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Summary

Linear B is a script used to write the Greek language during the palatial period of Mycenaean civilization, c. 1400–1200 BCE. It employed 87 syllabic and 143 logographic signs written from left to right. The vast majority of Linear B texts take the form of clay tablets, labels, and sealings that were used by palatial administrators to record diverse transactions. The other major document type is the inscribed stirrup jar, a coarse transport vessel with short texts painted before firing. Major deposits of Linear B texts are located at palatial sites on the Greek mainland and Crete, especially at Pylos and Cnossus. The texts are entirely administrative in nature and are therefore silent on historical events, but they shed light on many aspects of the Late Bronze Age world, especially economy, society, religion, and of course language and writing itself.

Keywords: Mycenaean, Greek, writing, language, epigraphy, Bronze Age, administration, economy, religion, society

Subjects: Greek History and Historiography, Greek Material Culture: Bronze Age, Linguistics

Linear B is a Late Bronze Age script that was used to write documents in the Greek Mycenaean language c. 1400–1200 BCE. It belongs to a distinctive group of syllabic prealphabetic scripts known from the Bronze Age Aegean and Bronze and Iron Age Cyprus. Inscriptions in Linear B were first discovered in the excavations at Cnossus by Sir Arthur Evans in 1900 CE; fifty-two years later Michael Ventris successfully deciphered the script, demonstrating that it was used to write the Greek language. Linear B is unusual, even among Bronze Age scripts, for being used almost exclusively for palatial administration. The surviving texts preserve no literature or diplomatic correspondence, no law codes or ritual texts. They are nevertheless important sources for our understanding of many dimensions of the Late Bronze Age, from agriculture and industry to religion and society and, of course, the history of the Greek language and writing.

How the Script Works

The Linear B script is composed of three types of signs: syllabograms, logograms, and punctuation. Each of the c. 87 syllabograms represents an individual syllable, either a pure vowel (a, e, i, o, and u) or one to two consonants plus a vowel (e.g., da, twe, qi, zo, nu). An additional c. 143 logograms represent commodities of various types, numerals, and measures.



Figure 1. Pylos Ea 778 (top) and Ea 805 (bottom).

Pylos Ea 778

Transliteration: ta-ra-ma-ta , e-ke , o-na-to , pa-ro , da-mo GRA T 9 Greek: $T^h alam\bar{a}t\bar{a}s \,^{(h)}ek^h ei \ on\bar{a}ton \ paro \ dam\bar{o}i \ {\rm GRA} \ {\rm T} \ 9$

Translation: Thalamatas has a benefit (of the use of the land) from the community

WHEAT 86.4 litres Pylos Ea 805

Transliteration: o-pe-te-re-u , e-ne-ka , a-no-qa-si-ja GRA 2 Greek: $Op^heltreus \stackrel{(h)}{=} eneka \; anork \stackrel{wh}{=} asi\bar{a}s \; \text{GRA 2}$

Translation: Opheltreus on account of manslaughter WHEAT 192 litres

Source: Photographs courtesy of the University of Cincinnati Department of Classics; drawings by author.

These two tablets illustrate the way that Linear B works. These texts were written by the same person and belong to a coherent set of tablets. Such sets are referred to as "series" and are indicated by prefixes of one or two letters. In this case these tablets belong to the Ea series, which records landholdings in a specific part of the Pylian kingdom. Their main purpose is to identify the landholder and the size of the plot of land, measured in terms of the

volume of seed required for sowing. The landholder is identified by his personal name at the start of the text (Linear B is always written left to right) and the size of the landholding is recorded at the end of the text. In between, additional information about the nature of the landholding is recorded, typically concerning the status of the landholding or the grounds on which the land is held. In some cases, the text reveals unusual and unexpected details: in Ea 805, we read that Opheltreus holds his plot "on account of manslaughter."

