

Finds of Mycenaean Technology in the Citadel of Troy and in Levantine Palaces and the Fall of Troy

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Abstract: - Cutting-Edge Technology had appeared in Greece around the 6th-5th millennium B.C. and continued to develop uninterrupted until the Mycenaean era. Archaeological finds document the transfer of Greek Technology, during the 2nd millennium BC, from the Mycenaean Palace centers to the courts of the rulers in Troy, the Levant, Cyprus, Egypt and the Land-of-Ḫatti, and its adoption even in the inner (sacred) Halls of Palaces. Mycenaean influence is apparently connected to the era of great power and economic prosperity of the Palace centers in Greece, before 1350/1320(+)¹ B.C., and not with the era of economic decline and gradual collapse of the Palaces that followed. We infer that this corresponds to the era before-and-after the Fall of Troy.

Key-Words: - Troy, Fall, Mycenaean, Technology, Levant, Cyprus, Egypt, Land-of-Ḫatti, Neolithic, Smelting.

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1 Prolegomena

Among the most popular poetic texts worldwide are the Homeric Epics, the Iliad and the Odyssey. It is characteristic that after a B.B.C. special they are ranked tenth and first respectively, in the list of the ten works of the international literature that have shaped the world; this list were sorted and ranked by authors, critics, and academics [1]. The Fall of Troy is conventionally dated to either 1300/1275 ([[2], 142]; [[3], 256, 290, n.15]; [[4], 1:18, 20]), or *most likely* to 1260(+)/1240 B.C. ([[2], 150, 160-3]; [[5], 297]; [[6], 1:12]), while recently the latter was redated to 1190/1180 B.C ([[5], 301]; [[7], 16]; [[8], 31]).

Based on archaeological evidence, Giannakos ([9], [10], [11]) proposed c.1400±(25-50) B.C. as the chronology of the Fall of Troy (according to Blegen's 'within a generation or two around 1400' ([[4], 1:301-2]; [[18], 88]), with a non-complete destruction of the city and a subsequent change of Dynasty, during the apogee of Mycenaean Technology and power instead of the post-1340/1315 B.C. period of decline and destructions in the Mycenaean Palaces.

This article examines the influence of Mycenaean Technology in Troy and at the Levant before and after 1400 B.C., since the States with cutting-edge Technology gain military superiority, acquire wealth

and expand their sphere of influence either by *power-show* or by their 'way-of-life' ("Verseilles' effect"); the defensive Technology of the fortifications of Troy VI, the results of sedimentary research in the Ilean plain, the finds of Aegean technique in the Levant and the evidence for the copper-smelting know-how since the Neolithic era are presented.

2 Dating the Fortifications of Troy

2.1. Construction phases of the Walls

The paragraphs 2.1.-2.2. are based exclusively on the work of Schlieman, Dörpfeld, Blegen and Korfman, who performed excavations at Troy and had the unrepeatable privilege to be unique in History, who unearthed undisturbed areas of Troy. Blegen [[4], 1:12-4] classified three subperiods of Troy VI, Early-Middle-Late, and eight subphases [[4], 1:18-20], Via-..., -VIIh, since at 1963 [[2], 174] redated the end of Troy VI/VIIh to 1300 B.C. (Fig.1). Troy VIIa was reclassified VIIi, as 'Dörpfeld had already proposed on 1935 A.D.' [[2], 144]. 'Each of the subperiods, Early-Middle-Late, built its own fortifications' [[2], 116].

Dörpfeld [[12], 1:103, 124, 113] 'discovered the Walls' [[2], 30], (Figs.2-6) and classified one fortification of 'Troy V' plus four (re-)construction

¹ Meanings in a B.C. date: plus '(+)' [1600(+)->'before 1600']; minus '(-)' [1600(-)->'after 1600']; plus/minus '(±)' [1400(±)->'c.1400']; bar '(-)' [(25-50)->'between 25-50']; slash '(/)' [1425/1400->'1425 or 1400'].

stages of Troy VI: ‘First: Section 5 and Section 7; Second: Section 2, Section 3 and Gate VIS, “so that the castle-area expanded by a considerable extend;” Third: Section 4; Fourth: the addition of Towers VIIh, VIIi.’ Blegen [[4], 1:81, 109, 116, 112] characterized ‘essentially correct’ this classification: ‘the previous fortification of Early VI, which Dörpfeld had attributed to Troy V, has not been demolished all at once’, *as expected after a devastating Fall and looting*, ‘but piece-by-piece, during successive construction stages.’

Troy V [Blegen]		Troy VI	
1820	Troy V 1800	[Blegen 1953, III, 18-20]	Dörpfeld [1902, Bd.1:31]
1800	[Korfman 2004, 16, and, Latacz 2004, 11]	Troy VIa 1725	
1780		Troy VIb 1650	
1760		Troy VIc 1575	Troy V
1740		Troy VI d 1500	
1720		Troy VIe 1425	Troy VI
1700		Troy VIf 1375	
1680		Troy VIg 1325	
1660		Troy VIh 1275±20(?)	until
1640		Troy VIIa 1240±20	1000BC
1620		Troy VIIb 1200	
1600			
1580			
1560			
1540			
1520			
1500			
1480			
1460			
1440			
1420			
1400			
1380			
1360			
1340			
1320			
1300			
1280			
1260			
1240			
1220			
1200			
1180			

Figure 1. Absolute chronologies of sub-periods and sub-phases of Troy VI, according to: (right) Dörpfeld [[12], 1:31]; (middle-right) Blegen [[4], 1:12-4, 18-20] and [[6], 1:12]; (middle-left) Blegen [[2], 174]; (left) Korfman [[7], 16] and Latacz [[8], 11, figure], who dates the beginning of VIg (namely, of Late-VI) at 1400 B.C., according to Korfman [[305], 18]. Blegen had included Troy VIf in Late-VI. 1190/1180 B.C. is the end of Troy VI according to Mountjoy [[5], 301], as accepted by Korfman [[7], 15].

Architect professor Klinkott [[14], 33, 79-81], Korfman’s collaborator, considered ‘Dörpfeld’s and Blegen’s observations on the fortifications as a solid foundation for our research.’ The five construction stages of the Walls of Troy VI are:

1) The older fortification, 1,00-1,30m thick [[12], 1:104, 124], is dated well-back at Early VI [[4], 1:111-2, 104, 81], as early as the seventeenth century [[14], 79]. Its remnants (Figs.2-3), behind the visible Walls at a varying distance ([[12], 1:103-4, figure 31)), are located:

beneath Houses: VIG, Pillar and VIA – closely behind Section 5 ([[4], 1:111-2, 190-1: ‘early-VIe’, 131, 219-20; 2:461-5 plans]; [[2], p.116]]).

at Sections: a part of Section 7 and, probably, the part of Section 6 which was founded on burnt debris of Troy V [[4], 1:106-7], and,

at Gate VIU and the, dated to Early VI ([[4], p.1:113]; [[14], 69,59, 79-81]), *Gate VIZ* (Fig.9).

From these remnants we infer the trace of this fortification (Figs.3-6: the blue triple dashed-line).

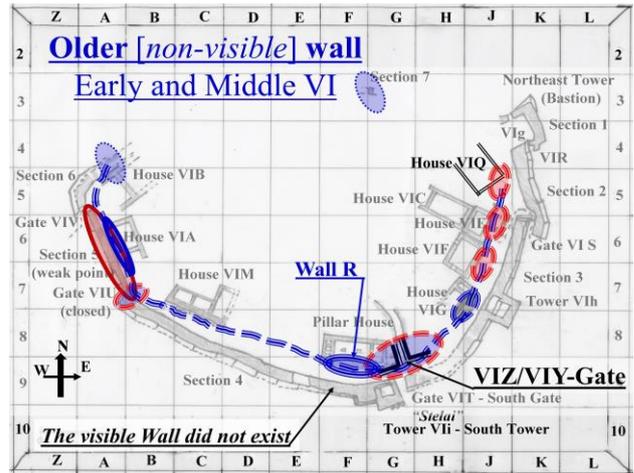


Figure 2. Walls of Early and Middle Troy VI: (a) Early VI Wall with blue; (b) Middle VI with red; (c) The Gates VIU and VIZ existed at Early VI (blue shadow) but both were reconstructed during Middle VI, when VIZ replaced VIY (red line); (d) Section 5 (dark red ellipse) was constructed in front of the earlier Wall (blue ellipse) underneath the external wall of House VIA. The visible today Wall did not exist then.

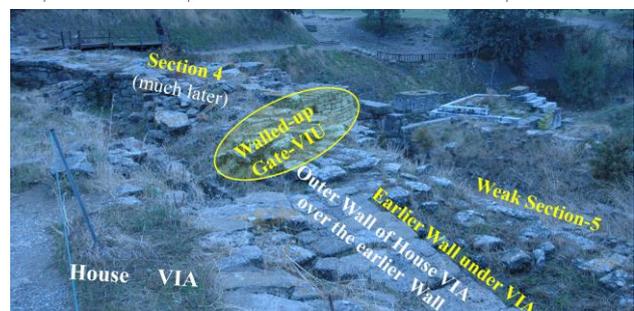
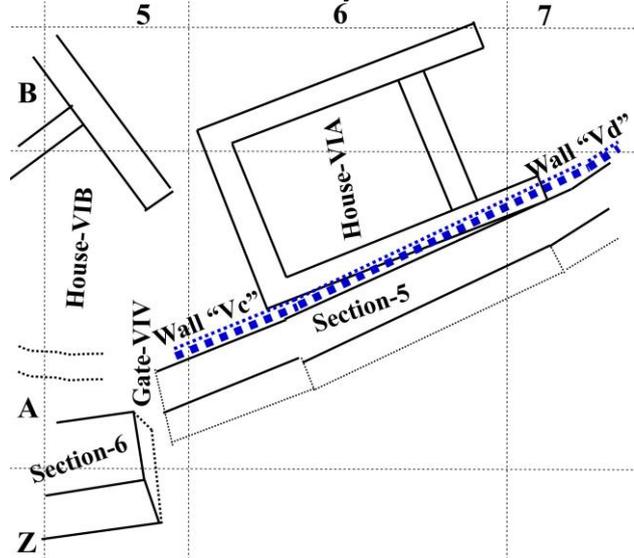


Figure 3. (Upper) the older Wall ‘Vc’-‘Vd’, longer than 35m, is located beneath the outer wall of House VIA and in contact to its successor, the ‘weak’ Section 5 [plan-view based on [[4], 2:Fig. 503]. (Lower) [photo by the author]; The walled-up today Gate VIU, the House VIA: under its outer wall the earlier Wall is located in contact to the Section 5.

2a) *Section 5*, in average 2,70m thick ([4], 101-2, 111, 163, 219); [2], 123: half of Section 4: 5,00/2]; [14], 68: '<3,00m', 79-81]; [12], 1:124: 3,00m]) is 'the last surviving piece of the older fortification,' [4], 1:109] and 'presents three (re-)construction stages' [14], 69-70], which resulted probably by *attacks against the, adjacent to it, 'Scaean(s)'* =left/western [Liddell-Scott [23]] *Gate VIU*. Section 5 was 'founded on a layer that contained a good deal of pottery of Early and possibly Middle VI; it cannot have been erected before *late-"Early VI"*' (1550-1500(+)), 'but its north end points to an *early-VIe* dating, perhaps slightly earlier than the *Wall R*' [4], 1:111, 191, 200, 219-20, 254], namely at 1500/1500(-) B.C..

2b) The *First Reconstruction* includes an increase of width 1,20→3,50m (Fig.2), on the same outline of the *Early VI Wall* ([14], 79, 70]; [4], 1:194)]. 'Dörpfeld and Blegen [4], 1:111-2, 194, 81] found its traces at some Houses (Pillar [Wall R], VIG, VIF, VIQ), at the Gate VIU_(f-h), and 'behind "Section VI₁₉₋₂₀"/'Bastion VIk' ([14], 79, 68]; [4], 1:111-2, 194, 81]; [12], 1:124)]. This 3,50m thick Wall of 1500-c.1490 B.C. ([14], 75-6, 79: 'early-fifteenth century'; [4], 1:111: 'early-VIe'; [12], 1:123]) is 'twice as strong'² [14], 68] compared to 2,70m of Section 5, which constituted probably an initial phase to strengthen the pilaster-Wall of the Western/'Scaean(s) Gate(s)'.

3) The *Second Renovation*, 5m thick ([14], 61-2, 70-1]; [12], 1:124]; [4], 1:84-5 'Section 2: 4,50m, 3: 4,75m') at 1425(-)/c.1410 B.C., ([14], 42-4, 79-80: 'VI_f-beginning'; [4], 1:111 'VI_f not far from 1400]), includes walls behind the Gate VIU [14], 79], the Sections 2-3, and the Gate VIS, without its overlapping wall (Fig.8). Sections 2-3 (Fig.4) were built outside the wall of Early/Middle VI [4], 1:112, 81], 'which had neither perished in a great catastrophe nor been thoroughly destroyed but was gradually replaced' [12], 1:124, 107]. 'The Pillar House' touched the earlier Wall and 'served a military purpose during Troy VI_f [4], 1:187, 228-9, 232-3] (1425-1400 B.C.) since seventeen terracotta-pellets/sling-bullets [4], 2:305: photos] were unearthed there;' afterwards, it 'functioned as spinnery or workshop (VIg) and dwelling house (VIh)' [2], 133]. *These finds point towards a pre-1400 B.C. siege.*

4) The *Third Building stage* (c.1390 B.C.) ([2], 124: 'early-VI_g': [14], 80: 'early-fourteenth century]), 5m thick ([14], 61, 70-1]; [2], 123]; [4], 1:106]; [12], 1:112]), includes Sections 4, 6 (built

outwards too), the 4,65m thick Bastion VIk ([14], 79]; [4], p.1:93]) and the Gate VIU_{i-k} (Figs.5, 9, 14-15).

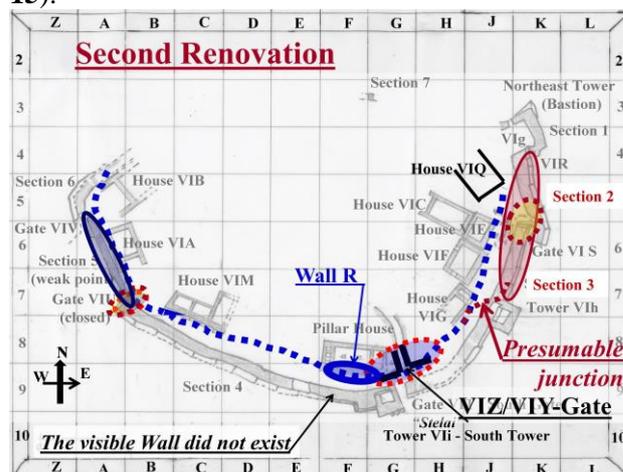


Figure 4. Walls of Troy: *Second Renovation* (with dark red color); the, belonging to this phase, Gates VIS (without its overlapping Wall) and VIU are marked with dark red ellipses and yellow shadow. Earlier Wall-Section 5 is marked with dark blue.

