

## Cretan Hieroglyphic Wool Units (LANA, double mina)\*

Younger, John G. 2005. "Cretan Hieroglyphic Wool Units (LANA, double mina)." In: *Studi in onore di Enrica Fiandra. Contributi di archeologia egea e vicinorientale* (Studi egei e vicinorientali 1), edited by M. Perna, 405-409. Paris: De Boccard.

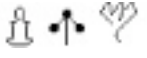


§1. From Malia Quartier Mu (MM IIb) comes a clay lame<sup>1</sup> (a thin slat- or spatula-shaped document) inscribed in Cretan Hieroglyphic on both sides:



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\* I am honored to dedicate this note to Professor Enrica Fiandra and in loving memory of Piera Ferioli. They have been warm friends and excellent colleagues. Citations of Hieroglyphic inscriptions and signs refer to CHIC: J.-P. Olivier and L. Godart eds. (in collaboration with J.C. Poursat), *Corpus Hiéroglyphicarum Inscriptionum Cretae*, Paris: De Boccard, 1996. Citations of Linear A inscriptions and signs refer to GORILA: L. Godart and J.-P. Olivier, *Recueil des inscriptions en Linéaire A*, Paris: Librairie Orientaliste Paul Geuthner, 1976-1985. Citations of Linear B documents from Knossos refer to John T. Killen and Jean-Pierre Olivier, *The Knossos Tablets*<sup>5</sup>, Salamanca 1989, and from Pylos refer to transcriptions taken from E.L. Bennet jr., *The Pylos Tablets*, Princeton 1955.



<sup>1</sup>. [original footnote] Lames are only known from Malia Quartier Mu; there are 10 of them (CHIC #085-094). One is uninscribed (#094); four carry short inscriptions on only one side (#085-088); and the remaining five have both sides inscribed. [corrected footnote] Lames are known from Malia Quartier Mu and Kato Syme;

CHIC #089 (HM 1676; 2.5 x 8.3 x 0.8 cm)

a. X  | VACAT X 044-049-023 | VACAT  
b.  |  034-041-084 | 051-051-051-041

Note the raised position of  041 on side b after  051-051-051.

§2. The presentation of the two texts, each divided into two parts by a vertical line, follows what I term the "ledger" format, in which one half of the text correlates to the other half (in transaction documents, one half records contributions paid and the other half presents contributions owed, the two totalling an assessment).<sup>2</sup>




§3. On side a, signgroup  044-049 is mostly found on Hieroglyphic sealstones, and often in conjunction with iC 044-005;  044-049 can be demonstrated to mean "balance" or "paid."<sup>3</sup>

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there are 11 of them (Malia: CHIC #085-094; Syme: *Kadmos* 34 [1995] 63-77). One is uninscribed (#094); four carry short inscriptions on only one side (#085-088); and the remaining six have both sides inscribed.

<sup>2</sup>. An example is CHIC #063, discussed in John G. Younger, "Cretan Hieroglyphic Transaction Terms," *Briciaka. A Tribute to W.C. Brice (Cretan Studies 9)*, edited by Yves Duhoux, 301-16 (Amsterdam: Adolf M. Hakkert 2003), §16-18.





<sup>3</sup>. Younger 2003 (supra n. 2): §7-12, 16-18.

Sign  023 usually functions as a final sign in a Hieroglyphic signgroup;<sup>4</sup> morphologically it seems to be the predecessor to AB   TU/*tu* and the ideogram OLIVA \*154,<sup>5</sup> probably the latter here.

Side a, therefore, probably reads

   | VACAT X 044-049 023 I VACAT

implying, "the assessment (of olives?) has been fulfilled."

§4. The text on side b is more challenging. Sign  041 is probably the Hieroglyphic predecessor to AB  \*54 WA and ideogram A \*54 and B \*159 TELA, cloth. The preceding Hieroglyphic sign  034, if rotated clockwise 90 degrees, is probably the predecessor of AB  59 TA. In Linear A, TA can stand alone as an ideogram<sup>6</sup> or it can act as an adjunct to OLE,<sup>7</sup> but TA does not precede either WA or TELA in Linear A.

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<sup>4</sup>. The most common appearance of sign 023 is in the disyllabic signgroup 057-023 xm *KI-TU* (#39.b2, #049.b1, #055.a, #113.d, #243.g, #324; cf. #027.d; for the phonetic value of 057 *KI*, see Younger 2003 [supra n. 2], §21-3), apparently a name with parallels in Linear A (*KI-TA-I*, *JA-KU-TI*, *KA-TI*, *vel sim.*).



Otherwise, the sign appears as the logogram CHIC \*159.

<sup>5</sup>. It may not be coincidental that *OLIV+TU* occurs on Linear A documents HT 50a.4, HT 101.6, HT 116a.5.

