



Linear B Mycenaean Greek and medical nomenclature

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Received: 26 October 2022 / Accepted: 4 November 2022 / Published online: 12 November 2022
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Abstract

This brief report is intended to call attention to the fact that we use some very old terms in our daily medical speaking that were in use about 3500 years ago and were probably uttered as early as the late Bronze Age by Achilles, Agamemnon and the other Homeric heroes outside the walls of Troy.

Keywords Mycenaean Greek · Linear B script · Medical nomenclature

Most medical terms are derived from ancient Greek words. For some of them, a root can be traced back to Mycenaean Greek, the oldest attested form of Greek language [1, 2]. It is preserved in inscriptions in Linear B, a syllabic script that was used in mainland Greece and Crete from the 15th to twelfth centuries BCE, before Dorian invasion and the so-called Greek Dark Ages [3] (Fig. 1 and Cover). Linear B was derived from Linear A, the writing style of a still undeciphered Minoan language. Recently, genome-wide ancient DNA analyses have shown that the Mycenaeans were closely related to the Minoans and other civilizations in the Aegean and Anatolian regions, thus attesting the close cultural and anthropological relationship between the Mycenaean and Minoan worlds [4]. Linear B was deciphered by English architect, classicist and philologist Michael George Francis Ventris (1922–1956) in the years between 1951 and 1953 [3] (Fig. 2). The language revealed was Greek, and more specifically a dialect of Greek closely akin to the Arcado-Cypriot assigned by philologists to the Mycenaean Peloponnese because of the close and exclusive resemblance between the dialects of Arcadia and Cyprus in historical times [1]. The script consists of about 90 symbols, each representing a syllable, as well as some ideograms which represent an entire word or idea. Mycenaean preserves some archaic Proto-Indo-European and Proto-Greek features not present in later ancient Greek. Most of the inscriptions are on clay

tablets. Linear B tablets have been found at Knossos, Pylos, Thebes, Mycenae and Chania, as well as other minor sites (Fig. 3). The texts are mainly lists and inventories. No poetry or prose narrative have survived, let alone scientific texts.

Despite these disappointing premises, some medical terms unquestionably derive from Mycenaean Greek. The word *thorax*, for instance, originates from the word *to-ra-ke*, found on some tablets from Pylos and Knossos. It is associated with ideograms that denote a type of armour, namely, the breastplates or corsets that protect the chest of the wearer. In Homer's epics (eighth century BCE), the word *θώραξ* (*thōrēx*) retains this meaning without any anatomical implication. Still in the fifth century BCE, *θώραξ* is found in Herodotus (*History* 9.22) to refer to the coat of mail, the scale armour worn by the soldier. The first reference to an anatomical meaning is attested during the fifth-century BCE in the *Hippocratic Corpus*. Here, the term indicates the part of the body covered by the *θώραξ*, that is, the chest, thorax or trunk (see e.g., *Diseases* 122; *Ancient Medicine* 19, 22; *Aphorisms* 3.17; *Art* 10). The Greek term *οὖς* (*oūs*) and the homeric poetic form *οὔαξ* (*oūas*) denote the ear. The Mycenaean form *-o-we* means round handle and represents the second part of compound words such as *ti-ri-o-we-e*, *qe-to-ro-we* and *a-no-we*, which indicate the ear-shaped handles of vases. *Ti-ri-o-we-e* is a cup with three handles; *qe-to-ro-we*, a cup with four handles; *a-no-we*, a cup without handles. *O-wo-we* indicates a tripod with round handles. In Homer's poems the term *οὔαξ* still has the meaning of a sinuous vase handle bearing the shape of a human ear (*Iliad* 11.633; 18.378). Another interesting word is *e-po-mi-jo*, which is the name for a suit of armour. It refers to the two pieces that lie over and cover the shoulders. The Greek term *ὄμος* (*ōmos*) denotes

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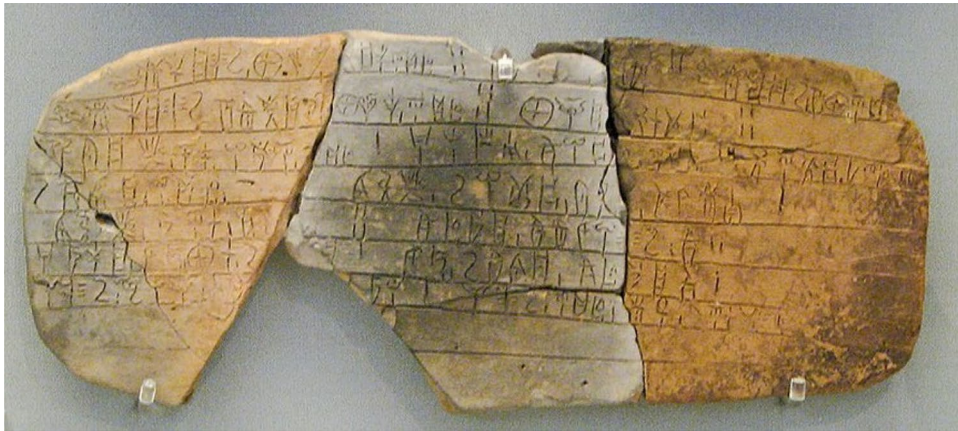


Fig. 1 and Cover Clay tablet (PY Ub 1318) inscribed with Linear B script, from the Mycenaean palace of Pylos. This piece contains information on the distribution of bovine, pig and deer hides to shoe and saddle-makers. This and other tablets were fortuitously preserved when they were baked in the fire that destroyed the palace around 1200 BCE.

