TROY AND ANATOLIAN EARLY BRONZE AGE CHRONOLOGY

By JAK YAKAR
Tel-Aviv University

The use of an absolute chronological framework based on tree-ring calibrated C-14 dates has been recently proposed by D. F. Easton in his attempt "... to come to grips with the crucial and difficult dating of Troy" (Easton 1976:146). Easton points out that unlike Tarsus, whose relative dating vis-a-vis Mesopotamia and Egypt is stable, Troy's relative chronology is not agreed upon and this "impinges not only on Anatolia, but on the Aegean and Bulgaria as well".

In establishing his chronology Easton uses, in addition to "the normal comparative methods", two sources: (a) radiocarbon dates which, after calibration, especially when using Suess's calibration curve, affect both relative and absolute dating, (b) his reassessed stratigraphy of the Bronze Age levels at Troy (Easton 1976; 1977).

Easton in his new chronological structure has not taken into consideration certain facts and opinions surrounding tree-ring calibrated radiocarbon dating. In view of the persisting controversy regarding this scientific dating method, it is premature, at least as far as Anatolia is concerned, to replace the relative dates derived from historical synchronisms with calibrated "absolute" C-14 dates.

The proposed C-14 dates by Easton and Mellaart (1977) not withstanding, it is by no means certain that an increase in the number of levels for Troy I—V and, as its consequence, the envisaged "change in the pottery sequence" (Mellaart 1977), can affect Anatolian and Aegean chronology.1

Another point in Easton's article which raises some questions is his over-reliance on Bulgarian and Aegean sequences to date Troy I. Troy's Aegean nature is disputed by some scholars. Both French and Mellaart regard it as closely related to Anatolia.2 Furthermore, questioning the pre-eminence accorded to Troy, French suggests that if Troy "is not a central site in the region (which I take as unproven) pottery connections across the Aegean are less valid, and the inferences from them for the cultural processes and interactions need more thorough substantiation" (1977). As for connections with the EBA of Bulgaria and Macedonia, in view of Troy's Anatolian background these cultural affiliations should be assessed within the chronological framework of Anatolian cultural development. Finally, it is proposed here that the internal chronology of Western Anatolia be established only after the sequence in the Troad is synchronized with that of Central Anatolia.

1 Mellaart proposes the following sequence for Troy: hand-made wares in Troy I; hand-made and wheel-turned kitchen ware in Troy II 1—5 (II a—d), followed by a burning c.2700 which marks the end of EBII. The last phase of Troy II, phase 6 (IIe—g), marks the disappearance of the old hand-made ware and much cruder wheel-made pottery appears, which continues after a great burning c.2550 B.C. through the successive settlements of Troy III, IV and V. Whether the wheel-made wares start to appear at Troy in the Ib phase (Blegen) or IIa phase (Easton) does not make such a difference, especially if the dates of Troy I and II are calculated in relation to Central Anatolian chronology.

2 French emphasizes the Anatolian origins of the Troadic development (1977). Mellaart also regards Troy and other northwest Anatolian settlements as closely related to their Anatolian neighbours. The recent excavations at Demircihöyük seem to confirm this view. For the EB fortification of Demircihöyük see Korfmann 1977a; 1977b; Mellink 1977:297).
The controversy surrounding the accuracy of calibrated C-14 dates:

The revised calibration curve given by Suess (1970), and now widely used by archaeologists, has recently come under severe criticism. Clark and Renfrew maintain that the chronological implications of the corrections to previously published radiocarbon dates have been important and to some extent controversial (Clark 1975:251; Renfrew 1973). It is further maintained that several alternative curves published recently are mostly unsatisfactory from the statistical point of view (Renfrew and Clark 1974; Clark 1975:251). Beside their deficiencies or difficulties in relating radiocarbon age to calendar age, the main criticism surrounding the various calibration curves is the large number of arbitrary decisions in deriving them (Clark 1975:251). Clark claims that most radiocarbon dates are not as accurate as most laboratories pretend, and consequently, the “kinks” and “wiggles” in Suess's calibration curve are not justified statistically. Even Suess does not refute Clark's criticism completely (Suess 1976:61—63). The accuracy of any calibrated radiocarbon date depends on a combination of three factors, namely (i) the accuracy of the observed (uncalibrated) radiocarbon date (usually expressed in terms of its standard error), (ii) the standard error associated with the fitted calibration curve and (iii) the shape of this curve (Clark 1975). A criticism of most previous work on the calibration of radiocarbon dates is that formulae for the accuracy of these dates are either incorrect or nonexistent (Clark 1975:255).