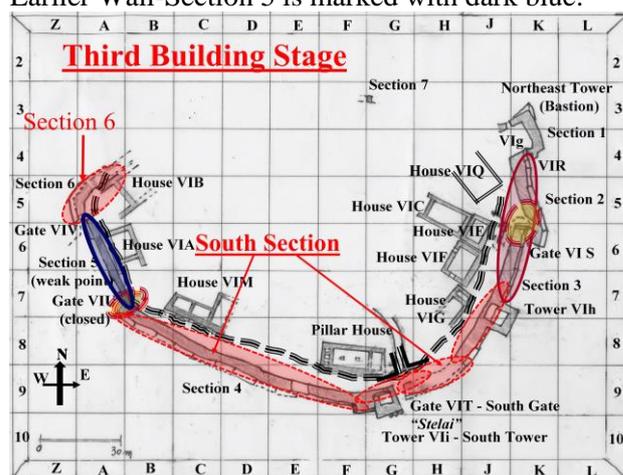


Figure 5. Walls of Troy: *Third Building Stage* (with red color) which supplemented the previous *Second Renovation* (with dark red color); after this stage the earlier Wall (black triple dashed line) was not used with the exception of its part at the area of the *Gate VIU* (see below the description for this Gate). Earlier Wall-Section 5 is marked with dark blue.

5) The *Fourth Supplementary stage* (1250-1190 B.C.), includes the attachment of the Towers VI_i, VI_h and the overlapping-wall of the Gate VIS [14], 80-1, 68]; the Tower/Bastion VI_g was dated with great discrepancies: 'after Section 2' [2], 119], 'with Section 4, earlier than the Towers VI_h, VI_i' [12], 1:139, 115], or at 1250-1190 B.C. [14], 80-1]

² Relation between the *Horizontal Moments of Inertia*: $(1*3,50^3)/(1*2,70^3)=2,20$.

(**Fig.6-Lower**). Potsherds dated to Middle VI (1500-1400 B.C.) were found at the junction between the Bastion/Tower VIg and the ditch of the stone foundation of the mudbrick wall of the lower town [[8], 30-1, 11] (**Fig.6-upper**); these finds warrant the dating of the construction of the mudbrick wall at its joint with the Bastion VIg. The internal stair leading to the interior of the castle is contemporary to the mudbrick wall, some postholes between the two staircases are dated even earlier ([8], 30-1, 11); [[15], 17-9, by Aslan, 42]; [[12], 144-50]; [[4], 1:82)) and an inner floor of Troy VI overlies ‘older foundation layers’ (**Figs.7, 22**). An earlier defensive structure existed, obviously, at this area.

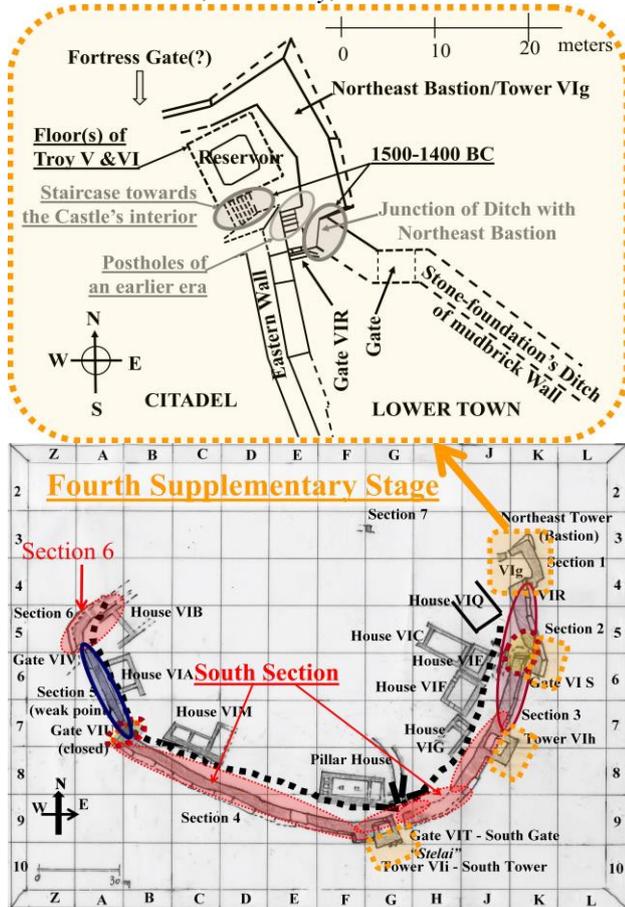


Figure 6. Walls of Troy: the *Fourth Supplementary stage* with orange (lower) and detail of the Tower VIg (upper). *Section 5* is marked with dark blue. The *Second Renovation* is marked with dark red (**Figs.4-5**). The *Third Building Stage* is marked with red.

During the *Second Renovation* and the *Third Building stage* (1425(-)/c.1410-c.1390 B.C.), the earlier Walls were demolished, shifted outwards in plan-view and rebuilt at the outline of the preserved to-date Walls (**Figs.4-5**), contemporaneously to Blegen’s ‘vigorous/thorough housecleaning’ ([4], 1:301-2, 110-1, 200, 228-9, 241, 254: Troy ‘VIg’, 263, 278-9, 297); [[16], 277]). These finds are

compatible with non-complete destructions and changes of Kings at Troy. Mellink [[291], 100] supported that the Fall of Troy must have included looting and captivity, but not the great blaze envisioned by Agamemnon [TLG-Hom.*Il.*, 2:414-5]; Vermeule ([17], 142-3; [[18], 85-8]) searched evidence for a Trojan War in LHIII-LHIIIA1 (1600(+)/1500-1390/1370 B.C.). *These demolitions and reconstructions between 1425(-)/c.1410-c.1390 B.C. appear to be this evidence (Fig.5).*

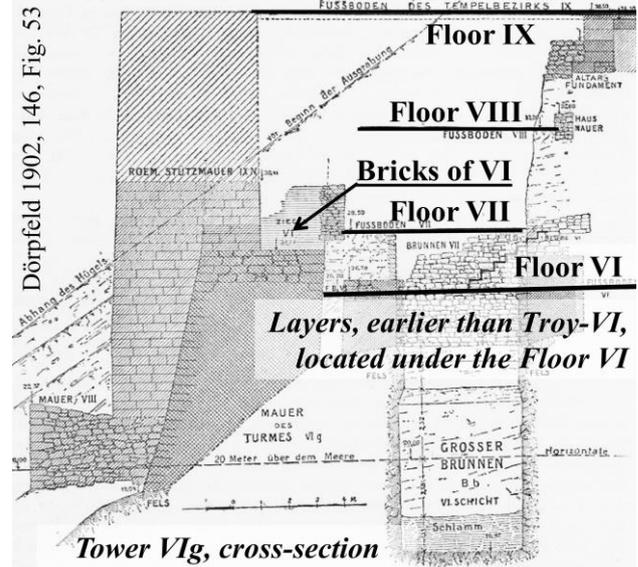


Figure 7. Cross-section of the Tower VIg, with bricks of Troy VI and Floors of Troy VI-IX [designed by the author based on [[12], 1:146, Figure 53].

We recall:

1. The Argonauts killed Trojan King Laomedon and his sons but enslaved his youngest son *Podarkes*. Hercules lent *Hesione*, Laomedon’s daughter and Queen of Achaean King (of Salamis island) Telamon, money to purchase her brother, thus Podarkes was permanently renamed Priam/Πρίαμος=‘Purchased’ [TLG-Liddell-Scott-Jones: *πρίαμαι/priamai*] and enthroned King, by the Argonauts.

2. The demolition(s) of Wall-section(s) ‘by the Trojans to fit the Trojan-Horse and pull it inside Troy,’ according to Mytilenean Lesche(o)s (eighth-seventh century B.C.), an act that caused the Fall; Lesche(o)s transfers likely faded memories of these demolitions due to the Fall, presumably connected to a dynastic change (‘Priamids’→‘Aeneads’) ([306]; [TLG-Proclus.*Chrestomathia* 233-235: Lescheos’ ‘Little-Iliad’]; [TLG-Paus.*Graec.descr.* 10:26:1:12-10:26:2:8]).

2.2 Reconstructions of the Gates of Troy

The Gates are vulnerable points in fortifications, where the attacks are directed; they must be secured

sufficiently [[14], 77]. Their reshaping(s) are easier than the redesign of the curtainwall.

1) *The Gate VIS* (Fig.8) operated without flanking protection until c.1250-1190 B.C., when the overlapping wall *a-g-g₁-f-e-d-a₁-a* was constructed beyond *ag/a₁g₁* ([[12], 1:124-8]; [14, 42]) and functioned as a Bastion.

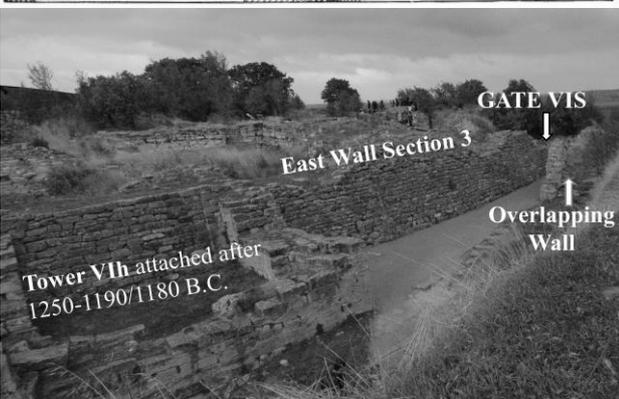
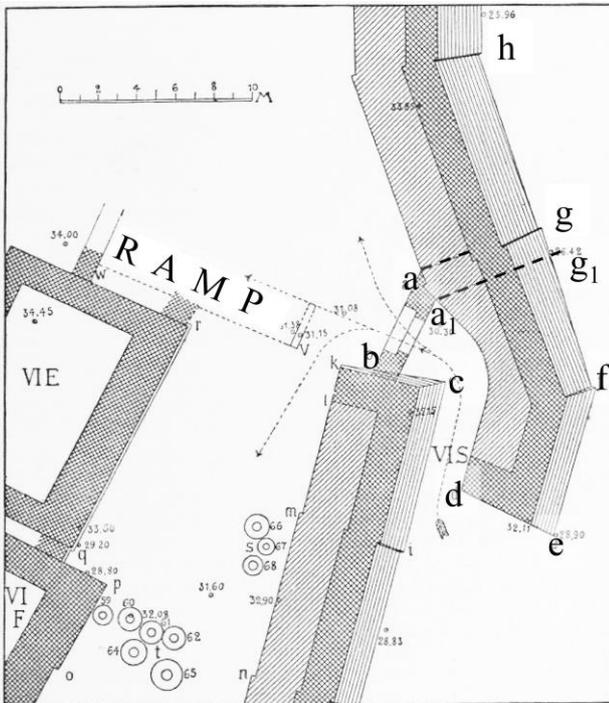


Figure 8. (Upper) the Gate VIS, before (at *a₁g₁*) and after the construction of the overlapping-wall (*a-g-g₁-f-e-d-a₁-a*), which functioned as a Bastion [based on [[12], 1:127, figure 40]; (Lower) photo [shot by the author].

2) The South-Gate (VIT/VIY/VIZ) presents four reconstruction stages (Fig.9):

- *Gate VIZ* at Early VI ([[14], 59-61]; [[2], 117]);
- *Gate VIY*, reoriented, shifted a little to the west and twisted, replaced *Gate VIZ*, at 1500-c.1400 B.C. [*ibid.*].
- *Gate VIT* replaced *VIY*, when the castle was enlarged to the south in the new line of defense [[14], 59, 80], at ‘early-“1400-1375”=c.1390 B.C..

• *The Tower VII* flanked, at 1250-1190 B.C., the *Gate VIT* and embodied the Bastion VIk, the *previous flanking protection* since c.1390 B.C. [*ibid.*] (Figs.9, 17-upper).

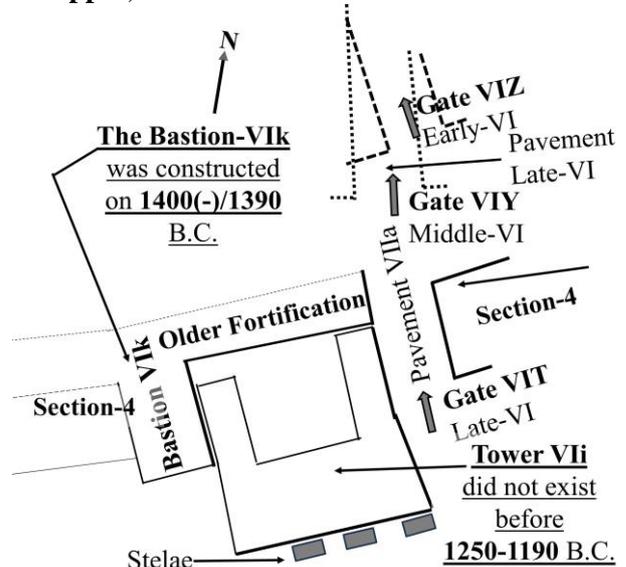


Figure 9. The South Gate VIZ/VIY/VIT.

3) *The Gate VIV* of ‘barely 1,50m opening’ and 2,50m width (Fig.10) is rather narrow for a gateway of any importance with a pillar/stele like a guard ([[4], 1:104]; [[14], 70-1]). Section 6 extends 5m westwards beyond Section 5 as a Bastion; a roadway, along Section 5, turned sharply eastwards through the opening, since the attackers were shot from both Sections [[2], 123-4].

