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Commemorating the decipherment of Linear B and the discovery of Mycenaean Greek

Abstract

Linear B is the writing system used by the Mycenaean Greeks during the Late Bronze Age, roughly between 1450 – 1200 BCE. Clay tablets inscribed in the Linear B script had been unearthed at the excavations of Knossos, Crete, in the early 1900s and subsequently at Pylos and Mycenae on the mainland of Greece,¹ but they had remained largely unreadable for decades, until a British architect by the name of Michael Ventris, who had always had a keen interest in languages, announced on a BBC radio programme, that was aired on 1st July 1952, that he had deciphered Linear B and that it represented the earliest surviving form of the Greek language.²

This was a major breakthrough, complementing the archaeological investigations of the time by giving scholars access to the textual information recorded in the Linear B tablets about the socio-political, economic and religious facets of life in the Mycenaean world. This paper commemorates the 60th anniversary of this important achievement in two ways: first, it outlines the unique contributions of the four main pioneers involved in the decipherment (Michael Ventris, Alice E. Kober, Emmett L. Bennett, Jr. and John Chadwick); second, it focuses on a small section of Linear B tablet PY Ep 704 in order to illustrate the detailed information contained in these texts and to consider the diachronic development of the Greek language by pointing to several key similarities and differences between Mycenaean and Modern Greek.

The decipherment revealed that the Linear B tablets were economic documents. They include landholding and taxation information, they indicate what was coming into the central administrative centres, usually called 'palaces,' in the form of raw materials and what was going out as finished products or as material to be worked into finished products. They include lots of inventories of items such as vessels, chariot equipment, animals, garments, food and drink, as well as personnel. They were the Mycenaeans' accounting records, used for administrative purposes.

The term 'Linear' in the name 'Linear B' refers to the linear shape of the signs inscribed on to the clay tablets (not wedge-shaped like the cuneiform of Mesopotamia) and the 'B' distinguishes this script from the Linear A script, found on Crete, which shares some features but is distinct and remains undeciphered. The Linear B clay tablets were intended only as temporary storage devices.³ Once the information they contained was no longer required, the clay itself would be moistened and re-moulded to create new writing surfaces. The tablets were preserved by being baked accidentally in the fires that destroyed the Mycenaean administrative centres at the end of the Bronze Age.

For a long time, Ventris was convinced that the language behind Linear B was Etruscan, a non-Indo-European language, later spoken in Italy (768-264 BCE), possibly originating in western Anatolia.⁴ Sir Arthur Evans, excavator of the palace at Knossos, also believed that the writing of the tablets from Knossos on Crete was not Greek. In his view, since the material culture of the Minoans on Crete was different from that of the Greek mainland at Mycenae, the language of the Knossos tablets also had to be different. However, in 1939, when Carl Blegen discovered Linear B tablets on the Greek mainland site of Pylos, the idea that the Linear B writing system was the exclusive prerogative of the Minoans on Crete had to be abandoned.⁵

Michael Ventris became a qualified architect in 1948, but he never gave up his love for languages or his interest in the puzzle of Linear B. During his architectural training (1946-1948), he practised a method of architectural design that proved very useful in his approach to the decipherment. This was the concept of 'group working,' popular at the time, which involved a group of architects collaborating and exchanging ideas with one another, instead of following the instructions of a single, inflexible employer. Furthermore, Ventris encouraged clear and thorough note-taking and said that an

architect's thought processes during the design process should be recorded as concisely and as accurately as possible. Everything should be transparent and open to critique by colleagues and, if necessary, should be modified accordingly.⁶

Research on Linear B during the 1940s was difficult. This was partly due to World War II. The tablets were generally inaccessible, in storage in Athens and Crete, so their study was usually based on unclear photographs or Evans' personal drawings of them. In Oxford, Sir John Myres was examining the unpublished Knossos tablets entrusted to him by Evans (who died in 1941). In London, Ventris could only work with the relatively few published tablets. In the USA, Alice Kober in New York similarly focused on the published texts until she started to help Myres with the Knossos tablets, while Emmett Bennett in Cincinnati and then Yale University had the unpublished Pylos material left to him by Blegen. There was very little in terms of scholarly exchange between these individuals. Eventually, in 1949, Bennett was shown the Knossos tablets in return for showing the Pylos tablets to Kober. Despite these obstacles, both Bennett and Kober carried out independent analyses that became crucial elements of Ventris' own work on the decipherment.⁷

Emmett Bennett contributed to the decipherment in two major ways: he worked out the Linear B fractional system of measurement, and he produced an impressive sign list of about 89 signs which he believed (but could not yet prove) were phonetic in function.⁸ This involved studying the individual signs thoroughly, trying to distinguish between scribal variation and actual, distinct signs. As Chadwick later remarked: "How difficult the task is only those who have tried can tell."⁹ The number of 89 phonetic signs suggested that Linear B was a syllabic script (where one sign represents a syllable), since syllabic scripts typically have more signs than alphabets. Ventris immediately incorporated Bennett's impressive sign list into his own work.