Evans has correctly remarked that charcoal found in the debris of a burned out site will give the time the tree was cut-down, and not the time the site was destroyed (1977:83—84). Moreover, only the outer growth ring of the tree would have been exactly in equilibrium with the atmospheric radiocarbon content in the year that it was cut down. Thus Evans suggests that there is bias toward early dates built into the radiocarbon method of dating. He furthermore maintains that the history of the atmospheric C-14 fluctuation is not yet clear. Not long ago, Braidwood drew the attention of both archaeologists and scientists alike to the likelihood of geobiochemical contamination of samples (1967:39—44). He warned that percolation of rainwater and humic acid, unnoticed rootlets, contextual disturbance through animal holes, man-made pits from higher levels and so on would normally add more recent traces of radiocarbon to samples in situ, hence make the determination appear to be more recent than anticipated. On the other hand, unnoticed contamination by substances containing very old radiocarbon, for example through percolation of melted bitumen, oil or natural gas into charcoal samples, would yield a much older radiocarbon age (see n. 22).

In Europe, where there is no alternative to using radiocarbon dates, the relationship between areas dated solely by this method are not changed. However, the great hiatus comes when areas that have calibrated C-14 dates are compared with areas that are dated by historical means (Renfrew 1971b:69). Renfrew suggests that this hiatus may be likened to a geographical fault; the chronological “fault line” extending across the Mediterranean to Southern Europe (Renfrew 1971a; 1973:103—106). This line divides all Europe except the Aegean from the Near East. As a result of this “fault line” the absolute chronology in calendar years and certain key links between the Balkans and the Aegean are ruptured (Renfrew 1971b:69—76).

As far as Anatolia is concerned, archaeologists are divided in their approach to the C-14 chronology. French is reluctant to use radiocarbon dates when they do not accord well with his “correlation” arguments. In his attempt to arrive at an acceptable date for the transition from Troy I to Troy II, he discounted the
Emporio C-14 date\(^3\) which was obtained from a level contemporary with the end of Troy I on the grounds that “the Emporio C-14 date perhaps refers to a stratum which is characterized by a pottery resembling, but not necessarily synchronous with, Troy I types, i.e. a derivative pottery, contemporary with Troy II” (French 1972: notes on fig.18). In dating Troy I French discounted the indirect evidence of the Karataş-Semayük C-14 results on the grounds that, unlike Mellink, he does not regard Karataş I–V as contemporary with Troy I but with Troy II (French 1972: notes on fig.18). He equally refused to use “the Sitagroi C-14 results (from Sitagroi V which is compared with Troy I and II)” because “the Trojan parallels (as cited Renfrew 1970, 302, e.g. clay anchors) are not necessarily Troy I either in time or in origin (see French 1968: 115 and n.193, 398, 403); if anything, the pottery could be Troy II or later . . . ”.

Mellaart on the other hand highly recommends radiocarbon dating because, as he puts it, it “eliminates faulty dating derived from over-confidence in the logic of pottery resemblances . . . ” (Mellaart 1977). He now equates Troy I with EB II, but puts its beginning to c.3500 B.C. contemporary with Uruk IV. He further stresses the dangers of comparative ceramic studies in chronological discussions as proven, according to him, by the “Gray Minyan controversy”.

Branigan’s approach to radiocarbon dating is a “flexible” one. He considers, as far as the relative chronology of Troy and the Aegean Bronze Age is concerned, the evidence for the historical synchronisms and compares them with the various C-14 chronologies such as the 5568 half-life, the 5730 half-life, McKerrell’s historical curve and the Suess tree-ring curve. He comes to the conclusion that “whatever one chooses to do with the C-14 dates in terms of corrections and calibrations they do agree in relative terms with the orthodox relative chronology” (1977). However, he suggests that determinations calculated on the 5730 half-life are more accurate and its adoption reduces to reasonable proportions certain discrepancies between Crete, mainland Greece and the Troad concerning the introduction of a number of technological innovations (e.g. the fast wheel, Troy IIb, Lerna EHIII and MMIA). He does not rely on the “historical curve” or the “tree-ring curve”, because in his view the transition from Troy I to Troy II cannot be earlier than 2400 B.C. (Branigan 1977).

There seems to be a consensus among most Anatolian and Aegean archaeologists that corrected C-14 dates should continue to be evaluated against relative dates based on historical synchronisms. However, in view of the present limitations of radiocarbon dates,\(^4\) it is preferable to take for experimental purposes, only the average figure of calibrated dates of samples from loci in the same cultural context.

