

8 Linear A Syllabary, Numbers, Measures and Proofs

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Summary of Linear A syllabary, numbers, measures and proofs

This document contains reference material to aid translation of Linear A texts:

- Linear A syllabary derived from inscriptions
- Numbers, currency, weight, length, area, dry and liquid measures
- Names of each syllable of Linear A
- Cross references to established sources
- Proofs that Minoans spoke and wrote in Finnish
- Sources of inscriptions, dictionaries and concordances

Linear A syllabary

Linear A syllabary

Minoan syllables had eleven consonants and seven vowels. Sometime around 1700 BC, new inhabitants introduced a dialect that methodically changed the vowel of the second syllable. Many scribes on the south coast continued to write in the old dialect.

Table 1: Linear A syllabary with Linear B reference.

A		E	I	O	U		Linear B	
A	Ä	E	I	O	U	Y	Linear A	Linear B
a 08a 𐀀𐀁	ä 21a 08b 𐀁𐀂	e 21f 40 188 309b 𐀃𐀄𐀅𐀆𐀇	i 317 𐀈	o 61 𐀉𐀊	u 10 326 𐀋𐀌𐀍	y 𐀎	uro usa 120 120b 𐀏𐀐	Linear A Linear B
ha 57a 𐀑	hä 305 57b 𐀒𐀓	he 46 𐀔	hi 304 𐀕𐀖	ho 51c 𐀗	hu 49 41b 𐀘𐀙𐀚	hy 𐀛	hota hilo 53b 20 𐀜𐀝	H J
ja 54a 𐀞	jä 22 54b 𐀟𐀠	je 𐀡	ji 𐀢	jo 24 𐀣𐀤	ju 65 𐀥𐀦	jy 𐀧	jula 𐀨	J W
ka 06 𐀩𐀪𐀫	kä 11 349 𐀬𐀭𐀮	ke 41a 41b 𐀯𐀰	ki 30a 𐀱	ko 28 X 318 𐀲𐀳𐀴	ku 55b 𐀵	ky 30b 𐀶	koko 82 𐀷	K N
la 60 𐀸𐀹𐁀	lä 𐁁	le 27 𐁂	li 17 53a 𐁃𐁄	lo 02 𐁅	lu 26 𐁆	ly 76 𐁇𐁈𐁉	lome 131b 𐁊	L R
ma 16 𐁋𐁌	mä 𐁍	me 78 308 𐁎𐁏𐁐𐁑	mi 100 102 𐁒𐁓𐁔	mo 𐁕	mu 38 𐁖𐁗	my 𐁘	𐁙	M Q
na 31a 𐁚𐁛	nä 31b 𐁜𐁝	ne 09 𐁞𐁟	ni 34 𐁠𐁡	no 86 131a 𐁢𐁣	nu 58 𐁤	ny 𐁥	𐁦	N S
pa 01 𐁧	pä 70 303 𐁨𐁩	pe 45 𐁪𐁫𐁬	pi 07a 𐁭𐁮	po 79 𐁯𐁰𐁱	pu 122 51b 𐁲𐁳𐁴	py 47 07b 𐁵𐁶𐁷	𐁸	P D
ra 59 𐁹	rä 𐁺	re 04 04 56 𐁻𐁼𐁽	ri 37a 𐁿𐁾𐁿	ro 05 𐂀	ru 69 312 𐂁𐂂𐂃	ry 𐂄	roma 32j 𐂅	R T
sa 03 𐂆𐂇	sä 55a 𐂈𐂉	se 703 𐂊	si 37b 310 302 85 𐂋𐂌𐂍𐂎	so 39 308 𐂏𐂐𐂑	su 50 314 𐂒𐂓𐂔	sy 𐂕	𐂖	S P
ta 301a 29 77a 𐂗𐂘𐂙𐂚	tä 23 301b 77b 𐂛𐂜𐂝	te 44 123 𐂞𐂟	ti 67 𐂠	to 51a 𐂡	tu 81 𐂢𐂣𐂤	ty 𐂥	tasa telo 118 𐂦𐂧	T K
va 80a 𐂨𐂩	vä 80b 𐂪𐂫	ve 13 319 𐂬𐂭𐂮	vi 73 315 𐂯𐂰𐂱	vo 66 𐂲𐂳	vu 306 𐂴𐂵𐂶	vy 316 𐂷𐂸	𐂹	V M

Table 2: Minoan dialect, change in vowel sound of second syllable.

Minoan Classic, EM IIA	Begin 2400 BC	A	E	I	O	U
Minoan Dialect, LM 1A and later	After 1700 BC	E	A	I	U	O

Linear A numbers and fractions

Minoans counted in base ten and wrote smaller numbers to the right. Written characters for numbers go from zero to six, then ten. Eight and nine are said as ten-minus-two and ten-minus-one. A day contained 24 hours, a week 7 days, a moon 4 weeks, a year 13 moons. Fractions used the Egyptian system of adding smaller fractions to obtain a larger fraction.

Table 3: Linear A numbers and fractions.

1	10	100	1000	10,000		
yksi	kymmenen	sata	tuhat			
)	•	\	◇		← Hieroglyphic A	
	—	○	⊙	⊕	← Linear A	
0	1	2	3	4	5	6
menos	yksi	kaksi	kolme	neljä	viisi	kuusi
ME ◇	Y 	KA 06 ⌒	KO 28a ⌒	NE 09a ⌒ 4	VI 73 L 10	KU 55b H
7	8	9	10			
setisemän			kymppi			
			V			
4/5	3/4	2/3	1/2	1/3	1/4	1/5
			puoli	kolmas	neljännes	viides
X	JE	W	J L	B	E	D
711 ⌒	732 ⌒	711 ⌒	707 709 ⌒ ⌒	702 +	704 726 ⌒ ⌒	2 z
1/6	1/8	1/10	1/12	1/16	1/24	
kuudes	kahdeksas	kymmenes	kahdestoista	kuudestoista		
A	F	A-3	H	K		
701 ⌒	705 ⌒ ⌒	709-3 ⌒	706 ⌒	708 T	⌒=	
mina 315g	double mina 946g	lana 2.8 kg				
D	DD	LANA				
703 2	717 2 2					
skein	double skein	basket				
rovio		vakka				
B	BB					
RO 702 +	715 +	VA 80 △				

Linear A currency and weight

Linear A currency and weight

Based on Tablet HT 89, cost of a wedding, the standard units of measure were talent, mina, drachma worth \$70, and barleycorn worth \$0.80.

Table 4: Minoan currency based on similar systems of silver in the Mediterranean.

Money	Subdivision	Weight	Value
1 talent	60 minas	31.44 kg	\$600,000
1 lana	3 double minas	3.144 kg	\$60,000
1 mina	120 drachmas	0.524 kg	\$10,000
1 shekel	2 drachmas	8.73 gm	\$140
1 drachma	1 drachma	4.37 gm	\$70
1 slice	1/4 drachma	1.09 gm	\$18
1 grain	1/6 drachma	0.72 gm	\$12
1 carat	1/12 drachma	0.36 gm	\$5
1 chickpea	1/20 drachma	0.22 gm	\$3.50
1 barleycorn	1/90 drachma	.048 gm	\$0.80

Weight of 1 talent

Table 5: Weight of 1 talent from selected countries.