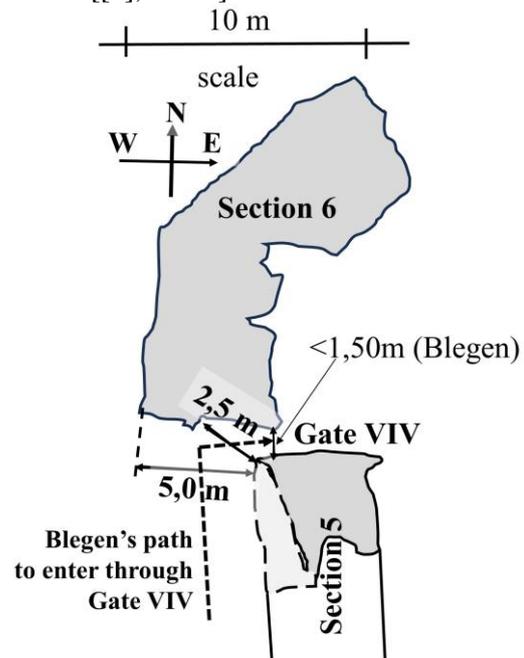


Figure 10. The Gate VIV. [The Figures 9, 10 were designed by the author based on [[4], 2: figures 452, 504].

4) The ‘very important’ Gate VIU with 3,60-4,0m opening was 0,40-0,80m wider than the Gate VIY/VIT; ‘the remains of three gates one on top of the other’ were revealed there ([14], 64, 66, 63: 3,60m); [[22], 38]; [[12], 1:135: 4,00m):

- Gate VIUat-f was wide enough for a chariot or carriage, existed during the *Early* and *Middle VI* periods, and belonged to the earlier Wall a-b-c-d-e-f-g-h ($\leq 1\text{m}$ thick) behind Section 5 (Fig.11). At location e, this older wall jumped 1m out of flight against the enemy side towards location d and, with c-d, formed a nearly 4,50m wide Bastion e-d-c protecting the Gate VIUat-f. Today, only a joint in the masonry, the right eastern corner of this Gate, is preserved [[14], 66]. ‘A ramp of 1:4,60 inclination of a road towards Skamander river through Gate(s) of the lower town’ ([14], 65-6; [[22], 39, Abb.34, 38]; [[35], 37]) has been unearthed which should be attributed to the *Third Building stage*, since, ‘immediately outside the Gate VIU, in Square A7 (Fig.5), strata of Early VI were excavated,’ contemporaneous to the Wall a-b-c-d-e-f-g-h. ‘Their presence allows us to conclude that this earliest road up to the citadel must be sought further to the South-East’ [[15], 77].

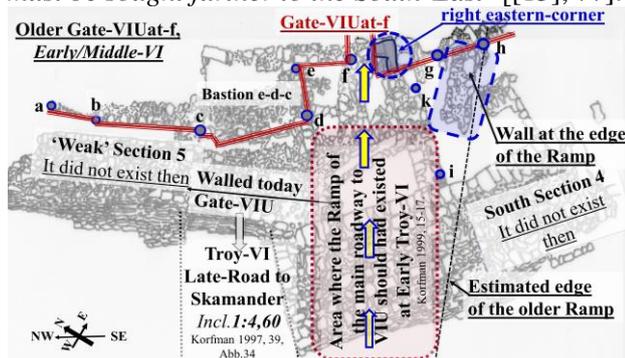


Figure 11. The earlier Gate VIUat-f, wide enough for a chariot/carriage. [The plan-views of the Gate VIU used in Figs.11-14 were designed by the author based on [[14], Tafelns 21-22]. The detail of the ‘right east-corner’ of VIUat-f, in the blue dashed circle, and the wall at the ‘edge of the Ramp’ (‘Rampenwange’) in the blue dashed parallelogram, were designed after the photo (Abb.31) shot and presented by Klinkott [[14], 44]. The earlier ramp with the road on it, in the dark red parallelogram with dotted lines, was designed after [[15], 15-7]; this ramp was later partly covered with earth and the Section 4 was built on it. The photo (Abb. 36) in [[22], 40] presents this road as it was unearthed by Korfman under the Section 4.

- Gate VIUat-f was afterwards closed and placed higher bordered by two 1,20m wide wall-strips at VIUf, VIUh. This relocation led to the formation of a 3,50m wide Gate VIUf-h (Fig.12), 2-3m away from

the ‘Tower-like’ Bastion e-d-c, on the axis of the earlier ramp (with increased inclination now). The Gate VIUf-h allowed the most unhindered passage of vehicles [[14], 66].

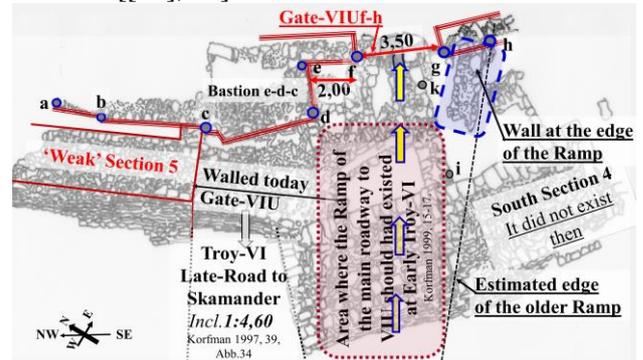


Figure 12. The Gate VIUf-h, of 3,50m opening, was placed higher but on the axis of the older ramp (with dark red color), whose inclination had increased now.

- Gate VIU, during the *Third Building stage*, was a wide ‘external opening in the new much thicker Wall, moved 3m to the northwest (Fig.13). It was not on the axis of the older Gate VIUf-h, which initially had remained in function with (a part of) its ramp; the Wall a-b-c-d-e-f-g-h still had to be maintained there.’ The Gate VIU ‘served as a Propylon/“Vortor”’ of VIUf-h; ‘an “annoying-for-the-traffic” corner at VIUd still remained in the very narrow space between the two fortifications’ ([14], 66, 77); [[4], 1:109, 165]) (a-b-c-d-e-f-g-h, Section 4). After the

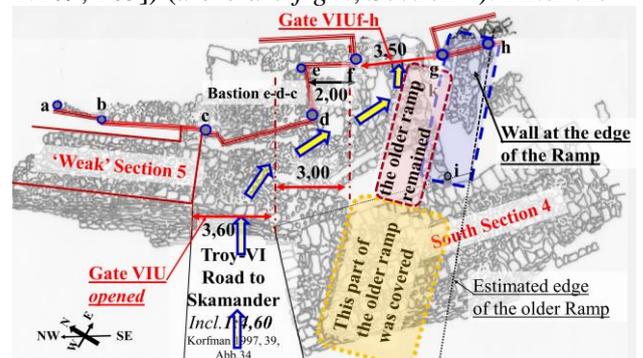


Figure 13. At c.1390 B.C., the Gate VIU was opened ‘in the new much thicker wall, located c.3m to the northwest as Propylon’ to the Gate VIUf-h. The earlier ramp was partly covered by earth (orange rectangle with dashed line) so that Section 4 was built (on it); a part of the ramp remained (dark red).

construction of the, functioning as a Bastion, Section 4 over a part of the earlier ramp ‘that had been covered by earth’, the ‘access to the citadel,’ via the Gate(s) VIU-VIUf-h, ‘was very difficult, if it was possible at all due to elevation differences at that time’ (Fig.13): ‘the access to the citadel was less important than a better defense of the Gate’ [[14], 66,

77].’ Finally, ‘the Gate VIUf-h was walled up, and a new access-road was created, leading around the “dressed end” of Section 4 with an almost 90° turn to the east’ towards the Gate VIUi-k ([4], 101; [[14], 65-6] (**Fig.14**) of 1,25m opening, which was no longer an option for wagon-traffic ([14], 65-6; [[2], 123]; [4], 1:101-2); a Gate-lock appears to have already been there in ‘Dörpfeld’s Third Renovation’ [14], p.67] (c.1390 B.C.). The elevati-

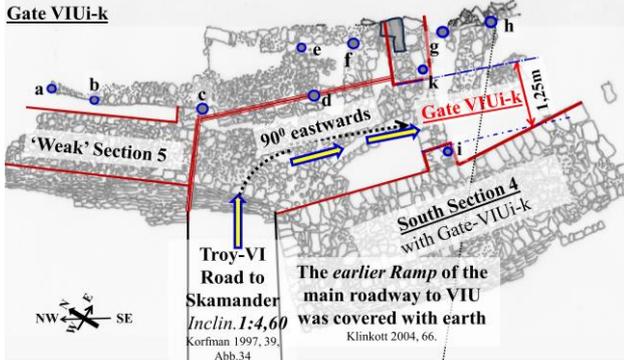


Figure 14. The Gate VIUi-k was reoriented 90° to the East and had 1,25m opening; it was no longer an option for wagon-traffic. It presented an inclination from 45,00% (min) to 59,30% (max).

ons of the floor of the Gate VIU [+25,00m], the soil at Houses VIM [+30,60m], VIA [+30,80m] and behind the Gate VIUi-k [+29,75m] (**Fig.15**), ‘presented too steep rise(s) of 4,50-4,75(+m) in 8-10m;’ the inclination (45,00-59,30%) was prohibitive for vehicles, while ‘it was a great advantage for defense’ ([14], 65, 67, 72; [[2], 123]). The ramp of 1:4,60 inclination (21,74%) was very steep too.

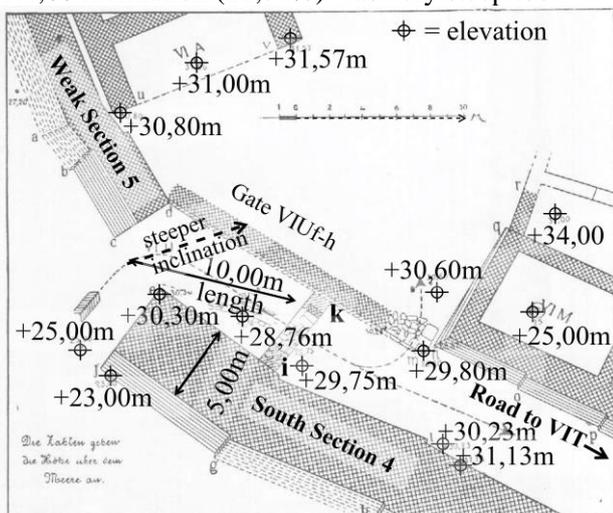


Figure 15. The absolute elevations are measured from the sea-level; a part of the older ramp had been covered with earth, Section-4 was built on it and the inclination towards the previous Gate VIUf-h was more steep. The new ramp leading to Skamander (1:4,60) presented a too steep inclination (21,74%) too. [Based on [12, p. 1:136, figure 46)].

• Gate VIUi-k was finally walled-up after 1190/1180 B.C., as its precedent VIUf-h during the apogee of Mycenaean power, at 1400-c.1390(-) B.C.; Dörpfeld believed that the Gate VIU was walled up ‘to improve the defense, due to war, which resulted in the destruction of Troy VI’ ([14], 78-81, 64; [12, p.1:137-8]).

2.3 The Ileian Plain and the Scaean Gates

The geography of the Trojan Plain has been the subject of research since Strabo (64 B.C.-24 A.D.) until today ([24]; [25]; [26]; [27]; [28]; [29]; [30]). Radiocarbon datings of geological specimens imply that at c.1300 B.C., a deep gulf intruded in the plain, since marshes existed around the estuaries of Skamander and Simoes rivers ([31]; [[280], 182]). In **figure 16**, the double-line ellipse depicts the location of the Greek Camp and Ship Station, while the dashed-line with an arrow-ending determines a probable route towards Troy, over the, still existing today [Hom.II.: 11:160, 20:427: πτολέμοιο γεφύρας=bridges of war=river fords], fords of Skamander river ([31], 165-6; [[28], 38-9]; [[29], 115-120]).

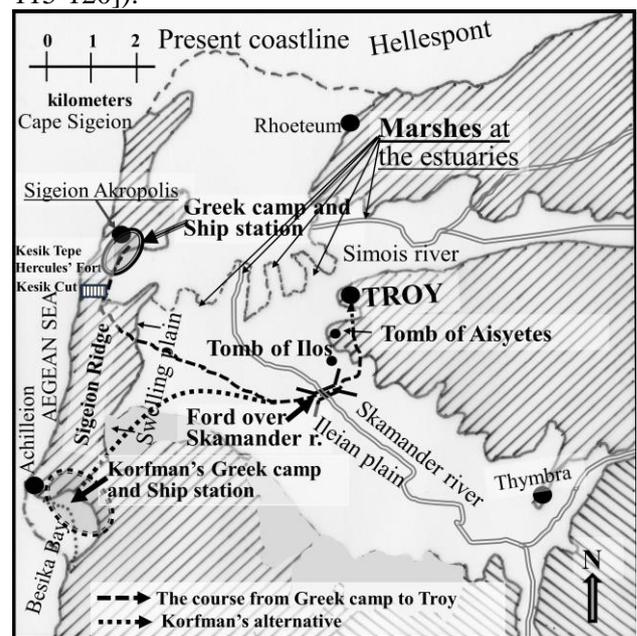


Figure 16. The Ileian plain at c.1300(+ B.C.), the Greek Camp and Ship Station below the Sigeion Ridge, according to Kraft et al. [31] and Luce [[98], 111-163]; the Ship Station at Besika Bay according to Korfmann [[33], 12-13]. Two alternative courses were designed from both afore-mentioned Ship Stations to Troy, through the river-fords over Skamander river. [Designed by the author, based on: [34]; cf. similar maps in [[8], 7], and [[32], 129].

Homer locates the Greek Camp and Ship Station ‘by the wide Hellepont’ [TLG-Hom.II.:7:84-86,

17:429-433; 15:431-435], the opposite of today's 'narrow Hellespont'. Strabo tried to define their location at the inland of the gulf. Korfman [[33], 8-13] proposed Besika Bay (Fig.16), since Hellespont could not offer convenient anchorage due to strong currents. However, no port installations have been found at Besika Bay yet; consequently, merchant ships could not probably anchor there [[8], 292, n.50, 41]. Nevertheless, at 1300(+) B.C., a, silted today, leeward anchorage existed below the Sigeion ridge (also [[33], 8], [[32], 129]), 'by the wide Hellespont,' without marshes, therefore the Greek Camp could be developed therein [31].