**The chronological setting of the sequence in the Troad:**

The sequence in the Troad is based on the stratification of pottery groups of Hanaytepe, Beşiktepe, Kumtepe Ia, Kumtepe Ib, Troy I, Troy II, Troy II–IV and Troy V. An assessment of the pottery sequence in the Troad should take into consideration the following points:

\(^3\) The date of sample P-273 is 2025 B.C. ± 92 (Libby) (French 1972). The calibrated date in Easton’s chart is 2520 ± 97 (5568 half-life) (1976:170).

\(^4\) Prehistorians have a tendency to speak of the standard deviations that accompany C-14 dates as absolute limits. In fact a date expressed as 1500 ± 50 has only 95% chance of lying between 1600–1400 (Evans 1977:83).
(a) The chronological span of Troy "is not untypical" of other sites in the northwest. "Neither the absence of earlier material, nor the unbroken pottery sequence at Hisarlik-Troy (from Troy I–VII) are, in themselves remarkable" (French 1977).  
(b) There is basically no difference between the hand-made pottery of Troy I and Troy II.  
(c) Less emphasis should be given to the distinction between the wheel-made wares of Troy II and III–IV, than has previously been given (French 1977).  
(d) The Troad does not stand in isolation from the rest of Anatolia (see note 2).  
(e) The relative position of Troy I can be determined indirectly via the correlations of its successor Troy II–IV and its predecessor Kumtepe Ib–a.

The Hanaytepe and Beşiktepe material is considered roughly contemporary with Kumtepe Ia (Furness 1956; Yakar 1975:142), although some of the Beşiktepe sherds may antedate Kumtepe Ia (Sperling 1976:356). The Kumtepe Ib pottery, which has a wide distribution in the northwest, is ancestor to the Troy I culture. Sperling suggested that the beginning of Kumtepe Ic may be slightly earlier than the beginning of Troy I.  
7 The hand-made dark burnished wares of Troy I start to disappear after Troy IId (Easton's II 5). Wheel-made (fast), red-slipped pottery makes its appearance during Troy IId (according to Easton and Mellaart Troy IIa, = II 1). These wheel-made wares continue into Troy III–IV but are less refined than their predecessors (French 1968:147; Mellaart 1977).

The north-central Anatolian pottery sequence can help us demonstrate that the early phase of the EBA in the Pontus is to a large extent earlier than Troy I, but contemporary with the pre-Troy I cultures in the Troad (Yakar 1975). The characteristic feature of this Pontic pottery culture is the use of knobs as handles or for purely ornamental reasons. Also common is the use of "horned handles" representing schematized animals. More than any other factor, the large variety of decorative patterns helps us to trace the wide distribution of this pottery culture in Anatolia. The most popular decorative technique was incision, plain or white-filled, and white-painted linear designs. Reserved slip and pattern burnishing seem to have been used to a lesser extent. Decorative patterns using the incised white-filled technique consist of cross-hatched lines, dotted triangles, concentric circles and checker boards. This culture extends well beyond the province of Samsun-Sinop to Amasya and Çorum in the north-central plateau.  
8 The pottery of Yazır Höyük (Temizer 1960), Demirci Höyük IV (Bittel and Otto 1939:24, Korfmann 1977) and some pottery from Hanaytepe, Beşiktepe and Kumtepe Ia are related to this culture which displays certain south-east European EBA affinities (Yakar 1975). Since Troy I produced very few white-painted and white-filled incised wares of this early type, it could be suggested that a floruit of the style antedated Troy I at the sites in the Aegean basin.