Using a statistical technique of frequency analysis of signs and sign combinations, Bennett also noted that if a particular sign occurred only with numerals and was iconic in nature, it was almost certainly an ideogram –i.e., not a phonetic sign used to write words, but a picture-like sign that represented an object or an idea. So, it seemed that Linear B included both phonetic signs and ideograms. These were invaluable insights at this time.¹⁰

Alice Kober, a Classicist from Columbia University, who taught at Brooklyn College, was an instrumental driving force behind the decipherment with her focus on searching for patterns in the Linear B documents, which she believed could assist in determining the nature of the script and its underlying language. She demonstrated that there was evidence of inflection in Linear B (a suggestion originally made by Evans).¹¹ She identified five particular groups of words in the published tablets from Knossos on Crete, each group containing three slightly different endings (dubbed 'Kober's triplets'), which suggested to her the presence of Declension. She did not know what the words meant, but their contexts in the tablets seemed to be the same and they looked to her to be nouns, possibly personal names or place-names. Using these five word groups, Kober developed a tentative phonetic pattern. The actual phonetic values of these signs were still unknown, but she established their interrelationships (e.g., by thinking about how declensions operated in known languages and by pinpointing, according to their relative position in a sign-group, or word, which syllabic signs were likely to contain the same consonant and vowel or the same consonant but a different vowel, and so on). This analytical principle, which Ventris and others called a 'grid,' with consonants arranged on one axis and vowels on the other, was critical in helping to organise and make sense of all the signs encountered in the inscriptions.¹²

At the end of 1949, Ventris sent a questionnaire that he had compiled to about twenty scholars in Europe and the US who had been working on the Aegean writing systems, asking them to exchange their views on the scripts. Based on the replies he received (not everyone responded), he typed up the "Mid-Century Report" which contained very little consensus on the nature of the Linear B script and seems to have left Ventris feeling somewhat disillusioned about the prospect of decipherment.¹³

However, after meeting Bennett in 1950 and learning of the impending publication of the Pylos tablets and other Knossos material, which would finally give him access to more tablets (more material to analyse and compare), Ventris was inspired to continue working on Linear B. He wrote up 20 Work Notes, almost 200 pages in total, in which he recorded his linguistic analyses, hypotheses, and experimentation, and many references to inscriptions from other ancient languages and neighbouring civilisations, all of which contributed to his success. Ventris explained later that there

were basically three phases to the decipherment: (1) an exhaustive analysis of the signs, sign-groups (words) and contexts in the available texts to obtain every possible clue as to the spelling system and language structure, (2) an experimental substitution phase – in which phonetic values were tested to see if they could give possible words, and (3) a decisive check – with new material.¹⁴

So, how did Ventris decipher Linear B?¹⁵ To begin with, he employed Kober's methodology of a grid to record the interrelationships of the (unknown) vowels and consonants in the syllables of Linear B (Work Note 1). Initially, he was also very careful not to identify Linear B signs with Cypriot syllabic signs (the Cypriot syllabic script was in use between 800-225 BCE to write a Greek dialect) simply on the basis of superficial resemblances (Work Note 1). He searched the texts for scribal variation, as Bennett had done (Work Note 9), and he continued Kober's search for patterns of Inflection (Work Note 11), confirming evidence of gender distinction in the texts (which helped to rule out Etruscan as the underlying language¹⁶). Gradually, he started to think more seriously about a possible connection between Linear B and the Cypriot syllabic script (Work Note 15).