Country	kilograms	pounds
Crete	31.44 kg	69 lb 5 oz
Babylon	30.3 kg	66 lb 13 oz
Egypt	27 kg	59 lb 8 oz
Greece, Attic	26 kg	57 lb 5 oz
Rome	32.3 kg	71 lb 3 oz

A talent of silver had the value of nine man-years of skilled work, about \$700,000.

A talent of gold at today's prices of \$1700 per oz would be about \$1,700,000.

Hellenistic mercenaries were paid one drachma per day of military service, with 6000 drachmae in an Attic talent. If a talent of silver was worth \$600,000, then each soldier earned \$100 per day.

Table 6: Heavy weights from West House at Akrotiri on Thera.

Source: Systems of Weight and Relations of production in Late Bronze Age Crete, Anna Michailidou, "From Minoan Farmers to Roman Traders", 1999, Angelos Chaniotis (Ed.)

Lana	DoubleMina	Kilos
1/12 lana	1/4 DD	.262
1/9 lana	1/3 DD	.327
1/8 lana		.393
1/4 lana		.786
1/3 lana	1 DD	1.048
1/2 lana	1 1/2 DD	1.572
1 lana	3 DD	3.144
4/3 lana	4 DD	4.192
2 lana	6 DD	6.288
(1 talent)	(30)	31.44

Skeins of thread

B = skein of thread, from *rovio* 'pile, stack'

BB = double skein of thread

Linear A dry and liquid measures

Linear A dry and liquid measures

Modern units of measure from Finland have the right names but the wrong values compared with Minoan measures.

Dry measure unit = 96 liters, same as Mycenaean

Table 7: Modern dry measure units and names. Source Finland.

Unit	Relative Value	Metric Value	Notes
<i>jumpru</i>	1/16	8.18ml	
<i>kortteli</i>	1/4	.327ml	
<i>tuoppi</i>	1	1.3274L	
<i>kannu</i>	2	2.6172L	<i>pikkukappa</i>
<i>kappa</i>	4	5.496L	
<i>nelikko</i>	32	43.986L	¼ barrel
<i>panni</i>	64	87.96L	½ barrel
<i>tyunnyri</i>	128	175L	1 Barrel
<i>lästi</i>	1536	2110L	12 barrels

Liquid measure unit = 28.8 liters, same as Mycenaean

1/4 barrel, *neljäs tyunnyri*, was the unit of measurement on pithos ZA Zb 3.

1/4 barrel = 8 gallons = 1 pony

32 ponys = 8 barrels = 1 full pithos = 1003.2 liters

Table 8: Liquid measure units and names. Source Finland.

Unit	Relative Value	Metric Value	Notes
<i>jumpru</i>	1/16	8.18ml	
<i>kortteli</i>	1/4	.327ml	
<i>tuoppi</i>	1	1.3274L	1 beer mug
<i>kannu</i>	2	2.6172L	1 jug, <i>pikkukappa</i>
<i>kappa</i>	4	5.496L	
<i>neljäs tyunnyri</i>	24	31.4L	¼ barrel, pony
<i>ankkuri</i>	30	39.26L	1 Anchor
<i>tyunnyri</i>	96	125.6L	1 barrel for beer
<i>8 tyunnyri</i>	768	1003.2L	1 pithos, ~ 1 tun
<i>lästi</i>	1152	1507L	1 load, 12 barrels

An English tun of ale or wine was 256 gallons = 8 barrels of 32 gallons each = 968.96 L.

Table 9: Wet measure based upon the *käkä* 'keg'. Source Manchester Collegiate inscription.

Fraction	Volume	Tun	Name
1 tun	256 gallons	1 tun	TU-NU = <i>tunu</i> 'tun'
½ tun	128 gallons	1 butt	PE-RÄ = <i>perä</i> 'butt'
1/3 tun	85 1/3 gal	1 puncheon	KY-KY = <i>kyyhky</i> 'pigeon'
1/8 tun	32 gallons	1 barrel	PA-RA-LA = <i>parala</i> 'barrel'
1/16 tun	16 gallons	1 keg	KA-KA = <i>käkä</i> 'keg'

Linear A length and area

Princeton Professor J. Walter Graham¹ determined that the unit of measure for the Palace of Zakros was the Minoan foot (Mft) of 11 15/16 Imperial inches (30.36 cm), slightly shorter than an English foot of 12 inches (30.48 cm). For example, the central court measures 40x100 Mft, while the dining hall measures 30x40 Mft.²

A modern Finnish foot (*jalka*) has shrunk, measuring 11 11/16 Imperial inches (29.69 cm), as shown in the table below. **Fathoms** (*syli*) typically measured dimensions greater than 6 feet.

Table 10: Finnish dimensions, units and names.

Unit	Abr	Foot Value	Fathom Value	Old Value (meters)	New Value (meters)	Notes
LAND BASED						
<i>linja, jyveä</i>	j	1/12 t			~2.06 mm	The width of barleycorn; 1/12 tuuma; jyveä in Kalevala
<i>tuuma</i>	t	1/12 j			~24.74 mm	Plan, inch; the width of the thumb; 1':1" is a typical plan scale.
<i>vaaksa</i>		½ j	1/12 s		~148.44 mm	The distance between the tips of the little finger and thumb, with fingers fully extended.
<i>jalka</i>	j	1 j	1/6 s	303.6 mm	~296.9 mm	Foot; the length of human foot. Basic dimension.
<i>kyynärä</i>		2 j	1/3 s	607.2 mm	~593.76 mm	Ell, 2 feet; the distance from the elbow to the fingertips.
<i>syli</i>	s	6 j	1 s	1.821 m	~1.8 m	Fathom, 6-feet; the distance between the fingertips of both hands when the arms are raised horizontally on the sides.
<i>vakomitta</i>			20 s		~213.6 m	The furrow's length on a field.
<i>virsta</i>			100 s		~1068.84 m	A standard length for horse distances.
<i>peninkulma</i>			500 s		~5344.2 m	Five virsta. The distance a barking dog can be heard in still air.
<i>meripeninkulma</i>			1,000 s		1852m	Nautical mile. One angular minute at the equator.
<i>päivämatka</i>			10,000 s		~20 km	The distance of one day's travel.
NAUTICAL						
<i>syli</i>	s	6 j	1 s		1.852m	Fathom, 1/1000 of nautical mile
<i>merisekunti</i>	m	100 j			30.8666m	100 feet, 1 angular second at the equator
<i>kaapelinmitta</i>			100 s		185.2m	100 fathoms
<i>meripeninkulma</i>			1,000 s		1852m	Nautical mile, 1 angular minute at the equator.

jyveä means 'barleycorn' in K49.221 'longer by one **barleycorn** (*jyveä*)'

tuuma means 'plan'; K30.32 'a **plan** (*tuuma*) has entered my brain

vaaksa means 'half a foot'; K23.790 '**half a foot** (*vaaksa*) on the rest of his body'

jalka means 'foot'; K3.338 'he keeps trying to get a **foot** (*jalka*) free'

kyynärä means 'ell, two feet'; K23.791 'an **ell** (*kyynärä*) of fluffy ash on his head'

syli means 'fathom'; K23.789 'with a **fathom** (*syli*) of soot on his shoulders'

virsta means '100 fathoms'; K26.555 'the horse ran one **verst** (*virstan*), a second'

¹ J. Walter Graham, 1962, p224f

² J. Walter Graham, 1979, Further Notes on Minoan Palace Architecture, *Am. J. of Archaeology*, V83, No. 1, p. 49.

