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Aegean Type Swords and Finds in Anatolia, Technology of Metals and Structures, Written Sources and the Dating of Trojan War

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Abstract

In Hattuša and the Land of Hatti, bronze swords of Aegean type and other Mycenaean artifacts were found. Silver as a rare and precious metal is-probably-connected with Hattuša and Hatti in Iliad. The technological level and know-how in Mycenaean Greece were extremely high both in construction works and production of metallic objects: bronze, silver and iron. The archaeological evidence found in Hattuša, Egypt, Greece and Cyprus and the Ancient Greek Literature are combined in an effort to register the exchange of technology among the countries around the Aegean Sea at the LBA. A linguistic dating of the epics is attempted and a proposition of the possible transcription of the name Ἀγαμέμνων in Linear B is formulated. The archaeological evidence is compared to the descriptions in Homeric epics. Conclusions are derived for the exchanges among Mycenaeans, Cretans, Hittites and Egyptians, with the Aegean Sea being a connecting area. Since technological level and its products are irrefutable agents of the prosperity level of each era, they are used to estimate the probability of a naval expedition over Aegean Sea during LBA. Finally a hypothesis for a probable dating of Trojan War is attempted.

Keywords

Epics, Hattuša, sword, Mycenaeans, Ἀγαμέμνων, Attarissiyas, Egypt, silver technology.

Introduction

Homer, in Iliad and partly in Odyssey, described a naval military expedition of a coalition of Mycenaean Greeks with 1000 ships, across the Aegean sea, against Troy and its allies at the northwestern coast of Asia Minor. A long discussion about Trojan War, whether and when it took place, is ongoing since the antiquity. There are two possible dates for the Trojan War as derived by the destruction layers in Troy VIh c. 1300 BC and VIIa c. 1180 BC. However, another minor destruction could be verified in Troy VIIIG c. 1400 BC where an extended ‘house-cleaning’ was reported by Blegen. We have proposed that this house-cleaning points to a change of dynasty in Troy supported by the Mycenaean Greeks (Trojan War?). We examine evidence from Hatti, Cyprus and Egypt and relate it to the prosperity and destruction periods of Mycenaen palatial centers. The linguistic dating of the Homeric epics at an era earlier than 1400 BC also points to that direction.

15th-14th century BC Anatolia: Evidence related to Mycenaean Activities

Various objects of Mycenaean influence were found in Hatti:
- A Type B bronze sword at Hattuša dated at the period of Tudḫaliya II., commemorating his victory over Aššuwa, mentioned also in his Annals, as well as Wilusa/uwa, and Taruisa/Troïote.
- A silver bowl referring to the conquest of Tarwiza by a king Tudḫaliya (II).
- One bronze sword at Izmir and one at Kastamonu, of Mycenaean type, dated c. the same era,
- A Mycenaean bronze spearhead at Niğde of advanced technology of 14th-13th century BC,
- A ceramic bowl with a depiction of an Aegean (?) warrior bearing a boar’s tusk helmet at Hattuša dated at 1400 BC.
- Fragments of wall paintings of Mycenaean technique in Büyükkale,
- Imported Mycenaean pottery LHIIIA2 in Maşat Höyük, in a LHIIIB context and
- A few Mycenaean shreds in Hattuša and Kusakili (Thaler 2008, 293, 307-310) demonstrating the importance of hearth building like in the Mycenaean Palaces, as described in a Hittite ritual text dated at Tudḫaliya IV era, reconstructed from older sources.

Several texts were also found in Hittitic archives:
- Indictment of Madduwatta, notes that under Tudḫaliya's II reign, Attarissiya, brother of the king of Aḫḫiyawa, performed raids against Lukka and Alasiya/Cyprus, in accordance to epics narrating Atreids' raids against Cyprus. Attarissiya, could be transliterated as 'Ατρείδης' (Giannakos 2011a, 2011b).
- A Letter of a king of Aḫḫiyawa (Beckman et al., 2011, 134-139) to a Hittite king, refers that under Tudḫaliya's II reign, the King of Aḫḫiyawa 'a-ka-ga-mu-na-ak' owned the islands, after a dynastic marriage. Janko4 proposed that, if '(a-)Ka-ga-mu-na-ak' is to be equated with a Greek name, it is rather Ἀγαμέμνων. Iliad narrates that Ἀγαμέμνων was King in many islands and in Argos (Ilias, 2-108).
- The Alaksandu treaty, refers that Labarna had conquered Arzawa and Wilusa. Afterwards, Arzawa began war and Wilusa/uwa, defective from Hatti, but remained at peace. Later on Tudḫaliya (II) campaigned against Arzawa but did not enter Wilusa since they were