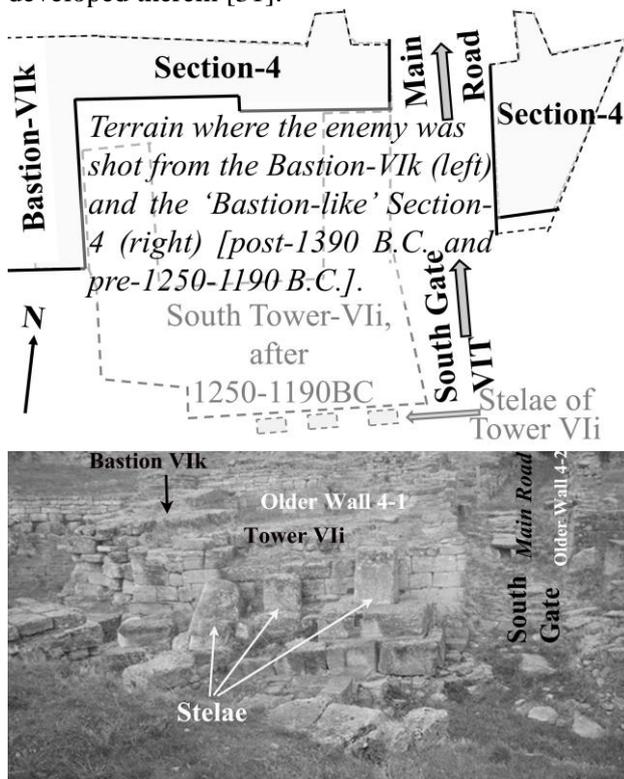


Figure 17. (Upper) The Gate VII, the Tower VI, the apotropaic Stelae in front of it and the Bastion VI. [Designed by the author based on [[14], Tafel 16]; (lower) photo [shot by the author]. See also Fig.9.

The courses, from both anchorages to Troy, turned northwards after the Skamander's ford and led to the 'Scaean Gates' VIU (and VIV) [[2], 123-4]. 'The Tower VI together with the row of apotropaic stelae lined up on its façade alongside the Gate VII (Figs.9, 17) are the hallmarks of the great importance of this Gate; both are missing from the Gate VIU.' However, the addendum of Tower VI is dated to 1250-1190 B.C., approximately two centuries later than the easily accessible Gate VIUf-h. 'A built-up fragment of a stela/stele in the Wall indicates that the Gate VIU was also placed under divine/apotropaic protection; its convenient location and the width of

its opening make it suitable for the main entrance of Troy' ([[35], 2]; [12], 1:138]; [[2], 1:101, VIU: 050m broader than VII]). The later sanctuaries of the Greek era could have been built on top of previous ones and the cave with the sub-terranean spring further afield infers that cultic connections also existed there [[14], 62-5, 77].

Troy II (2600-2350 B.C.) disposed two main-Gates (Fig.18): the southern-FO and the western-FM, which had a small lateral sally-port [[2], 60-5]. 'The roads leading to these Gates have also been maintained until Troy VI' ([[14], 55, 63], leading to the Gates VII, VIU, VIV, but after 1400/c.1390 B.C., 'the wagon/chariot-traffic was very difficult or impossible through the Western/'Scaean(s) Gate(s)'' (VIU-VIUF-h and VIUi-k), due to elevation differences.'

However, the Iliad describes that martial chariots [TLG-Hom.II. 3:259-64, 11:165-85, 16:710-5] exited 'to the plain' and reentered the citadel easily and systematically through the 'Scaean Gates,' which were adjacent to a 'weak Section and a Tower,' from where the elders watched the battles ([TLG-Hom.II. 6:431-9, 3:146-155]; [[2], 14-5]).

Consequently, the Iliad maintains a pre-1400/c.1390 B.C. memory of the Gate VIUf-h with 'the most unhindered passage of vehicles,' the 'Tower-like' Bastion e-d-c and the weak Section 5 (2,70m<3,50m of a-b-c-d-e-f-g-h).

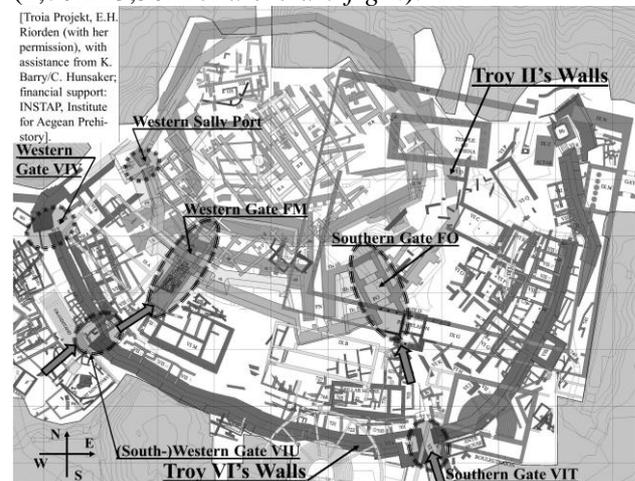


Figure 18. Troy II: two main-Gates (FO-south, FM-west-southwest) and a western sally-port as in Troy VI (VII, VIU and VIV); based on E.H. Riorden's map of Dörpfeld, (with her permission), with assistance from K. Barry/C. Hunsaker (Troia Projekt) and financial support: INSTAP, Institute for Aegean Prehistory; [[13], 34].

2.4 Mycenaean Technology in Troy VI

Archaeological finds document that, by c.1400 B.C., the Mycenaean ceramic objects of daily luxury increased greatly in the Houses inside the Walls

([295], 146-7); ([296], 371); ([4], 1:139)), namely, *the Houses of the Reigning Family and its highest officials*; this evidence suggests that after 1400 B.C., the new pro-Achaean, as the author proposed, Royal Family at Troy was strongly influenced by the Mycenaean way of life. It has to be underlined also that the unearthed biconvex seal, ‘with hieroglyphic script generally used by the Hittites,’ is dated to Troy VIIb2 (post-1150 B.C.) ([312], 115-8; [8], 49; [313], 361-2), while ‘not a single object of any kind, which can be called Hittite, has been identified in Troy VI’ ([297], 11).

In Greece, fortifications with Bastions and Towers, the predecessors of the Mycenaean fortifications, existed at Lerna (2650-2100 B.C.), Syros (2300-2100 B.C.) and Aegina (2200-2050 B.C.), as the plan-views of the fortifications depict (Fig.19) [cf. also: ([316], 158); ([317], 26-27)]. At c.1400/1400(-) B.C., Bastions flanked the Gates at Mycenae and Tiryns (Figs.20-21) [[118], 287].

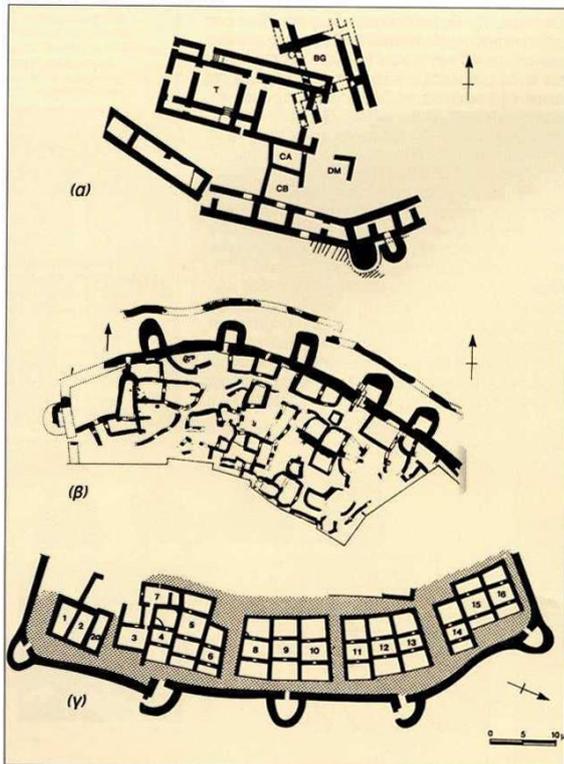


Figure 19. Fortifications at Lerna (upper, α), Kastri of Syros (middle, β) and Aegina Kolonna (lower, γ) [[314], 16; courtesy of prof. Palyvou].

According to the archaeological finds, the Gates of Troy VI ‘were constructed without flanking protection; later, Bastions flanked the Gates’ [14, p.75] VIV, VIU, VIT and VIS: the plan-views of the Gates of Troy were changed and bastions were constructed at c.1390 B.C.: (a) the Bastion VIk at the South Gate-VIT, (b) Section 4, which functioned as a Bastion both to the Gate VIUi-k and the earlier pair

of Gate VIU (Propylon) and VIUf-h, (c) Section-6 was constructed and functioned as a Bastion to the Gate VIV since (d) the overlapping Wall was later (1250-1190 B.C.) added as flank protection at the Gate VIS. This design ‘has no resemblance either to Hittite, Syrian or Mesopotamian comparative examples and corresponds more to the Mycenaean West’ [[14], 75].

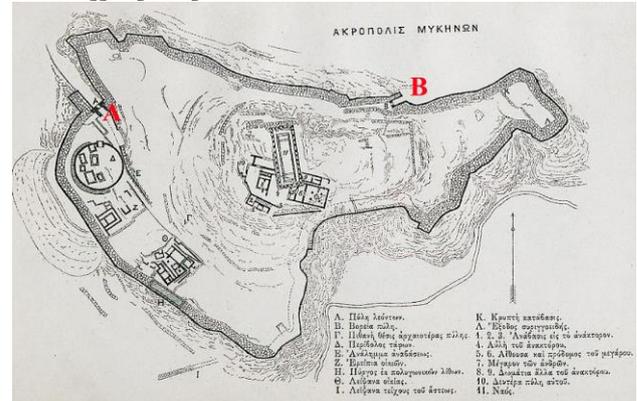


Figure 20. Plan-view of the citadel of Mycenae. Red (A) marks the Lions’ Gate, (B) the sally port, both with flank protection by Bastions (from [[317, Πίνακας (= Table) 1]).

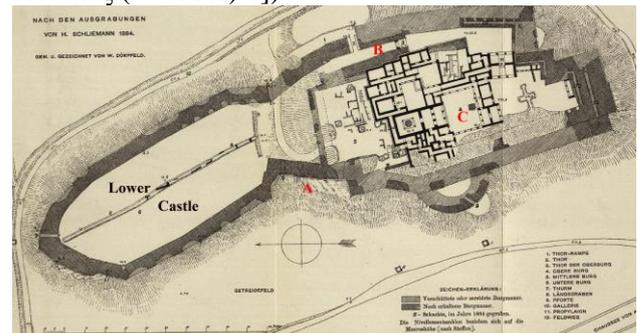


Figure 21. Plan-view of the citadel of Tiryns. Red (A) Area of the door (‘pforte’) which was protected by one Bastion at each side, (B) inner Gate leading to the Upper Castle (C) protected by two Bastions and the Lower Castle (from [[318], Tafel (= Table) 1]).

‘The antiseismic building-method of the Houses’ and the ‘finishing of the floors with Quicklime’, which ‘like the Mycenaean pottery was probably imported from Greece (or another region)’, are ‘similar to the Mycenaean architecture in palaces and castles’ ([2], 134; [12], 1:111). ‘The undulations of the joints at the lower areas of Sections 2-3 and Tower VIg is a characteristic antiseismic technique attested at the feet of the side-walls of Dromos of Atreus’ Treasure’ [[14], 44]. It should be underlined that the lower part of the Tower VIg is dated to Troy VI (Figs.22, 7).

‘It is not coincidental that Section 4,’ which functioned as a Bastion, ‘appeared with the fortresses of Mycenae and Tiryns’ [4], 1:112].

Dörpfeld [[12], 1:107-181], who ‘found *the Walls in association with much Mycenaean pottery*’ [[2], 30], characterized Troy VI as ‘*Mycenaean castle.*’

In the House VIA a thick layer of *Ash from Hearths* was found approximately in the middle of the Hall, in a manner similar to that found in the megaron of *Tiryns* and *Mycenae* [[12], 1:152]. It has to be reminded that “Hearths are the representative core, of Mycenaean rulers’ residences, since MH/EH and even earlier at Dimini/Iolkos (3700-3550 B.C.)” [[11], 37: photos and bibliography].

The afore-mentioned archaeological evidence suggests that a pro-Achaean Royal Dynasty in Troy, after c.1400 B.C., had adopted Mycenaean everyday luxuries and building and defensive standards; the Towers, ‘characteristic of the Hittite defensive architecture’ [[14], 76, 80], *after 1450 B.C., since it was Hantili II, who built this kind of fortification* ([[319], 298]; [[313], 113, 420]; [[320], 25-27]; [[321], 163-4]; [[324], 200-06]; [[325], 42]; [[9], 59-60)), were added at the Gates of Troy VI at 1250-1190 B.C..



Figure 22. The Tower VIg: the lower area (a) is dated to Troy VI [[12], beilage 22 zum S. 144].

3 Eastern Mediterranean and Aegean Sea: Finds of Mycenaean Technology

3.1 Aegean Sea

The Aegean commercial expansion of Mycenaean began in the seventeenth century B.C. and accelerated during the sixteenth-fifteenth centuries

([[350], 141-2]; [[296], 381]; [[346], 202: LHI-LHIIA]). Southwestern Asia Minor (Miletus V) and the nearby islands had already received a first influx of Mycenaean colonists by the sixteenth century, who followed and violently conquered former Minoan colonies and replaced the Minoans ([[347], 103]; [[349], 10-16, 20]).

The prevailing historical scenario for the ‘arrival’ of the Mycenaean in Crete supports that Greek-speaking Mainlanders either were responsible for the destructions seen at different Cretan sites in LMIB (pre-1450 B.C.) or took advantage of social and political instability and established themselves as rulers of Knossos and Crete in LMII. The gradual adoption of new cultural elements across the island by LMIIIA2 signaled the transformation of ‘Minoan’ into ‘Mycenaean’ Crete [[64], 1031-4, with bibliography].



Figure 23. Aegean Sea, Eastern Mediterranean and the Levant. For Washaniya see [[79], 593].

The statue of Amenhotep III (1414/1390-1377/1352 B.C.), at Kom-el-Hetan, records that the King of Danaja/Mycenae with the King of Keftiu/Crete, leading an alliance of 14(+) lesser-rulers of Mycenaean places (the ruler of Achaeanized Pllion was included), raided Egypt [[11], 26-9. 41-2].

Similar practices are documented *during the second millennium*:

a. Mari’s official Itur-Asdu (1750(+) B.C.) wrote to his King Zimri-Lim: ‘there is not trully a powerful King, just by himself; twenty (lesser-)kings followed Yarim-Lim of Yamkhad (Aleppo) and ten-fifteen followed each one of Hammurabi of Babylon, Rim-Sin of Larsa, Ibalpiel of Eshnunna and Amutpiel of Qatna’ ([[67], 117-8]; [[68], 816]; [[69], 13]);

b. Hittite King Muwatalli II ‘brought together’ fourteen/twenty ([[70], 117-8]; [[71], 205-6]) lesser-kingdoms at Kadesh (1299/1285/1274 B.C.) ([[11], 66-7]; [[9], 62]).