These texts illustrate the typical use of syllabograms, logograms, and punctuation. Personal names and contextual information are typically written out with syllabograms: these are transliterated alphabetically, with dashes used to separate signs. Individual words are separated in the original text by dividers (short vertical ticks, transliterated as commas). Logograms do not normally, if ever, participate in syntax, but represent a commodity that is counted, weighed, or otherwise measured. Securely identified logograms are transliterated alphabetically in abbreviated Latin: that is, GRA for WHEAT (in Latin, *granum*). Numerals are decimal: a vertical tick for one, a horizontal dash for ten, a circle for one hundred, a circle with four external rays for one thousand, and a circle with an internal horizontal dash and four external rays for ten thousand. Quantities smaller than whole units are indicated by a variety of subunits for different types of commodities (weighed, dry, or liquid). For example, there are ten T units per whole dry unit; thus, GRA T 9 in Ea 778 records nine-tenths of a unit of wheat.

Document Types

The vast majority of documents inscribed in Linear B—almost 95 percent—are clay tablets preserved accidentally by destructive fires. More than 5,500 tablets have been recovered to date. They come in many forms, but two shapes are especially common: long, thin "leaf-shaped" tablets (see Figure 1), and larger "page-shaped" tablets that are taller than they are wide. Less common are inscriptions on clay sealings, small lumps of clay impressed by a seal. Whereas most sealings are uninscribed, a small minority (fewer than 200) include short inscriptions. Labels—short inscriptions written on bits of clay that were affixed to baskets—constitute another document type. About 200 clay vessels bear short texts that were painted

pre-firing; the vast majority of these are coarseware transport vessels known as inscribed stirrup jars (ISJs). Only two non-clay documents have been found inscribed in Linear B: a bone seal from Medeon in Phocis and a stone weight from Dimini in Thessaly. The inscribed stone pebble from Kafkania in Elis and two amber beads from Bernstorf in Germany are generally regarded as forgeries.

Linear B documents, all written by anonymous authors, functioned in different ways. Sealings were generally used to document shipments of goods into and out of the palatial centre; a cache of fifty-six inscribed sealings found at Thebes attests to the delivery of sacrificial animals from outlying communities. Leaf-shaped tablets generally record individual transactions, often as part of an administratively coherent series of tablets. Page-shaped tablets generally record large numbers of transactions that share an administrative purpose: for example, a list of dedications to nine different religious recipients (deities, sanctuaries, and a priestess) in a single month (Cnossus Fp 1) or allocations of metal to smiths at individual sites (Pylos Jn tablets). Some page-shaped tablets are certainly compiled from multiple leaf-shaped tablets, and it is very likely that others were compiled from sealings.

It is uncertain whether Linear B was also written on ephemeral materials such as papyrus or parchment. The fact that the script retained "a complex and curvilinear style" over two centuries of use perhaps suggests that Linear B was not written only in clay. Such hypothetical documents might have served as long-term records. Clay tablets and sealings, on the other hand, were ordinarily consulted and kept on (at most) an annual basis. Thus all Linear B "archives" were active rather than dead—there is no evidence that Linear B texts were intended for long-term storage and retrieval of information.

The purpose of the texts on inscribed stirrup jars is debated. Most ISJs have a one-word text consisting of a place-name; a minority follow a formula of personal name (nominative) + place name + personal name (genitive) or the adjective *wa-na-ka-te-ro* (*wanakteros*), "royal." Some have argued that these inscriptions functioned primarily to confer prestige on guest-gifts given to high-ranking individuals, but most consider the texts to be administrative in function. This interpretation posits that the inscription provided information about the production and delivery of batches of stirrup jars and their contents, probably (perfumed) oil or wine. Chemical and petrographic analysis of the ISJs strongly suggests that they were exclusively Cretan in origin, with the vast majority produced in western Crete. They have been found at a number of mainland Greek sites such as Thebes, Mycenae, and Tiryns.

Chronology (Origins) and Distribution

The Linear B writing system was adapted from Linear A, an undeciphered script that was used on Crete and certain other Aegean islands from c. 2000–1470 BCE (see Minoan civilization). Indeed, it seems likely that Linear B was developed at the site of Cnossus itself. Although the complexity of the material record at Cnossus and the early date of its excavation make certainty impossible, the earliest deposit of Linear B inscriptions probably dates to c. 1390 BCE (LM IIIA1 in ceramic terms), a period of intense experimentation at Cnossus that

included the adoption of mainland material forms and symbols. Although the adaptation of a Cretan script to write the Greek language has often been understood as evidence for a takeover or invasion from the Greek mainland, these developments are essentially a Cretan (and initially a Cnossian) phenomenon. The script spread to the Greek mainland (see Mycenaean civilization): early texts at Mycenae and perhaps Pylos date to the 14th century BCE (LH IIIA2 in ceramic terms). Linear B goes out of use c. 1180 BCE with the destruction of the Late Bronze Age palace systems across the Aegean (see collapse of the Bronze Age Aegean); it survives only in the Cypriot syllabic scripts of the 1st millennium BCE.

