

LISTING BY AGE AND OCCUPATION IN MINOAN LINEAR A

There are six lists of personnel in the Hagia Triada Linear A archives (HT 27a, 89, 94a, 100, 127b). Two of them are written on one tablet (HT 27a), and all of them are totalled, ending with the Minoan word *ku-ro* and a numeral (see table 1). The presence of the ideogram for man (VIR) and its variants (VIR+*313a, VIT+*313b, VIR+*313c) identifies all these texts as lists of personnel. Other groups of personnel are qualified by ideograms (*86, *304+PA, *305, *307, *65 +*317+QE), syllabic signs used as ideograms (KI, KI+MU, KU, RE,

Table 1 (lists of personnel)

HT 27a		HT 89		HT 94a	
<i>ti-ni-ta</i> *307]ki-*310	<i>a-sa-ra</i> ₂ *307		<i>ka-pa</i>	
VIR 90	<i>ku</i> -*305 []	*305 23		VIR 62	
*86 51	<i>sa-ra-di</i> 5	*65+*317+QE 22		*86 20	
RE 20	VIR 42	<i>ma-i-mi</i> 24		TI+A 7	
<i>i-mi-sa-ra</i> 43		VIR+*313a 13		VIR+*313b 18	
]QE 21		<i>ta-ra</i> 5		TA 4	
<i>ki-da</i> []					
<i>ku-ro</i> 355		<i>ku-ro</i> 87		<i>ku-ro</i> 110	

HT 100		HT 127b	
[]		[]	
VIR+KA 58		*307 156	
*304+PA [4]		KU 82	
TI+A 12		VIR+*313c 24	
KI 2		KI+MU 15	
*305 5		TI+A 11	
VIR+*313a 16		[] 4	
<i>ku-ro</i> 97		<i>ku-ro</i> 292	

TA, TI+A), and phonetically written words (*i-mi-sa-ra*, *ki-da*, *ku-*305*, *ma-i-mi*, *sa-ra-di*, *ta-ra*). The aim of the present article is to elucidate the possible meaning of some of these qualifications.

The only sign whose meaning can be derived from its pictorial form is *86, which is a picture of a ship. It is attested both in Minoan Linear A and Mycenaean Linear B, but it functions in the two scripts differently: in Linear A it is always an ideogram, but in Linear B it is always a phonetic sign of unknown value. In Linear A *86 is attested in two different contexts: in lists of personnel (HT 27a, 45a, 94a,b), where it stands for group of sailors, and in connection with various commodities (HT 11b, 140, KH Wc 2056, 2057) and with the sign for load (*188) standing for actual ships (HT 8b, 26b, KH Wa 2058, 2059, 2061, 2062, 2109, 2117b). On HT 94 the sign *86 is found twice: on the obverse as an item in the list of personnel, and on the reverse as a heading introducing two personal names.¹ As for HT 45a, the sign for ship is found there in front of the sign *305, which is also attested in lists of personnel (HT 89, 100).

This sigma-like sign (*305) is probably a picture of a double bow, and it appears on HT 45 not only after *86, but also twice after the picture of a table (*318), which is also found on HT 94a. The same combination of a table and a double bow appears also on HT 126, but these two signs are found there on two different sides of the tablet. The connections between all these texts are shown on table 2.

Table 2 (ship, table and ‘double bow’ as groups of personnel)

Text No.	Ship	Table	DOUBLE BOW
HT 27a	*86 51		
HT 45a	*86	*318	*305 2[*305 2
HT 45b		*318	*305 7
HT 94a	*86 20	*318-*306 11	
HT 94b	*86 (2)		
HT 126a		*318 [
HT 126b] *305 3

On HT 94a the table-like sign (*318) is found in a third heading where it is combined with the sign *306, which is probably a gender

¹ For an overall structure of HT 94 see A. Uchitel, HT 94, *Minos* 37/38, 2002/03, pp. 81–88.

denominator.² This probably means that the table stands for a female occupation, probably cooks. ‘Double bow’ (*305) possibly indicates an age group since on HT 89 it is found side by side with a word *ma-i-mi*, which can be analysed as an Anatolian passive participle derived from a verb *mai-* ‘to grow’ and meaning ‘grown-ups’.³ This conclusion about the functioning of *305 can be further confirmed by its appearance as a complementary sign written before or after the main ideogram in six more cases (see table 3). At least two of the main ideograms (*307 and *TE*) are well-attested very general qualifications of groups of personnel.⁴

Table 3 (‘double bow’ as a complementary sign)