The Iliad [Hom.*Il.*:2.484-762, 6.33-35, 6.414-417] transfers a similar image of 28 lesser-kings

under Agamemnon against Troy. Memories of Achaean ‘operations’ against Cyprus and Levant before and after the Fall of Troy are also transferred ([TLG-Str.*Geogr.* 1:2:32:32-40], [TLG-Hom.*Od.* 4:81-91, 120-37, 225-30, 350-5, 14:254-84], [Hom.*Il.* 2:484-762, 6:33-5, 6:414-7]).

Correspondingly, the change of local-dynasty in Troy, the eclectic affinity [[9], 19, 42] of local-rulers on the coastal zone of Asia Minor to the Mycenaeans and the appearance of Mycenaean or Minoan – ritually significant – features in Cyprus and Art [[11], 34-8] at the interior of the Levantine Palaces imply that the Mycenaean King exerted a very strong influence.

3.2 The Levant

Nevertheless, three major hypotheses have been put forward to explain the creation of Aegean frescoes at the inner rooms of Palaces at Alalakh, Qatna, Tel-Kabri, and Tell-el-Dab^a [[72], 210]:

1. Aegean artisans traveled, due to diplomatic-relations, diplomatic-marriages, important political-meetings [[73], 280-8, 295] or gift-exchanges [[75], 88-96].

2. Circulation of goods and ideas: the paintings-motifs could have arrived from decorations on exchanged pottery, textiles [[76], 99, 111-4];

3. Aegean and local artisans worked together and melded their styles [[77], 260].

Hypotheses (1) and (3) infer that Aegean skilled-craftsmen, ‘Royal-commodities’ ([[343], 685-6, 690]; [351]; [352]; [[11], 35]) had received permission/order to travel [[11], 35, n.84], since they were living under restrictions to prevent them from leaving the Palaces [[78], 247]. Hypothesis (2) does not explain how the Levantines, based on decorations on pottery and textiles, had achieved to a) organize the necessary large workshop(s) with the required know-how of the Aegean plaster-technique for the construction of the plaster-substratum under the wall-paintings ([72] op.cit.), and, b) carry out the extensive and elaborate scenes in Aegean technique in many Rooms *inside the (sacred) Near Eastern Palaces* with Minoan/Mycenaean images of ritual, symbolic and divine meaning, quite similar to the interior(s) of the Minoan/Mycenaean Palaces.

Cities with finds of Aegean Technology in the Levant (**Fig.23**) include:

Alalakh: Minoanizing frescoes – a griffin and a bullhead, a possible double-axe and other features reminiscent of Minoan Crete – were found (MBII=mid-16th century); they were made in Syria under the supervision of Aegean artists, who were sent there in response to a request of a local-élite

([[72], 206-9, 202]; color-pictures in: [[80], 41-3], [81]).

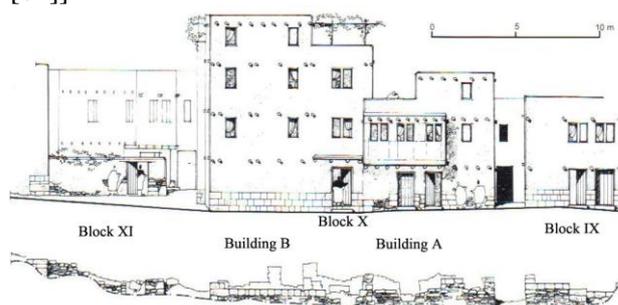


Figure 24. Facades from Ugarit [83].

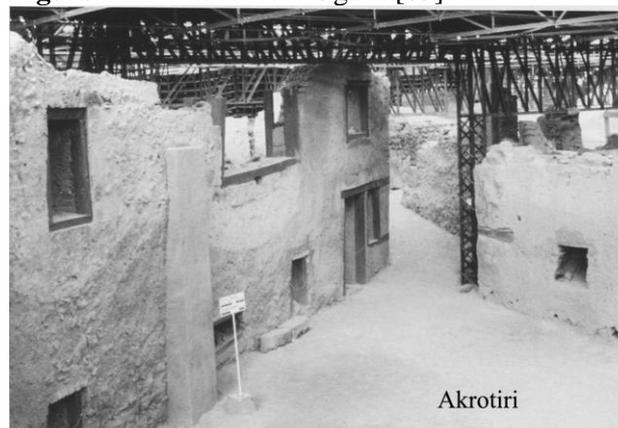


Figure 25. Facades from Akrotiri (author's photo).

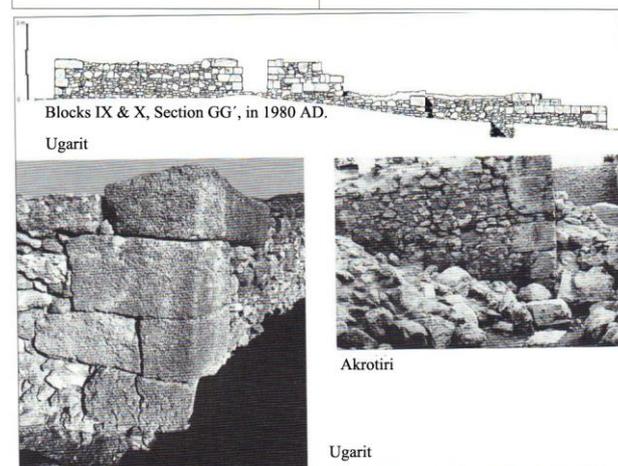
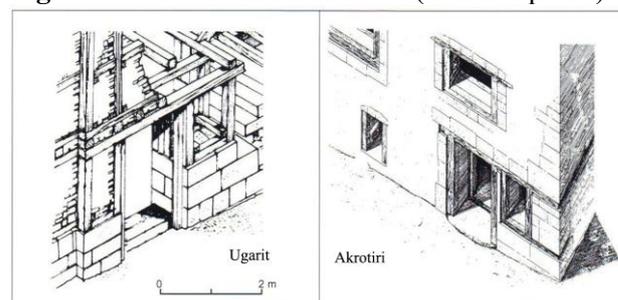


Figure 26. *Upper*: wooden frames for seismic tensile-stresses (left) Ugarit, (right) Akrotiri; *lower*: corner-stones (left) Ugarit (right) Akrotiri ([[82], 45]; [83]). [Figures 24-26 with the permission of prof. Palyvou, who quotes Callot [83]].

Qatna: Aegeanizing frescoes (MBIIB-LBIA-turn=1590/1550–1500 B.C.) and 3.000(+) additional painted fragments – dolphins, turtles, and flora in Aegean style – were found in 14th century’s contexts; they had been painted at 16th–15th centuries B.C. ([72], o.c.: color-pictures); [[80], o.c.).

Kabri: small colored pieces in Aegean style – with red, orange, yellow, brown, black-and-white and blue paint –, which had never been found in Israel from this period. The blue pieces are probably part of a white animal outlined in black against a blue background: a griffin’s wing (as in Mycenae) or a flying-fish’s fin [[80], o.c.: color-pictures].

Ugarit: certain similarities – as the entrance system with the staircase and the square room with the central post – imply that Aegeans built houses for themselves there and thus, propagated concepts of space and structural systems otherwise unknown to the local community [[82], 444-5; cf. [83]]. The architecture of Ugarit resembles significantly that of Akrotiri (Figs.24-26), i.e., before 1613±13-or-1570/1530 B.C. (absolute chronologies in: ([84], 59); [[86], 298]; [[87], 4]; [[88], 9]).

Mari: tablets were found, of the kings Yahdun-Lim (1815-1798 B.C.) and Zimri-Lim (1775-1761 B.C.), listing prestigious objects, many of them defined as ‘Cretan’ (Kaptarītum) or of ‘Cretan workmanship’: a pair of Cretan boots, shoes, belts, several precious objects from Crete and a quantity of tin delivered to the ‘chief of Cretan merchants and his interpreter, in Ugarit’. Furthermore, a journey of Zimri-Lim in c.1765 B.C. from Mari to Ugarit on the Syrian coast is recorded, where Zimri-Lim saw the Cretan fleet ([89], 119-23); [91], 44-5).

Adana: a Danuna/Danaos King died (1384/1360-1360/1336 B.C.) [92], 238-9]. The phrase was most likely associated with the (A)ḪḪiya-wans/(A)CHaean there [93], 70, 72, 74].

3.3 Cyprus

Cyprus is situated opposite of Lycia, Cilicia, and Levant (Fig.23). Mycenaean features – ashlar masonry, large hearths, cult centers, bull figurines, consecration horns, feasting activities, ritual performances, tholos tombs – appear during LCIIA-LCIIB (1425-1340/1315 B.C.) in ‘arenas of power’ [360, 442-5]. Destructions during 1425-1375 B.C. and a ‘break-in-culture’ by 1340/1315 B.C. are also evidenced. A network of fortresses, protecting likely copper sources (Fig.27), had been erected/developed by MCIII-LCI (pre-1425 B.C.), reflections of the island’s unsettled conditions(?), interrelated with Attariššiya/Atreid; Giannakos published [[11], 16-8] that Hittite personal name Attariššiya = Ateres-(s)i-

jo in Linear B, which means “(son) of Atreus” = Atreid [cf. [[94], 34]. This evidence infers that some lesser-rulers in Cyprus were most likely acting as Mycenaean King’s allies during LCIIA-LCIIB [[11], 27, 35-39, for analysis, references].



Figure 27. LCIIA-IIB Cyprus: fortresses-network, destructions and appearance of Mycenaean characteristics. 1. Ayios Sozomenos, Nikolidhes; 2. Korovia-Nitovikla; 3. Dhikomo-Pamboulos; 4. Dhali-Kafkallia; 5. Ayios Sozomenos, Barsak; 6. Eylonja, Leondari vouno; 7. Krini-Merra; 8. Asomatos-Potemata; 9. Karpasha-Styllomenos; 10. Bellapais, Kapa-Kaya; 11. Lythangoumi-Troullia; 12. Dhikomo-Onisia; 13. Yeri Vrysi tis Pantelous; 14. Eylonja, Kafizin; 15. Enkomi, Ayios Iakovos; 16. Eylonja, Nifkia; 17. Ayios Sozomenos, Glyka Vrysis; 18. Yeri Phtetia; 19. Dhavlos-Pyrgos; 20. Ayios Thyrsos, Vikla; 21. Rizokarpaso-Sylla. [Designed by the author based on a map of Peltenbourg [[94], 31].

3.4 Egypt

Egypt had three different capitals between 1666-1304/1279 B.C. [Beginning of Ramses II’s reign: ([CAH, 225-6]; [[95], 114]):

Aketaten/Tel-el-Amarna (1384/1360-1360/1336 B.C.): 1500-2000 Mycenaean sherds were found – with origins of the clay from Tiryns-Asine and Berbati/Mycenae [[96], 149-54, 69]–, which represent over 600 whole pots (their overwhelming majority from LHIIIA2=1375-1300 B.C.). Pendlebury, Director of excavations (A.D. 1930-1936) at Tel-el-Amarna, dubbed one house as the house of the Mycenaean Greek and the street facing it as the Greek Street. He believed that Greeks were living in the city. Olive twigs are depicted in the Great Aten-Temple, being offered by Akhenaten himself. Four wreaths of olive twigs were found in Tutankhamun’s tomb. Papyrus fragments ([97], Pl.8: color-photo); [[99], 15: color-pictures of olive-branches and the color-papyrus with boar’s tusk helmets]; [[101], 342-5]) depicting Mycenaean warriors, a wooden shrine and various cultic items were unearthed in the Central City, as also, a

complete Mycenaean vase and the inscription ‘the great statue that the Pharaoh ordered to be made’, likely in a chapel devoted to the divine Pharaoh. These artefacts played a significant role in that context. Mycenaean frescoes have also been unearthed ([102], 68-9; [103], 1:8, 46, 43-68, 113; 2: 38, 49-50, 65-74, 118, 140-141, LXXVIII); [104], 392: frescoes’ color-photo]. Lead-isotope-analysis of Amarna’s metallic artefacts showed that Laurion was one of the two copper-sources [105], 134].

Thebes/Luxor/Malqata (after the conquest of Avaris at 1560/1553 B.C. by Ahmose (1568-1543 B.C.; founder of the eighteenth Dynasty. [95], 123; [106], 128)), with the short interval of Aketatén). Besides the ‘Aegean-List’ [11], 27-9, 59-64, Addendum], ‘Great Ionia’ has also been read (**Fig.28**) on the base-block from the northern approach of the peristyle in Amenhotep III’s Temple, the famous Ionia, which appears for the first time, centuries before the Ionians are mentioned in Greek texts ([108], 82; [413, note24]). However, in RCT-tablets (contemporary with Amenhotep III), i-ja-wa-ne has been read, dativ of the anthroponyme Ἰᾶ Ἰων=Ἰων-Ion ([109], 419; [110], 112, 137];



Figure 28. Great Ionia [107], 453; courtesy of Dr. Sourouzian].

[111], 197; [112], 84-5). Frescoes with Aegean motifs – animals, bulls, red and blue rosettes – decorated Amenhotep III’s Palace at Malqata ([113], 130, [114], 288-95: color-pictures). Thutmose III’s Annals record as [Benevolence of the Chief] of D/Tanaya a silver jug of Keftiu-workmanship (as in Mari and Pylos) along with vessels of iron (see references for ‘biz’=iron, iron-technology in: [116], 96, notes 226, n.51-52; [117], 49-55; [118], 78-85; [10], 752, note20). Furthermore, tablet PYTa641 records ([109], 336) ti-ri-po-de ai-ke-u ke-re-si-jo we-ke=two tripod-cauldrons of Cretan-workmanship, of ai-ke-u type

(*Αἰγέως/Aegeus?*). The Keftiu metalwork was highly appreciated since the artefacts from Keftiu were given together with iron bowls, a priceless metal at this early stage [119], 96]. During Hatshepsut-Thutmose coregency (1504/1479-1477/1443 B.C., Thutmose’s 28th regnal-year) scenes from tombs of Egyptian officials depict Cretans (Minoans/Mycenaeans) bringing metal bowls with rosettes and bullheads, as gifts, identical to a bullhead at Mycenae (grave-II). The rosettes constitute the emblem of royal power and divinity in Minoan Crete [120], 70, note191].