National Archaeological Museum of Athens. Author: Sharon Mollerus (no permission is required to publish this image, which has been freely downloaded from the website: https://commons.wikimedia.org/wiki/File:NAMA_Linear_B_tablet_of_Pylos.jpg)



Fig. 2 Portrait of English architect, classicist and philologist Michael George Francis Ventris (1922–1956) (image reproduced courtesy of the University of London, Institute of Classical Studies (Ventris Papers))

the shoulder and is the linguistic root of medical terms such as the omohyoid muscle. Σκέλος (*skelos*) is a Greek word denoting the lower limb and derives from an Indo-European root **squele*, which conveys the idea of something curved. In a tablet from Pylos, we read of a tripod with burnt legs. The Mycenaean word for legs is *ke-re-a₂*. In today's medical language, we find the skelic index, an anthropometric index consisting of the ratio of the length of the leg to the length of the trunk multiplied by 100. The Greek word for foot is πούς-ποδός (*pous-podos*). In a Linear B tablet, we read *e-me-po-de*, which means with one foot. *Ti-ri-po-de* means the tripod, a three-legged vase. *Po-ru-po-de* is referred to the octopus, one of the most common decorative motifs in Minoan-Mycenaean pottery (Fig. 4). In the Homeric poems, Achilles is called ποδάρκης or ποδώκης (*podarkēs* or *podōkēs*) meaning swift-footed. In medical nomenclature, we find the dorsalis pedis artery or the pedicels of Bowman's capsule. *Qi-si-pe-e* is the dual form indicating two swords. In the Greek language, we have ξίφος (*xiphos*). In medical nomenclature, this term is still preserved in the formula xiphoid process of the sternum. *Po-ki-ro-nu-ka* means "with many coloured *o-nu-ka*," i.e., nails, from ὄνυξ (*onyx*). The term syndesmosis refers to a fibrous joint in which two adjacent bones are connected by a strong membrane or ligaments. This definition also applies for the distal tibiofibular syndesmosis, which is a syndesmotic joint formed by two bones and a series of ligaments. The term syndesmosis is derived from the Greek συν- (*syn-*), which conveys the idea of union, connexion or participation and δεσμός (*desmos*), which means band or bond or anything for tying and fastening. In Linear B script, we find the word *de-so-mo* that is the instrumental plural form meaning "with rivets." A further possible derivation is from the Mycenaean words *ze-u-ke-si* and *ze-u-ke-u-si*. Both seem to be related

PYLOS TABLET N° 641·1952

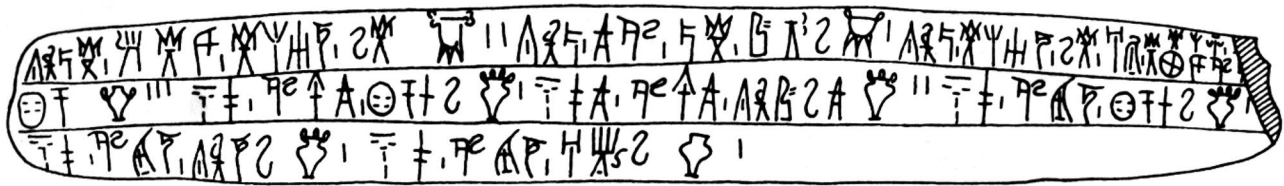


Fig. 3 The drawing by Ventris of Pylos Ta641 (image reproduced courtesy of the University of London, Institute of Classical Studies (Ventris Papers))

to the Greek term ζεύγος-ζεύγεος (*zeūgos-zeugeos*) which means yoke of beasts, pair of oxen or horses, a chariot or a carriage drawn by a yoke of beasts or a pair or couple of anything (for instance, a married couple). In medical nomenclature, we find the term *azygos*, which means a body structure that has no symmetrical counterpart, such as the *azygos* vein. The last term we consider is κέρασ-κέρατος (*keras-keratos*), meaning horn. It is derived from Mycenaean Greek. *Ke-ra-ja-pi* is the instrumental form meaning “made

of horn.” *ke-ra-a* is the last element of the word describing a vase with a bull’s head. In modern medical nomenclature, we find this Mycenaean root in terms such as keratinocytes and keratin.

Almost three and a half millennia separate us from the time when Mycenaean Greek was spoken and the clay tablets were written in Linear B script. Despite this enormous time gap, some Mycenaean terms have survived and are still used in medical nomenclature today. This brief overview contains a number of textual examples from Mycenaean Greek that are unquestionably related to contemporary medical language. Thus, in certain cases, we still adopt some terms that were probably used by Homeric heroes.

Author contribution Paola Saccheri and Luciana Travan wrote the main manuscript text and prepared figures. Enrico Crivellato supervised the study. All authors reviewed the manuscript.

Availability of data and material It is not applicable.

Declarations

Conflict of interest The authors declare no conflict interests.

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Fig. 4 Minoan clay bottle showing an Octopus (1500 BCE). Archaeological Museum in Herakleion. Author: Wolfgang Sauber (no permission is required to publish this image, which has been freely downloaded from the website: https://commons.wikimedia.org/wiki/File:AMI_-_Oktopusvase.jpg)