Linear A length and area

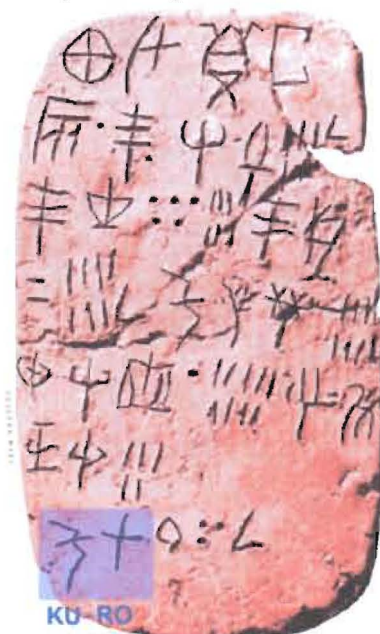
Table 11: Finnish areas, units and names.

Unit	Abr	Foot Value	Fathom Value	Old Value (meters)	New Value (meters)	Notes
<i>kannunala</i> <i>syli squared</i> <i>kapnala</i>		1000 j ²		92.17 m ²	~88.15 m ²	1000 square jalka 'feet'
			1 s ²	3.316 m ²	~3.24 m ²	
	k	1 k	48 s ²	~159.2 m ²	~154 m ²	1/32 tynnyrinala. The area of field that could be sown with one kappa of grain.
<i>panninala</i>		16 k	718 s ²	~2548.3 m ²	~2464 m ²	½ tynnyrinala. The area of field that could be sown with one panni of grain.
<i>tynnyrinala</i>	ty	32 k	1536 s ² 1.27 ac	~5096.6 m ²	~4936.5 m ²	The area of field that could be sown with one barrel of grain.
<i>äyrityisenmaa</i>		1	432 s ² 9 k	~1432.5 m ²	~1384.1 m ²	3926 square kyynärä. The area that grows grain worth one äyrityinen for taxation.
<i>äyrinmaa</i>		3	1296 s ² 1.062 ac	~4297.5 m ²	~4152.3 m ²	3 äyrityisenmaa. The area that grows grain worth one äyri for taxation.
<i>penninginmaa</i>		125	54000 s ² 44.25 ac			125 äyrityisenmaa. The area that grows grain worth one penninki for taxation.

Proof: Eureka!

One afternoon in the spring of 2004 at Kepler's Bookstore in Menlo Park, while thumbing through pictures in *Archaeology Odyssey*, I paused to look at an oblong piece of clay with some letters scratched on it from Minoan Crete. "One of the only words known from context in Linear A is KU-RO meaning 'total'," wrote Barry Powell, pronouncing the word as if written in a similar alphabet called Linear B.³

Figure 1: Tablet HT 12 from Haghia Triada with KU-RO highlighted.



"KU-RO! I know that word! It's **Finnish!**" I shouted to the busy clerk behind the register. "It's not KU-RO but TU-LOS. The consonants change but the vowels stay the same."

Magazine in hand, I rushed home to try another word. Sure enough, the next word was also Finnish. It was deceptively easy, a slight modification of Linear B. Anyone could do it once they knew the language was Finnish. But a review of the literature showed that most scholars understood KU-RO meant 'total', yet none saw the connection.

TU-LOS means 'comes to, sum, total' in Finnish. To match KU-RO in Linear B, the vowels stay the same, the consonants change and final -S drops, just like Chadwick predicted. Since both vowels stay the same, assume that all vowels stay the same (Table 12).

Table 12: Initial matching of vowels and two consonants from the single word KU-RO.

Linear B	A	E	I	O	U	D	J	K	M	N	P	Q	R	S	T	W
Linear A	A	E	I	O	U			T					L			

For the next word, I turned to known words in Linear A. **John Younger** of Kansas University transcribed Linear A texts into Linear B and published them on the web.⁴ He also listed more than a score of words known from context. From this list, I selected a sequence of words that each added one additional consonant.

³ Barry B. Powell, *Archaeological Odyssey*, March/April 2004, pp 38-43 and 60.

⁴ "Linear A texts in phonetic transcription," 2000, John Younger, Kansas U., self-published on the internet.

Proof: Eureka!

The second word KI-RI means 'itemized payments'. In Finnish, TI-LIT means 'accounts', with final -T (plural) not written. "Two of two, I've cracked the code!" I shouted.

With this list and a Finnish dictionary, I found the remaining consonants and made a preliminary table of Linear A signs (Tables 13, 14, 15).

Table 13: Match of consonants between Linear A and Linear B.

Lin B	Lin A	Linear B known word	Linear A Finnish word
K	T	KU-RO 'total'	TU-LOS 'comes to, total'
R	L	KU-RO 'total'	TU-LOS 'comes to, total'
P	S	KA-PA 'summary account'	TA-SA 'balance'
D	P	KA-DI 'owing'	TA-PI 'loss, deficit'
M	V	MA-TA 'contribution'	VA-RAT 'allowance'
T	R	MA-TA 'contribution'	VA-RAT 'allowance'
J	H	TA-JA 'five'?	RA-HA 'money' [!]
S	N	SA- 'first sound in flax'	NA-RU 'string, cord'
N	K	U-MI-NA-NE 'owed'	UUEN VIE KAI-KEN 'new take all'
W	J	WI 'not included'	EI 'not', weak fit to J
Q	M	The only consonant left.	

By midnight, six of John Chadwick's conditions were fulfilled, a remarkable tribute to his deductive reasoning: Linear A has five principal vowels that match those of Linear B, eleven consonants of which some are like Linear B, Finnish uses suffixes, Finland is 2000 miles away, Linear A was designed for Finnish consonant-vowel architecture, and in written form omits common endings -N, -S and -T. Over the next six months, his last two conditions were fulfilled: multiple letters for common sounds, and the name of each syllabic sign begins with the sound of that sign.

Table 14: Initial correspondance between letters in Linear A and Linear B.

Linear B	A	E	I	O	U	D	J	K	M	N	P	Q	R	S	T	W
Linear A	A	E	I	O	U	P	H	T	V	K	S	M	L	N	R	J

Table 15: Preliminary Linear A compared with Linear B (grey background).

A	E	I	O	U	Lin B
A	E	I	O	U	Lin A
a08	e21f	i	o 61	u 10	Lin A
					Lin B
ha 57	he 46	hi 304	ho 51a	hu 49	H J
ja 54	je	ji	jo 24	ju 65	J W
ka06	ke 41	ki 30	ko 28	ku 55b	K N
la 60	le 27	li 17	lo 02	lu 26	L R
ma 16	me 78	mi 100	mo	mu	M Q
na 31	ne 09	ni 34	no 86	nu 58	N S
pa 01	pe 45	pi 07	po 79	pu 51b	P D
ra 59	re 04	ri 37a	ro 05	ru 69	R T
sa 03	se	si 37b	so 39a	su 50	S P
ta07	te 44	ti 67	to	tu 81	T K
va 80	ve 13	vi 73	vo 66	vu 306	V M

Proof: Finnish matches known words in Linear A

Proof: Finnish matches known words in Linear A

John Younger⁵ published a list of Linear A words whose meaning has been deduced from context. About half these words have a similar meaning in Finnish (Table 16).