Avaris/Tell-el-Dab’a/Ezbe-Helmi (1666-1558 B.C., Hyksos Dynasty, and later): Rosettes, maze-patterns and bull-leaping scenes have been unearthed from the Hatshepsut-Thutmose co-regency, as well as a Throne-room with a huge emblematic griffin (palace F, which was constructed with the palace G, during Ahmose’s early-reign, in unified Egypt) quite-similar to Knossos’ throne-room and similar to the paintings in the tombs of Egyptian officials [120], 27, 38-40: color-photos, 45-66]. The flying gallop of animals attacked by a human figure on the hilt of a gold-plated dagger of the Hyksos King Apophis is also of Aegean origin, as well as a griffin with wings decorated with the ‘notched-plume’ motif of Minoan origin on the axe-blade of Pharaoh Ahmose [121], 80: color-photo] and the lion chasing a bull in a flying-gallop on the dagger of his mother (Queen) Ahhotep/Aahotep – both from her tomb. The symbolic evidence of these finds, combined with the inscribed lid [122], 82-3: photos] with the cartouche of Hyksos king Khyan found in Knossos’ Palace, provide visual expression of political, ideological, dynastic, and religious connection between Minoan Knossos and Hyksos-regime ([123], 93; [124], 5, 12-13), which continued in the 18th Dynasty. We recall that Io gave birth to Pharaoh Epaphos who sounds very close to Hyksos Pharaoh Apophis (1615-1575 B.C.) [106], 118, 413, 419, note122].

3.5 Land of Hatti

Hattuša (capital-city): Mycenaean frescoes were unearthed inside two Temples (9, 5) and the Palace. Based on their technique, Müller-Karpe dates the frescoes to the Amarna-period, while Brysbaert dates them to the relevant ones at Tell-el-Dab’a, Kabri and Qatna ([104], 392-3: color-photos; [125], Abb.75; [126], 101-2, 108).

Tapigga: imported Mycenaean pottery of LHIIIA2 was found in a 13th century layer ([127], 197; [102], 137). The letters from Tapigga belong to the period ‘Arnuwanda I-Tudhaliya III’ (1350(+)-1300 B.C.) [128], 39-41: De-Martino: 1400/1390-1350, Alp: 1370(+)-1350 B.C. (Tudhaliya)].

3.6 Adoption of Mycenaean Technology in foreign Royal Palaces: an Explanation.

As an explanation for the presence of Minoan royal emblems and paintings at Avaris, Bietak [[129], 28, note53] supported that Queen Aahotep, the ‘Mistress of the shores of Haunebu’=‘Aegean Sea’ [[117], 47, note229, with references], was most likely of Cretan origin. Later, professors Bietak, Marinatos and Palyvou [[120], 86] argued that, despite some criticism, Bietak’s hypothesis received support by renowned scholars – Hankey, Morgan, etc. – and gained even more ground after the discovery of the huge emblematic griffin at Tell-el-Dab^a, similar in size to the one in the Throne-Room of Knossos. ‘*Marriage with a foreign princess led to the creation of official and private rooms for such high-ranking personalities to enhance their status and enable their own spiritual life*’. This is also valid for *Hattuša*, since the name of Queen Henti (1350(+)-1331(+)) B.C., approximately contemporaneous to Amarna-regime), wife of Supilluliuma I, is most likely the transliteration of an Achaean princess’ name ((h)Evδη(ις)/(h)e-(n)t-i(ς)) in Hittite [[11], 21, n.44-6].

These finds document a strong Mycenaean influence in the Levant *before and after the Fall of Troy (c.1400±(20-50) B.C.)*, since foreign rulers had adopted Aegean ritual and symbolic motifs in the sacred inner Rooms of the Palaces, materialized most likely by Mycenaean, palatial skilled-craftsmen.

3.7 Mycenaean know-how was transferred to Phoenike, and not Phoenician Technology to Greece

The period 1500(+)-1350/1320 B.C. (Thutmose III-Supilluliuma I) is the era of the apogee of power and prosperity in Mycenaean Greece with masterpieces of technological achievements and artistic creations as a continuation and legacy of the relevant Minoan accomplishments (detailed analysis in: [9], [[10]: *silver production since 4th Millenium B.C.*]; [[11]: Annex]; [[130]: *Land Reclamation, Drainage and Irrigation Projects since 3rd Millenium B.C.*]). The Mycenaean wanax-(Ϝ)Ἄναξ-King had – obviously – permitted his artisans-craftsmen to work in the Palaces of his allies and transfer know-how to the East.

Nevertheless, some scholars support that there was only an opposite flow of technology, i.e., from East (Phoenike) to West (Greece). For example, Morris [[131], 130-131, 30-35, 73-100] argued for:

–Phoenician craftsmen at metal-rich areas of Greece such as Thasos, Euboia, Boiotia, Lakonia,

Crete, Rhodes, Laurion, based on traditions about Daidalos, Kadmos, Tyrian Hiram and King Solomon [[131], 39].

–An oriental origin of the Greek culture and technology, because the architect-god Δαίδαλος/Daedalus and the Olympian god-Engineer Ἡφαίστος/Hephaestus (quoting an ancient author: *Hyginus’ Fabulae* (33), [132]), originate from Ugaritan Kothar-va-Hussus/Hasis, since ‘the Ugaritic-texts are older than the final concept of Hephaestus in Homer’ [[131], 95, 75-8].

–The exclusion from archaeological evidence of da-da-re-jo=Δαίδαλειόν-δε in the tablets of Knossos, because placenames fail to illuminate the historicity of Δαίδαλος/Daedalus [[131], 75].

Moreover, Morris supported that Achilles’ shield, as described by Homer [Hom.*Il.*:8:474-82], has never protected a Mycenaean warrior, because “its materials, bronze/tin/gold-and-silver, claim poetic attention” [[132], 11-2].

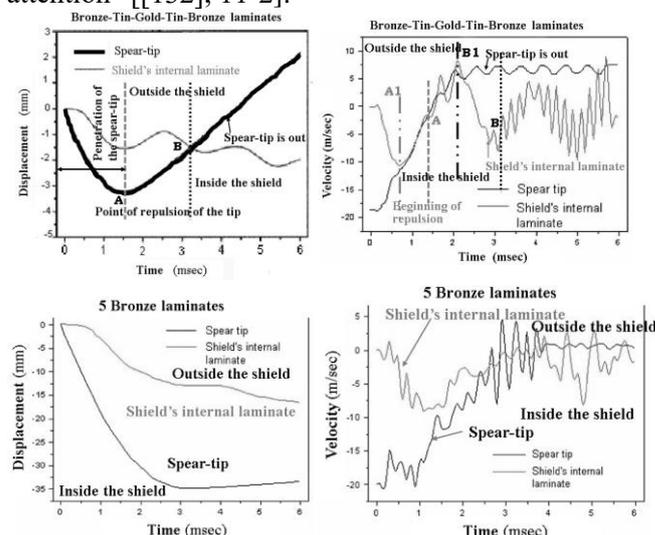


Figure 29. Lab-tests: (upper) Achilles’ shield: after 1,5msec the spear-tip is stopped and repulsed, while after 3msec, it moves outside the shield: (left) the displacement of the tip, (right) the velocity of the tip. (Lower) a five bronze laminates shield: the spear-tip penetrates it: (left) the displacement of the tip, (right) the velocity of the tip [[139], courtesy of professor Kostopoulos].

1) Profesor T.P. Tassios ([[133], 27-32]; [135]; [136]; [137]; cf. [130]) refuted these theories by recording Mycenaean projects and by “sampling Morris [131] and Penglase [138] and their occasional epistemological flaws”. Furthermore, he argued that the autochthonous technical development should be the first alternative to be investigated since – anthropologically speaking – Technology is a universality, by definition, while Science and Technology are not the meticulous accumulation of

speculations. Furthermore, professors Paipetis(†) and Kostopoulos, at the University of Patras, performed experimental archaeology in the laboratory ([[139], 122]; [[141], 183-91]) by throwing a spear against an ‘Achilles’ shield’ of five metallic layers/laminates, i.e., bronze-tin-gold-tin-bronze, and against one bronze shield of five-layers/laminates (each layer=1,5mm width). Their results (**Fig.29**) show that the tip of the spear pierces completely the bronze shield and creates a significant hole, while it only penetrates through the two outer layers of ‘bronze and tin’ of the Achilles’ shield and, after reaching the golden core, bounces back out of the shield. These experiments prove that the Iliad describes an *effective Mycenaean know-how*, and not something that ‘claims poetic attention’.

2) The Levantines called themselves either kn’n=Can’-ani from their Land (ca-na-na-um/ca-nana), or by their city’s name (Tyrians, Sidonians); ‘Phoenicians’/‘Φοίνικες’ and ‘Phoenike’/‘Φοινίκη’ appear after-1200 B.C.,’ according to professor Aubet [[142], 8-12], an expert in Phoenicians, and, consequently, ‘Phoenicians could not transfer Technology’ anywhere before 1200 B.C.. Furthermore, ‘*Po-ni-ki-jo-pho(i/e)nikio-φοινίκιο*, of the Knossos tablets, was produced in large quantities at southern Crete, and was widely used as food; po-ni-ki-jo was most likely the term for palm-date(s) (Fruits of palm-tree=‘phoenician-tree’=φοίνικας-δένδρο in Greek) without any relation to ‘Phoenicians’, who had not yet appeared in History’ [[143], 81-3].

3) Regarding the origin of Daedalus and Hephaestus, the Ugaritic-tablets were redated to 1185 B.C. most likely (or 1350) by Smith and Pitard [[144], 7-8] who revised the dating 1400-1350/1380-1350 B.C. of Smith [[145], 1]. Daedalus and Hephaestus were not ‘Homer’s final’ poetic (750-700 B.C.) ‘concept’, since Knossos-tablets (1400(-) B.C.) had already mentioned Daedalus and Hephaestus:

Pre-Hellenic [[36], 94] Δαίδαλος/Daedalus is included in a list of gods [[146], 257-61]; he had already been a venerated hero/god in the Mycenaean era ([[111], 263]; [[159], 70]; [[89], 708]; [[151], 142]). Daedalus’ sanctuary was located inside the Knossos Palace [[148], 196]; it was signified by the substantive adjective (in accusative of singular, with -δε suffix) *da-da-re-jo-de=Δαίδαλειόν-δε* [[148], 196], ‘not surprisingly, given the close mythological connections of Daedalus with the Palace’ [*ibid.*]. ‘The *-e-jo/-eios* ending does not correspond to any type of the Greek language [[111], 258], is frequent in Knossos which is nearer to the Minoan civilization [[111], 262], and is related to the “pre-Hellenic *-e-ja/-eĩa* ending [[111], 248-9]” in the pre-Hellenic

language’ ([[111], 261, 260-2]; [[152], 726, n.8]). The Palatial ceremonies at Knossos were performed ‘at the Court of the Palace, a ritual arena for Court-based ritual activities’ [[154], 65-6] devoted to relevant gods as Daedalus [cf. [[148], 205]]; ‘the Court remained the ceremonial core of the community for almost two millennia, since Final Neolithic IV [[154], 65, 34, 64-68, 41, 43, 46],’ namely at 3300-3100/3000 B.C. [153, xi].

Ἡφαιστος/Ἀφαιστος/Aphaestus originates likely from the unaspirated theonym Ἀφᾶ/Apha [[111], 230: n.103, 157: n.309, 54: n.39]; after a post-Mycenaean turn Ἀ>Α, it sounded aspirated [*ibid.*]. Ἀφᾶ was used as divine toponym/placename like Ἀθήνη/Athēnē and e-ra”Hrᾶ [[111], 108: n.50, 260: n.132]; a-ta-na=Aθῆνα/Athens ([[147], 241, 235]; [[148], 205]) e-ra”Hrᾶ ([[111], 89: n.75, 228: n.89, 131]; contra: [[147], 188]) and a-pa-i-ti-jo/hĀphai-stios ([[111], 24: n.13]; [[160], 188]) are pre-Hellenic [[158], 87] placenames, namely ‘a legacy of the EBA pattern of settlement before the arrival of the Greeks’ ([[109], 14]; cf. [[161], 26]; [[162], 152]). EBA is radiocarbon dated to 3600/3200-2090/2000 B.C. ([[163], 169]; [**Fig.30** below]), since ‘a cultural break speaks about the “coming of the Greeks” at EHII c.2600/2100 B.C.’ [[148], 204].

Consequently, the pre-Hellenic theonyms-placenames predate 2600 B.C.

However, chthonic [[166], 278] god dGú-šar/Gaṭaru [[339], 1:237-41], of post-2350 B.C. Ebla [[340], 16-8, 120], ‘identified as the Ugaritan *ktr/ktrt/kšr/kšl=ka-ša-ru/ka-ša-lu* ([[300], 58, 125-6]; [[300], 170]; [[298], 296-7]; [[301], 28]; [[302], 54: “*s/*š function as merger of *θ-sound with*s/*š-sounds”) = Kōtaru-wa-Ḥasīsu, meant “*skillful*” [[165], 1-3], ‘*proper*’ ([[164], p.23], [AHw, p.461-462]) or ‘*he who repairs*’ [CAD, 284-286] and had ‘Sumerian Enki and Hephaestus as functional equivalent deities’[[166], 280-1, 174-9].

Since Daedalus and Hephaestus are traced to a pre-Hellenic era much earlier than Kothar/Kōtaru and definitely before dGú-šar/Gaṭaru, therefore *their myths do not ‘originate from the Levant’*.

4) Furthermore, the Levantine élites accepted the supremacy of Cretan know-how and technology, and respectively configured the religious local tradition for the Palaces of their divinepantheon. Ugaritic-tablets (1350/1185 B.C.) show that the goddess Anat invited the god Kothar-va-Hussus/Hasis from Crete – where his throne and Palace were located since Egypt was his inherited Land – to the Levant ([[166], *ibid.*]; [[119], 83-6]; [[167], 239-40]) to build the Palace of god [[145], xxiii] Baal. The Levantine Kings imitated their gods for their royal palaces. The Mycenaean King of Crete ‘permitted’ obviously the

– attached to his Palace – craftsmen to work in the palaces of his Levantine allies, satisfying their requests. Herennius Philo [[*TLG-Fragmenta* 2:87-94], from Byblos, identified Kothar-va-Hussus/Hasis-Χρυσῶρ-Χουσῶρ as the inventor of iron and connected him with the Olympian-Gods *Hephaestus* and *Zeus-meilichios*/*Ζεύς-μειλίχιος*. We recall that Zeus had been raised in Crete (from where Anat invited a ‘god-engineer’) and mastered the (know-how of) thunders. His son Hephaestus possessed the know-how for metallurgy. After the rebuttal of the old theory about the Hittite monopoly of iron ([168], 219-21); [[169], 24-5]; [[341], 270-2]; [[342], 167]), during the second millennium B.C. it could be inferred that Keftiu/Crete possessed the know-how for this, difficult to process, luxurious metal [9], 58].