5 French more or less accepts the sequence of pottery assemblages at Troy as presented by Blegen.  
6 Mellaart has correctly observed that if wheel-made wares are absent it is difficult to distinguish between the hand-made wares of Troy I and IId–d (Easton's II 1–5) (Mellaart 1977). Easton has also emphasized this phenomenon in his article (1976:153).  
7 This is hinted by Sperling because of the relative infrequency of incised decoration on pottery, the rarity of terracotta whorls and the occurrence of a pre-Troy shape in semi-coarse smoothed ware in the initial phase of Kumtepe Ic (1976:256–257).  
8 Recent excavations at Ikiztepe have shed more light on the EBA Pontic culture. See Yakar 1975; Orthmann 1963; Burney 1956.
At Alaca Huyuk this culture appears in the Late Chalcolithic (= EB I) levels (9—15). Two sherds of relief-decorated Early Transcaucasian EBI ware found in these levels (Koşay & Akok 1966:172, 73) can be used to synchronise the EBI of the central plateau with the EBI of eastern Anatolia. Some east Anatolian sites such as Pulur in Erzurum (Koşay & Vary 1964) and Gelinciktepe in Malatya produced numerous sherds which most probably belonged to imported north-central Anatolian EBI pottery (Palmieri 1967:172—176, fig.17). At Pulur they were found with relief-decorated pottery dated to EBI. At Gelinciktepe they are dated by Palmieri to the earliest phase of EBI, which precedes the Amuq phase H (1967:176). The excavations at Arslantepe-Malatya provide a “reliable” date for the beginning of EBI in eastern Anatolia. The level called by Palmieri EBI, horizon 1, produced a temple of Mesopotamian character (Palmieri 1973). Both the temple and its pottery content can be safely dated to the Jemdet Nasr—Early Dynastic I period (Palmieri 1977). Some “Büyük Güllüce” type pieces from Tell Chuera seem to confirm this synchronism. Therefore the pre-Troy I sequence in the Troad should be considered partly contemporary with the EBI of central and eastern Anatolia. In Mesopotamian terms the Hanaytepe, Beşiktepe and Kumtepe I a—b pottery groups can be considered to cover the time range of Uruk IV—ED III.

The evaluation of the Troy II chronology in accordance with the chronological systems of Mesopotamia and its alignment with key Anatolian sites has been the subject of numerous studies. Mellink’s equation of Troy II = Tarsus EBIIIa = Amuq I = Akkadian Dynasty (1965:116) has recently been adopted by Spanos in his proposal to establish an “absolute chronology” for Troy II (Spanos 1977a; 1977b). His synchronism Troy II = Akkadian Dynasty is based on the following criteria:

(a) The wheel-made pottery of Troy IIb was produced on a fast-revolving wheel. This implies that the wheel was not evolved at Troy but was acquired from Cilicia, the only region in Anatolia where it was used since EBII. According to Spanos, this took place in the Cilician EBIII period (= Akkadian Dynasty).

(b) The depa cup from Kültepe level 12 provides the synchronism Troy II (c—g) = central Anatolian EBIIIB = Akkadian Dynasty. The preceding level 13 at Kültepe has a number of circular tombs whose contents include gold jewellery which can be correlated with the EDIII grave goods from the Ur cemetery. The succeeding level 11 has some North Syrian imported ware of post-Akkadian/Ur III date (Spanos 1977b:94—95). A locally produced post-Akkadian “Syrian bottle” found at Troy III (Mellink 1965:116, Spanos 1977b:97) is considered as further evidence for the proposed synchronism.

(c) The vessels depicted in the Akkadian reliefs of Enheduanna and Maništušu are well known forms in the second settlement of Troy (Spanos 1977a; 1977b:101—104).

Kühne discusses some possible imports of Büyük Güllüce type pottery from Anatolia in the ED period at Tell Chuera (1976:104—105).

Easton’s assertion that the depa possibly were not widely used outside of Troy until Troy IV should be refuted in view of the fact that more than 95% of those found at Troy come from Troy IIc—g (Spanos 1977a; 1977b:96—97). A similar synchronism is offered by two examples of depa found in the final levels of Phase I (levels VIII—X) at Polath (Lloyd & Gökçe 1951). Fast wheel-made wares appear in quantity about the same time. In Phase II hand-made pottery was still used. In level XI (Phase II) red-cross bowls appear (= Troy IV—V). And in level XIII (Phase II) Cappadocian painted ware provides a synchronism with Kültepe 11 (EBIIIc).
The "depas" with a base and "red-cross" bowls from Troy IV–V can be compared with similar forms at Tarsus EBIIIb and Amuq J (= Ur III). These synchronisms require some adjustments which if accepted place the beginning of Troy II earlier than posited by Mellink or Spanos. Both Bass (1970) and Canby (1965) place part of Troy II within the second half of EDIII in Mesopotamia. Canby reaches this conclusion in view of similarities between jewellery moulds from Troy Ilg, Alaca Hüyük tombs and ED III Ur. Bass arrives at the same conclusion on the strength of similarities between pieces of a Trojan hoard (Ilg in date) and some jewellery from the ED III tombs at Ur. Kühne has also expressed some reservations regarding the synchronism Troy II = Akkad = Amuq I (1976:113–115), on the grounds that:

(a) The ED III phase at Tell Chuera has metallic ware "bottles", "smeared wash" ware and simple ware that are found at Tarsus EBIII(a). Also, Tarsus EBII is partly related in time with Amuq I through wheel-made corrugated cups and brittle orange ware. Therefore it is safe to assume that the change from Tarsus EBII to EBIII took place during ED III and Amuq I (1976:114).