1 Details in Giannakos, 2011a, b. 2012, 7-44.
2 Absolute dates of Hittite Kings in Figure 1 and of Egyptian Pharaohs in Figure 2.
3 Clive 2007, 197, –1375-1340 BC. Figure 3 for dating of the periods in Mycenaean Greece.

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at peace. It does not mention Ḍḫḫiya, probably because by c. 1280 BC, Hittites did not consider Ḍḫḫiya as serious power.

- An Oracle Report (Tudḫḫiya's II era): ‘Concerning the enemy ruler of Ḍḫḫiya..... Result: favourable’. This unnamed enemy ruler of Ḍḫḫiya is -almost certainly- Attarissiyā attested in the Indictment. It clearly refers to a leader, or ruler of some kind, of Ḍḫḫiya who performed warlike activities in Anatolia, Lycia and Cyprus. 5

Material Evidence from 16th-14th century BC Egypt and Cyprus

The relations of Egypt with Aegean are recorded in the archaeological evidence which has been summarized in literature (Giannakos 2011a, 2011b, 2012). From the Hyksos period and Ahmose to the reigns of Thutmose I, Thutmose III, Hatsepsut, Amenhotep III, Akhenaten and Tutankhamun, c. 1600-1330 BC.

In the famous list of Amenhotep III at Kom-el-Hetan, Kefiu, T/Danaja and the very well known Aegean places: Amnisos, Knossos, Kydonia, Mycenae, Thebes, Ilion etc are mentioned. Amenhotep's III close relations and his particular sympathy to Achaean rulers is evident from remnants of his Palace at Malkata and his faience plaques at Mycenae (Philips 2007). Akhenaten performed two wars against Hittites in Syria before his sixth and at his fifteenth regnal years. This could offer an additional argument for a hypothesis of a possible alliance with Mycenaean (Coleman and Manassa 2007, 198-199; Leahy 2001, 258; Schulman 1988, 54, 57).

Gifts from T/Danaja –on the 42nd year of Thutmose III- are listed: ‘...chief of Tanaja: Silver: a jug of Keftiu workmanship along with vessels of iron’ (Redford 2003, 96, n.226), indicating possibly advanced technology in Crete and T/Danaja. An iron ring at Archaneas is dated at 17th century BC. It appears that the reading ‘iron’ is now widely preferred, ... iron in this early stage was an extremely rare commodity, being difficult to work (Kelder 2010, 36, 105; Lucas 1948, 274; Ogden 2000, 167) and consequently of cutting-edge technology. There are also references for iron gifts to the Pharaoh in Amarna tablets (Lucas 1948, 268-275; Moran 1992, EA22, EA25; Ogden 2000, 166-168). In Tutankhamun's tomb, several iron objects were found. 6

The king of Cyprus wrote to Pharaoh Akhenaton (Moran 1992, 111, EA38): ‘Indeed men of Lukki, year by year, seize villages in my own country’. Are these Lukki (and Danuna) forerunners (Giannakos, 2011a, 2012, 65) of the Sea Peoples? In the early 18th Dynasty heavily armed northern mercenaries appear in Egyptian documents and the incursion of pirates, Dennen, Lukka and Sherden, had become so serious by the reign of Amenhotep III that the Egyptians constructed coastal forts and patrolled the mouths of Nile (Coleman and Manassa, 2007, 203; Redford 1992, 242; 2006, 196; Shaw 2003, 322).

Cyprus suffered a number of destructions around 1400 BC (Doxey 1987, 306), the era of Attarissiya: Enkomoi was destroyed in c. 1425 BC rebuilt and destroyed again in 1375 BC. Kourion was destroyed by fire. Pflamoudi, Nitovitika and Nikolides were abandoned in a roughly contemporaneous era. Whatever the cause of the Cypriote destructions, they occurred at a point which immediately preceded a notable influx of Mycenaean influence, possibly even temporary control of the island, roughly around the date of Knossos' destruction on c. 1375.