The *Cretan technology* was apparently highly appreciated and imported by the Levantine and the Egyptian *élites* by 1500(+) ([156], 119-120); [[117], 50-5]; [[10], 752]), and that equates to a flow of *technology from Greece to the Levant*. To validate this theory, we should extend the investigation to the beginning: the Neolithic era.

4 Archaeological Evidence for the Neolithic Origins of the Copper Smelting Technology

The orientalism followed the social evolutionary schemes of Lubbock [171], Morgan [172] and Childe ([173]; 174); [175]). Childe argued for a hyperdiffusion of inventions of bronze/copper-production from a mother civilization in the Near-East towards the rest of Eurasia. According to them, it occurred coincidentally, when the social complexity and civilization appeared for first time in these far-apart regions given that the know-how necessary to transform ores into metal was too complex to have been invented more than once. Levantine itinerant metalsmiths/furnace-smelters migrated and formed *islet-colonies of foreigner smelters*, as agents of technological and social change and development of civilization in Eurasia [[176], 504-12].

4.1 Levant and Balkans

Nevertheless, similar large-scale mining activities for lithic materials (mining shafts, flint mines) had already been established in the Neolithic era [[177], 73]. Renfrew ([179]; [180]; [181]; cf. [182]) used radiocarbon dating to demonstrate that European metallurgical-sites existed earlier than similar sites in

the Near-East. The earliest evidence for crucible-based copper-smelting has been found in Vinča culture, Belovode Serbia, dated to the mid-late sixth millennium. The Vinča-culture presents strong links with Dimini-V in Greece ([183], 2777-8); [[184], 236-8]; [[185], 1]). The earliest evidence in southeastern Iran is dated to 5200-4500 B.C. while in the Near-East/Levant to the mid-late fifth millennium ([187], 302-3); [[188], 181]; [189]; [[191], 309-12]) or fourth millennium B.C. ([192], 126); [[193], 96]), namely, several hundreds-of-years [[195], 14-7] or *1.000(+) years later*. The pre-6000 BC copper-objects in Asia Minor (Çan-Hasan, Çatalhöyük) and at Zagros mountains in Iraq are not products of smelting ([195], o.c.); [[196], 21]; [[197], 5]; [198]). Furthermore, *itinerant skilled metalworkers in foreign cultures are ethnographically rare* ([199], 113); [[200], 447-67]), while various independent metallurgical-centers of domestic-production had developed throughout Eurasia [[195], 9-11], evidence that is non-compatible to *‘islet-colonies of itinerant foreigner smelters’*.

Gamble (2007, 61-62) deconstructed the unique “Originsland” as also, Wailes [202], Anthony [204], Chapman [205], Gilman [206] in a volume ([203]) in memory of Gordon Childe(!). The lithic civilization has gone one step further than merely hammering native copper ([207]: definition/description); [[192], 93]; [197]; [198]; [208]), by using the knowledge that heating copper with fire ([209], 118-9); [[210], 133]; [[177], 73]; [[211], 146-7]) caused it to soften so that further processing could be made. Heating in a form of ‘annealing’ for lithic materials, flint (quartz) and obsidian had been developed in large-scale mining during the Neolithic era before the earliest use of native copper ([177], 73); [[212], 342]). Quarried obsidian at Melos, in Greece, is evidenced from EN-beginning (6500/6300 B.C., **Fig.30**) [[213], 180-4: *with obsidian-quarries’ photos*]. Although the annealing temperature was often as high as 800°C, no melting had been achieved: a forced draught would have been necessary to reach the melting-point (1083°C/1981°F, see [[212], 343, 347-52]). The fact, that no permanent pottery kilns are known from the Neolithic period and that the start of extractive metallurgy can be equated with the use of such kilns, supports that copper-melting started either by accident, or by intention in a pottery-kiln ([212], *ibid*); [[195], 16]. Cf.: [[214], 2, 7], [[192], 97-8, 122, 144], [[215], 465], [[197], 2], [216], [217], [[218], 213-4]). Mining is rarely performed continuously throughout each year, but is a seasonal activity *carried out by a group of seasonal participants, who may*

Periods	Demoule/Perlès 1993 ^a	Tsirtsoni 2016 ^b	Renfrew 2018 ^c	Philippoi/Dikili-Tash ^d	Sitagroi/Photolivos ^e
Early-Neolithic (EN) Phase 1	6500-5800 ^f		EN: 6300-5600 ^f		
Middle-Neolithic (MN) Phase 2	5800-5300		MN: 5600(?)–4900	Period I = MN: 5450/5350-5150/5050 ^f	Phase-I: 5500-5200 ^f
Late-Neolithic (LN) Phase 3	5300-4800	LNI / LNIa: 5500(-)-5000 ^f	LN: 4900-4100	Period II = LN: 4700/4500-4350/3900	Phase-II: 5200-4600
Late-Neolithic (LN) Phase 4	4800-4500	LNII / LNIIb: 5000-4600			Phase-III: 4600-3500
Final-Neolithic ^f (FN) Phase 5	4500-3200	FN ^h / LNIIa: 4600-4000	FN: 4100-3200		Phase-IV: 3500-3100
Early Bronze Age (EBA) I	EBA: 3200-	FN / LNIIb: 4000-3400	EBA: 3200-		
Early Bronze Age (EBA) II		3400-3100			

^a The chronologies were taken from Demoule/Perlès (Fig.2, p.366), where they are written in a way that indicates most likely the beginning of each Phase.

^b After radiocarbon datings. The chronologies represent the "state of research prior to the "Balkans 4000" project" (Table 1) and, in this article, they were estimated after interpolation, since they are written in a way that indicates most likely the 'middle' of each Phase/subperiod; this is also supported by §15: "the LNI begins some time after 5500 cal B.C., according to radiocarbon dates".

^c In calendar years after radiocarbon datings (5568 half-life); "culture sequence and absolute chronology for the FN as reviewed after Renfrew 2017/1972, 76".

^d Treuil 1992a, 34-36: C¹⁴ datings.

^e Elster and Renfrew 2003a, xxvii.

^f Chalcolithic = Eneolithic = FN, the transition period between Neolithic and Bronze Age (BA), (Tylecotte 2002, 7).

^g B.C..

^h In some sites situated at Northern Greece and Bulgaria, FN began at the previous sub-period, at ca. 4800(+) B.C..

Figure 30. Neolithic chronologies of Greece from [225, p.366], [234], [236, p.76], [237, xxvii], [239, 34-6].

fluctuate from occasion-to-occasion and from year-to-year ([177], 73); cf.: [[219], 40-1], [[220], 49]. The strict specialization of 'itinerant permanent miners/smiths' was neither an organizational/socio-economic choice nor a technological one-way. The required expertise for copper-mining could have been gained through a continuation of pre-existing traditions of flint and obsidian mining [[221], 142-3].

4.2 Neolithic Greece

The quantity of metal finds from the Neolithic Greece increases almost every year. Most of these finds come from Phase-5, while a small number of finds come from Phase-4 (**Fig.30**), close to or even earlier than the datings from Serbia and earlier enough than the relevant datings of Levant ([222], 155-6); [[224], 78-80]; [[225], 394-5]; [[226], 8, 11]; [[227], 9-10]; [[229], 81-2]; [[231], 168-174]. Greece and Europe were obviously independent centers of invention of metallurgy ([179], 31, 29-38); [[233], 179-80, 183: "possible contacts with the Balkans").

The main sites and finds, until now, are (**Fig.31**):

Philippoi/Dikili-Tash ([[240], 34-6]; [[224], 76]): A tiny copper pearl of MN (6th millennium) was found, either from native copper, after hammering and polishing, or by annealing a copper oxide, such as malachite, in 8000C using a 'well-oriented' fire, while the copper melting at 11000C is, perhaps, attested. In level-14 of the archaeological site, many copper objects dated at FN (early-5th millennium) were unearthed [[241], 113-6]. These chronologies should probably be revised by almost 1.000 years earlier to the EN-period (6400/6200 B.C.) according to the most recent radiocarbon datings presented by Tsirtsoni (2016) [234], [304].

Photolivos/Sitagroi ([[240], 34-6]; [[224], 76]): Four metal objects of unintentional alloying (Phase-II), sherds with copper deposits, eleven copper objects and one golden bead were found. Three objects contained tin but not in the high concentration normally associated with deliberate alloying [[242], 302], see (**Fig.30**).

Dimitra (Serres) ([[243], 312, note389: "late-7th millennium"); [[244], 247: "late-6th millenium"): Five copper beads from a MN-period and four copper beads with two gold beads from a LN-period as Sitagroi I (sixth millenium) were found. They constitute some of the earliest copper finds in Europe and the earliest gold objects [[224], 76].

Makryalos, Pieria ([[245], 117, 112]; [[229], 81-2]): Sixty-one copper objects of the latest LN-period and twenty-seven objects of the earliest LN-period were found (6th millennium).

Dimini and Sesklo ([247]; [248]): Several finds (copper pins, axes and one gold earring) were unearthed from Phase-4 but within an unclear stratigraphic environment.

Mikrothives ([249], §34-35: photos): Three bronze leaf-shaped, double-edged daggers (similar daggers at Petromagoula, Dikili-Tash and the cave of Zas (Naxos)) with a manufacture requiring a rather developed technology, dated at LN-period, and eight tin plated bronze objects either from pure copper or from a copper-arsenic alloy, with surface enrichment of arsenic at 10-18% concentration, were unearthed.

Hagia/Aghia Marina, Fokis – today Amfikleia-Tithorea municipality in Phthiotis – ([[250], 163-6]; [[251], 286-7, 298-9, 260-3, 270-81]; [[252], 964]): One of the earliest finds for metallurgy in Greece was found (Phase-3 with Sitagroi II or even MN-period) according to Sotiriades (professor of Archaeology at

the University of Athens, Member of the Academy of Athens [253]), while there are disagreements ([225], 394: “not Neolithic”; [236], 116: “EBA-III”). On the contrary, Treuil ([254], 146, 148); also Blegen [162], 150) accepts Sotiriades’ dating, arguing that Renfrew did not present any argument.



Figure 31. The Neolithic places in Greece with finds of copper products. Cf. Ζάχος/Zachos (2010, 83) where a map is presented with many more Neolithic places in Greece with evidence of early metallurgical activities. [Designed by the author].

Attica: A copper axe from *Spata* (probably FN/EHI-period), in *Zagani* a copper pin from the 3rd layer of the *Kitsos cave*, a copper slag and 34 pieces of litharge from the FN/EHI-period in *Merenta* were found. Litharge is a by-product of the cupellation of argentiferous lead during silver-production and its presence directly attests the practice of this process in Attica since the mid-4th millennium B.C. as terminus-ante-quem. Moreover, a ‘remarkable polymetallurgy’ appears by FN-period in the Aegean and Southeastern Attica. Two sherds with spiral motifs, characteristic of the chalcolithic eastern Balkans, lead to a probably higher dating of this earlier metallurgical evidence ([255], §50, 34; [256], 57, note64; [257], 78-83). At gallery-3 of the ancient mine in *Thorikos* [258], the findings of LN-FN pottery do not establish a clear link between pottery and the early mining activities in *Thorikos*. The earliest sherd is dated at on the 5th millennium B.C.

Kephala, Kea [259], (analyses by Konofagos), 3-4, 24-5, 66, 79, 88, 108-11, 113-4): Four pieces (tools or artifacts) from almost pure copper, crucibles and a slag were unearthed, evidence for copper

production during LN (mid-fourth millennium; however, one only radiocarbon-dating was performed on seeds and gave early-third millennium).

Ftelia, Mykonos: A small collection of copper objects, especially awls and pins, and a circular gold disk with a central perforation were unearthed. Ten calibrated radiocarbon dates support 5000-4500 B.C. [260], 153-155: “early-LNI/early-5th millennium”.

Yali, Nisyros [261], 8, 2-3): Socketed and non-socketed crucibles were found from the early-fifth millennium. The closest contemporary parallels for both types of crucibles are from *Thermi III* (Lesbos), *Chalandriani* (Syros), *Sitagroi III*, *Sesklo*, *Mandalo*, *Petromagoula* (possibly).

Cyclades ([262], 21, 3); [263], 113-5; [265], 159-62; [264]): Metal artefacts with the first remains of metallurgical activities (cf. [259], 4) appear during the FN, while the only possible LN example is the gold plate from the *Cave of Zas*, *Naxos* (stratum-I [267], 154, LNII [268], 125). The furnace with numerous perforations presents a design common to the southern Aegean since FN at *Kephala* [259], pl.22; “mid-4th millenium” (also, EHII at *Raphina* [269], 80-1, EC at *Sideri* and *Aspra Spitia* (Kythnos) [270], 44-7), at *Fournoi* and *Avesalos* (Seriphos)), with “no such evidence for copper-smelting outside the Southern Aegean: it was a local and independent metallurgical tradition for at least 1000 years” ([271], 123, 127-8; [272], 209; [273], 277-280, 287: evolution of copper-alloys).

Crete: Small pieces of azurite (as cosmetic) were discovered in a layer of 6000 B.C. [214], 1). At *Petras Siteia*, a FN or FN/EMI-transition pyrotechnology activity is evidenced [274], 160-4). At *Crysokamino*, sherds of FN constitute a probable but uncertain evidence of metallurgic activity [267], o.c.), although the excavator Betancourt [275], 65) notes that all the FN pottery finds are (with one surface exception) from within the slag-pile.

The early metallurgy in Greece should be dated to the ‘late-LNI’-‘early-LNII’ (‘late-“5500-5000”-‘early-“5000-4500” B.C., by recent radiocarbon-datings presented by Tsirtsoni [234] (see Fig.30), an era which corresponds to the early-Chalcolithic in the Balkans. A detailed examination of the Greek Neolithic underlines its originality. It was part of a larger LN-FN southeastern European koine, which does not – obviously – mean that its features have their origin in the Northern Balkans ([267], 82; [225], 394; [276], 3-4; [216], note59; [277], 29-30: “early-5th millennium”). It was the result of a self-evident exchange-procedure among the groups of people living in this extended area. This was a cultural phenomenon leading to the adoption of

common technical achievements, but with variations in production-systems which operated at different temperatures and redox environments [[278], 28]. Several artefacts from Aegean Spondylus-shells [[213], 188, map116: *distribution of Spondylus-shells in Europe*, 193: photo] were found in sites of Vinča-culture, since networks of long-distance exchanges existed between the Aegean and the Balkans ([[234], §15, 20-21, 18, 36]. Cf. [[213], 180, 186], [[279], 1861-4], [[222], 157], [[259], note10]).