Text No.	Preceding sign	DOUBLE BOW	Following sign	Numeral
HT 41a		*305 <i>RE</i>	*304 *304	10 10
HT 45a	*86 *318	*305 *305		2 2
HT 45b	*318	*305		7
HT 57b	[]	*305		8
HT 63		*305	<i>TE</i>	1
HT 79	<i>I</i>	*305		[]
HT 89	*307	*305		23
HT 126b	[]	*305		3
HT 132	*56	*305		1[

The proposed interpretation of *305 would mean that the personnel of HT 89 is divided into several age groups. Another possible candidate for an age group qualification is *317, which is a picture of a double axe attested with or without several phonetic complements (*65+*QE*, *QE*, *KI*). On HT 96a it is found in conjunction with *323, which is a triangle with a vertical dividing line, and on PH 9a a double axe with a phonetic complement *QE* appears in combination with

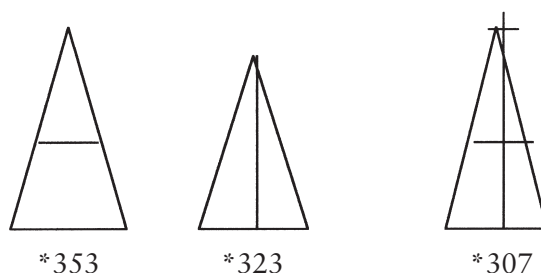
² For this identification see A. Uchitel, The Minoan Linear A Sign for ‘Woman’: a Tentative Identification, in *Engendering Prehistoric ‘Stratigraphies’ in the Ancient Aegean and the Mediterranean* (ed. K. Kopaka), forthcoming.

³ See M. Finkelberg, *Minoan Inscriptions on Libation Vessels*, *Minos* 25/26, 1990/91, p. 80, note 86; A. Uchitel, *Records of Conscription, Taxation and Monthly Rations in Linear A Archives*, *Minos* 29/30, 1994/95, p. 85, note 24.

⁴ See A. Uchitel and M. Finkelberg, *Some Possible Identifications in the Headings of the Linear A Archives*, *SMEA* 36, 1995, pp. 33–34.

a similar sign *353, which is also a triangle, but with a horizontal dividing line. Both signs combined with a double axe are probably variants of above mentioned *307, which is a triangle with a vertical as well as a horizontal dividing line inside (see figure 1).

Figure 1 (triangular signs *353, 323, and *307)



At Khania *317 with a phonetic complement *KI* appears on KH 7a before *334, which is an ideogram for some unidentified animal since it is found also on KH 6 side by side with a goat (CAP^m) and an ox (BOS). Also at Khania the same ligature of a double axe and *KI* appears on two clay nodules (KH Wa 1001, 1002) on side α. On side γ of them another ligature of a phonetic sign *DA* with a cross, which can be either phonetic sign *RO* or a fractional numeral B, is written. On the basis of this evidence it seems that *317+*QE* is used to indicate the age group of human beings, while *317+*KI* indicates the age of animals (see table 4).

Table 4 ('double axe' as a complementary sign)

Text No.	Preceding sign	'Double Axe'	Following sign	Numeral
HT 96a	*323 *323	*317 *344		1 1
KH 7a		*317+ <i>KI</i>	*334	4
KH Wa 1001		*317+ <i>KI</i>	<i>DA</i> +B	
KH Wa 1002		*317+ <i>KI</i>	<i>DA</i> +B	
PH 9a		*317+ <i>QE</i>	*353	x

Another sign found in a list of personnel (HT 100), whose meaning can be possibly elucidated, is *304+*PA*. *304 is an arrow-shaped sign,

which is frequently found in lists of agricultural commodities (HT 12, 14, 18, 21, 28, 50, 90, 91, 101, 116a, 116b, 131, ZA 6a) usually together with grain (GRA), olive oil (*302) and olives (OLIV), and rarely (HT 125b, 129) with grain and figs (NI). Sometimes (HT 33, 82, KH 12) it is drawn above the picture of a jar (*401^{VAS}). Only at Phaistos is found *304 after the ideogram for man (VIR) standing probably for a group of personnel:

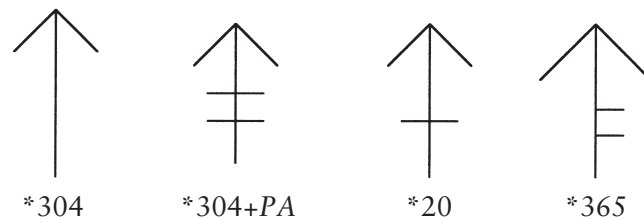
PH 8a.2 VIR 11 *304 2

It is less clear whether *304 refers to a group of men or to an agricultural commodity, as in all other cases at Hagia Triada on HT 41a where it follows the above-discussed double bow sign *305 and an abbreviation RE:

HT 41a] <i>qe-tu</i>	10
	*305 *304	10
	RE *304	10
	<i>mi-da-ni</i>	
	<i>pa-ja</i>	2DD

However, an addition of two horizontal lines crossing the central axis of *304, which is conventionally transliterated as a phonetic complement PA, certainly transforms this sign into a qualification of a group of personnel since this ligature is found on HT 100 (see table 1). It is useful in this context to compare *304+PA with two similar signs transnumerated as *20 and *365. Both signs are formed on the basis of the same arrow-shaped drawing, whose central axis is either crossed with one horizontal line (*20) or with two horizontal lines attached to it on the right side (see figure 2).