<sup>6</sup>. HT 94a.2; HT 109.2?; HT 154A.4?; HT Wa 1267-78; MA 4a.1; PH 3a.1?; PH 7b.1?; and THE Zb 5.2 (G. Owens, "Further Comments on the Linear Inscriptions from Thera," *Kadmos* 36, 1997, 172-3).

<sup>7</sup>. HT 30.3, 5; HT 35.3; KH 19.2; KH 39.2; KH 55.2; KH 61.3; KH 66?; KH 85.1?; ZA 10b.6-7; ZA 24b?.

In Linear B, however, it is *te* that modifies *TELA*,<sup>8</sup> and the word that it abbreviates is *te-pa*, a type of cloth whose name is apparently non-Greek and possibly therefore Minoan.<sup>9</sup>







Linear A document HT 104 is given the heading TA-PA \*505<sup>10</sup> followed by three signgroups (probably names) and numbers totaling (KU-RO) 95. TA-PA here is *hapax legomenon* and its meaning cannot be determined, but its occurrence allows us to speculate that TA-PA might have been the Linear A predecessor of Mycenaean *te-pa*, and thus perhaps Hieroglyphic's term as well. If so, then   034-041/\*163 could be *TA+TELA*, standing for *TA-PA CLOTH*.







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

<sup>8</sup>. KN Lc 530B; KN Lc 532B; KN Le 641.02-04; KN Le 5646B.02; KN Le 5930.02; KN Ln 1568B.01-03; PY La 624; PY La 1393.02; PY Un 6V.01, 02; and the sherd from Tel Haror (Margalit Finkelberg, "Bronze Age Writing: Contacts between East and West," in *The Aegean and the Orient in the Second Millennium*, edited by Eric H. Cline and Diane Harris-Cline, 265-71, *Aegaeum* 18; Liège 1998).

<sup>9</sup>. Jean-Pierre Olivier quoted in E. Oren et al., "A Minoan Graffito from Tel Haror (Negev, Israel)," *Cretan Studies* 5 (1996) 91-117, esp. 104. F. Aura Jorro, *Diccionario griego-español*, 2. *Diccionario micénico* (Madrid 1999) 331-2 also admits *te-pe-ja* on KN Le 641.4 and TH Of 35.1 and *te-pe-ja-o* on PY Ad 921.

<sup>10</sup>. Sign \*505 is a *hapax legomenon*; GORILA 5: xxiv identifies it as a ligature of 04+02, TE+RO, but perhaps it is a ligature for TE+PA, the central line across the vertical stroke of the second sign looking like a single line (and thus RO) rather than a double one (PA).



§5. Skipping over sign  084 on our lame (see §8-9 below), we look at the second half of the statement on side b,     051-051-051-041. Sign  051 occurs rarely in Hieroglyphic, but at least twice it is a logogram.

#039.b2	   <b>120</b>	057-023- <u>051</u> <b>120</b>
#090.a-b	X    <b>7000</b>	016-038-007-051 <b>7000</b>

On the lame, the triplication of  051 seems to mimic numbers,<sup>11</sup> and the raised position on the lame of  041 after    051-051-051 (    ) looks like an adjunct, as if 3  +  .




Compare the three Linear A appearances of TELA:

HT 38		
.3	TELA+KU (*535)	<b>2</b>
.3	TELA+*312 (*536)	<b>1</b>
HT Wc 3019	TELA <sup>3</sup>	<b>3 E.</b>

Logogram  \*312 in the second entry of HT 38.3 resembles a dagger, and thus is probably the Linear A version of Hieroglyphic  051. It is found several times as a lone logogram in Linear A: among lists of grain and olives (ARKH 3a.5; HT 123b.1; KH 8.4) and associated with low numbers (usually 1, but also 6 [HT 26a.1] and 40 [ZA 6b.2-3]), possibly indications not of quantity but of weight.

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<sup>11</sup>. No Hieroglyphic or Linear A signgroup contains three successive examples of the same sign.

§6. The first entry on HT 38.3, TELA+KU, may imply a phonetic value for Linear A  \*312 and Hieroglyphic  051. In Linear A the adjunct KU is fairly common: GRA+KU<sup>12</sup>, CAP<sup>m</sup>+KU<sup>13</sup>, \*188+KU.<sup>14</sup> In Linear A, sign \*312 also appears as a syllabogram only as \*312-TA (HT 10b.2), \*312-TE-TE (HT 26a.1), and \*312-TA<sub>2</sub> (ZA 6b.2-3). There is only one certain Linear A parallel for a disyllabic word ending in -TA, SA-TA (HT 42.1; HT 117a.7), although KU-TA[ (HT 115b.4) might also be valid (cf. I-KU-TA, HT 35.1-2). But there are two Linear A parallels for the trisyllabic ending in -TE-TE: JA-NA-KI-TE-TE- (PK Za 8.a) and A-DI-KI-TE-TE- (PK Za 11.a-b). It is thus likely that the consonantal value for Linear A  \*312 is K, possibly KU.