In early 1952, Ventris updated his Grid of syllabic signs and carried out a telling experiment. He too suspected (as had Myres and Kober) that the Knossos tablets contained place-names. Tablets from neighbouring civilisations, especially ones containing lists as many of the Linear B texts seemed to do, often featured the names of the objects that were recorded, the personal names of the contributors or the recipients of those items, and town names that were either the origins or intended destinations of the items. Having now studied the mainland Pylos tablets published by Bennett (1951), Ventris noticed that Kober's triplets (the five word groups she had isolated that had different endings) occurred only in tablets from Knossos on Crete, and not from mainland Pylos. So, he wondered whether each of those word groups from Knossos, might refer to a town in Crete. If he adjusted his phonetic values slightly (in some instances by using values for the Linear B signs based on similar-looking signs of the Cypriot syllabic script – something he had explicitly warned against doing earlier on!), the Greek names of well-known cities in Crete emerged, including Knossos (ko-no-so) and Amnisos (a-mi-ni-so). If correct, this meant that Linear B reflected Greek. Ventris titled his final Work Note No. 20, written 1st June 1952:

“Are the Knossos and Pylos Tablets written in Greek?”

He wrote to Bennett, saying: “...I have, I think, great news for you. You must judge for yourself, but I think I’ve deciphered Linear B, and that Knossos and Pylos are both in Greek.”¹⁷ As he explained on the BBC:

“For a long time I, too, thought that Etruscan might afford the clue we were looking for, but during the last few weeks, I have come to the conclusion that the Knossos and Pylos tablets must, after all, be written in Greek – a difficult and archaic Greek, seeing that it is 500 years older than Homer and written in a rather abbreviated form, but Greek nevertheless.”¹⁸

After several months, Myres and Bennett accepted Ventris’ conclusion. It took several years for other scholars, while a few never accepted it. Some of the resistance may have had to do with the fact that Ventris, only 30 years of age at the time, was not a professional academic and had never attended university. He was an outsider to their field. To convince the experts, Ventris needed to explain (1) how he had arrived in a logical way at his phonetic values for the Linear B signs – but some of his steps were simply guesses that turned out to be correct, and (2) how this Mycenaean Greek was related to Classical Greek and where it belonged in the broader context of Indo-European linguistics.¹⁹

On this second point, he received the help of John Chadwick, a Classical philologist from Cambridge University, who had the linguistic background required to make sense of Ventris’ results. When Ventris explained to Chadwick his concern that there was still much that he could not satisfactorily explain, such as the absence of the definite article in Mycenaean Greek, Chadwick replied: “... The definite article ought not to be present, as it is not yet fully developed in Homer... I should have been much more worried if you had found an article.”²⁰

The fruitful collaboration between Ventris and Chadwick led to the publication of *Documents in Mycenaean Greek* (1956),²¹ still considered the ‘Bible’ of Mycenaean Studies, with an explanation of the script and an analysis of about 300 tablets.

An example of the rich and detailed information that the decipherment made instantly accessible to researchers is offered by Linear B tablet PY Ep 704.²² This tablet belongs to the E-series of texts from the mainland site of Pylos recording the landholdings of the damos (this entity is discussed below) that were leased out to various groups and individuals.

The tablet contains several entries, each with the following information listed in a fixed order: (a) the name of the landholder, (b) his or her occupational title, (c) the kind of plot he or she holds, and (d) a numerical figure that is considered to indicate the amount of seed grain needed to sow that particular parcel of land, used as a way of measuring and recording its relative size / surface area. The landholding documents of the E-series were found stored in the Archives Complex of the Palace of Pylos, suggesting that the Palace administrators expected a tax or contribution from these landholders, possibly in the form of agricultural produce based on the size of the plots or service of some kind (e.g., human labour in the industrial activities that the Palace monitored), in return for the use of the land.

Lines 5-6 of tablet Ep 704 represent the longest surviving sentence in Linear B. Their transliteration and translation are as follows (note that a syllable in the transliteration represents a distinct sign in the script, so that in line 6, the Greek word *toso* meaning 'so much' is rendered in the Linear B script by two signs, *to* and *so*):

.5 e-ri-ta , i-je-re-ja , e-ke , e-u-ke-to-qe , e-to-ni-jo , e-ke-e , te-o , da-mo-de-mi ,

pa-si , ko-to-na-o ,

.6 ke-ke-me-na-o , o-na-to e-ke-e , to-so pe-mo GRA 3 T 9

.5-6 Eritha, (the) priestess, has/holds [e-ke: ekhei, 3rd singular verb] and [-qe in the Linear B script meaning 'and'] claims to hold [e-ke-e: ekhehen, Infinitive] an e-to-ni-jo plot (a special kind of plot) for the deity [te-o, theoi Dative singular] but [de: particle de 'but'] the damos says [pa-si: phasi, 3rd singular verb] that she [mi: anaphoric pronoun min] holds a (regular) o-na-to lease of communal plots, so much seed: 374 litres WHEAT.