(b) Two vessels from Troy II have their exact counterpart in the metallic ware jar from Tell Chuera ED III (1976:49–50, Pl.40:1).11

Fielden (1977) found a similar but unstratified "Stone Ware" vessel at Tell Brak (Sargonid phase?). While this shape is characteristic of ED (III) period in north Syria, it may have continued to be produced within the metallic ware repertory in north Syrian/Mesopotamian centres not destroyed by Sargon and Naram-Sin of Akkad.12

As for the tomb contents at Ashur (Maxwell-Hyslop 1977; 1971; Spanos 1977b:85), they certainly lower the date of certain pieces of Trojan jewellery. Maxwell-Hyslop maintains (1971:60) that if Hood's proposed date for the beginning of Troy II (2100 B.C.) is accepted, then the jewellery of Troy Ilg could be as late as the Isin-Larsa period (c.1900–1800).

It is important to stress here that scholars who advocate lower dates for Troy II based on "stylistic comparison" of precious artifacts from Mesopotamia and Anatolia, often disregard the possible chronological implications of different find spots. Had Troy Ilg not come to an end in a violent destruction most of the jewellery would have been discovered in a later context (contemporary with Troy III, IV or even later). As for the date of manufacture of the objects, a time range of Troy Ila–g cannot be discounted. Regarding the jewellery of "Anatolian likeness" found in the tombs of Mesopotamia dating from the Ur III/Isin-Larsa periods, there is a strong likelihood of their being "heirlooms". It is difficult to estimate the length of time over which these object changed hands, and it is often overlooked that at various stages their last owners might not have wanted to part with their "heirlooms".

11 No. 37.1117 (Blegen 1951:fig.401) was found in level d and classified by Blegen as "a gray polished ware". No. 35.646 (Blegen 1951:fig.401) was found in level g, and was described as an "early Aegean ware with 'metallic appearance' ".

12 The "metallic ware" was for a long time considered an Akkadian ware on the excavation evidence from Tell Brak. Kühne, on the strength of Tell Chuera and Harran stratigraphies dates it to the ED period. However he points out that material continuity in northern Syria from Early Dynastic to Akkadian times is locally rather different depending on the intensity of Akkadian warfare (1976:summary). For spanos's view on this subject see (1977b:107).
If the beginning of Troy II is placed in the second half of the ED III, then Troy I would cover a period which in Mesopotamian chronology coincides with part of ED I, ED II and the first half of ED III, in other words c.2800–2500 B.C.

The following chronological table illustrates the Troad sequence in relation to cultural and historical periods in Anatolia, Syria and Mesopotamia.

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<th>Troad</th>
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<th>N. Syria/Mesopotamia</th>
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The Internal Chronology of Western Anatolia:

As a result of numerous surveys undertaken by French in western Anatolia (1961; 1967; 1968; 1969), regional pottery groupings and their geographical boundaries are well known to us.

In the Late Chalcolithic/EBI period western Anatolia (including the western plateau) are divided between three to four cultural zones.¹³

¹³The first cultural zone includes the Troad and extends to the south of İzmir. The second zone is centred around İzmir and covers most of the southern Marmara region. Balıkesir-Akhisar-Manisa regions form the third cultural zone. And the south-western plateau including the lake district forms the fourth zone, and is represented by Beycesultan (French 1968:fig.29a).
In the EBII period these zones break down into smaller regions, which are subsequently (in the EBIII) submerged into a single large zone.\textsuperscript{14} However, throughout the third millennium B.C. and even earlier these western Anatolian regions are interdependent and to a certain extent intradependent (French 1977). In view of this interdependence the relation of the sequence in the Troad to that of Beycesultan, Aphrodisias and Karasta§-Semayük can decide the chronology of western Anatolia. In this context the relative date of the “Yortan” graves can also be established. However, to achieve an impartial assessment of the comparative material there should be two important prerequisites: 1. The assertion that Troy II characteristics occur in the southwest at a later date than Troy II period (Easton 1976:153) should not influence our evaluation of individual stratigraphies; 2. Negative evidence such as the disappearance of a certain type of pottery from one site or region should not be considered as conclusive evidence for one particular theory. There are other possible explanations.\textsuperscript{15}

One of the main problems in the internal chronology of western Anatolia is the alignment of Beycesultan XIX—XIII to the sequence in the Troad. Mellaart’s revised chronology (1971a) correlates Kumtepe Ib = Beycesultan XIX—XVII; Troy I = XVI—XV; Troy IIa—d = XIV—XIIIb; Troy IIe—g = XIIIa. French who accepted Mellaart’s original equation Troy I = Beycesultan XIX—XVII on the grounds of “probability” nevertheless pointed out that there was “no sound stratigraphic evidence” for this (French 1968:146—147). Now, with the publication of the Kumtepe material, the sequence of Beycesultan can be re-evaluated.