Table 16: Contextual matches between Linear A and Finnish.

Linear A	Finnish	Context	English	Ref.
A-PU	apu	assessment	assistance, aid	6
E	ei	not included	not	7
KA-RO TU-LO	käärö tulot	scroll receipts	scroll receipts	8
NA	nkä	paid	not owed	9
PA-KO	pakko	total	forced	10
RA VI	rakennan	five	I make five	11
	viisi			
TA-SA	tasa	summary account	balance, exactly	12
TI-LA	tilanne	balance	score, standing	13
TI-LO < TI-LA	tilanne	balance	score, standing	14
TI-LO < TI-LA	tilaus	itemized payments	order,	15
			requisition	
TI-LO < TI-LA	tilanne	owed	score, standing	16
TU-LO	tulos	total	comes to, result	17

⁵ Ibid.

⁶ HT 95.b1 (and elsewhere)

⁷ HT 102.4

⁸ HT 122.b6; HT 131.4 (with restoration) =? 'grand total' (Palmer 1995)

⁹ HT 114.b

¹⁰ HT 12.6

¹¹ HT Zd 156 In 1992, Olivier predicted 'five' to fit a mathematical sequence.

¹² HT 6.1, HT 94.1, HT 102.1

¹³ HT 103.5 (Schoep 1994-5, 71, n. 60), ZA 8.1, HT 49a.8

¹⁴ HT 1 (Raison & Pope 1978: 47-48); HT 118; HT 49a.7&8

¹⁵ HT 88.4, HT 93b.1, HT 94b.1

¹⁶ HT 30.4, HT 123a; HT 118 (Hooker 1975; Duhoux 1989, 79)

¹⁷ HT 9.a & b, HT 11.b, HT 13, HT 25.b2-4, HT 85.a, HT 88.4-6, HT 89.4, HT 94.a3 & b1-4, HT 104, HT 117.a1-6, HT 118, HT 122?, HT 123.a, HT 127.b4-7; ZA 1?, ZA 15, ZA 17; with restorations: HT 27a.1-7, HT 100, HT 102; rounded off HT 119; also mentioned: HT 39.5, HT 40.3, HT 46a.2.

Proof: Finnish matches known words in Linear A

The remaining words from John Younger's list of known words do not match Finnish, but some are close, like 'delight, pleasure' as a descriptor for figs, and 'orator' for master (Table 17).

Table 17: Imperfect contextual matches between Linear A and Finnish.

Linear A	Finnish	Context	English	Ref
MU KOKO	muut koko	assessment or paid	others whole	18
PA-TO VA-RA •	Paistaa varat •	Contributions •	Baking Supplies •	19
U PA-VE	uuni palvelin	grain	oven server	20
PI-TA-RA	Piiatar rauha	Mt. Ioukhtas	Maiden spirit peace	21
PU SU-LE < PU SU- LA	puhu suulas	lord, master	mouth loquacious	22
-RI	-ri	from, of	make verb into noun	23
SU-TO < SU- TA	suurta	bronze	great	24
TA-KO-LO < TA- KA -LO	takalo	balance	background thread	25
TA-PI	tapi	surplus or owing	loss, deficit	26
TI-TI-KA < TI-TI-KE	tyydyke	fresh or dried (figs)	delight, pleasure	27
TU-KI-NU < TU-KI- NO	Tuhkia ano	Knossos?	ashes request	28
TU-SA 1, SO-SA 1	tursas 1, sorsa 1	transaction terms	octopus 1, duck 1	29
U VI-KA KE	uuen vika ange	owed	new injury is in	30
VINI	sima?	wine	agony mead?	31

¹⁸ ZA 4

¹⁹ HT 95.a1. PA-TO dialect becomes PA-TA in Linear A.

²⁰ Gareth Owens, Kadmos 32 (1993) p 156-161. Mt. Iouktas has the ashes of Europa.

²¹ Valerio (2007).

²² KN Zb 5, HT 104.1-2-3-4 ; Valerio (2007)

²³ ZA 8.6 This is a line item measured in skeins, not a total.

²⁴ ZA 4, ZA 17

²⁵ HT 88.2

²⁶ A place name, like Knossos, Hooker (1975)

²⁷ ZA 11a.5, G3.172 (Schoep 1994-5, 67, n. 47)

²⁸ HT 28b.1 (a phrase in the middle of three phrases)

²⁹ Zb3 at Zakros, character 131a on pithos of wine. Pronunciation remains unknown.

Proof: Finnish fulfills Chadwicks conditions for Linear A

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“**KU-RO**,” wrote **John Chadwick** from Cambridge in 1987, “means ‘total’ in tablets HT13 and HT85 when pronounced in Linear B. This is where to begin deciphering Linear A. But beware! Linear A must meet certain conditions:

The language has about five vowels and a dozen consonants.

The language uses suffixes to modify words, not prefixes.

The language is not spoken within five hundred miles of Crete.

Linear A fits the language much better than Linear B fits Greek.

Some Linear A vowels and consonants will match those of Linear B.

Common endings of Linear A words will be omitted, like -N, -R or -S.

Some popular sounds in Linear A will have multiple signs.

The name of each syllabic sign will likely begin with the syllabic sign.”³⁰

³⁰ Summarized from *Linear B and Related Scripts*, 1987, John Chadwick, Cambridge U., U. of California Press.

Proof: Finnish underlies similar scripts

Using Linear A and Owners Marks sounds for each letter, other unknown scripts can be read such as:

Old European script from Europe, Asia and America

Indus Valley script from India and Pakistan

Proto Elamite script from Iran

Hieroglyphic A script from Crete

Glozel script from France

Iberian script from Spain

Mason Marks from Europe and Asia

Proof: Finnish grammar matches Linear A

Proof: Finnish grammar matches Linear A

1. The vocabulary of Linear A is predominantly Finnish.
2. The grammar of Linear A is Finnish, such as suffixes and tenses.
3. Linear A drops final -S, -T (possessive) and -N (plural), similar to Linear B.
4. Between the earliest and latest inscriptions, the pronunciation of the second vowel methodically changed, except for 'i'.
5. The name of each letter looks like its sign and begins with the sound of its sign.

Notes on linguistic proof

1. Linear A has more vowels than Linear B.
Modern Y is often spelled I.
Vowel Ö is written as O.
Linear A can stretch the sound of a single vowel into a double vowel.
2. Care has to be taken with H and J, and occasionally with L and R.
H and sometimes J between two vowels becomes silent and dropped in writing.
Fishermen dialects have affinity with Egyptian that does not distinguish between L and R.
Modern consonants B, D, F and G are spelled P, T, V and K.
3. Linear A tries to separate consonants. If a modern word is spelled KARTA, then Linear A might spell it KARATA.
4. Older inscriptions on Crete are multilingual while younger ones are not. In the beginning, people from around the Middle Sea settled in Crete, bringing their vocabulary with them.
5. Nearly every long word can be parsed into units of two syllables, just like Finnish.
Most vocabulary can be found in Kalevala, composed between 1435 and 1425 BC.
Exception: mercantile terms like sub-total, total, duty, inventory, storage, tax, deposit, withdrawal, balance, profit, loss and contribution. These were the realm of women and ship captains, and perhaps unknown to the composer of Kalevala.
6. Roots are followed by suffixes, making it easy to look up a word in a dictionary.
Adjectives normally precede the noun but can follow the noun.
Adjective endings agree with noun endings.
Common suffixes often have a shorthand notation.
7. A-Ä and O-Ö follow vowel harmony: the second instance of a vowel must match the first.
8. Dialects evolved faster outside Finland, but vocabulary evolved slower. This agrees with John Chadwick's deduction.
9. Dots separating parts of an inscription act like commas, semicolons and periods.

Proof: Oera Linda Boek specifies that Cretans wrote in Finnish

*Oera Linda Boek*³¹ describes the return to Friesland of Sea King Minno, who had lived many years in Minoan Crete. Around 1600 BC, Minno bought a house on the Rhine and published his memoirs on the walls for all to read. Priestesses of Freya copied his memoirs, which included this observation on Cretan writing:

Afterwards they learned our writing - that is, the Finnar (Finns), Thyriar (people of Tyre) and Krekalandar (Cretans).³²

Not only did Cretans and Tyrenians speak Finnish, but so did Frisians!

Moreover, this single sentence proves the authenticity of *Oera Linda Boek*, which has long been debated. At the same stroke, it solves a vexing linguistic problem: how could new words like 'bedroom' creep into old accounts? It came about during the translation from Finnish to Frisian a thousand or more years later.

³¹ Oera Linda Boek, published on the Internet as "From Goddess to King" by Anthony Radford.

³² *Oera Linda Boek*, "The Book of Adela's Followers", line 20.4. Minno calls Italians *Heinde Krekalander*, mainland Greeks *Fere Krekalander* and Cretans *Kreetalander*. Finnish uses the same words, *Kreikkalainen* for Greeks, *Kreetalainen* for Cretans. The German phrase *van heinde en verre* has no I.E. etymology but carries the English sense 'from near to far'.

Proof: Bilingual signatures occur in Linear A

Proof: Bilingual signatures occur in Linear A

Up until the 19th century, legal documents around the Baltic Sea might be signed with an Owner's Mark. Many of these documents, such as wills, baptisms and land sales, follow the Owners Mark with the owner's name in Latin letters.

The owner's mark combined the initial sound of the owner's first name plus the initial sound of the last name into a single logogram. For variety, each letter could be rotated into any position before combining.

With Linear A as a guide and hundreds of bilingual signatures, I deciphered the code of Owner's Marks. This in turn allowed Old European to be deciphered, which then applied to all of its daughter scripts.

Proof: Translation details agree with known items

IO Za-2

The leading god was *Ukko*, a Finnish epithet meaning ‘Old Man’.

The leading goddess was *Inanna* from Sumer. Her primary epithet was ‘Giver of Life’, and her name in Finnish means ‘highest female giver’.

Crete was called *Inannala* (Inanna Land), a combination of Sumerian and Finnish.

Tyrus, called *Tyrus*, lies in the direction of the rising sun.

The tablet names the mountain *Juktas* and the city *Knossos*.

The tablet describes the sunrise ceremony, still practiced today at Easter.

The sunrise ceremony contains names of musical instruments that agree with those observed by Greek writers: flute, lyre and shaking baskets filled with seeds.

KN Zc 7

The ruling council members of Knossos, *Hanna*, were women.

The Greek word for 1, *eiz*, comes from Finnish *eheys* meaning ‘Harmony-Integrity-Perfection-Unity’.

HT 1

The names of fish *tilapia*, *pono* and *tursas* remain in use today.

HT 6

An olive yard was *ölypija*.

HT 7

Provisions for a boat included a spinnaker *pallokas*, a mast *paalu* and oars *airoja*.

HT 95

Bakers had a stove paddle *mela uuni*, a decorating bag *viisare* and pipe nozzle *piipu luu*.

PH-6

The word *kopparekonaalio*, meaning ‘basket sled bottom’, is peculiar to Finland.

ZA-8

The measure *B* was so many skeins of wool.

Tablet ZA-8 lists materials needed for a loom, called a ‘clothes machine’.



Proof: Archaeology at Mt. Juktas agrees with stone libation vessel text

Proof: Archaeology at Mt. Juktas agrees with stone libation vessel text

The inscription on stone libation vessel IO Za-2 calls for lighting a fire at sunrise atop Mount Juktas, which could be seen from the palace of Knossos below. Archaeologists have found large deposits of ashes from these fires, clean ashes with no trace of sacrificial offerings.

Linear A and related Minoan scripts

Minoans wrote in three scripts – Linear A, Hieroglyphic A and Mason's Marks – shown below.

Figure 2: Linear A was written quickly with a pen or stylus on clay.

There are 1600 inscriptions on clay tablets, stone cups, clay pots, stone ladles and gold pins.

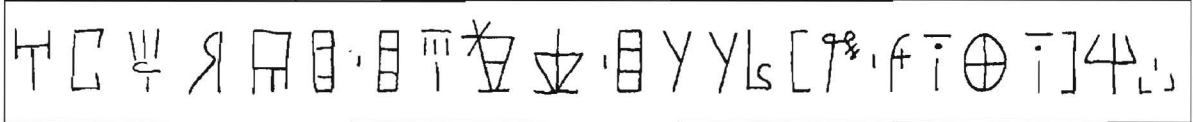


Figure 3: Hieroglyphic A was inscribed on clay sealstones and amulets.

This inventory tag from Malia shows three measures of cloth, a drawing of a sleeved tunic, and two measures of a different fabric.



Figure 4: Mason's Marks represent signatures of stonecutters.

The same script occurs on stonework of European cathedrals. Source: Museum at Malia.



Linear A was introduced in 2093 BC³³ to write on linen paper and wax tablets, none of which survive. When paper ran out, they substituted soft clay tablets, of which the oldest example dates to 2050 BC.

Hieroglyphic A looks similar to Linear A, but is more stylized when carved into a sealstone. It appeared around 2000 BC, fully developed with many new letter designs.

Mason Marks derive from **Old European**, a script first attested at Pinnacle Point Cave in South Africa 164,000 years ago, but already well developed. This script continued intact until the 19th century for signing legal documents in Scandinavia that carry double signatures, one in Owner's Marks, the other in Latin letters, true bilinguals. However, decipherment proved elusive because the shapes were altered extensively – combined, rotated, embellished, reversed – to make each signature unique.

³³ Oera Linda Boek, The Book of Adela's Followers, Chapter 24.

Linear A rules for writing

Linear A rules for writing

Write from left to right, top to bottom.

Use the same letter for the same sound.

A letter never reverses, but can rotate up to 45 degrees. Any deviation changes the sound.

Double consonants compress into a single consonant.

Double vowels compress into a single vowel.

Diphthongs compress into the first vowel.

Drop H bracketed by vowels; compress the resulting vowels into the first.

Omit consonants at the end of a syllable; force all syllables to be Consonant-Vowel.

Omit a vowel beginning a word if the previous word ended with that same vowel.

Combine letters to save space. For example, a single horizontal stroke across a vertical part of any letter means -LO, while two horizontal strokes mean -SA.

Numbers go to the right of text, or wrap around to the next line.

Numbers 0-6 and 10 can be written.

Option: insert dots between phrases for clarity or breathing, like a comma or period.

Restore vowels between adjacent consonants

Finnish and Indo-European speech tends to delete a weak vowel between unlike consonants. Consequently, to obtain an original Finnish word, the missing vowels must often be restored. The most common deletion is I, or occasionally A if the word ends in A.

Restore consonants between double vowels

Finnish often suppresses consonants K and T between identical vowels, which greatly expands the number of single syllable words available; these consonants have to be restored.

Convert new consonants into old consonants

In newer languages like Iberian, consonants B, C, D, F, G must be converted back into P, S, T, V, K; SH into S; TH into T; CH into K.

Each letter originated as an object whose name begins with that letter

Each letter of Linear A is a pictograph whose name begins with the sound of that letter. For example NE, a single braid of hair down the back, means *netto* 'maiden'.

Male and female Animals

Descending from the body, male animals have one foot, female animals have two feet.

Enhanced letters

Important letters can be enhanced for art's sake. For example, the first letter A of the stone libation vessel from Mount Juktas contains an entire pageant.

Rebus letters

Letters often form a rebus that supports the text. For example, at Catal Huyuk, the strange looking vulture that hovers over headless bodies is a rebus.

Dots below a letter

Dots placed beneath letters in published transcriptions warn the reader of questionable identification.

Avoid Indo-European words

If a proposed word looks familiar, it is probably Indo European and cannot be used. The best test is to find a word in Kalevala, which is free from IE except for parts of the last chapter. Finnish etymology dictionaries contain additional old words plus irregular spellings.

Recognize Finnish words

Bronze-age texts in Greek, Latin, Norse, Dutch, Hebrew, Indian and Sumerian may contain unusual names in Finnish. Old geographic names like Thames or Paris may be Finnish. Final -S means 'clan-home' if a town or city, or 'descendant' if a person.

Linear A syllable names

Linear A syllable names

Table 18: Each letter and its Finnish name in the Linear A syllabary.

A	008	akka, aka	Old Woman, axe	NI	034	nisä	breast
Ä	021a	äijä	Old Man	NO	086	nokka	beak of boat
E	021f	eheys	Harmony-Unity	NU	058	nukkua	sleep
E	040	esirippu	curtain	PA	001	palvoa	worship
E	040	eis	one	PA	303	paista	shine
I	317	ikiaiika	forever	PÄ	070	päilyä	shine, glitter
O	061	olutkolpakko	beer mug	PE	045	pelle	clown
U	010a	uhraus	sacrifice	PI	007a	pippu	chimney
U	010b	uistella	spin	PO	079	?	?
U	326	unikko	poppy	PU	051b	puki	male goat
URO	120	uros	male	PY	007b	pyry	flurry of
HA	057	hame	dress, skirt	snow			
HÄ	305	härkäpari	yoke	PY	047	pysähdys	stop
HE	046	herra	lord, master	RA	059	raottaa	open slightly
HI	304	hissi	lift	RE	004	rehu	fodder
HILO	020	hiilos	embers	RE	056	reki	sleigh
HO	051c	hoitaja	care giver	RI	037a	riihi	drying barn
HOTA	053b	hoitaja	nurse	RO	005	rovio	pyre, burn at stake
HU	014b	?	?	ROMA	321	ro + ma	
HU	049a	humala	hop	RU	069	ruorimies	helmsman
JA	054	jakku	stool	SA	003	sama	equal
JÄ	022	jää	farewell	SA	055a	sänky	bed
JE				SE	703	selkäluita	backbone
JO	024	johtaja	leader				
JU	065	juhla	celebrations	SI	037b	?	?
JYVA	120	jyvä	grain	SI	310	sitoa	bandage
KA	006	kaksi	two	SI	302	siipi	wing
KA	011	kahva	handle	SIKA	085	sika	pig
KA	329	kana	chicken	SO	039	soitin	musical instrument
KE	041a	keulahahmo	leader figure	SU	050	suoja	protection
KE	041b	keihoa	spear point	SU	314	sumu	fog
KI	030a	kimppu	bouquet	TA	029	taimilava	plant frame
KO	028a	kolme	three	TA	301	takila	rigging
KO	028b	kovanaama	tough guy	TA	077a	tahko	wheel
KO	318	?	?	TÄ	077b	tähti	star
KOKO	082	kokko	eagle	TÄ	023	tähdätä	take aim
KU	055b	kurkistusreikä	peephole	TASA	118	tasapaino	balance
KU	055b	kuusi	six	TE	044	telta	tent
KY	030b	kyy	serpent	TE	123	terävät	strong
LA	060	lastenrattaat	push chair	drinks			
LE	027	letti	plait	TI	067	tislauslaite	distilling apparatus
LI	017	liekki	flame	TO	051a	torhua	stave off
LI	053a	liitti	joined	TU	081	tunturipöllö	snowy owl
LO	002	loppua	stop, end	TY		tyhjä	zero
LOME	131b	loime	cloth, loom	U	010	uhraus	sacrifice
LU	026	luoja	creatress	URO	120	unikko	poppy
LY	076	lyhde	sheaves	VA	080	vasa	fawn
MA	016	maljakko	vase	VE	013	veivi	crank
ME	078	mehiläinen	bee	VE	319	veli	brother
MI	100	mies	man	VI	073	viemäri	drain
MI	102	mies	man	VI	073	viisi	five
MU	038	muisto	memorial	VO	066	voimela	butter paddle
NA	031	naiminen	wedding	VU	306	vuohi	goat
NE	009	neljä	four	VY	316	vyöta	belt
NE	009	neien	maiden				

Linear A letter names

Linear A letters are pictograms, drawn to represent their name. These pictograms exhibit acrophony, that is, their initial sounds are the same as the name of the letter.

A - 08  **Akka 'Old Woman', aka 'axe'**

A stands for **Akka**, 'Old Woman', Earth Mother, rotund Venus from the caves of France; Goddess of Snakes, Mistress of Honeybees, Wielder of Axes, Shamaness of Prophecy, first and oldest goddess. She holds a snake in either hand.

A stands for **aks**, 'double-bladed axe with a straight handle', scepter of Akka, first among letters inscribed on the stone libation vessel from Mount Iuktas that heralds the dawn.


Ä - 21a  **Äijä 'Old Man'**

Ä stands for **Äijä**, 'Old Man', consort of Akka, in a flaccid state. Greek *ayia* means 'saint'.

Hebrew *ayin* means 'eye', shaped like an O, corresponding with Finnish *ajan* meaning 'time', measured by cyclical days, months and years.

E - 21f  **Eheys 'Harmony-Integrity-Perfection-Unity-One'**


E stands for Eheys meaning 'Harmony-Integrity-Perfection-Unity', the mantra of Crete.

When reversed,  the symbol combines a female V and a male erect member, the union of feminine and masculine.

E - 40  **Esirippu 'curtain'**

A window partially obscured by a curtain.

E - 188 

E - 309b 

HA - 57  **Hame 'dress, skirt'**

Bolt of cloth to be made into a skirt.


HÄ - 305  **HÄrkäpari 'yoke'**

HE - 46  **HErra 'lord, master'**

HI - 304  **HIssi 'lift'**

HO - 51c  **HOitaja 'care giver'**

This symbol of a cross on a headpiece must be very old.


HOTA - 53b  **HOITAJa 'nurse'**

Linear A syllable names

HU – 41b  HUmalassa ‘drunk’

HU – 49  HUmala ‘hop’





I – 307  Ikiaiike ‘forever’
A wooden cross marking a grave.



JA – 54  JAKku ‘stool’
Stool drawn with three legs or four legs.


JÄ – 22  JÄÄ ‘farewell’




JE – rare or non-existent


JI – rare or non-existent

JO – 24  ,  JOhtaja ‘leader’
Letter 319  ‘brother’ resembles letter 24  ‘leader’.

JU – 65   JUhla ‘celebrations’
To me it looks like a suspended lamp

JULA 
A combination of JU and LA.

KA – 06a    KAKsi ‘two’
Variations of this syllable always have two lines at the top.

KÄ – 11 

KE – 41a  KEulahahmo ‘leader figure’

KE – 41b  KEihoa ‘spear point’

KI – 30  KImppu ‘bouquet’

KO – 28a  KOlme ‘three’

KO – 28b    KOvanaama ‘tough guy’

KOKO – 82  KOKKO ‘eagle’

KU – 55b  KURkistusreikä ‘peephole’

KY – 30b  KY Y ‘serpent’

In Indus script, these are the upraised arms of the goddess, with hands at the end. Typical Minoan Snake Goddesses are depicted with a snake in each upraised hand.

LA – 60  **LAstenrattaat 'push chair'**

This pushchair has runners for traversing snow.

LE – 27  **LEtti 'plait'**

LI – 17  **LIekki 'flame',**

LI – 53a  **LIitti 'joined'**

A pothook that joins the pot and the support for the pot.

LO – 02  **LOppua 'end, stop'**

LOME – 131b  **LOIME 'cloth'**

This looks like part of a vertical loom.

LU – 26  **LUoja 'creatress'**

LY – 76  **LYhde 'sheaves'**

MA – 16  **MAIjakko 'vase'**

ME – 78  **MEhiläinen 'bee'**

ME – 308  **MEIa 'paddle, steering oar'**

MI – 100  **MIs 'man'**

MO –

MU – 38  **MUisto 'memorial'**

NA – 31  **NAiminen 'wedding'**

Two branches joined together.

NE – 09a  **NEIjä 'four'**

A hand holding up four fingers.


NE – 09b  **NEien 'maiden'**

A braid of hair down a maiden's back.

NI – 34  **NIsä 'breast'**

Linear A syllable names

NO – 86  NOKka ‘beak of a boat’

NU – 58  NUKkua ‘sleep’
Curled up in sleep.

NY -

O – 61  Olutkolpakko ‘beer mug’


PA – 01  PAIvoa ‘worship’,

PA – 303  PAista ‘shine’

PÄ – 70  PÄilyä ‘shine, glitter’

PE – 45  PELLE ‘clown’

PI – 07  Plippu ‘chimney’

PÖ – 79  PÖrrö ‘rumpled, disheveled’

PU – 51b  PUKi ‘male goat’

PY – 47  PYSähdys ‘stop’

PY – 07b  PYry ‘flurry of snow’



RA – 59  RAottaa ‘open slightly’


RE – 04  REhu ‘fodder’


RE – 56  REki ‘sleigh’

RI – 37a  Rlihi ‘drying barn’


RO – 05  ROvio ‘pyre, burn at the stake’

ROMA – 321   =  +  = RO+MA ‘roma’

RU – 69  RUorimies ‘helmsman’
Rear view of a ship’s sail.

SO – 39b  SOitin ‘musical instrument’
Top view of a lyre.


SA – 03  SAma 'equal, same'


SÄ – 55a  säanky 'bed'

SÄ – 131a  SÄleikko 'trellis'

SE – 703  SEIkäluuta 'backbone'

SI – 37b 


SI – 310  SItoa 'bandage'
A bandage around an elbow or knee.


SI – 302  SIipi 'wing'
Siipi also meant 'sail', the wing of a boat.

SIKA – 85  SIKA 'pig'

SO – 39a  SOkeritoukka 'silverfish'

SU – 50  SUoja 'protection'

SU – 317  SUMu 'fog'

TÄ – 23  TÄhdätä 'take aim'
A person holds a bow at arm's length.

TA – 29  TAIMilava 'plant frame'

TA –  TAHko 'wheel'

The cross within a circle was the symbol of Tyre, named for Tyr. It may refer to a navigating instrument called a Celtic Cross that produced both latitude and longitude to within 3 miles.

TA – 301  TAKila 'rigging'

TÄ – 77  TÄhti 'star'

Haghia Triada used this symbol for TÄ. Other texts use the wheel.

TASA – 118  TASApaino 'balance'

TE – 44  TELta 'tent'

Linear A syllable names

TE – 123  TERävät ‘strong drinks’

TI – 67  TIslauslaite ‘distilling apparatus’

TO – 51a  TORhua ‘stave off’

TU – 81  TUnturipöllö ‘snowy owl’

U – 10  Uhraus ‘sacrifice’

U – 326  Unikko ‘poppy’



URO – 120  UROs ‘male’ =  + 

VA – 80  VAsa ‘fawn’

VE – 13  VEivi ‘crank’

A winch to draw water in a bucket from a well.

VE – 319  VELi ‘brother’

Letter 319  ‘brother’ resembles letter 24  ‘leader’.

VI – 73  VImäri ‘drain’

Top view of a circular drain and water cachement.

VINI – 131a  VIINI ‘wine’

Side view of a grape trellis. The meaning is clear but the sound is unknown.

VO – 66  VOi mela ‘butter paddle’

A butter paddle with holes in the blade.

VU – 306  VUohi ‘goat’

VY – 316  VYöta ‘belt’

Linear A letters by numeric assignment

This table helps translate texts written as numeric values.

Table 19: Number and sound of each Linear A character.

001	PA	023	TA	046	HE	070	PA	131b	LOME	314	SU
002	LO	023m	TASA	047	PY	073	VI	131c		315	
003	SA	024	JO	049	HU	074		164		316	VY
004	RE	026	LU	050	SU	076	LY	171	JOSA	317	I
005	RO	027	LE	051a	TO	077	TA	180		318	PE
006	KA	028	KO	051b	PU	078	ME	188	E	319	TA
007	PI	028b	KOLTA	053	LI	079	PO	191		320	
008	A	029	TA	054	JA	080	VA	301	TA	321	ROMA
009	NE	030	KI	055a	SÄ	081	TU	302	SI	322	
010	U	031	NA	055b	KU	082	KOKO	303	PA	323	SO
011	KA	034	NI	056	RE	085	SIKA	304	HI	324	
013	VE	037a	RI	057	HA	086	NO	305	HÄ	325	
016	MA	037b	SI	058	NU	087		306	VU	326	U
017	LI	038	MU	059	RA	100	MI	307	LOHO	327	
020	HILA	039a	SO	060	LA	118	TASA	308		328	
021a	Ä	039b	Z	061	O	120	URO	309a	-son	329	PA
021f	E	040	E	065	JU	120b		309b	E	330	
021m	ÄSÄ	041a	KE	066	VO	122	PU	309c		331	
		041b	HU							332	
022	JÄ	044	TE	067	TI	123	TE	310	SI		
022m	ÄSÄ	045	PE	069	RU	131a	SÄ	312	RU	703	SE

Linear A days of the week

Frisians called it Freyja's alphabet. Freyja may well have initiated redesign of the letters, just as earlier she had redesigned the calendar. Prose Edda recounts how the catastrophe changed Earth's orbit and inclination, leading to new directions for north and south, new positions of the stars and moon, and a new number of days for one orbit around the sun.