The word *da-mo*, *damos*, is certainly related to the later Classical *demos*, but it does not seem to have developed yet the wider, more inclusive, meanings of 'citizen body' or 'people' of later times. In the Mycenaean period, the term *damos* appears to refer to a local group of landowners and administrators involved in the distribution of land (cf. its Indo-European verbal root *deh2- 'divide, distribute').²³

The terminology used in these tablets suggests that leases of land were generally thought of as benefits in the Mycenaean world (the key word *o-na-to*, *onaton*, possibly related to a verb /oninemi/ meaning 'to profit' is understood to denote 'a portion (of land) enjoyed' or a land plot given as a

benefit, for which some kind of tax or contribution was nevertheless probably expected in return. In contrast, an e-to-ni-jo plot, hetonijon, seems to have been a special kind of landholding associated with a divinity, potentially related to the word etos ‘true’, suggesting that it was a ‘truly beneficial’ landholding in the sense, perhaps, of being tax-exempt.²⁴ If so, the priestess is claiming that she has a tax-exempt parcel of land, while the damos is arguing, on its own behalf or on behalf of the Palace, or both (this particular point continues to be debated), that she holds a regular parcel of land and needs to pay the tax due on it.

From tablet PY Ep 704 we learn that some women held positions as priestesses in the Mycenaean period and that a complex landholding system was at work. Moreover we observe the interplay between three major coexisting bureaucratic powers: the religious sector, represented by the priestess Eritha, the damos (local land administrators) and the Palace, in whose archives the E-series was stored. Such information, made available by the decipherment, instantly enhances our picture of Mycenaean society, even if we do not learn how the dispute about the legal status of Eritha’s land was eventually settled.

This tablet also contributes to our understanding of the diachronic development of the Greek language. Proto-Indo-European features preserved in Mycenaean Greek include the labiovelar phonemes: q-series to denote *kw, etc:²⁵ for example, the Mycenaean enclitic particle kwe (rendered by the script as –qe, as in line 5 of PY Ep 704) becomes te in Classical Greek, whereas it remains –que in Latin (e.g., in the phrase *Senatus Populusque Romanus* ‘the Senate and the people of Rome’).

It has already been noted that Mycenaean Greek lacks the definite article, which seems to have developed gradually over time (note the absence in Ep 704 of the feminine definite article before the priestess Eritha’s name and occupational title).

Interestingly, Mycenaean Greek does not correspond exactly to any of the historical Greek dialects [West Greek (=Doric), Aeolic (including Boeotian, Thessalian and Lesbian), Attic-Ionic, Aeolic, Arcado-Cypriot]. Of these, it has most in common with Arcado-Cypriot. This is probably due to events following the breakdown of the Mycenaean palace system, when Mycenaean speakers are believed to have congregated in areas such as Arcadia and Cyprus, retaining some elements of the Mycenaean dialect in those regions.²⁶

This phenomenon is reflected in PY Ep 704, where the Present Medio-Passive form e-u-ke-to, eukhetoi, '(she) claims,' has the Arcadian ending -toi (indicated in the script, without the final iota, as -to) instead of the Attic ending -tai (which would be rendered in the script as -ta).²⁷

Tablet PY Ep 704 also provides a glimpse of the remarkable similarity between the core vocabulary of Mycenaean and later Greek,²⁸ as in the case of common verbs such as 'to have, hold' (3rd singular ekhei) and even terms related to state organisation although, given changing political and historical contexts, it is reasonable to expect some degree of evolution in the meaning of these, as with Mycenaean damos, Classical and Modern Greek demos. Some words pertaining to family ('father,' 'mother,' 'son,' 'daughter'), personal names (including 'Achilleus,' 'Theodora'), clothing ('sandals') and food ('cheese,' 'honey'), to mention just a few examples from other tablets, are identical in Mycenaean and later Greek and testify to a long and enduring linguistic legacy.

The decipherment of the Linear B script was the result of group work: Emmett Bennett, with his thorough analysis of the Linear B signs, and Alice Kober, with her identification of patterns, laid the methodological foundations for the decipherment, while John Chadwick, with his philological training, later helped to confirm its validity. Michael Ventris saw the potential in the work of Kober and Bennett, immersed himself in their work, questioned some of it, adopted most of it and, in the

end, succeeded in demonstrating that the language behind the Linear B script was an early form of Greek. The decipherment allowed scholars to penetrate deeper into the Mycenaean world by revealing the language spoken by the Mycenaean world, thereby making accessible their administrative documents and the complex bureaucracy that lay behind them. It is this achievement that this paper has sought to celebrate on the 60th anniversary of the decipherment of Linear B.

