

68) On the unit UŠ = šuššān — The unit known by the logogram UŠ is attested countless times from the third millennium BCE until the end of cuneiform. Three distinct metrological functions of UŠ can be distinguished (Powell 1987, 465–468). Throughout all periods UŠ denotes a unit of length with the equivalences 1 UŠ = 60 *nindanu*(NINDA) and 1 *bēru*(DANNA) = 30 UŠ. From the late second millennium onward these are also units of time, such that 1 day (24 h) = 12 *bēru* = 360 UŠ. After the zodiac was introduced in the fifth century BCE, the UŠ also became a unit of celestial distance along or perpendicular to the ecliptic (the circle at the center of the zodiac), such that 1 zodiacal sign = 30 UŠ and 12 zodiacal signs = 360 UŠ. In this function the UŠ corresponds more or less to the modern degree of arc. In spite of the ubiquity of the UŠ in diverse sources from all periods, its Akkadian reading has remained elusive. No conclusive evidence for a phonetic writing appears to have been pointed out and the relevant sections of the lexical lists which are assumed to contain this information, in particular Ea Tablet VI and Aa Tablets 30–34, are not preserved (*MSL* 14, 431). However, evidence for the Akkadian reading of UŠ has been hiding in plain sight in W 23281 (SpTU 4 173), a metrological compendium from Achaemenid Uruk (Robson 2007; Friberg and al-Rawi 2016: 87–105; Proust 2019). Its first section (obv. i 1–34 = §1 in Friberg and al-Rawi 2016) contains a list of relations between different length units based on the template “absolute number (a) of smaller unit (b) = larger unit (c)”. The following quotations summarize the evidence for the reading of UŠ:

obv. i	a	b	c	a	b	c
8)	7 me 20	<i>i-na am-ma-ti</i>	<i>šu-uš-ša₂-an</i>	720	cubits	<i>šuššān</i>
9)	[7] <i>lim 2 me</i>	<i>i-na am-ma-ti</i>	10 <i>šu-uš-ša₂-an</i>	[7]200	cubits	10 <i>šuššān</i>
15)	[1 me 20]	GI.MEŠ	[<i>šu-uš-ša₂-an</i>]	[120]	reeds	[<i>šuššān</i>]
16)	[1 <i>lim 2 me</i>	GI].MEŠ	10 <i>šu-uš-ša₂-an</i> ¹	[1200]	reeds	10 <i>šuššān</i>
20)	ᵀ6	<i>aš₂¹-lu</i>	<i>šu-uš-ša₂-an</i>	6	<i>ašlu</i>	<i>šuššān</i>
21)	[1- <i>šu</i>]	<i>aš₂-lu</i>	10 <i>šu-uš-ša₂-an</i>	[60]	<i>ašlu</i>	10 <i>šuššān</i>
25)	15	<i>šu-uš-ša₂-an</i>	<i>zu-u₂-zu</i>	15	<i>šuššān</i>	half (<i>bēru</i>)
26)	20	<i>šu-uš-ša₂-an</i>	<i>ši-ni-pa</i>	20	<i>šuššān</i>	2/3 (<i>bēru</i>)
27)	30	<i>šu-uš-ša₂-an</i>	<i>be₂-e-ri</i>	30	<i>šuššān</i>	<i>bēru</i>
30)	ᵀ2 ¹ me 40	<i>pu-ri-du</i>	<i>šu-uš-ša₂-an</i>	240	<i>purīdu</i>	<i>šuššān</i>
31)	ᵀ2 ¹ <i>lim 4 me</i>	<i>pu-ri-du</i>	10 <i>šu-uš-ša₂-an</i>	2400	<i>purīdu</i>	10 <i>šuššān</i>

The underlying length metrology combines Old Babylonian with Late Babylonian elements (Friberg and al-Rawi 2016, 93–95). An unusual aspect of the list is that most length units are written phonetically and that the unit UŠ is lacking. But the quoted entries mention the previously unknown unit *šu-uš-ša₂-an* = *šuššān* in slots where one expects UŠ. This becomes clear if we compare them with equivalences of the UŠ known from other sources (Powell 1987, 460: Table III). For example, line 8 corresponds to the equivalence 720 cubits = 1 UŠ, line 20 to 6 *ašlu* = 1 UŠ, line 27 to 30 UŠ = 1 *bēru*, and line 30 to 240 *purīdu* (= 240 *nikkassu*) = 1 UŠ. Further confirmation is offered by BM 33458+33577+33585, an unpublished fragment probably from Seleucid or Parthian Babylon (Ossendrijver, forthcoming) with a partial duplicate of W 23281 §1 in which UŠ replaces *šu-uš-ša₂-an* in the entries corresponding to lines 8–9:

side X 15')	[7] ᵀme 20 ¹	<i>i-na am-ᵀma¹-[ti]</i>	ᵀ1 ¹	ᵀUŠ ¹
side X 16')	[7 <i>lim 2 me</i>]	<i>i-na am-ᵀma¹-[ti]</i>	10]	10 ᵀUŠ ¹

(The tablet includes an extra column for the floating sexagesimal numbers which are assigned to the units, i.e. 1 for 1 UŠ and 10 for 10 UŠ). The evidence proves beyond doubt that *šuššān* is the Akkadian reading of the unit UŠ – at least for the scribe of W 23281. This conclusion was not drawn by Friberg and al-Rawi (2016), 95, because in dictionaries and lexical texts *šuššān* is attested only as the Akkadian reading of ŠUŠANA = 1/3 (CAD Vol. Š III, 384). The evidence from W 23281 suggests the existence of a homophonous word *šuššān*(UŠ) which has thus far escaped attention.

