The Decipherment Process

The story of the decipherment of Linear B begins with its first discovery at Knossos on Crete. A Greek businessman and antiquarian, Minos Kalokairinos, conducted excavations at the site in 1878; he was probably the first modern excavator to discover a Linear B tablet, as in 1895 Sir Arthur Evans saw a single tablet at Herakleion which most likely originated from Kalokairinos' excavations. From 1900, Evans' own excavations produced thousands more inscriptions. Guided by his interest in pre-alphabetic writing, Evans was able to recognise examples of three different scripts, and coined the names by which they are still known: 'Cretan Hieroglyphic' or 'Pictographic' (so-called because Evans thought it resembled Egyptian hieroglyphs and picture writing), and two scripts which Evans regarded as less pictorial and more 'linear': Linear A and Linear B. Cretan Hieroglyphic and Linear A remain undeciphered to this day; it is not even known what language(s) they represent.

A Linear B tablet from Knossos, listing different types of animal (KN Co 906)

When Linear B was first discovered, the situation was the same: no-one could read the script, and no-one knew what the language of the inscriptions was. Theories ranged from an Anatolian language (related to those spoken in Anatolia, modern Turkey) to Etruscan, a pre-Roman language of Italy. Very few scholars thought Greek was a serious contender, largely because Evans had dismissed this possibility entirely.

However, although the language was unknown, two important things were known about the script:

It was a *syllabary* – a script in which each sign represented a syllable.
Linear B has 87 different phonetic signs — too many for an alphabet; too few for a logographic system (one in which individual signs can represent whole words, such as is common in the Chinese writing system); but a plausible number for a syllabic system. Each sign would therefore represent a syllable consisting of either a pure vowel (e.g. *a, e*) or a consonant + vowel (e.g. *pa, ti*).

The tablets were administrative documents.

As well as signs representing syllables, Linear B has 'ideograms', which represent objects or commodities: people, animals, foodstuffs, and so on. Many of these are obviously pictorial in origin: the ideogram on the right, on a tablet from Knossos (KN Sc 225), is clearly a horse. Knowing this, it was often possible to infer the tablets' content, even though they could not be read: for instance, a single word followed by the symbol 𐀁, clearly a person, was likely to be a person's name or title.

Decipherment in progress: the 1940s–early 1950s

Evans published a small number of the inscriptions he had found, but at the time of his death in 1941 the main publication of the Knossos Linear B tablets, *Scripta Minoa II*, was still awaited. The project was entrusted to Evans' close friend, the Oxford historian and archaeologist Sir John Myres; but due to Myres' old age, the outbreak of World War II, and the state of Evans' notes and drawings (an accumulation of 40 years of research), progress on the work was slow. *Scripta Minoa II* was finally published in 1952 with considerable help from other scholars, in particular the American scholar Alice Kober.

In the meantime, more Linear B tablets had been found at Pylos on the Greek mainland, beginning in 1939, but further work and publication was delayed by World War II. Thus, the amount of material that was publicly available was, until the early 1950s, very limited. Nonetheless, scholars around the world were working on the script, often in close collaboration with each other: although in the end it was Michael Ventris who achieved the decipherment, he owed his success to a great degree to previous work, in particular that by Alice Kober and another American scholar, Emmett L. Bennett Jr.

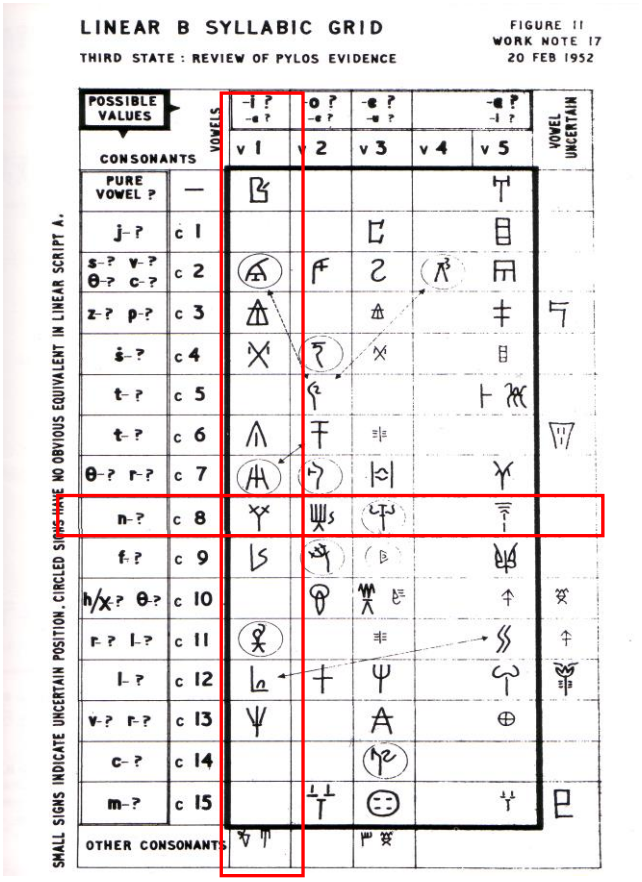
Bennett, based first at Cincinnati and later at Yale, wrote his doctoral thesis on the Pylos tablets, and was responsible for their publication in 1951; he also carried out the first systematic classification of the Linear B signs, establishing the definitive list of signs and their variant forms. Just as in English the same letter can look very different (compare a, *a*, and **a**), so too in Linear B the form of a single sign can vary. Only after Bennett's classification of the signs and variants could valid statistical analyses be performed.