Notes

- 1 Since then, Linear B has been found at a number of other sites. To date, Linear B tablets have been discovered at Knossos and Chania on the island of Crete, and on mainland Greece, at the sites of Pylos, Mycenae, Tiryns, Thebes, Midea, Iklaina, and Aghios Vasileios.
- 2 Andrew Robinson, *The Man Who Deciphered Linear B. The Story of Michael Ventris* (New York: Thames and Hudson, 2002), 104-106.

Language

- 3 This is evident from references in the texts to 'last year' or 'this year.' Such references would not be meaningful beyond the span of a year. John Chadwick, *The Decipherment of Linear B. The Key to the Ancient Language and Culture of Crete and Mycenae* (New York: Vintage Books, 1958), 128.
- 4 On the Etruscans originating in western Anatolia, see Herodotus, *The Histories* 1. 93-94; on the enigmatic Lemnian inscription that might be written in a language related to Etruscan, see Robinson, *The Man Who Deciphered Linear B*, 37. At the age of eighteen, Ventris had published an article outlining his thoughts on this matter: "Introducing the Minoan Language," *American Journal of Archaeology* 44 (1940): 494-520.
- 5 Robinson, *The Man Who Deciphered Linear B*, 33, 63.
- 6 *Ibid.*, 48-51.
- 7 *Ibid.*, 63-64.
- 8 *Ibid.*, 64; Chadwick, *Decipherment*, 44-45.
- 9 Chadwick, *Decipherment*, 39.
- 10 Robinson, *The Man Who Deciphered Linear B*, 65-66; Chadwick, *Decipherment*, 44.
- 11 Alice Kober, "Evidence of Inflection in Linear Class B: I - Declension," *American Journal of Archaeology* 50 (1946): 268-276; Robinson, *The Man Who Deciphered Linear B*, 68. Inflection is the change a word undergoes in form to express different grammatical categories such as Case, Number and Gender in Nouns, and Person, Number and Tense in Verbs, as occurs in Greek and Latin.
- 12 Robinson, *The Man Who Deciphered Linear B*, 69-71; Chadwick, *Decipherment*, 57-59.
- 13 Robinson, *The Man Who Deciphered Linear B*, 74-76.
- 14 *Ibid.*, 76-79.
- 15 *Ibid.*, 81-101.
- 16 The Etruscan language features gender distinction in its proper names but not in common nouns. *Ibid.*, 90.
- 17 In Robinson, *The Man Who Deciphered Linear B*, 104.
- 18 *Ibid.*, 105-106
- 19 *Ibid.*, 107
- 20 *Ibid.*, 112.
- 21 Michael Ventris and John Chadwick, *Documents in Mycenaean Greek* (Cambridge: Cambridge University Press: First Edition 1956; Second Edition 1973).
- 22 The abbreviation 'PY' in the tablet's label refers to its findspot (Pylos) and 'Ep' indicates its subject matter (a set of landholdings). A discussion of this tablet is contained in Ventris and Chadwick, *Documents 1973*, 252-254; Relevant linguistic features and interpretative difficulties are further examined in Yves Duhoux, "Mycenaean Anthology," in *A Companion to Linear B: Mycenaean Greek Texts and their World*, Vol. 1, ed. Yves Duhoux and Anna Morpurgo Davies (Louvain-la-Neuve: Peeters, 2008), 300-302.
- 23 Michel Lejeune, "Le *dāmos* dans la société mycénienne," in *Mémoires de philologie mycénienne*. Vol. III (Rome: Edizioni dell'Ateneo, 1972), 146; Carl Watkins, ed. *The American Heritage Dictionary of Indo-European Roots* (Boston: Houghton Mifflin Co., 2000), 14.
- 24 Duhoux, "Anthology," 301.
- 25 Duhoux, "Anthology," 293, 300.
- 26 John Chadwick, "Mycenaean Greek," in *A History of Ancient Greek. From the Beginnings to Late Antiquity*, ed. Anastassios-Fivos Christidis (Cambridge: Cambridge University Press, 2010), 401-402.

- 27 Ventris and Chadwick, *Documents 1973*, 253; Duhoux, "Anthology," 301.
 28 Chadwick, "Mycenaean Greek," 400.

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