satisfactory comparison to the object from Tiryns. In contrast to the clearly identifiable measuring rods the object from Tiryns lacks any signs of a subdivision into units, but this may be due to its fragmentary state of preservation.

If it functioned as a ›label‹ the object would have accompanied a commodity and would have been originally attached to a container, e. g. a chest, bag or a basket. While such an interpretation would be consistent with the combination of a specified quantity and a unit of measurement in the short inscription (see above), this constitutes a problem regarding the archaeological evidence, since in Ugarit such objects always consist of clay, are often combined with a seal impression and are furnished with holes for applying a string⁹⁴. Also, rod-shaped labels are not mentioned among the corpus of such objects from Ugarit which were either given the shape of a flattened, truncated cone, or of a half-cylinder, and in one case a cylinder⁹⁵. Since the

83 Iakovidis 1969/1970, 350–352 fig. 155; Gachet-Bizollon 2007, 115 f. pl. 19.

84 Åström 1972, 550 fig. 74, 14; Karageorghis 1974, 91 pl. 87, 60–62. 132; Ward 2003, 533 f. Table 1; 538 figs. 2. 3; Gachet-Bizollon 2007, 116–125 pls. 20–24.

85 Thus, Smith 2009, 60 argues that the inscribed ivory rod from Kition constitutes a reused handle.

86 This assumption was based on observations of the arrangement of the signs and the archaeological context of the find, cf. AA 2003/2, 184.

87 Schlott-Schwab 1981, 53–63.

88 Schlott-Schwab 1981, 53–56.

89 Schlott-Schwab 1981, 53.

90 Schlott-Schwab 1981, 58–63.

91 Unger 1916, 10–14 pl. 1; Powell 1987–1990, 462.

92 Berriman 1953, 53 f.; Heisel 1993, 19 f.

93 De Sarzec 1884–1912, pl. 15, 1–3; Powell 1987–1990, 462; Heisel 1993, 20 M13.

94 Van Soldt 1989, 375. 387 f.

95 Van Soldt 1989, 375.

here presented artifact is broken, it may have had holes to attach it to a container, but the choice of a hard material like ivory precluded the possibility to authenticate it by applying a seal impression. All in all, the differences in shape and material suggest that, if the object had accompanied a shipment of a certain commodity as a label, its way of attachment and usage must have differed from the group of objects in Ugarit which are called labels. Possibly, in the context of long-distance relations more durable materials than clay were chosen for such labels and their authentication may have been ensured in a different way than by sealing them. In such a case, however, it would be difficult to draw a line of separation between a function as a ›label‹ and the third interpretation as a ›tally stick‹.

As a ›tally stick‹ the object would have served as a mnemonic device to document numbers, quantities or possibly a message. Accordingly, the rod would have belonged to the group of so-called unsplit tallies⁹⁶ that were used in early Modern or Medieval times in different parts of Europe for instance to check cargos or to record milk yields⁹⁷. Such an interpretation as a tally stick has been recently proposed by Joanna S. Smith for a marked and inscribed ivory rod from Temple 4 of Kition⁹⁸. The rod tapers slightly on one side, which has a rectangular section, and is preserved to a length of 13.5 cm. On two opposing sides the rod shows marks consisting of seemingly irregularly arranged groups of up to four parallel vertical strokes combined with signs of the Cypro-Minoan script. The strokes are arranged along the longitudinal axis of the object in three rows with the Cypro-Minoan signs being restricted to the end or the beginning of the middle row⁹⁹. The remaining two sides of the rod each show two parallel, but slightly offset rows of holes. Remarkably, the sequence of grouped strokes of the outermost row on each of the two sides bearing marks corresponds exactly to the holes on the adjacent side of the rod. This suggests that the pierced and engraved features of all four sides were interrelated. Vassos Karageorghis noted that the form and the engraved strokes of the object bear a resemblance to measuring sticks like Gudea's rule, but, in light of the irregular arrangement of the marks, he nevertheless found such an identification difficult to support¹⁰⁰. Emilia Masson conceded that an interpretation of the strokes as numbers of a measuring unit would be the first interpretation to come to mind, but she also rejected this possibility without spelling out the reasons leading her to this assessment¹⁰¹. The irregular spacing of the groups of vertical strokes, the combination with signs and the interrelation between the signs and marks on different sides of the object were cited by Smith as arguments supporting a function as a tally stick¹⁰². She did not, however, cite any comparisons for such tally sticks from Cyprus or the Near East, and to our knowledge the corpus of inscribed ivories from Ugarit does not comprise any such objects.