Tanaja is referred in Egyptian inscriptions up to the end of the reign of Tutankhamun. 7 After this period there is no written reference to Tanaja in Egyptian inscriptions until the Sea Peoples. Homer narrates that heroes Ḍavaat had visited Egypt -isolated and not in hordes as the later Sea Peoples- either as friends or as raiders (Beckman et al., 2011, 99, 97; Giannakos 2011a, b; Giannakos 2012, 67-68). This image is fitted rather to the era of Amenhotep’s III and not Ramesses’ II, III era.

Rare Metal Silver: Hittites in Homeric epics?

The Ships' Catalogue, includes in Trojan allies ‘Halizons, from Ayle, where is the birth-place of silver’, most probably the inside Halys river bent region (Giannakos 2011b). All the three main linguistic/racial groups of the Land of Hatti were present as allies of Troy in Iliad: Palaians/Paphilagones, Luwians /Lycians, and Nesumlini/Nesites/Hattii probably as Ῥόμπην γενέθλη. Hattuša and Hatti were sometimes written with the Sumerogram for silver. The major objective of the trade since the Assyrian Colony period c. 2200 BC, was to obtain silver and gold from the Anatolian Plateau; 9 silver mines were inside Halys river bent. Three kings: Ramesses II, a King of Arzawa(?) and Ὑππυλλυλιον I connect Hatti with silver. However in Greece, there has been intensive exploitation, working and production of silver from Laurion and Cyclades mines since Late Neolithic. Consequently, Ῥόμπην γενέθλη of Iliad does not represent the Mycenaean experience with silver exploitation, but was probably transmitted, as oral tradition for Anatolian Plateau, to the western Asia Minor.

Dating the epics linguistically

Iliad's final version is a blend of two narratives one sympathetic to the Trojans and focused on Hector as tragic hero and another to the Greeks. The story of Troy was first immortalized in hexameters some time between 1450-1050 BC. 8 An Asianic, specifically Hittite, ideal of unity among the groups representing four groups of fealty leaves its trace in a Greek literacy topos in the post-1200

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6 Coleman and Manassa (2007, 77, 240, n.148), refer that it was an early example of iron-working and it was not made from meteoric iron (Lucas 1948, 272; Muhly 2006, 22-25; Ogden 2000, 168).

7 Kelder 2010, 46,85; Philips 2007, 489-490: the graves at Mycenae, contain Egyptian artefacts not later than -1318/1295 BC, with a few exceptions. Wachsmann 1987, 125: the contacts seems to cease with the reign of Tutankhamun.


The hexameter is probably not native to any form or dialect of Greek, and rather it was adopted from dactylic Minoan hexameter, along with the script and various words lacking known Indo-European roots (Ruijgh, 2011, 287). Pre-Linear B forms occur in Homer’s descriptions of Crete and its chieftains Idomeneus and Meriones. The formula in which Meriones is compared to the pre-Greek deity of war Enyalios, later syncretized with Ares, is regarded as one of the oldest in the Iliad Ἡμερίνης τ’ ἄταλαντος Ευαλίδο ἀνδρείφοντι. 9 Homer preserves a few reminiscence of an early Mycenaean culture from a period well before the destruction of Troy VIIa. There is linguistic evidence for a much earlier period than the date of the adoption of the Greek alphabet (Ruijgh, 2011, 262-294. West, 1988, 156-159).

**Ἀγαμέμνων in Linear B**

How *Ἀγαμέμνων* should be written in Linear B? An obvious orthography could be:11

\[a-ka-me-mo-no\]

In the sequence of two consonants the first is omitted except: \(\text{ας}, \text{ςρ}, \text{μν}, \text{ρς}\) (Promponas, 1990, 18), implying that \(\text{μν}\) keeps \(\mu\) before \(\nu\) and it should be followed by \(\alpha\) as \(\nu\) does: \(\text{μνω}=\text{μνω}\)(\(\nu\)) the final \(\nu\) omitted. Moreover the word \(a-\text{αζη}=\text{αι}\-\text{za}\) is written with \(\alpha\) and not \(\kappa\) for \(\gamma\) (Promponas, 1990, 228,221):

\[\uparrow=\text{a}-\text{za}=\text{ai}-\text{za}\]

Syllables (Ventris & Chadwick, 1956, 44) beginning with \(\zeta\) : \(\text{σς}, \text{iς}\) are before \(\zeta\), but there are puzzling alterations with the \(\kappa\)-syllables as: \(a-\text{xe-ri-jα-s}=a-\text{ke-ri-jα}\) (Knossos) and \(\text{ze-i-jα-ka-ra-na}=\text{ke-i-jα-ka-ra-na}\) (Pilos). The syllabograms (Hooker, 1994, 104§100). \(\text{ί}=\text{za}, \text{έ}=\text{ze}, \text{ό}=\text{zo}\) represent closed consonants, initially uranic, that sounded as \(\kappa\text{ια}, \text{για}, \text{δια}\). So Agamemnon could be written:

\[\uparrow=\text{a-gια-με-μο-νo/οι/а*}\text{gια-με-μο-νo}\]

that echoes very close to \(a-\text{ka-gα-μα-να}\) of the Hittite tablet from *Tudhaliya’s II* era.

**Idomeneus and destructions of Knossos and Troy VI, key factors for Trojan War?**

Idomeneus Αναξ of Knossos was one of the most prominent Kings, included in the Assembly of seven

9 Ilías, 2-651. Probonas, 1978, 156: from linguistic analysis the verse was shaped at a time earlier than of Mycenaean tablets. Ruijgh, 2011, 283,287: this formulaic verse goes back to the Proto-Mycenaean, ca 1600-1450 BC and Meriones is a Pre-Greek name of a Cretan hero. Wiener, 2007, 12.


11 Linear’s B’ fonts from Curtis Clark: http://www.mockfont.com/old/


**Technological level of Constructions and Prosperity Period**

The first tholoi appeared in Proto- and Neo-palatial Crete and afterwards they spread to Mainland Greece since MH.14 These corbelled vault tholoi are three-dimensional domes -with huge bearing capacity to undertake the enormous earth pressure from the soil covering the protruding section of the vault- demanding much higher difficulty in conception, design and construction than the two-dimensional arcs inside the walls bearing only their own dead loads, the latter being a much easier application in two-dimensional design (Giannakos,2011a, b, Palyvou, 2005, 17), (2009, 117). Tassios, 2008, 29-30).

The results of structural analysis of the tholoi at Thorikos, indicate the remarkable adaptability of Mycenaean Engineering, in constructing the appropriate foundation to disappear the circumferential tensile stresses. For better distribution of stresses in the vault regularly hewn stones with an eventual decreasing height of the courses were used, in oblique courses in the perpendicular direction to the main compression stresses. The planning of the dams and canals reveals a sophisticated knowledge of water flow as well (Cremasco & Lafnneur, 1999, 139,142. Crowley, 2008, 269. Lafnneur, 2012, 714).

Fortification constructions, perhaps the earliest collective large-scale technical walls, are all specimens of high technology (Hitchcock, 2012, 206. Palyvou, 2005, 16-17) since the late 5th mil. BC at Strofilla and Zaganì, the 3rd mil. BC in Panormos, Kastri, Aegina, Lerna, Hagia Iri and Fylakopi. They comprise double walls, many times 2 meters thick with inclined outer surfaces and transverse bindings, towers, bastions -rectangular or semi-circular- as in Kastri and Aegina,
structures depicting the conspicuous consumption and the wider prosperity of this period of prosperity with the construction of huge projects in construction of the tholos tombs and the other technical works. When the period of the great projects in construction of the great palaces had been built even by Minoans of Crete (Palyvou 2009, 117-120, 2005, 187; Shaw 2009, 65, 70) from LMI to LHIII to the Aegean islands and Menelaion, Mycenae and Tiryns where the first Throne Room is dated at MH-LHII the latest, the Great Megaron with the first tholos tombs in LHIIIA during 14th century (Maran 2012, 724-725). Overall the Minoan influence on the architecture of mainland Greece is clear in: access systems (e.g. Lion Gate at Mycenae similar to Phaistos Propylon), orthostates with single-block pier bases - giving to the buildings stability and strength - replaced by plastered rubble masonry, the pier-and-door partition, tapering columns, pictorial design, imitated in frieze-like forms playing a symbolic role, axiality in courts and lobbies, having roots in the MH and Early LH periods and the Grand Staircase in Mycenae which may have been built even by Minoans of Crete (Palyvou 2009, 117-124).