Linear B texts are concentrated in and around palaces, monumental buildings that served as royal residences and administrative centres (see Figure 2). The largest corpora of texts were found at Cnossus (4,105 tablets, 35 labels, 29 sealings, 3 ISJs) and Pylos (1,056 tablets, 19 labels, 24 sealings). Although there are more texts preserved from Cnossus, they tend to be shorter and more fragmentary, and they date to multiple destructive episodes. At Pylos, by contrast, the tablets are longer and better preserved, and the vast majority date to a single destruction c. 1180 BCE. There are smaller corpora at the sites of Thebes (1) (304 tablets, 59 sealings, 75 vases), Mycenae (78 tablets, 10 sealings, 14 vases), and the newly discovered site of Ayios Vasileios in Laconia (at least 100 tablet fragments, 2 labels, 9 sealings). Handfuls of administrative documents are found at Khania (5 tablets, 45 vases) and Sissi (1 possible label) in Crete, Iklaina in Messenia (1 tablet), Tiryns (25 tablets, 45 vases) and Midea (4 sealings, 2 vases) in the Argolid, and Volos (see Iolcus) in Thessaly (2 tablets). Small numbers of inscribed stirrup jars have also been found at other sites in the Aegean. As mentioned, single nonceramic inscribed objects have been found at Medeon in Phocis and Dimini in Thessaly.

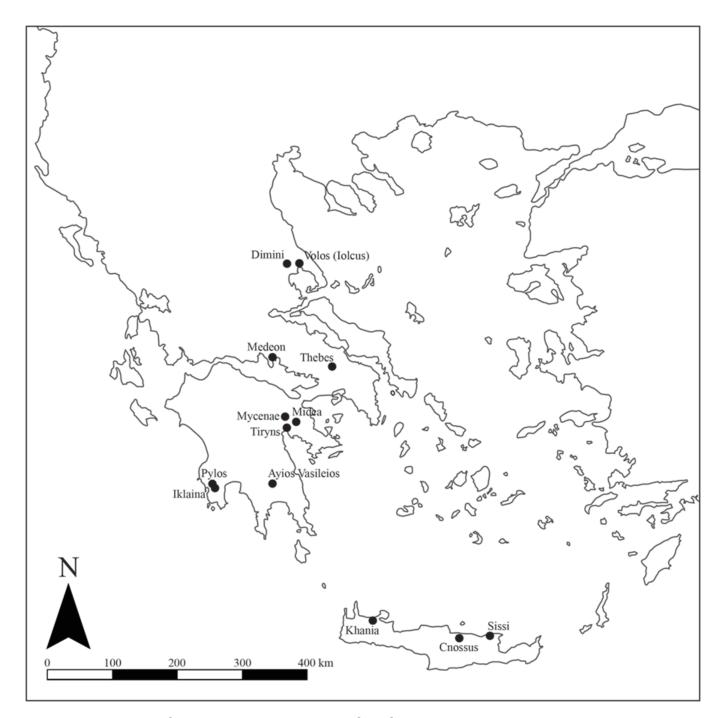


Figure 2. Sites with Linear B texts mentioned in the text.

 $Source: \hbox{Drawings by author}.$

Interpreting the Texts

Linear B texts are a rich source of evidence about many aspects of the Late Bronze Age, only a small selection of which are discussed here. ¹⁰ Economy, in the most general sense, is the main purpose of the tablets. Many texts focus on activities that finance palace operations: animal husbandry, craft production, agriculture, taxation, etc. The relationships between the palace administration and the activities recorded in the texts vary considerably, from central