§7. On the roundel HT Wc 3019 (which contains the third occurrence of TELA), the number **3** comes from the three seal impressions of *CMS* II.6 no. 33 (a ring impression: woman rides Babylonian Dragon right). Since the fraction E can be demonstrated to be 1/4,<sup>15</sup> the number **3** E probably means 3 and 1/4.





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


<sup>12</sup>. HT 61.1; HT 128a.2, a.3, b.1-2.









<sup>13</sup>. PH? 31a.2, a.4, b.4.

<sup>14</sup>. HT 16.3; HT 20.5.

<sup>15</sup>. M. Pope, "The *Cretulae* and the Linear A Accounting System," *Annual of the British School at Athens* 55 (1960) 200-10, esp. 204-5.

§8. In both our Hieroglyphic document #089 (§1) and on the two Linear A documents HT 38 and HT Wc 3019, TELA apparently comes in three (sub)units (Hieroglyphic  051, Linear A  \*312/KU[?]). In Linear B, the standard unit of weight for wool is represented by the special sign \*145  LANA ("wool") consisting of three double-minas (, M), each of which weighs ca. 946 gr; the wool-unit LANA therefore weighs ca. 2.8 kg.<sup>16</sup> This large unit represents the wool gathered from four sheep.<sup>17</sup>









The double mina, therefore, ought to be represented by Hieroglyphic  051, and by Linear B  M (and by its Linear A predecessor   [D D {\*707 \*707}; see §10]).<sup>18</sup>



§9. On our Hieroglyphic document #089, the wool-unit is undoubtedly represented by sign  084 (presumably a sheep face) to which the 3 double minas (     051-051-051-041) are equated. Linear B \*145  is derived from a ligature of *ma+ru* (  +  ), a word not otherwise attested in

<sup>16</sup>. Karl M. Petruso, "Wool-Evaluation at Knossos and Nuzi," *Kadmos* 25 (1986) 26-37.

<sup>17</sup>. This may imply that the correct understanding of HT Wc 3019 (TELA<sup>3</sup> 3 E) is "3 double minas (from four sheep) plus the wool from one more sheep (of a second set of four [= 1/4])," that is, "the wool from five sheep."

<sup>18</sup>. As on HT 6a.3 (JA+RU D D), HT 41a.4 (MI-DA-NI 2 D D), HT 45b.1 (J8 D D), HT 94a.4 (CYP DD, NI DD), HT 100.4 (NI 2 D D), HT 115a.4 (A-SE-JA D D D D), PA 3a.2-3 (MA+MA D D, MA+RU D D), PA-RA D D), ZA 8.2 (KU-TU-KO-RE D D), ZA 18a.1-2 (KU-\*321 GRA+PA 2 D D, GRA+[ ] 2 D D).

Linear B. The same ligature is found in Linear A (sign  \*559 [and signs \*558 and \*560-562]) and this must be the predecessor to Linear B \*145 . Since both Hieroglyphic  084 and AB MA+RU look like animal faces (sign A  and B  80 MA/*ma* probably derives from the Hieroglyphic catface , which CHIC admits as a possible sign in Hieroglyphic),<sup>19</sup> it is likely that Linear A  \*559 MA+RU depends on Hieroglyphic  084 for the shape, but cleverly spells out the word, apparently the Minoan predecessor to Greek μάλλός, wool.<sup>20</sup>

§10. In Linear A the wool-unit MA+RU appears in at least two texts, possibly four. HT 12 presents a list of commodities (including oil and figs) from apparently three sites; QE-TU-NE also contributes MA+RU TALENT **5**, presumably 50 wool-units (at 10 LANA = 1 TALENT). HT 24 presents MA+RU from three places and further qualifies MA+RU with MU (i.e., MA+RU-MU) perhaps in all entries; the units are between 6 and 10 (wool-units). PH 3 lists MA+RU (along with MA+A and MA+MA) and gives its amount at  (D D), the equivalent to Linear B  M, one double mina (§8 and note 18). And KH 43 lists MA+RU-RE **2**, two wool-units.

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<sup>19</sup>. CHIC 14, n. 37.

<sup>20</sup>. Cf. TH Of 25 and 35, where *ma-ri-ne-we-ja-i* is mentioned along with LANA (at Of 35.1, LANA is further modified by *te-pe-ja* and KU).

§11. Side b of our Hieroglyphic lame therefore reads:

 034-041 084 | 051-051-051-041

"TA<-PE>+CLOTH LANA | = 3 double minas CLOTH," probably implying the fulfillment of an assessment of one wool-unit here further defined as consisting of three double minas.

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