**70) The "small cubit" : a note on Late Babylonian surface mensuration**[1] **–** The areas of urban properties in economic documents from first millennium BC Babylonia were expressed in terms of reeds, cubits and fingers according to a scheme which can be summarised in simplified form as follows :

| | | |
|---|---|---|
| *qanû* (gi) "reed" | c. 12.25 $m^2$ | = 7 surface cubits |
| *ammatu* (kùš) "cubit" | c. 1.75 $m^2$ | = 24 surface fingers |
| *ubānu* (šu.si) "finger" | c. 0.073 $m^2$ | |

The system is based on a rectangular unit whereby the long sides measured 1 length reed, that is, an area cubit had short sides of 1 length cubit (c. 0.5 m) and long sides of 1 length reed (c. 3.5 m).[2]

As a linear measure the small cubit-standard (*ammatu ṣeḫertu* [kùš tur]) is attested in the E-sagil Tablet (line 18), where it is mentioned in contrast with the large cubit-standard (line 8).[3] In fact this "small" length cubit represents the standard cubit in use in Late Babylonian times, that is, the one measuring c. 50 cm (compared with the large or *arû* cubit, which measured c. 75 cm and was in use in Kassite and earlier Neo-Babylonian times).[4] The fact that it became the norm presumably obviated the need to qualify it as "small" in everyday usage.

The "small cubit" used as a measure of area is known from the metro-mathematical text W 23291-x which has been edited by Friberg *et al.*[5] It is equivalent to one square cubit measuring c. 0.25 $m^2$ in area with sides of 0.5 m in length, that is, it constitutes one seventh of a regular area cubit of c. 1.75 $m^2$. Forty-nine of these square cubits made up one reed. In their commentary to the relevant section of W 23291-x Friberg *et al.* observe : "It is doubtful if the small-cubit, the grain, and the small-finger were ever used in every-day life as measures of surface extension. Perhaps these units were only the fruit of scholarly speculation".[6] It can now be shown that the small cubit *was* used in every-day life. The purpose of this note is to draw attention to a unique instance of this usage in the measurement of small properties.

The tablet BM 26545 records the sale of a *bīt šutummi* ("storehouse") located in the vicinity of the Ezida Temple in Borsippa.[7] It was written in

Borsippa in the fifth regnal year of Darius I (517 BC).[8] The most interesting feature of this tablet is the way in which the measurements of the property are expressed. The lengths of the sides of the *bīt šutummi* are given according to the standard length cubit of c. 0.5 m :

| | | |
|---|---|---|
| 12 kùš | c. 6.0 m | upper long side, west (l. 2) |
| 12 kùš | c. 6.0 m | lower long side, east (l. 4) |
| 2 2/3 kùš | c. 1.33 m | upper short side, north (l. 6) |
| 2 2/3 kùš | c. 1.33 m | lower short side, south (l. 7) |

The use of fractions of a cubit rather than fingers (i.e. 2 2/3 kùš rather than 2 kùš 16 šu.si) is not uncommon in linear measurements at this period. The area of the plot as calculated from the lengths of the sides is 7.98 $m^2$. However, instead of expressing the area in the usual way, i.e. in cubits and fingers (whereby the expected total would be approximately 4 cubits 13 1/2 fingers), the total area is expressed as 32 kùš$^{meš}$ tur$^{meš}$, "32 small cubits" (lines 1 and 9).

The acquisition of this small plot enabled the buyer, Marduk-šum-ibni, son of Šulaya, of the Iliya family, to consolidate his holdings of *bīt šutummi*s in this particular vicinity. This is clear from the related tablet AO 20297 (*TBER* Pl. 74), edited by Joannès as *TÉBR* no.xchanged is said actually to lie "next to the 32 cubits which Marduk-šum-ibni purchased" (da 32 kùš$^{meš}$ *šá* MŠI *im-ḫu-ru*, l. 21). From this it is clear that AO e of the "small cubit" is evident also in AO 20297, although it is not explicitly referred to as such (cf. the passage cited above, which simply refers to 32 cubits). This is clear from two other passages :

l. 10f. [1+*en*] *qa-nu-ú* 3 kùš$^{meš}$ *e-de-e-ti ki-šub-bu-ú* / [*ina lìb-b*]*i* 26 kùš$^{meš}$ ḫa.la šá $^{Id}$amar.utu-mu-dù
"1 reed 3 cubits, a single(?) plot of unbuilt land [in whi]ch 26 cubits are the share of Marduk-šum-ibni"

l. 25f. 1+*en qa-nu-ú* 5 kùš$^{meš}$ *ki-šub-bu-ú i-na lìb-bi* 28 1/2 kùš$^{meš}$ ḫa.la *šá* $^{I}$*mu-še-zib-*$^{d+}$en
"1 reed 5 cubits, unbuilt land in which 28 1/2 cubits are the share of Mušēzib-Bēl"

The first passage refers to 26 (small) cubits (c. 6.5 $m^2$) out of a total of 1 reed 3 cubits (c. 17.5 $m^2$). The second refers to 28 1/2 (small) cubits (c. 7.13 $m^2$) out of a total of 121 $m^2$).

In a sample of over 120 urban properties of known size attested in Babylonian economic documents of the first millennium BC, only the aforementioned two tablets can be shown to use the small cubit in expressions of area. However, this may be down to the fact that documented properties of such a small size (i.e. those for which this unit of measurement was appropriate) are extremely rare.[9]

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2. For an explanation of Neo- and Late Babylonian surface mensuration the reader is referred to the treatment by M. Powell, "Late Babylonian surface mensuration", *AfO* 31 (1984) 32-66, as well as the relevant sections in M. Powell, "Maße und Gewichte", *RLA* 7 (1990) 457-530.

3. A.R. George, *Babylonian Topographical Texts.* OLA 40 (Leuven 1992) pp. 113ff. no. 13. For further references to the large cubit see *CAD* A/II 74 *s.v. ammatu* A 2.k.1' *ammatu rabītu* and A 2.k.3' *ammat arê*. The *ammatu rabītu* as a unit of area is also attested in a recently published tablet from Uruk dating from the reign of Nabonidus (D. Weisberg, *Neo-Babylonian Texts in the Oriental Institute Collection.* OIP 122 [Chicago 2004] no. 169 i 14, 16, 20, 23, ii 1, 13) ; in the same administrative document the area cubit is also used without any qualification (e.g. ll. i 5, 9).

4. See George 1992 : 119 for a summary of the different metrological systems used in the E-sagil Tablet.

5. J. Friberg, H. Hunger and F. al-Rawi, "'Seed and reeds'. A metro-mathematical topic text from Late Babylonian Uruk", *BaM* 21 (1990) 483-557 (on the small cubit see pp. 536 ff.).

6. Friberg *et al.* 1990 : 540.

7. For further discussion of these structures see F. Joannès, *Textes Économiques de la Babylonie Récente (Études des textes de TBER - Cahier no. 6)* (Paris 1982) 306-310, hereafter referred to as *TÉBR*.

8. The tablet is dated 20-III-5 Dar.

9. The sizes of urban properties are discussed in greater detail in H.D. Baker, *The Archive of the Nappāḫu Family.* AfO Beiheft 30 (Vienna in press) Chapter 5, and also in

a study by the author on *The Urban Landscape in First Millennium BC Babylonia* which is being conducted under the auspices of the START-Project.

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