It is plausible that this word derives from *šuššu* (*šūšu*, *šūši*) = 60, considering that UŠ is also a common logogram for 60 in all periods of cuneiform. This is now confirmed by a Neo Assyrian star list from Assur (Hätinen and Schaudig, forthcoming) in which the time between successive stellar culminations (*ziqpu*) is expressed in *bēru*(DANNA) and *šu-ši* = *šūši* instead of the expected UŠ. This indicates that in some regions and periods the Akkadian reading of the unit UŠ is *šūši*, the word for 60. The origin and meaning of the ending *-ān* are less clear, but a possible parallel is the Late Babylonian spelling of the length unit *šuppān* (see e.g. W 23281 §1b, c, f in Friberg and al-Rawi 2016, 92). This might suggest that the ending *-ān* was appended to the word for 60 in the Neo or Late Babylonian period. The reason why the unit UŠ is named after the number 60 could be that it consists of 60 smaller units, i.e. the *nindanu*(NINDA). The etymology of *šuššān*(ŠUŠANA) = 1/3 is probably different. According to the AHW (Vol. III *šuššu*) and Kraus (1970), 142 it could be a dualis of *šuššu* < **šudšu* = 1/6, resulting in 2/6 = 1/3. On that account each distinct word *šuššān* derives from a distinct word *šuššu*, one meaning 60 and one meaning 1/6.

Although the evidence for *šuššān* presented above concerns UŠ as a unit of length, there is no reason to suppose that it does not carry over to the reading of UŠ as a unit of time and celestial distance in Late Babylonian astral science. This could support a suggestion by Ossendrijver and Winkler (2018), 392–393, that the Demotic word for degree, *sww*, which has no convincing Egyptian or Greek etymology, is a loanword from Akkadian *šuššān*, and analogously for Syriac *ss'*, attested with the meaning degree in the Syriac *Treatise on the cause of lunar eclipses* (Villey 2011/2012, 418; examples: 165, 167, 168). However, the precise manner in which *šuššān* could have become Demotic *sww* and Syriac *ss'* remains to be established.

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Bibliography

- FRIBERG, J. and AL-RAWI, F.N.H., 2016, *New Mathematical Cuneiform Texts*, New York.
- HÄTINEN, A., and SCHAUDIG, H.-P., forthcoming, *Keilschrifttexte aus Assur literarischen Inhalts*, Vol. nn, Literarische Keilschrifttexte verschiedenen Inhalts, WVDOG, Wiesbaden.
- KRAUS, F.R., 1970, Akkadische Wörter und Ausdrücke IV–V, RA 64, 141–147.
- OSSENDRIJVER, M., forthcoming, *Late Babylonian Mathematical Practices*.
- OSSENDRIJVER, M., WINKLER, A., 2018, Chaldeans on the Nile: Two Egyptian Astronomical Procedure Texts with Babylonian Systems A1 and A2 for Mercury, in: *The Scaffolding of Our Thoughts: Essays on Assyriology and the History of Science in Honor of Francesca Rochberg*, eds. C.J. Crisostomo, E.A. Escobar, T. Tanaka, N. Veldhuis, Leiden, 382–419.
- POWELL, M.A., 1987, Masse und Gewichte, RIA, Vol. M, 457–517.
- PROUST, C., 2019, A Mathematical Collection Found in the ‘House of the *āšipus*’. The Art of Metrology in Achaemenid Uruk, in: C. Proust and J. Steele (eds.), *Scholars and Scholarship in Late Babylonian Uruk*. New York, 89–146.
- ROBSON, E., 2007, SpTU 4 173, ORACC, <http://oracc.org/cams/gkab/P348766>.
- VILLEY, E.C., 2011/2012, *Les textes astronomiques syriaques (VI^e et VII^e s.): établissement d’un corpus et de critères de datation. Édition, traduction et lexique*, École doctorale Littératures, Cultures et Sciences Sociales (ED 68), Thèse de l’Université de Caen Basse-Normandie.

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69) Die Flut und das Vieh im Akkadischen und Ägyptischen — In diesem Beitrag wird eine akkadisch-ägyptische Parallele in Bezug auf die Wohltaten der Flut für das Vieh publik gemacht. Der diesbezügliche Sachverhalt wurde von den jeweiligen Dichtern u. a. an einem ausreichend zur Verfügung stehenden Nahrungsangebot illustriert. Die Literaturen beider Völker stimmen in diesem Punkt deutlich überein.

Für das akkadische Material ziehen wir das Streitgespräch „Der Stier und das Pferd“ heran. In der Einleitung wird folgende Beschreibung von den positiven Seiten der Flut gegeben: