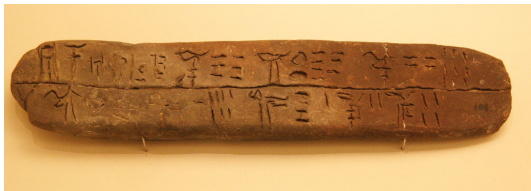


Alice Kober, Michael Ventris and the Decipherment of Linear-B

Roger Boyle

March 6, 2024



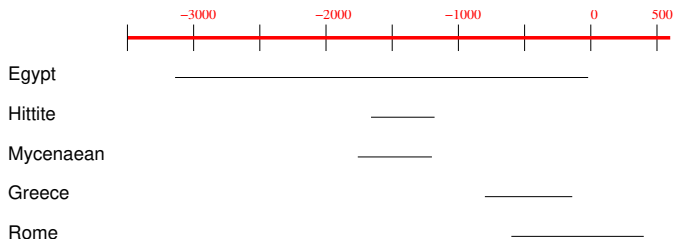
A story

This is a story that extends over more than half a century, beginning in 1900.

Dramatis Personae

- Arthur Evans
- Carl Blegen
- Emmett Bennett
- Alice Kober
- Michael Ventris
- John Chadwick
- Andrew Robinson

Some civilisations



Where dates are obviously rather approximate!

The interval between the Mycenaean and Greek civilisations is sometimes referred to as the 'Greek Dark Ages'. In 1900, prevailing theories were of a complete disconnect between the affluent, sophisticated Mycenaean and later Greek civilisations.

Sir Arthur Evans

... at Knossos



<https://luwianstudies.org/warum-fehlen-die-luwier/sir-arthur-evans/>

Sir Arthur Evans (1851-1941) was an eminent and influential British archaeologist. Fascinated by the Mycenaeans, he pursued evidence that they had developed writing. Political turmoil allowed him eventually (1900) to excavate at Knossos.

Knossos

Evans was spectacularly successful; in particular he quickly excavated some thousands of inscribed clay tablets in an unrecognisable language.



<https://www.timewisetraveller.co.uk/evans.html>

Linear A and B

There were two varieties: they were *linear*, as a result of being lines cut into wet clay. The varieties were christened *Linear A* and *Linear B*.

Linear A dated from approximately 1750-1450BCE, and Linear B from 1450-1200BCE. Linear B tablets predominated significantly.



And then ...

Evans' discoveries caused great excitement in the archaeological world. Many attempts to read Linear B were made – these were hampered by:

- The pace at which transcription and publication was done.
- The almost unanimous assumption, dominated by Evans, that Linear B simply couldn't be Greek.

In pre-Internet days, at the outbreak of WW2, significant progress was limited to three things.

Post-Evans progress (1)

Carl Blegen



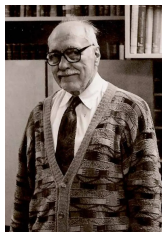
<http://scihi.org/carl-blegen/>

Carl Blegen (1887-1971) began excavation at Pylos on the Greek mainland in 1939, and quickly found a large number of Linear B tablets. Plausible explanations for these necessitated new thinking about the Mycenaean time.

He was making Pylos discoveries into the 60s.

Post-Evans progress (2)

Emmett Bennett

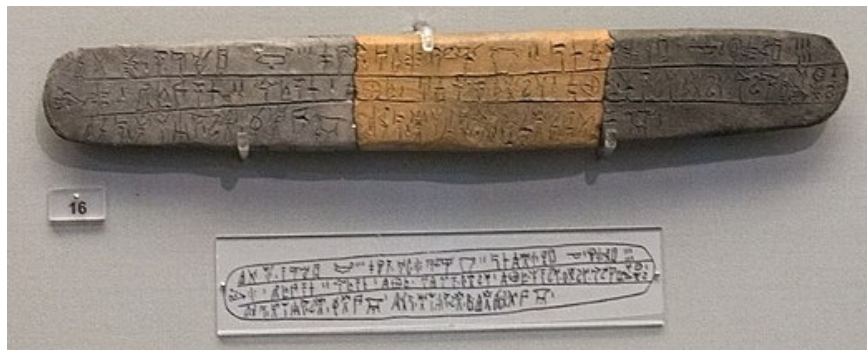


New York Times

Emmett Bennett (1918-2011) was a classicist and philologist who performed a great deal of work in transcribing Linear B tablets, cataloguing the symbols and publishing. In WW2 he worked as a cryptanalyst, despite knowing none of the target language (Japanese).

Linear B

Transcription



Linear B tablet, National Archaeological Museum of Athens,
1300BCE

<https://commons.wikimedia.org/>

Post-Evans progress (2)

Bennett's syllabary

Linear B Syllabary with Emmett L. Bennett Jr.'s Numeric Identifiers

08 a	38 e	28 i	61 o	10 u
01 da	45 de	07 di	14 do	51 du
57 ja	46 je		36 jo	65 ju*
77 ka	44 ke	67 ki	70 ko	81 ku
80 ma	13 me	73 mi	15 mo	23 mu
06 na	24 ne	30 ni	52 no	55 nu
03 pa	72 pe	39 pi	11 po	50 pu
16 qa	78 qe	21 qi	32 qo	
60 ra	27 re	53 ri	02 ro	26 ru
31 sa	09 se	41 si	12 so	58 su
59 ta	04 te	37 ti	05 to	69 tu
54 wa	75 we	40 wi	42 wo	
17 za	74 ze		20 zo	**

* JU (64) is unconfirmed ** ZU, not on this chart, is also unconfirmed.

Post-Evans progress (3)

Alice Kober



<https://drdudsdicta.com/tag/alice-kober/>

Alice Kober (1906-1950) was a classicist and linguist.

She made very good progress in decipherment: she died unhappily early, and may well have completed the task.

Post-Evans progress (3)

Alice Kober

Kober was critical of many attempts at decipherment that tried to 'force-fit' languages to the symbols: this is a *top down* approach of taking a model and forcing it onto observed data.

Conversely, she preferred to study the symbols and derive useful patterns from them, and thence model the underlying language.

She commenced by counting character frequency, and frequently seen word beginnings and endings.

Writing systems

Coarsely, writing systems may be categorised one of three ways:

- Ideographic/pictographic: one symbol represents one word – Aztec writing was such a system. Ideographic writing needs a large number of symbols to represent the language fully.
- Logographic: one symbol represents one word part, for example a syllable. Chinese writing is logographic. It is possible to represent a language with a few dozen logographs.
- Alphabetic: a small number of symbols are used to construct words. English has 26, Russian has 32, Finnish has 29, ...

A syllabic system

Linear B has about 200 characters; many are clearly ideographic, suggesting the remainder form a logographic system. This had already been supposed.

Logographic systems usually present as each symbol being a consonant-vowel pair, perhaps with isolated vowels.

Kober hypothesised a *grid* into which the symbols would be placed.

The Linear B grid

	Vowel 1	Vowel 2	Vowel 3	Vowel 4	...
Consonant 1					
Consonant 2					
Consonant 3					
...					

We do not know at the outset how many vowels/consonants there are.

Linear B characters

Kober saw a very uneven distribution of characters; this is evident in all languages.

Words in Linear B were delimited by vertical lines. Kober searched for patterns at word beginnings and word endings. This led to critical insights.

Gender

Gender is evident in many languages, ancient and modern.

Linear B could be seen as gendered by inspecting words near self-explanatory ideograms for, e.g., man/woman



left: *Total (fem.)*

right: *Total (masc.)*

Codebreakers and Groundbreakers, Galanakis et al., Fitzwilliam Museum Cambridge, 2017.

Inflection

Many languages will *inflect* nouns/adjectives depending on their grammatical role; a Latin example –

Case		Meaning
Nominative	rex	A King, the King
Vocative	rex!	Oh King!
Accusative	(videre) regem	(See) the King
Genetive	regis	(Of) the King
Dative	regi	(To) the King
Ablative	rege	(With, by, from) the King

This is vestigial in English, but very evident in Latin, Slavic languages, Greek ...

Inflection in Linear B

With careful searching of the scripts, Kober discovered plausible evidence of inflection in Linear B:

	A	B	C	D	E	F
Case I	𐀡𐀢𐀣𐀤	𐀥𐀦𐀧𐀨	𐀩𐀪𐀫𐀬	𐀭𐀮𐀯	𐀰𐀱𐀲	𐀳𐀴𐀵
II	𐀡𐀢𐀣𐀤	𐀥𐀦𐀧𐀨	𐀩𐀪𐀫𐀬	𐀭𐀮𐀯	𐀰𐀱𐀲	𐀳𐀴𐀵
III	𐀡𐀢𐀣𐀤	𐀥𐀦𐀧𐀨	𐀩𐀪𐀫𐀬	𐀭𐀮𐀯	𐀰𐀱𐀲	𐀳𐀴𐀵

A Kober, *The Minoan Scripts: Fact and Theory*, *American Journal of Archaeology*, 52(1), 82-103

Filling the grid

Intricate study of inflected and/or gendered words allowed hypotheses about some signs sharing a consonant (so appearing in the same row) or vowel (so sharing the same columns).

Kober reached this major achievement. She suggested that further careful analysis might enable other locations of symbols within the grid – but however much was done in this regard, one was no closer actual identification of consonants or vowels, and hence pronunciation of the language.

Finishing the job

Shortly before her early death, Kober wrote; *When we have the facts, certain conclusions will be almost inevitable. Until we have them, no conclusions are possible.* [Kober, ibid.]

Many argue that given more time, Kober would have completed the analysis. Who knows?

Michael Ventris



<https://petersengland.blogspot.com/2015/07/michael-ventris-strangely-english-genius.html>

Michael Ventris

Ventris (1922-1956) had an unconventional upbringing by intellectual parents. At age 14 he attended a lecture by Evans, and had a brief interaction with him. He was obsessed with Linear B from that time forward.

1939 events interrupted his education and interests, and he served in the RAF.

Post war, he took up training to be an architect which became his [successful] profession. His hand drawings and writing were of exceptional quality.

In 1946 he resumed serious interest in Linear B, and connected with the foremost authorities at that time. His interactions with Kober, while professional, seem to have been strained.

As a complete amateur, Ventris founded a correspondence group of active scholars to exchange ideas and progress in Linear B. These efforts were productively received (although Kober – near the end of her life, would not join).

His approach was an early pioneer in collective brainstorm working; his bulletins ('work notes') were a model of clarity.

Linear B grid

Ventris was completely persuaded of Kober's approach, and devoted himself to completing the grid.

SUSPECTED CONSONANT EQUATIONS IN PYLOS INFLEXIONAL MATERIAL

WORK NOTES
FIGURE 9
KN05505, 27 SEPT 51

N°	N°									N°	N°									
	0	1	2	3	4	5	6	7	8		0	1	2	3	4	5	6	7	8	9
1	5	2	2							52	1	Y		X						
2	7	2	2							53	1	Y		X						
3	1	2	2							54	1	Y		X						
4	1	2	2							55	1	Y		X						
5	1	2	2							56	1	Y		X						
6	1	2	2							57	1	Y		X						
7	1	2	2							58	1	Y		X						
8	1	2	2							59	1	Y		X						
9	1	2	2							60	1	Y		X						
10	1	2	2							61	1	Y		X						
11	1	2	2							62	1	Y		X						
12	1	2	2							63	1	Y		X						
13	1	2	2							64	1	Y		X						
14	1	2	2							65	1	Y		X						
15	1	2	2							66	1	Y		X						
16	1	2	2							67	1	Y		X						
17	1	2	2							68	1	Y		X						
18	1	2	2							69	1	Y		X						
19	1	2	2							70	1	Y		X						
20	1	2	2							71	1	Y		X						
21	1	2	2							72	1	Y		X						
22	1	2	2							73	1	Y		X						
23	1	2	2							74	1	Y		X						
24	1	2	2							75	1	Y		X						
25	1	2	2							76	1	Y		X						
26	1	2	2							77	1	Y		X						
27	1	2	2							78	1	Y		X						
28	1	2	2							79	1	Y		X						
29	1	2	2							80	1	Y		X						
30	1	2	2							81	1	Y		X						
31	1	2	2							82	1	Y		X						
32	1	2	2							83	1	Y		X						
33	1	2	2							84	1	Y		X						
34	1	2	2							85	1	Y		X						
35	1	2	2							86	1	Y		X						
36	1	2	2							87	1	Y		X						
37	1	2	2							88	1	Y		X						
38	1	2	2							89	1	Y		X						
39	1	2	2							90	1	Y		X						
40	1	2	2							91	1	Y		X						
41	1	2	2							92	1	Y		X						
42	1	2	2							93	1	Y		X						
43	1	2	2							94	1	Y		X						

MICHAEL VENTRIS

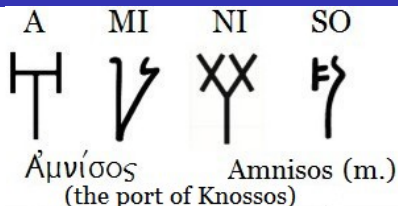
MICHAEL VENTRIS

Early attempts to interpret the consonants were largely quite wrong, although guesses at the vowels were better.

Ventris noticed that some patterns in Knossos tablets were absent in Pylos tablets, and vice versa. In a superb leap of imagination, he conjectured that they might be local place-names, and tried to interpret them as such.

This was far from straightforward and hampered by changes in names over the centuries, and the curious 'spelling'.

Amniso



<https://linearbknossosmycenae.wordpress.com>

Hypotheses about these names allowed well-informed guesses about some others. The guess for *Amniso(s)* led quickly to a likely *Knosso(s)*, which in turn led to a very plausible *koliandron* [coriander].

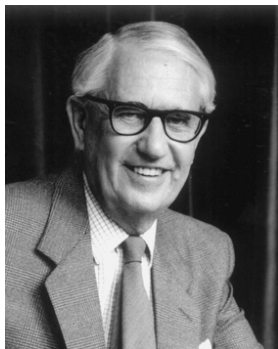
In due course, the estimates grew in number and reinforced each other's plausibility. Linear B was Greek.

Ventris was persuaded of the correctness of his decipherment, but it flew in the face of accepted history of Mycenae. This provoked significant academic rejection and ridicule, especially given his 'amateur' status.

He continued to build on his interpretation, and recruited support from John Chadwick, an established linguist and classical scholar.

Chadwick was persuaded and became a powerful ally of the theory.

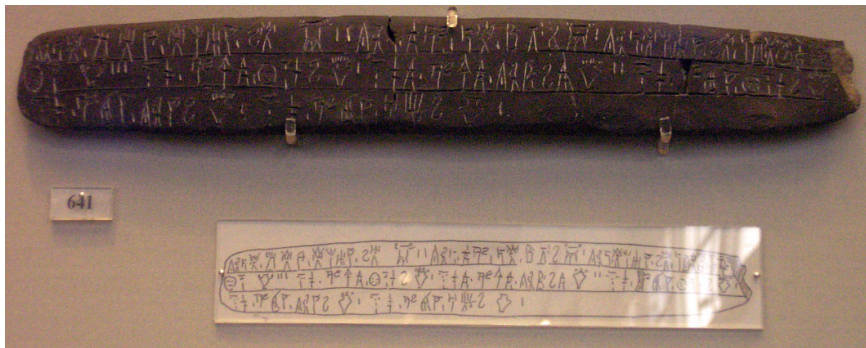
John Chadwick (1920-1998)



Wikipedia

Chadwick authored the authoritative "Decipherment of Linear B" text in 1958.

Confirmation - the Tripod tablet



Wikipedia

Excavated by Blegen in 1953.

Held in the National Archaeological Museum of Athens.

Confirmation - the Tripod tablet

No theory has earned its keep until it provides something demonstrably true that is new.

Blegen applied Ventris' transliteration to the Tripod tablet and found Greek words describing two-handled, three-handled, four-handled and handle-less pots alongside ideograms that matched the description.

Aftermath

The passage of time saw nearly all established archaeologists and classicists accept Ventris' identifications; eventually all counter theories and criticism were dropped.

None of the tablets were great literature: they were administrative and clerical records – a reasonable use of the earliest writing.

Ventris pursued his architectural career, but not as a happy man. He died in a car crash in 1956, in not wholly clear circumstances.



<https://www.english-heritage.org.uk>

19 North End, Hampstead, London, NW3 7HR, London Borough of Camden

The Ventriss Crater is on the dark side of the moon.

Andrew Robinson



Amazon

Robinson deserves a mention for his excellent biography of Ventris, and his text summarising progress (and lack of) on various other ancient scripts.

The take-homes

- Kober: a cryptologist's approach to decipherment, and originating the grid.
- Ventris: a co-operative academic effort at the problem. And, of course, finishing the job.

Would it be any different if Evans had dug a hole in Knossos today?

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Probably

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- Transcription

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- Transcription
- Dissemination

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- Transcription
- Dissemination
- Co-operation

Would it be any different if Evans had dug a hole in Knossos today?

Probably

- Transcription
- Dissemination
- Co-operation
- Computers

Would it be any different if Evans had dug a hole in Knossos today?

We also report first automatic results in deciphering Linear B, a syllabic language related to ancient Greek, where our model correctly translates 67.3% of cognates.

Jiaming Luo, Yuan Cao, Regina Barzilay, *Neural Decipherment via Minimum-Cost Flow: From Ugaritic to Linear B*, Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics, July 2019

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