In comparing the Kition rod to the one from Tiryns, it is obvious that the rectangular section, the holes, the groups of vertical strokes and their arrangement in more than one row, as well as the use of the Cypro-Minoan script constitute clear differences. There are also, however, similarities like the combination and arrangement of signs with numbers, the elongated and narrow form and also the material ivory. Also, the pieces are quite close to each other chronologically, since the context of the Kition rod dates to the first half of the 12th cent. B.C.E., whereas the Tiryns rod dates around 1200 B.C.E.

What the Kition rod clearly shows is that there are other cases of inscribed ivory rods during the Late Bronze Age in the East Mediterranean. Of all three discussed interpretations a function as a tally stick seems to us the most convincing explanation for the rod from Tiryns, despite the seeming lack

96 Baxter 1989, 43–46.

97 Baxter 1989, 45f.

98 Smith 2009, 60.

99 Karageorghis 1985 a, 116; Karageorghis – Demas 1985, pls. 122, 4250; 197, 4250.

100 Karageorghis 1985 b, 335.

101 Masson 1985, 281 pl. A, 3.

102 Smith 2009, 60.

of comparisons for such objects from the Near East in general and Ugarit in particular. Although the Tiryns rod does not have vertical strokes or notches, the use of numbers in combination with references to a unit of measure could have sufficed to record the information needed.

Additional information on how the rod from Tiryns may have been used can be gained by the find context, since its function is likely to be connected directly or indirectly to activities carried out in Building XI in general and Room 78 a in particular. In a recent article Maria Kostoula and Joseph Maran argue that a workshop was based in Building XI in which faience vessels, mostly of an animal-headed type of Near Eastern derivation, received their ›finish‹ by embellishing them with inlays and applications like gold foil after they had been produced in another area of Tiryns¹⁰³. All three proposed interpretations of the object's potential function, either as part of a measuring rod or as a ›label‹ or tally stick, would be consistent with the context of discovery in such a workshop for skilled crafting. A label may have accompanied a shipment of goods or raw materials arriving from Cyprus or the Levant and needed in such a workshop. A measuring rod could have been used to guarantee a common standard between trading partners and/or craftspeople in different parts of the East Mediterranean. Finally, a tally stick could have been either used by the occupants of Building XI to record numbers or quantities, for instance of a shipment that was recently received, or it may have been sent by trade partners to convey a specific information. How closely the groups of persons participating in the long distance exchange of the 13th cent. B.C.E. were interconnected was recently underlined by the conclusion of Rahmstorf that Mycenaean sphenonoid balance weights, which also appear in Tiryns, conform to an Egyptian-Levantine standard¹⁰⁴. To date, the discovery of the inscribed rod and its archaeological context provide the first tangible evidence that not only were persons present in a Mycenaean palatial center, who knew how to use an oriental standard of weight, but who also were able to understand information recorded in cuneiform writing, albeit in highly abbreviated form.

Regarding the question with whom to identify these persons, who were acquainted with at least a basic knowledge of numbers and letters written with cuneiform signs, the context of the rod fragment offers additional insights. The fact alone that late palatial Tiryns has given a relatively high number of wall brackets and Cypro-Minoan graffiti on imported and local pottery vessels while outside of this site these features are next to unknown in Greece¹⁰⁵, is highly suggestive for the presence of persons with strong ties to the Near East and knowledge of eastern, in this case Cypriote, forms of encoding information¹⁰⁶. Revealingly, the foreign cultural traits like wall brackets and faience vessels do not seem to be evenly distributed in the late palatial Lower Citadel, but rather cluster in and around certain buildings (e.g. Buildings XI and XV). The analysis of the wall-brackets from Kilian's excavations in the Lower Citadel led Rahmstorf to persuasively argue for a local manufacture and to postulate a connection of their former use and places where metallurgical activities had been carried out, among them also Building XI¹⁰⁷. Furthermore, he already pointed out that this may represent striking parallels to contexts of wall bracket usage on Cyprus¹⁰⁸. However, this interpretation remained tentative as long as none of the highly fragmentary examples of wall brackets from the previous excavations were recorded *in situ* on the floor of a building and accordingly it could not be excluded that they derived from processes of re-deposition. The recent excavations in the Lower Citadel corroborate Rahmstorf's conclusions and show that at least

103 Kostoula – Maran (forthcoming).

104 Rahmstorf 2008, 156–163.

105 Hirschfeld 1996; Hirschfeld 1999.

106 Maran 2004; Kostoula – Maran (forthcoming).

107 Rahmstorf 2008, 94.

108 Rahmstorf 2001; Rahmstorf 2008, 109–111.

two wall brackets were associated with the inscribed ivory rod in a room in which metal foil was processed and applied to the surface of objects. Thus, wall brackets obviously represented a foreign trait employed in a very similar way to eastern prototypes, a fact probably reflecting similar ideological concepts being associated with these artefacts¹⁰⁹.