Kober taught Classics at Brooklyn College, New York, but her spare time was devoted to painstaking analysis of the Linear B script. Probably her most important contribution was her analysis of groups of words which differed by only a single sign, which she used to prove that the language of Linear B showed inflection — changes in words' endings to reflect properties such as gender and number. To take

a modern example, the Italian word 'good' is *buono* (masculine), *buona* (feminine): in syllabic form these would be *bu-o-**no***, *bu-o-**na***. The final syllables would be written with different syllabic signs, *no* and *na* — but these two signs would share the same consonant, *n-*. Even though the signs' sound-values were unknown, Kober was therefore able to begin constructing a 'grid' showing the relationships between signs.

Ventris' decipherment

Michael Ventris' method was founded on Bennett's and Kober's work – conducting statistical analyses, identifying inflected forms of the same word, and establishing the relationships between signs in a 'grid'. On the right is one of the many 'grids' he produced as his work progressed, taken from his 'Work Note 17' of February 1952. Signs in the same column are thought to share the same vowel, and those in the same row to share consonants: for instance, all the signs in the highlighted row are presumed to have the consonant value *n-*, and those in the highlighted column to have the vowel value *-i*. The sign 𐀘, found at the meeting of this row and column, would therefore have the value *ni.*



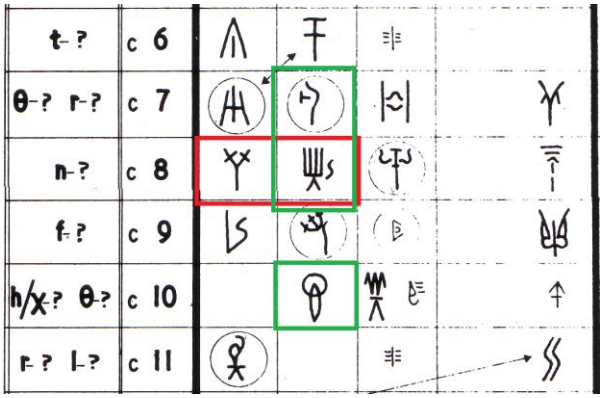
Ventris was in close contact with other Linear B scholars around the world, including Kober (who died prematurely in 1950) and Bennett. In 1950 he circulated a 'Mid-Century Report' on the current state of Linear B research, the results of a questionnaire sent to twenty other scholars. A series of 'Work Notes' followed, detailing each stage of his investigations and explaining his methods.

In early 1952 Ventris made a series of inspired guesses. Firstly, he assumed that the sign 𐀀 might be *a*: this was very frequently found at the beginning of words, suggesting that it was a pure vowel (in a syllabic script, signs for pure vowels are much more likely to appear at the beginning of words; vowels in the middle of words usually follow a consonant, so would be written with a consonant+vowel sign). Comparing the Linear B signs with the related Cypriot Syllabic script (which was used to write Greek on Cyprus, and had already been deciphered in the 19th century) suggested that 𐀘 could be *ni* (as in the grid above). Thirdly, Ventris guessed that

certain words on the Knossos tablets, which often appeared in headings, might be place-names – and if so, he wondered, might they correspond to Cretan place-names known from later Greek sources?

Ventris looked for the place-name *Amnisos*, the harbour of Knossos. In syllabic form, this would be *a-mi-ni-so*: putting in the sound-values he had already guessed, 𐀀-mi-𐀪-so. One word seemed to fit: 𐀀 𐀯 𐀪 𐀵. If this was correct then 𐀯 would be *mi* and 𐀵 *so*.

At this point, the strength of the 'grid' system became apparent: because once the value of one sign was known, others could immediately be deduced. Another possible place-name was 𐀁 𐀓 𐀵, ending in the sign now identified as *so*. But the other two signs were in the same column of the grid as *so*, and so must share the vowel *o*; the second sign was in the same row as *ni*, so must share its consonant, making it *no*. A place-name ?*o-no-so* was surely Knossos itself, *ko-no-so* in syllabic form.



Detail of Ventris' grid. Signs sharing the vowel *-o* are highlighted in green, signs sharing the consonant *n-* in red.

The more values were deduced, the more words could be 'read', and the more further values could be filled in on the grid — and all this pointed to a result that Ventris had never expected. Up till this stage, he had always thought that Etruscan, or a related language, was the most likely candidate for the language of Linear B, but within just a few months of his initial guess about the place-names, he had changed his mind completely. On July 1st 1952, he announced in a BBC radio broadcast that he had deciphered Linear B: "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."

Collaboration with Chadwick

Listening to this broadcast was John Chadwick, recently appointed to a Classics lectureship at Cambridge. He contacted Myres, who was in touch with Ventris, and asked to see his working; within a few days he was convinced enough to write Ventris a letter congratulating him on his successful decipherment. Chadwick's experiences of code-breaking during World War II, no less than his knowledge of the history of the Greek language, enabled him to see that Ventris had indeed 'cracked the code' of Linear B.

Chadwick and Ventris went on to collaborate in publishing the decipherment, which was confirmed in 1953 by newly-discovered tablets from Pylos: most famously, one contained the Greek word *tripode* 'two tripods', followed by an ideogram of a three-legged vessel and the numeral 2.

Detail of the 'tripod tablet' (PY Ta 641). The first word reads *ti-ri-po-de* = *tripode*; the tripod ideogram and the numeral 2 are at the right-hand end.

A joint book, *Documents in Mycenaean Greek*, followed, though Ventris sadly died shortly before its publication. Chadwick continued to work on Linear B for the rest of his long career, most famously producing the second edition of *Documents* in 1973, as well as an account of Ventris' decipherment, *The Decipherment of Linear B*.

Sources:

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M. Fox, *The Riddle of the Labyrinth. The Quest to Crack an Ancient Code and the Uncovering of a Lost Civilisation* (London, 2013)
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