\textit{Beycesultan:} Certain developments observed by Sperling (1976:358) in some features of the pottery of Kumtepe Ia and that of Beycesultan Late Chalcolithic 2, e.g. in pattern burnishing, are of significance in relating the Beycesultan Chalcolithic levels to the pre-Troy I sequence in the Troad. Also, a distant resemblance exists between the pottery repertory of Kumtepe Ib and that of Beycesultan Late Chalcolithic 3 (Sperling 1976:358). An analogy to the vertically placed handles of Beycesultan Late Chalcolithic 4, which are often associated with carinated bowls, may be seen in a bowl fragment from the end of Early Troy I, or the end of Kumtepe I. It is safe to assume that Early Troy I = Kumtepe Ic was partly contemporary with Beycesultan Late Chalcolithic 4. Bowls of Troy shapes A6 (with angular shoulder and inward-sloping rim) are an important criterion in determining the chronological relationship of Kumtepe Ic and Early Troy I with Beycesultan (Sperling 1976:359). Bowl A6 occurs at Troy I and Kumtepe Ic. At Beycesultan, there are only two examples of a corresponding shape; one is from Late Chalcolithic 4 phase and the second from Beycesultan EB I phase (XIX—XVII). The Troy shape A12 occurs at Kumtepe towards the end of Ib and becomes very popular in Kumtepe Ic (they last to the end of Troy I). At Beycesultan a single bowl fragment of Late Chalcolithic 4 is related in profile to this shape, but there are at least a dozen pieces in

\textsuperscript{14}According to French (1968:fig.30) some of these EBII cultural regions are: İzni§, Eski§ehir, Troy, Bahkesir, Akhisar-Manisa, Beycesultan, Altintas, Kütahya, Kusura, Afyon, Akhisar, Elmalı, Acapayam, Burdur, Konya, Ankara and Tarsus.

\textsuperscript{15}In the case of the “scored ware” (see Karahüyük, p.00) numerous EBA centres were producing large storage vessels of this ware. It should also be pointed out that not the wares themselves but their contents were being imported, e.g. to Troy. The disappearance of such vessels can be interpreted in a number of ways, including the cessation of certain imports (those shipped in “scored ware” jars).
Beycesultan XIX—XVII that are paralleled to rim forms of shape A12 of Middle and Late Troy I.

The equation of Troy IIe—g = Beycesultan XIIIa, which is based on the assertion that the wheel-made ware did not penetrate Beycesultan until level XIIIa, and even then it did not become common, supplanting the hand-made wares, until level XII, contemporary with Troy III, is accepted here (see Mellaart 1977). A number of sites in the Akhisar/Manisa and Balikesir regions show a similar situation (French 1969:61—64). However, the material from Aphrodisias and Karataş-Semayük suggests that Troy II period in its entirety was present in most parts of the southwest, but some of its characteristics may have reached the more inland areas at a slightly later date.

In view of numerous correlations with Kumtepe and Early Troy I, the following equations can now be proposed for the sequence of Beycesultan:

- Kumtepe la = Beycesultan Late Chalcolithic 2
- Kumtepe lb = Beycesultan Late Chalcolithic 3
- Kumtepe lc = Beycesultan Late Chalcolithic 4
- Troy Early I = Beycesultan Late Chalcolithic 4
- Troy Middle and Late I = Beycesultan XIX—XVII
- Troy II = Beycesultan XVI—XIII

**Aphrodisias:** In the levels below Complex VIII (IX—XI) pottery characteristics such as black burnished inverted bowl rims, hollow pedestal bases, white-painted or incised white-filled linear designs can be compared with similar features at Beycesultan XVII—XIV and Late Troy I, Troy IId (see Kadish 1969:65). The gradual transition from the hand-made pottery tradition to the wheel-made tradition in Complexes VIII—VI, is very similar to the pottery developments observed at Troy II. The wheel-made and red-slipped plates, which are the hallmark of the EBIII culture, were found in large quantities in the Complexes VI—IV (Kadish 1971:137). Complexes VIII—I at Aphrodisias have many analogies with Troy II—V and Beycesultan XIII—VI (Kadish 1969; 1971). The face jar of Complex III can be correlated with those found at Troy IIg—III and the one at Karataş-Semayük. The tankards, *depata*, basket-handled tea-pots and dippers of Complex II can be correlated with those from Troy II. However, since the same complex has objects comparable with the artifacts of Troy III—IV (e.g. high-handed cups, small *depata*, upturned vertically pierced pointed handles), it could be assumed that the beginning of Complex VIII is contemporary with Troy IIa—b.