An overview of the contextual evidence – the remarkable concentration of such unusual Near Eastern traits as wall brackets, the inscribed ivory rod and animal-headed faience vessels in a context of skilled crafting in Building XI – suggests an interpretation of this building as the seat of foreign craftspeople from Cyprus or the Levant who were involved in the production of faience vessels for the palace¹¹⁰ and who employed the inscribed rod for a specific purpose within these activities. The find assemblage in Building XI serves as a reminder that it would be highly misleading to regard such objects, i. e. the inscribed rod or the wall brackets, appearing in a Mycenaean context as mere ›exotica‹. Instead, contextual analysis can show that the users were aware of the meaning attached to the objects in the east and employed them in accordance with practices of Near Eastern or Cypriote origin thus signaling their cultural affiliations. This impressively underlines the degree of interconnectedness of East Mediterranean societies during the 13th cent. B.C.E. – an entanglement which by no means was restricted to a flow of commodities, but also involved human mobility and a transfer of ideas and practices.

109 Rahmstorf 2001; Rahmstorf 2008, 109–111; Maran 2004.

110 Kostoula – Maran (forthcoming).

J. M. – M. V.

Abstract

Chaim Cohen – Joseph Maran – Melissa Vettters, An Ivory Rod with a Cuneiform Inscription, Most Probably Ugaritic, from a Final Palatial Workshop in the Lower Citadel of Tiryns

The subject of this contribution is the fragment of an ivory rod with six cuneiform signs that was found in 2002. The rod came to light in a destruction layer dating to LH III B Final within a workshop for skilled crafting inside Building XI which is situated in the northernmost part of the Lower Citadel of Tiryns. The inscription is interpreted as the first example of an Ugaritic text found outside of the Levant. The text is written from left to right combining Akkadian logographic numerical signs and at least one letter of the regular Ugaritic alphabet. After discussing different possibilities concerning the object's function, an interpretation as a ›tally stick‹ is proposed, i. e. a mnemonic device to document numbers, quantities or possibly a message, that was used by Levantine or Cypriote specialists for skilled crafting who were working in Building XI on behalf of the palace. The find assemblage in Building XI serves as a reminder that it would be highly misleading to regard oriental objects like the ivory rod with cuneiform signs or wall brackets appearing in a Mycenaean harbor town such as Tiryns as mere ›exotica‹. Instead, contextual analysis demonstrates that the users were well aware of the special significance attached to such objects in the east and employed them in accordance with practices of Near Eastern or Cypriote origin, thus signaling their cultural affiliations.

Keywords

Tiryns • Ugarit • Ugaritic Alphabet • Akkadian • abbreviations • Late Helladic III B • tally stick • East Mediterranean Trade

Illustration Credits

Fig. 1. 2: Tiryns archive (M. Kostoula) • Fig. 3: Tiryns archive (K. Messmer after drawing of J. Maran)

Abbreviations

(excluding primary Akk. sources for which see CAD, Ț, ix–xxxii and primary Ug. sources for which see DULAT, xxi–xliv)

- AHw • W. von Soden, *Akkadisches Handwörterbuch* (Wiesbaden 1965–1981)
 Akk. • Akkadian
 Aram. • Aramaic
 BH • Biblical Hebrew
 CAD • *The Assyrian Dictionary of the Oriental Institute of the University of Chicago*
 CDA • J. Black – A. George – N. Postgate (eds.), *A Concise Dictionary of Akkadian*² (Wiesbaden 2000)
 CTA • A. Herdner, *Corpus des tablettes en cunéiformes alphabétiques découvertes à Ras Shamra-Ugarit de 1929 à 1939* (Paris 1963)
 DULAT • G. del Olmo Lete – J. Sanmartín, *A Dictionary of the Ugaritic Language in the Alphabetic Tradition* (Leiden 2003)
 EA • El Amarna
 HALOT • L. Koehler – W. Baumgartner (eds.), *The Hebrew and Aramaic Lexicon of the Old Testament* (Leiden 1994–2000)
 KTU² • M. Dietrich – O. Loretz – J. Sanmartín, *The Alphabetic Texts from Ugarit, Ras Ibn Hani, and Other Places* (Münster 1995)
 LB • Late Babylonian
 MA • Middle Assyrian
 MB • Middle Babylonian
 NA • Neo-Assyrian
 NB • Neo-Babylonian
 OB • Old Babylonian
 PN • Personal Name
 RS • Ras Shamra
 SAA • *State Archives of Assyria* (Helsinki, Finland)
 Ug. • Ugaritic
- Aḥituv 2005 • S. Aḥituv, *HaKetav VeHaMiktav* (in Hebrew), *The Biblical Encyclopaedia Library* (Jerusalem 2005)
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