Figure 2 (arrow-shaped signs *304, *304+PA, *20, and *365)



*20 is attested also in Linear B where it functions as a phonetic sign with the value zo. In Linear A however it appears only once (KH 57) in the position of an ideogram. *365 is also found once as a single sign on a clay nodule (HT Wa 1849). The comparison between the four forms shows that various horizontal lines added to a main

arrow-shaped sign are pictorial rather than phonetic complements. It should be taken into account also that two horizontal lines crossing the central axis of ideograms for sheep and goats are used both in Linear A and B as gender determinative for male animals. If this practice is valid also for human beings, the proper representation of *304+PA should be *304^m.

*304+PA and *20 are also found in close proximity to an agricultural commodity in several texts, but this commodity is always barley (*303),⁵ not grain, indicating probably food rations (see table 5).

Table 5 (*304+PA and *20 associated with barley rations)

Text No.	Heading	Personnel	Rations
HT Wa 1021 bis		*304+PA	*303+D 3
HT Wc 3016	<i>ka-ku-pa</i>	*304+PA	*303+D
HT Wc 3017	<i>qe-ku-re</i>	DI *306 *304+PA	*303+D
HT Wc 3020	*188 DU	*304+PA	*303+D
KH 7b	<i>u-ta-i-se</i> <i>pu-na-tu</i>	*304+PA	*303+D J *303+D J SI 14 *303+K 2
KH 13	<i>a-se-re-za</i>	*304+[PA]	*303+B
KH 57	[]	*20 1	*303+[] E

Two clay roundels HT Wc 3016 and HT Wc 3017 are most instructive for elucidation of the possible meaning of *304+PA since their headings *ka-ku-pa* and *qa-ku-re*, as well as an abbreviation *DI*, connect them with the so-called ‘loom tablets’ HT 16 and HT 20.⁶ According to HT 16 the full phonetic reading of an abbreviation *DI* was *di-na-u*, and according to a gender determinative *306 which qualifies this abbreviation on HT Wc 3017 this was a female occupa-

⁵ R. Palmer proposed to interpret it as emmer wheat, see R. Palmer, *Linear A Commodities: A Comparison of Resources, Politeia, Society and State in the Aegean Bronze Age* (Aegeum 12), ed. R. Laffineur and W. D. Niemeier, Liège, 1995, vol. 1, pp. 133–156. For a criticism of this theory see A. Uchitel, *Local Differences in Arrangements of Ration Lists on Minoan Crete, Archives and Archival Traditions. Concepts of Record-Keeping in the Ancient World* (ed. M. Brosius), Oxford, 2003, p. 143, note 6.

⁶ For this connection see J. Weingarten, *Seal-use at LM I B Ayia Triada: a Minoan Elite in Action I. Administrative Considerations*, *Kadmos* 26, 1987, pp. 27–28.

tion.⁷ *304+PA is found side by side with this abbreviation on the same clay roundel and on several other clay nodules and roundels associated with this group of texts (see table 6). Therefore, *304+PA probably designates members of a male personnel involved in the textile industry. In ancient Mesopotamia these were mostly fullers (Sumerian *ašlag*),⁸ and this was most probably the occupation of those designated *304+PA. This identification also helps to interpret the arrow-shaped sign *304 itself, which probably stands either for one of the so-called ‘soap plants’ used in antiquity as a substitute for soap (most likely the sand lily), or for the prickly teasel (*spina fullonica*) used by fullers to card or to clean wool. This plant was called in Greek κνάφος, and the Greek word for fuller (κναφεύς, Mycenaean *ka-na-pe-u*) was derived from its name.