It appears that:

1. During the Copper Age, the zone from the Carpathian area and the Balkans until the Iranian highlands may have been an innovative center of copper production. The co-production of know-how and innovations, among interconnected societies from different regions, would have been quickly adapted and modified by the receiving societies [[218], 213-4].

2. The classical diffusionist position on the primacy of the Middle East and the Levant in relation to areas of Europe seems incapable of accounting for the current archaeological evidence [[279], 1861-2, 1864].

5 THE FALL OF TROY IN THE ANCIENT LITERATURE

The ancient Greek Literature describes many Achaean expeditions against Troy, besides the Trojan War described by Homer; the Iliad and various ancient authors presented divergent versions about the Fall of Troy. The ‘*Homeric Question*’ arises: *how have the Epics been formed in their current form through the centuries until the present day?*

This Question is related with the composition, date, probable variants and/or additions to the Epics. A debate is ongoing about whether the poems were compositions-in-performance in an oral poetry tradition, dictated to writers by poet-performers, or recited from written texts. There are five periods of formulation of the Epics, from the early-second millennium B.C. to Aristarchus of Samothrace at the library in Alexandria (c.150 B.C.) ([[289], 1, 65-112, 41-2]; [[280], 311, 83-7]; [324]; [326]; [[328], 112-5]; [[329], 25-32]; [330]; [[331], 1-13]; [[332], 151, 154-9]; [[291], 88]; [[282], 257-8, 287]).

Aristarchus produced a reconstruction (*koinē*) of the Athenian Homeric textual tradition, based on the majority of surviving *convergent variants of the Epics*; the *divergent variants*, which he called ‘*khariesterai*’=‘more refined’ manuscripts, were

‘*athetized*’=‘omitted’ ([[328], 155-8]; [[333], 623-51]; [334]; [[335], 585-9]) from his version, accommodated in separate papyrus-volumes, named ‘*hupomnēmata*’/‘*Scholia*’ [[324], 92-3]. Several variants have survived in ancient Greek authors too. Mytilene of Lesbos, supposedly representing all the Aeolian-speaking Hellenes, claimed the Iliadic territory of Aeolian Sigeion and was led to war against the Athenians, obviously due to the strategic position of Sigeion at the entrance of Hellespont. The

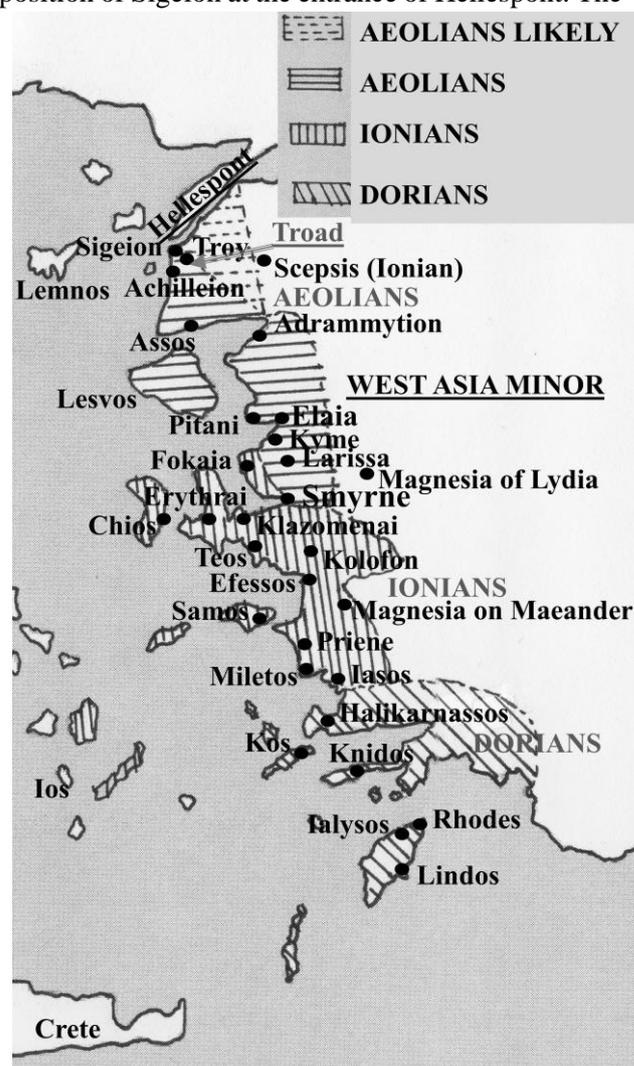


Figure 32. Colonies of the Aeolians, the Ionians and the Dorians in Asia Minor; [based on [[338], 46], [CAH II-2:774]].

Aeolians had founded Sigeion, Achilleion and New Ilion (on Ancient Ilion) and maintained strong symbolic bonds with Troy by using stones from Troy. The Athenians defeated Mytilene and, followed by the Ionians of Scep sis, claimed incorrectly that it was Scep sis which was built on the ruins of Troy [TLG-Str.Geogr. 13:1:53:1-22], and not present-day Troy, aiming to impose their propagandistic version and support their claims on Troas. For this purpose, they

supported that ancient Troy had been destroyed totally by the Achaeans and was left uninhabited [[280], 135, 146-7, 189-92, 205-6, 210]. This version was adopted and supplemented by the Romans: Aeneas had left a ruined Troy, migrated, and founded Rome [[280], 197, 207-11]. Ephorus (405-330 B.C. [336]) of Aeolian Cyme, ‘the most important city of Aeolis’ [CAH II-2:780], ‘discussed the mythical era’ and ‘named *Aeolis* the entire area from Abydos to Cyme’ ([337], 159, 142); [TLG-Ephorus.Fragm., ‘2a,70,F,163b.’]), a claim that is compatible to the distribution of Greek dialects (**Fig.32**) ([338], 46); [CAH II-2:774]).

The Ionian poetic tradition has preserved that Aeolians had migrated to Lesbos before the Fall of Troy, which ‘is supported by archaeological evidence’ [CAH, II-2:778-9], and to Asia Minor and the seashores of Troas relatively early in the Dark Age [ibid., p.780], namely at 1100-1050 B.C. [[8], 149]; they inherited obviously local traditions of Lesbos and Troas. Aeolian historian Hellanicus of Lesbos (480-395 B.C. [308]) maintained in Τρωικά/Trōika that Troy was not destroyed totally; some of its population survived and rebuilt Troy as ‘New Ilion’ under a new ruling Dynasty: Ascanius, the son of Aeneas, together with Hector’s son, Skamandrios, ruled New Ilion. Later, after the Aeolian migration, the Aeolians expelled only the descendants of Aeneas, who founded Rome afterwards [[280], 178, 189-201, 69-73]. In the Iliad [TLG-Hom.II. 20:180-5, 302-6, 329-31]:

a) Achilles blames Aeneas as having the unachievable hope to become King of Troy, and,

b) the Gods of the winners, Poseidon with Hera’s assent, protected and saved Aeneas’ life, because Zeus ‘hated Priam’s generation and decided that Aeneas “shall be King/Ἰναζ” in Troy, during his “lifetime/βίη”, as his “sons-of-his-sons” too’.

In 1450-1050 B.C. ([8], 267-74, 312-3); [[281], 103]; [[282], 255-62]; [[18], 85-7, note297]; [[17], 206, 279]. [[283], 521]; [284]; [285]; [280]), apparently after the Fall of Troy, at the mainland Greece and, after the Greek migrations (1100-1050 B.C.) at the eastern coasts of Aegean Sea ([353], 218); [[8], 249 n.74, 312-3, 377]), palatial *singers-aoidoi* [[356], 39] sang stories about Troy to audiences aware of the story ([354], 90); [[357], 11-2, 16, 18]) and the recent to them royal succession at Troy. Therefore, ‘Zeus’ decision’ [TLG-Hom.II. 20:302-6] should have reflected the actual royal succession, otherwise Zeus’ indisputable power/rule ([354], 89); [[358], 434]; [[290], 141-2]; [[289], 84-5]; [[280], 105-6, 71, 101]] as supreme God would be challenged.

According to divergent variants:

–*Dardanian king Aeneas, ally/ἑπίκουρος of Troy*, who had been scorned by Alexander/Paris and excluded from his prerogatives by Priam, either *overthrew Priam and became one of the Achaeans* (quotation of Menekrates from Xanthos located in, the *ally of Troy*, Lycia) ([TLG-Dion.Halic.Antiq.-Romanae 1:48:3:1-11, 53:5:1-11], [TLG-Procl.Chrestomathia 1:248-251]), or retreated to mount Ida and negotiated with the winners for his relocation [[280], 196-8].

–Antenor, whose two sons were second-in-command under *Aeneas* in Dardanians, had hosted Menelaus and Odysseus in his house/‘μεγάροισι’ inside Troy during the War [Hom.II. 2:819-823, 3:203-207], while before the Fall, Antenor visited the Achaean Camp and negotiated with Agamemnon to deliver the sacred Palladium and Troy to Odysseus [Δίκτης/Dictys.Eφημερίς/Ephemeris iv:22, v:8 see [359]]; for this reason, a leopard’s skin was put in front of the doors of Antenor’s house to be left unpillaged (*Strabo quotes Sophocles*) and Antenor with Aeneas with a group of followers safely escaped [TLG-Str.Geogr. 13:1:53:1-22].

6 THE FALL OF TROY, BASED ON ARCHAEOLOGICAL EVIDENCE OF MYCENAEAN TECHNOLOGY IN TROY AND AT THE LEVANT

A multitude of archaeological finds suggests that several reconstructions of the Walls of Troy occurred, due to ‘numerous Trojan Wars’ [[303], 38], after:

1. Some Threats/Defeats(?), which pushed the Trojans to construct the 1,00-1,30m thick Wall at Early VI.

2. Attacks, which at early-VIe (1500-c.1490 B.C.) led to:

a. the construction of *Section 5* (2,70m width), *most likely* an initial phase to strengthen the pilaster-Wall of the Western/‘Scaean(s)’ Gate(s), since,

b. the *First Reconstruction* followed right after, with a general increase of the Wall-width (1,20m→3,50m) on the existing plan-view.

3. Two defeats, which are associated with *the demolition of the non-visible Walls, shifting outwards and (re-)building at the location of the today visible Walls*. The non-visible Walls ‘had neither perished in a great catastrophe nor been thoroughly destroyed’, as it occurs after a devastating Fall and sack of a city, ‘but were gradually replaced,’ along a:

a. shorter length, at 1425(-)/c.1410 B.C. (*Second Renovation*), since until 1400 B.C., the Pillar House touched the non-replaced earlier Wall and ‘served a military purpose’ *with finds which point towards a pre-1400 B.C. siege.*

b. Larger length according to defensive standards ‘*corresponding more to the Mycenaean West,*’ *approximately one generation later* (1400-c.1390 B.C., *Third Building Stage*), contemporaneously to *Blegen’s vigorous housecleaning and the consequent increase of Mycenaean objects of daily luxury in the, built with Mycenaean building standards, Houses of the Reigning Family inside the Walls, which ‘were discovered in association with much Mycenaean pottery.’*

We recall the raids of the Argonauts and Hercules *one generation before the Trojan War.*’ The ‘demolitions’ of the Walls, in 1425(-)/c.1410-c.1390 B.C., are compatible with captures of Troy and pro-Achaean changes of:

i) King (Laomedon→*Priam/Πριάμος*), after a capitulation of Troy, the ‘*purchase*’ and enthronement of ‘*Priam/“Purchased”;*’

ii) Dynasty (Priamids→*Aeneads*), *after the demolition of Wall-sections of Troy* to fit the Trojan-Horse, *an act that has been exclusively related to the Fall.*

The results of geological research illuminate the descriptions about the ‘*Scaean Gates.*’ After 1400/c.1390 B.C., the *wagon/chariot-traffic*, through the Western/‘*Scaean(s) Gate(s)*’ (VIU-VIUF-h and VIUi-k), was very difficult or impossible *due to elevation differences.* Consequently, *the Iliad maintains a pre-1400/c.1390 B.C. memory of the Gate VIUF-h with ‘the most unhindered passage of vehicles,’ the ‘Tower-like’ Bastion e-d-c and the weak Section 5 (2,70m<3,50m of a-b-c-d-e-f-g-h).*

It must be admitted, however, that *the working hypotheses for such open questions of a too distant past can seldom be tested against established data;* in such cases, *the criterion of the ‘level of appropriateness’ (compatibility) is often used.*

The documented respect of the Eastern Mediterranean *élites*, during 1500(+)-1200(+) B.C., to the ‘*Cretan workmanship*’ in metals, the Aegean technique in frescoes and the Mycenaean architecture evidence a respectable Mycenaean King of high-status, who permitted his palatial artisans/craftsmen to work abroad and transfer technology to the East, in the sacred interiors of Palaces of Kings, who were related to him:

a. as allies in the Levant and Cyprus,

b. through probable diplomatic marriages (Queen Henti/(h)Ev-δη(ις)/(h)e-(n)-t-i(ς)) in Hattuša,

c. via earlier marriages (Hyksos, Aahotep (Ahmose), Hatshepsut-Thutmose, Akhenaten) in Egypt, and,

d. as representatives, enthroned by him, in Troy.

In Greece, obsidian had been produced in Melos by early-EN (6500/6300 B.C.); copper-smelting was probably the next evolutionary step after obsidian production, and appeared in Greece by the ‘late-sixth’-‘early-fifth’ millennium B.C., ‘several “hundreds of years” earlier than in the Levant.’ Minoan and Mycenaean Technology during EH-LH [[9], 52-56] constitute the natural evolution and continuation of this pre-existing know-how and could not have been imported from the Levant.

Therefore, the fortifications corresponding to the Mycenaean West and the Mycenaean objects of daily luxury in Houses of the Reigning Family at Troy, the Aegean finds with ritual significance inside Palaces at the Levant, Hatti, Egypt, and Cyprus and the respect of the Levantine and Egyptian élites to the Mycenaean/Cretan metallurgy, around 1400 B.C., align with the previously proposed ([11]; [9]; [10]) dating for the Fall of Troy (1400±(25-50) B.C.), during the heyday of Mycenaean power and Technology.

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