control to reciprocal exchanges with independent agents. Taxation is an example of an operation that is organized from the top down: documents record payments and deficits to the centre on an annual basis, with targets for payment set by the central administration. The commodities paid, where they can be identified, are generally agricultural products such as linen, spices, and wheat, animal products such as hides and horns, or basic goods such as textiles. Texts concerned with agricultural land also seem to have had a fiscal function, in that some tablets at Pylos record payments of grain to religious recipients (the god Poseidon and human religious officials) by landholders and the payments are determined by the size of the plots. Virtually all landholdings recorded in the texts apparently belonged to and were supervised by local organizations in village communities called the da-mo (dāmos, cf. historical δῆμος; see Figure 1). Land was divided into small plots farmed by specific individuals, perhaps with the help of palace plough oxen. There is very little evidence for large estates, suggesting that much of the agricultural production secured by the palaces involved collaborative arrangements and exchanges with small-scale farmers. 11 Complex economic arrangements are also attested in texts that deal with animal husbandry and the manufacture of textiles, metal products, and military goods, all of which were major areas of palatial production. Much of the craft production recorded in the tablets is organized by a system called ta-ra-si-ja ($tala(n)si\bar{a}$, cf. $\tau\alpha\lambda\alpha\sigma(\alpha)$, in which the central administration allocated weighed-out quantities of raw materials such as wool and metal to craft specialists in exchange for finished products. Palatial systems of production were powerful but also depended upon extensive economies managed by non-state actors and institutions. Despite the wealth of information that Linear B texts provide concerning internal economic arrangements, evidence of external trade is extremely rare and "international" exchanges are entirely unattested in the texts that survive.

The texts indirectly shed considerable light on sociopolitical structures. It is clear that Mycenaean states were ruled by a king, the wa-na-ka (wanaks, cf. historical ἄναξ; see kingship [basileia]), assisted by an official called the ra-wa-ke-ta ($l\bar{a}w\bar{a}qe(r)t\bar{a}s$, cf. historical $\lambda\alpha\gamma\epsilon\tau\alpha\varsigma$), whose title implies that he leads (or assembles) the people. Both officials are important religious figures and landholders to whom craft specialists are attached. The evidence suggests that these officials were the highest-ranking in each polity, but the full extent of their powers and responsibilities is not known. Other palatial and local officials appear in the tablets, suggesting a well-organized administration that was similarly established across different states. Among the regional officials is the qa-si-re-u (q^w asileus, cf. βασιλεύς), apparently a local chief associated with certain production processes such as metalworking. Lower-status persons tend to appear anonymously as groups of labourers. The Greek terms for the enslaved are also known: masculine do-e-ro and feminine do-e-ra (do^(h)elos, do^(h)el \bar{a} , cf. δοῦλος, δούλη; see slavery). Official titles and other descriptions are not the only way to study social structure; a great number of individuals are identified by their personal names in the texts. In fact, personal names are the commonest type of lexical item in Linear B. These men and women are responsible for a wide variety of economic and administrative activities, suggesting the existence of a broad and heterogeneous élite class that interfaced with the palace.

Religious affairs, from the dispatch of religious dedications to sanctuaries within and beyond the palatial centres to the provisioning of large public feasts, are a central concern of many texts (see religion, Minoan and Mycenaean, Cretan cults and myths). Theonyms include deities known from later Greek religion, the commonest of whom are Zeus, Hera, Poseidon, Dionysus, and Hermes. Also attested are Artemis, Ares, and, indirectly, Hephaestus through the Cnossian personal name a-pa-i-ti-jo ($^h\bar{A}p^haistios$, cf. historical Ἡφαίστιος); Athena and Apollo are probably attested as well. Aphrodite, Demeter, and Hestia are not known, but the commonest deity is the goddess *po-ti-ni-ja* (*Potnia*, cf. historical Πότνια), "the Mistress," which in later Greek is typically a divine title rather than a name. Whereas many of these deities appear in texts from multiple sites, more obscure deities and heroes like pi-pi-tu-na at Cnossus and the "thrice-hero" (dative ti-ri-se-ro-e, Tris ero(e) at Pylos are plausibly local. Religious officials, including priests (*i-je-re-u*, ^hiereus, cf. ἰερεύς), priestesses (*i-je-re-ja*, ^hiereia, cf. ἰέρεια), keybearers (ka-ra-wi-po-ro, $kl\bar{a}wip^horos$, cf. κλειδοῦχος), and sacrificing priests (i-je-ro-wo-ko, hieroworgos, cf. ἱερουργός) are also mentioned in the texts (see priests, Greek and Roman). The many cult officials and personnel in the texts, and the occasional mention of festivals, month names, and sanctuaries, is suggestive of a vibrant ritual calendar and landscape. Preparations for feasts are very well documented. These texts recorded the collection of sacrificial animals and agricultural products for consumption, often in an explicitly religious context. One tablet from Pylos (Un 2) lists more than 1,500 litres of grain, 300 litres of olives, 500 litres of wine, and 40 sacrificial animals alongside smaller quantities of other goods.