The sun did not know where she had her home,
the moon did not know what might he had,
stars did not know where their stations were. Sibyl's Vision

After the clouds cleared, Freyja and her cadre devised a new calendar with twenty-four hours in a day, seven days in a week, four weeks in a moon, and thirteen moons in a year, giving a year of 364 days. The weekdays survive in disguised form as the names of sequential gates in the seven-sided city of Walhallagara in Zeeland, modern Middelburg. The ends of each wall met at a tower, equally spaced apart, forming a circle. Beside each tower was a gate, with a road through the gate. Each gate name related to Freyja.³⁴ The names of the seven gates and streets passing through the gates and watch towers next to each gate in sequence are:

Sunday < *Sint Joris* 'Saint Joris' < *Syn Njorð Dis* 'Fair Njorð Maid' = Freyja

Monday < *Suiker* 'sugar' < *Sviker* 'Swede' = Svipdag, husband of Freyja

Tuesday < *Nieuw* 'New' < *Niu* 'nine' = nine Valkyren of Freyja

Wednesday < *Stroo* 'Straw' < *Stor* 'High One' = Oðin, uncle of Freyja

Thursday < *Geere* 'spear' < *geirr* 'spear' = spear valas, Kyrie of Freyja

Friday < *Wijngaard* 'vineyard' < *vingarð* 'femme guard' = *viini kaarta* 'quiver bow',
watchguards of Freyja

Saturday < *Noord* 'north' < *Njorð* 'North' = Njorð, father of Freyja

³⁴ Oera Linda Boek, Ch. 26.2 "Near the mouth of the Suder [Zeider] Hrenum and the Skelda [Scheldt] there are the Siugon Elanda [Seven Islands], named after Frya's seven watch-femmes of the week. In the middle of one island [Walcheren] is the burgh of Walhallagara [Middelburg], and on the walls of this burgh the following history is inscribed." Middelburg retains traces of seven equally-spaced watchtowers, each with a gate and a road through the gate. The above quote hints that these watchtowers were also named for days of the week.

Linear A abbreviations in GORILA

Abbreviations of site names

The first capital letters of Minoan artifacts abbreviate the archaeological site.

AP - Apodoulou	KN - Knossos	PYR - Pyrgos
AR - Arkalokhori	KO - Kophinas	SI - Sitia
ARKH - Arkhanes	KY - Kythera	SK - Skhinia
C - Crete	LA - Larani	SY - Symi
G - Gournia	MA - Mallia	THE - Thera
HG - Haghia Triada	MI - Milos	TL - Troullos
HS - Haghios Stephanos	PA - Papoura	TRA - Traostalos
HT - Haghia Triada	PH - Phaistos	TY - Tylissos
IO - Iouktas	PK - Palaikastro	VR - Vrysina
KA - Kardamoutsa	PL - Platanos	ZA - Zakros
KE - Kea	PR - Prassa	
KH - Khania	PS - Psykhro	

Abbreviations of artifact types

The second two letters describe the kind of object. A number at the end approximates its discovery sequence.

[blank] = tablet	Za = stone vessel	Ze = architecture
Wa = nodules/noduli	Zb = pot	Zf = metal object
Wb = sealing	Zc = inked inscription	Zg = stone object
Wc = roundel	Zd = graffito	

Linear A resources

GORILA

GORILA is a set of five volumes that contains photographs and drawings of every Linear A inscription. Volume 5 contains a concordance that cross-references every inscription by every occurrence of every letter.

GORILA = Louis Godart and Jean-Pierre Olivier, *Recueil des Inscriptions en Linéaire A. Études Crétoises* 21, vols. 1-5, Paris, 1976-1985. de Boccard sells GORILA volumes for €76 each:
www.deboccard.com/anglais/Rub/cata.htm.

- Volume 1: Tablettes éditées avant 1970 (EtCret 21:1; Paris: Librairie Orientaliste Paul Geuthner 1976) ISBN X16534
- Volume 2: Nodules, scellés et rondelles édités avant 1970 (EtCret 21:2; Paris: Librairie Orientaliste Paul Geuthner 1976) ISBN X16435
- Volume 3: Tablettes, nodules et rondelles édités en 1975 et 1976 (EtCret 21:3; Paris: Librairie Orientaliste Paul Geuthner 1976) ISBN X16436
- Volume 4: Autres documents (EtCret 21:4; Paris: Librairie Orientaliste Paul Geuthner 1982) ISBN X16437
- Volume 5: Addenda, corrigenda, concordances, index et planches des signes (EtCret 21:4; Paris: Librairie Orientaliste Paul Geuthner, Paris 1985) ISBN X16433 . Multiple drawings of each letter. List of all occurrences of each letter by letter number. Lookup table for each artifact. Additional notes on each inscription.

Kalevala

Kalevala is the gold standard for Finnish vocabulary uncontaminated by Indo European. It only lacks accounting terms used by women responsible for commercial activities and some technical fishing and sailing terms used by commercial fishermen.

Harvard University Press published a paperback word-by-word translation of Kalevala by Francis Peabody Magoun that is most useful for translating. Line numbers occur once per page with occasional errors. End notes highlight some of the more difficult translations and list all the characters and spirits with explanatory detail. Many of these words cannot be found in any Finnish-English dictionary.

Suomalaisen Kirjallisuuden Seura, Helsinki, publishes an excellent hardback of Kalevala in Finnish with every line numbered.

Kalevala in its entirety can be found on the internet.

Concordance

This website contains a Linear A dictionary and concordance from Kalevala plus additional old words in searchable Excel format. English, Finnish and Linear A. 21 MB, 20,000 words.

Dictionaries

Most households in Finland have a copy of “Suomi Englanti Suomi Sanakirja” by Werner Söderström Osakeyhtiö, 2000, Helsinki, ISBN 951-0-24662-X.

Google publishes the complete text plus search engine for the large dictionary Suomalais-Englantilainen Sanakirja, 1919, by Severi Alanne, Superior, Wisconsin, Työmies Publishing Co, without an ISBN.

Linear A resources

A three volume etymology Suomen Sanojen Alkuperä, Etymologinen Sanakirja, by Erkki Itkonen, 1992, ISBN 951-717-692-9, was published the same year that he died. This contains not only old words and the first attested usage but irregular spellings in a clear format. Nearly every entry older than 1850 is guaranteed to be free of Indo European. A complete surprise is the large number of Finnish words that have entered into German. The major weakness is that definitions frequently use words so obscure that I can't find them.

You are invited to contact Stuart Harris about these or any other inscriptions at

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