**Karataş-Semayük:** One of the main problems in the sequence of Karataş-Semayük is the position of the small mound vis-à-vis the numerous cemeteries, Trench 37 and other habitation areas. The best stratification so far comes from Trench 37 (Mellink 1968:249—259). The pottery found in the megara stratification can be correlated with the material of Troy II(b—g) period in the northwest, southwest and Cilicia. The storeroom of megaron 3 has produced large platter fragments (type A1 of the Troy publication) associated with the lug-handled spatula-impressed pithos. These large plates are characteristic of the Troy II, Tarsus EBIIIa and Aphrodisias Complex VI (EBIII) period. They occur at Karataş in clear association with the upper level and not in the earlier houses of Trench 37 (Mellink 1968:252). Behind the storeroom of megaron 3, inside a stone-lined pit (belonging to a later level?) was found a face jar which has been dated by Mellink as "a little earlier than Troy IIg". Another find of chronological significance is the simple lid with a loop-handle from the same trench. This (Troy D6 shape) does not occur later than level IIg at Troy.
Mellink, describing the contents of the tombs underlying the megara in Trench 37, comments that none of the tombs found in this trench can be associated with the Troy II period (Mellink 1968:254). It is therefore suggested that the underlying house plans of levels 3A–C in this trench would be pre-Troy II in date. Neither Easton nor French have so far presented convincing arguments to refute Mellink’s tentative chronological chart (1968:259), for the sequence at Karataş-Semayük. The synchronism offered by Mellink (small mound I–V = Troy I;16 the megara, tombs in the main cemetery and cistern = Troy II) is not accepted by Easton on the grounds that the C-14 dates from level II (2950 ± 62 B.C.) put the beginning of Troy II later than 2950 B.C. (Easton 1976:152), in contradiction to the Bulgarian C-14 evidence. French argues that sherds and pottery types which have been found in EBII levels at Karataş are similar to those in Beycesultan XVI–XIII (1968:33), so he equates the small mound I–V with Troy II (1972: notes on fig. 18). It is indeed significant, as observed by French, that west Anatolian 1- and 2-handled cups “do not seem to occur in Troy I, Beycesultan XIX–XIV or Karataş I–V” (1972: notes on fig. 18). This negative evidence can only strengthen Mellink’s interpretation of Karataş-Semayük sequence.

Iasos: The sequence of the slab-sided cist graves (rectangular and round in plan) has not been definitely established. The clay and marble vessels from these tombs and the tombs themselves are partly correlated with those found in the Cyclades (Pelos phase) (Coleman 1974:342). The latest pottery from Iasos could be, in terms of Anatolian sequence, Late Troy I and Early Troy II (Syros phase). Marble beakers found in the tombs can hardly be used for synchronization since they may have been heirlooms, or used in the Syros phase in the islands. What is certain is that the cemetery at Iasos belongs mainly to the EB II period of Anatolia. It may have been in use in the EBIIIa phase, but there is definitely no sign of its being a burial ground in the early EBI period.

“Yortan tombs”: French shares Mellaart’s view that the so-called Yortan type wares in the cemeteries of Yortan and in Beycesultan XVI–XIII are more elaborate than those found at Troy I, therefore later in date (French 1969:65).17 This may be the case, but it should also be pointed out that the dark burnished wares of Troy I and IIa–d periods in the Troad and İznik regions were seldom decorated with incisions, white paint or plastic knobs (French 1967:58), whereas these decorations were popularly used in the Akhisar/Manisa and Balikesir regions. Furthermore, the vessels of votive character, such as those found in the Yortan cemeteries or those coming from shrines (Beycesultan) tend to have shapes and decorations usually unmatched among vessels of domestic use (Troy I). In view of the date of Karataş-Semayük extramural tombs, it is possible to place the Yortan tombs within the Anatolian EBII–EBIIIa period.18

Karahüyük-Konya: Easton has used the stratigraphy of this important site to prove that his equation of Tarsus EBI = Troy I and Tarsus EBII = Troy II is correct (1976:157). His synchronism is based on three main assumptions: (a) Karahüyük VII is contemporary with Tarsus EBII because of the occurrence of “metallic” ware. (b) In level XXII the flanged lids are of Troy I type and cups with small loop-handles of Tarsus EBI type. (c) Levels XXII–XII have scored

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16Mellink suggests that Mound IV is roughly contemporary with Troy I (1973:296).
18For a short and comprehensive study of the Yortan tombs see Wheeler 1974.
ware which also occurs at Tarsus towards the end of the EBI (22—19m.) and continues into the EBII (Goldman 1956:108). It is also found at Troy from Middle Troy I to Late Troy II (imported). Since Karahüyük levels XI—VII contain no such ware, they should be contemporary with late EBI at Tarsus. The disappearance of the scored ware was contemporary in the Konya plain and Cilicia, thus suggesting that its absence from Late Troy II “should be accounted for by the same death of production and export” (Easton 1976:157).