Table 6 (male and female personnel of LOOM⁹ tablets and associated nodules and roundels)

Text No.	Heading	Women	Men	Barley	LOOM
HT 16	<i>ka-ku-pa</i>	<i>di-na-u</i> F			LOOM B
HT Wc 3015	<i>ka-ku-pa</i>			*303	
HT Wc 3016	<i>ka-ku-pa</i>		*304+PA	*303+D	
HT Wa 1020α	<i>ku-pa</i>		*304+PA		
HT 20	<i>qe-ku-re</i>	<i>DI</i> J			LOOM E
HT Wc 3017	<i>qa-ku-re</i>	<i>DI</i> *306	*304+PA	*303+D	
HT Wa 1021bis			*304+PA	*303+D 3	
HT Wc 3019					LOOM E
HT Wc 3020			*304+PA	*303+D	

However, several characteristics of *DI/di-na-u* outside the group of ‘loom tablets’ do not fit the assumption that these were always female textile workers. Firstly, *di-na-u* appears on a rim of a clay vessel from Knossos (KN Zb 27) before the ideogram for wine (VIN):

KN Zb 27 *di-na-u* VIN 17

⁷ See note 2.

⁸ See H. Waetzoldt, *Untersuchungen zur neusumerischen Textilindustrie*, Roma, 1972.

⁹ There is no conventional transliteration for this sign, since in GORILA it is confused with the syllabic Linear A/B *54 (*wa*).

It is not likely that women would receive wine. Thus, when the personnel of HT 94a was reclassified for the purpose of rationing according to their age and sex composition, only the male group received wine, while rations of women and children consisted of barley and figs only (see table 7).

Table 7 (second part of HT 94a dealing with rations)¹⁰

<i>sa-ra</i> ₂	*318-*306 11	[] 11
*303 5 NI 3H [VIN] 2	*303 DD NI DD	*303 J NI D

Secondly, *DI/di-na-u* is characterised by multiple appearance in three lists of names (HT 3, 25, 69), and in one mixed list of agricultural commodities and personnel (HT 32). In other words, this expression appears several times in the same list, as if it were a subheading dividing the text into sections. Unlike other subheadings found in this capacity in other texts, however, *DI/di-na-u* itself is followed by the numeral (see table 8).

Table 8 (multiple appearance of *di-na-u/DI* in lists of personnel)

HT 3	HT 25	HT 32	HT 69
[]	[]	*307 <i>sa-ra</i> ₂	[]
[] <i>ma</i> []	[] 1	*308 J	[] 5
<i>di-na-[u]</i> []	<i>di-na-u</i> [1]	*302+NE JK	<i>DI</i> 8
[] 2	<i>ru-ni</i> 1	*510 1K	<i>ma-di</i> 4
<i>qe-ra</i> ₂ - <i>ja</i> []	<i>u-re-wi</i> 1	*508 1	<i>DI</i> 12
[] 2	<i>di-na-u</i> 1	*550 1	[]
<i>DI</i> 2	<i>a-ri-ni-ta</i> 1	<i>su-re</i> 108	
[] 4	<i>tu-qe-nu</i> [1]	<i>DI</i> 65	
<i>me-ru</i> 1	*79-*65- <i>pu</i> ₂ 1	*302+NE []	
<i>ru</i> [] []	<i>du-ru-wi</i> [1]	<i>RE</i> 104	
<i>si-tu-ra</i> ₂ - <i>re</i> 5	<i>i-ki-ra</i> 1	<i>DI</i> 53	
<i>DI</i> []	<i>PA</i> 1		
<i>ku</i> -*56- <i>nu</i> 3	[...] [+5]		
<i>ma-di</i> 2			
<i>da</i> [] []			
	<i>ku-ro</i> 16		

¹⁰ For this reconstruction of this part of the text see GORILA 5, p. 73 (corrigenda). For this interpretation see note 1.

The only reasonable explanation for this unusual distribution is, in my opinion, that *DI/di-na-u* stands for male and female supervisors of work-teams. It is possible that this Minoan word is related to the Luwian *tinata* – ‘tithe’ derived from the Indo-European word for ten with a typically Luwian dropping of *k*.¹¹ If this interpretation be correct, the meaning of the Minoan *di-na-u* should be ‘decurion’.

Conclusions. Two occupational qualifications and three age groups can be tentatively identified in Minoan Linear A. The occupations are: *86 – ‘sailors’ and *304+PA – ‘fullers’; the age groups are: *ma-i-mi* – ‘grown-ups’, *305 (‘double bow’), and *317 (‘double axe’). As for the Minoan word *di-na-u*, it could designate either female textile workers (with gender determinative *306) or supervisor of work-teams (‘decurions’). Another possible female occupation is *318 (‘table’), probably cooks.

¹¹ See A. Morpurgo Davis and J. D. Hawkins, The Late Hieroglyphic Luwian Corpus: Some New Lexical Recognitions, *Hethitica* 8 (Acta Anatolica E. Laroche oblata, ed. R. Lebrun), 1987, pp. 283–286.