Conspicuous consumption due to prosperity is evident in the period of the great projects in construction of the tholos tombs and the other technical works. When the Treasury of Atreus was built, houses were demolished, thousands of tons of rock and rubble were excavated and removed, blocks of limestone and conglomerate were quarried and carted in, fine stones were shipped from other parts of Greece and skilled craftsmen worked for many months to finish it, requiring tens of thousands of man-days in expenditure of effort (Cavanagh 2008, 335; Kelder 2010, 99; Shelton 2012, 145). A date before 1240 BC (Wiener 2007, 18) should be more appropriate for a massive naval expedition. The extended catastrophes evidenced all over Mycenaean Greece from LHIIIA1 and onwards could imply that approximately by 1350 BC the Mycenaean palaces were facing a prosperity period, growth of population but at the same time the destructions in Palatial centers are observed together with a lack of rich offerings in tombs and a gradual degradation of power.

**Summary and Conclusions**

The naval expedition of 1000 ships against Troy described in ancient literature, demands peaceful conditions of everyday prosperity in homeland, since in case of turbulence and turmoil there is no room for weakening ‘home’ by transferring -in a massive scale- the military forces abroad. The prosperity period in Greece - as the tholos tombs depict- is between 1600 and 1400 BC since afterwards the destructions in Palaces begin with increasing intense. This era was the heyday of Mycenaean prosperity, technical achievements and wealth. Their technological level and know-how were extremely high and of cutting-edge both in construction works and production of metallic objects: bronze, silver and iron even since 16th century BC or even earlier. After c. 1350 BC Egyptians and Hittites considered Mycenaean much less prominent. After its destruction c. 1375 BC, Knossos functions only as cult center. One of the most prominent Achaean leaders -in IIlad-, Idomeneus is not at all possible to have reigned after c. 1375 BC -at the latest- and a great number of dismantled or ruined chariots are listed in Knossos’ tablets around 1400 BC. Is it -possibly- pointing to internal conflicts just after the return from Troy?

Troy VI during f/g phases present an extended housecleaning (~1400 BC). Is it a possible houses’ refurbishment after a change of Royal Dynasty supported by Mycenaean invaders, intruding in the city by the pro-

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16 See Laffineur 2012, 716: *The experimental character of Mycenaean architecture at Thorikos.*

17 Thaler 2008, 298–299 comparing the Treasury of Atreus and the Great Temple’s wall at Hattuša, and Maner (this volume) for the two-dimensional arc in Hattuša and Tiryns.

18 A summary of destructions is in Giannakos 2011a; a more detailed description is in Giannakos 2012, 203-207.
The Greeks and their Neighbors

It is possible to maintain a core of real events from the Trojan and one from the Greek side. Is it possible that Trojan War is more ancient than the 11th International Aegean Conference, Los Angeles, UCLA - The J. Paul Getty Villa, 20-23 April 2006, (Aegaeum 28), 203-211. Liege, Université de Liège and University of Texas at Austin.


Bibliography


Figure 1: Chronologies of reigns of Great Kings in the 'Land of Hatti' (and comparison to the reigns of Egyptian Pharaohs in Figure 2), after: Bryce 2009, 798. (see also Bryce 2005, p. xv); Collins B-J. 2007, 38, (agrees to Bryce); Gurney 1990, 181; Freu and Mazoyer 2007/2011, 25-26, as cited in Giannakos 2012.
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Shaw, 2000 - Kitchen, 1982
Gardiner, 1964

Figure 2: Chronologies of reigns of Egyptian Pharaohs (and comparison to the reigns of Great Kings in the ‘Land of Hatti’ in Figure 1), after: Redford 2006, 114, 157; Shaw 2003, 484-485 combined - in the same column- to Kitchen 1962, 238-239; Gardiner 1961/1964, 443-445, as cited in Giannakos 2012.

Figure 4: Photo of the three-dimensional Tholos of Atreus Treasury (keystone area) depicting the perfect fitting of stones.
Figure 5: Plans of the three-dimensional Tholos of the Atreus Treasury depicting also the earth on top of the tholos, as exposed at Mycenae, as cited in Giannakos 2012. The plans adapted by the author, from Mylonas 1983, p.169, who cites that the plans are according to the work of A. Wace.

Figure 6: Photo of the two dimensional arc inside the walls at Hattuša with very rough stone fitting.