Linear B tablets are idiosyncratic texts. They have a very specific point of view, because they were short-lived clay documents about the exchanges, goods, and people that interested the administrators of these small agrarian states. They are also short texts that record basic information with a minimum of additional contextual information. Despite these peculiarities, which often render their interpretation difficult, Linear B tablets make important contributions to our understanding of Late Bronze Age life.

Links to Digital Materials

Cambridge Linear B Research Archive http://calibra.classics.cam.ac.uk/

DĀMOS: Database of Mycenaean at Oslo_https://damos.hf.uio.no/

Diccionario Micénico: Linear B General Indexes http://www.cervantesvirtual.com/bib/portal/diccionariomicenico/

LiBER (Linear B Electronic Resources) http://liber.isma.cnr.it/cqi-bin/home.cqi

 $Nestor \ (Bibliographic \ Database \ of \ Aegean \ Prehistory) \underline{< https://classics.uc.edu/nestor/nestorsearch >}$

The PA-I-TO Epigraphic Project https://www.paitoproject.it/

Program in Aegean Scripts and Prehistory https://sites.utexas.edu/scripts/

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Notes

- 1. On the decipherment, see John Chadwick, *The Decipherment of Linear B* (Cambridge, UK: Cambridge University Press, 1990). Histories of the study of Linear B are provided by Thomas G. Palaima, "Archaeology and Text: Decipherment, Translation, and Interpretation," in *Theory and Practice in Mediterranean Archaeology: Old World and New World Perspectives*, ed. John K. Papadopoulos and Richard M. Leventhal (Los Angeles: Cotsen Institute of Archaeology, 2003), 319–378; and John Bennet, "Literacies'—60+ Years of 'Reading' the Aegean Late Bronze Age," *Bulletin of the Institute of Classical Studies* 57 (2014): 127–137.
- 2. José Melena, "Mycenaean Writing," in *A Companion to Linear B: Mycenaean Greek Texts and their World*, ed. Yves Duhoux and Anna Morpurgo Davies (Louvain-la-Neuve: Peeters, 2008–2014), 3:1–186.
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- 6. Thomas G. Palaima, "Scribes, Scribal Hands and Palaeography," in *A Companion to Linear B: Mycenaean Greek Texts and their World*, ed. Yves Duhoux and Anna Morpurgo Davies (Louvain-la-Neuve: Peeters, 2008–2014), 2:33–136, quotation on page 116.

- 7. John Bennet, "Agency and Bureaucracy: Thoughts on the Nature and Extent of Administration in Bronze Age Pylos," in *Economy and Politics in the Mycenaean Palace States*, ed. Sofia Voutsaki and John Killen (Cambridge, UK: Proceedings of the Cambridge Philological Society, 2001), 25–35.
- 8. For a somewhat different view, see Ester Salgarella, *Aegean linear script(s): rethinking the relationship between Linear A and Linear B. Cambridge classical studies* (Cambridge, UK: Cambridge University Press, 2020).
- 9. Jan Driessen and Charlotte Langohr, "Rallying 'round a 'Minoan' Past: The Legitimation of Power at Knossos during the Late Bronze Age," in *Rethinking Mycenaean Palaces II*, ed. Michael L. Galaty and William A Parkinson (Los Angeles: University of California, 2007), 178–189.
- 10. The most recent and comprehensive review in English is provided by Yves Duhoux and Anna Morpurgo Davies, eds. *A Companion to Linear B: Mycenaean Greek Texts and their World*, 3 vols. (Louvain-la-Neuve: Peeters, 2008–2014).
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