Since the final report of Karahüyük excavations is still in the process of preparation, the preliminary results should be treated with caution as they are prone to changes. Easton seems to have realized the difficulties involved in assigning only one level (VII), as proposed by Alp, to the whole EBII period at Karahüyük, while EBI has twenty levels. In his chart he places levels XVI—VII with Beycesultan XIV—XIII and Tarsus EBII (1976:165). However, in doing this he did not take into consideration some of the facts concerning the pottery sequence of Karahüyük.

Alp has pointed out that levels XVII—XII material is comparable to that of Middle and Late Troy I (1964:116—117). In fact the so-called Early Troy I type lids were found in levels XXIII—XVIII. While incised decorated lids which show a resemblance to those of Troy I continue downwards beyond the XVIIIth layer, more archaic ones found in the lower levels predate Troy I. As for cups with small loop-handles, they do not appear in the lowest levels at Karahüyük, whereas at Tarsus they were found mainly in the upper levels of the EBI strata and in the EBII context as well (Goldman 1956:98, 118, fig.234, 250:210).

Regarding the scored ware, its absence at Karahüyük levels XI—VII and its occurrence at Troy I—II may not be as significant as it seems. The provenance of the scored sherds at Troy is not known (Blegen 1950:39, 45). They may have been imported from the Aegean centres as well. In Late Troy I an incised handle of “metallic” ware and some painted sherds of the same fabric have been related by Mellaart to the “metallic” or “red-gritty” ware of the Konya plain and Cilicia (Mellaart 1971b:370, 381; 1957:83; Blegen 1951:17, fig.250, 7). Mellink commenting on this EBII ware, concludes that the “metallic” ware of Karahüyük VII does not have an EBI ancestor in the Konya plain (Mellink 1965:113—114).

An important factor which should be taken into consideration when dating levels XI—VII is the “Intermediate ware” which appears at Karahüyük from level XI onwards (Alp 1964:116—117. 1974:545). If we are to assume that Konya plain wares found their way to the west and Cilicia as early as the EBI period, it is hard to explain why this painted ware did not appear in the central plateau before the EBIII period. The same may be said of the anthropomorphic jars. They were being produced according to Alp (1967:457; 1972:421) as early as Karahüyük VIII—IX, but again they do not appear in western Anatolia before EBIII. It may be argued that the sequence in the Troad or southwest Anatolia does not necessarily reflect that of the Konya plain. However, until more is known about the stratigraphy of Karahüyük, there can be no objection to some tentative readjustment of its upper levels in the context of West Anatolian chronology.19

19 In placing Karahüyük level VI within the time range of Cilician EBIIIA and Troy IIe—g, I took into consideration the fact that level VI produced 3 types of depas cups closely resembling those found at Tarsus and Troy (see Alp 1973:434). Regarding level VII at Karahüyük, there is no archaeological justification to limit its duration within the Cilician EBII period. It should be pointed out that the red-gritty ware tradition at Tarsus continued, though to a lesser extent, in the EBIIIA period.
### Summary

The proposed relative chronology for Anatolia will no doubt be further adjusted as more relevant data come from excavations (e.g. Demirci Höyük, İkiztepe, Arslantepe). However as long as this chronology is linked to the chronological systems of Mesopotamia and Egypt, any change in the calendar dates, either through improved C-14 dating or historical synchronizations (e.g. Egyptian objects at Tell Mardikh), cannot affect the relationship between the cultures of Anatolia.

Although the rather complex chronologies of the Aegean or south-east Europe are not within the scope of this paper, it is proposed here that in a chronological chart of the Aegean basin which includes western Anatolia certain facts regarding the sequence of the pottery groups in the Cyclades and Macedonia should be taken into consideration:

### The Cyclades

- The rolled rims on bowls of the Pelos phase are known in the Troad in the Kumtepe Ib phase (Coleman 1974:342).
- The “Temple Lane” group is stratigraphically later than ECII deposits. This group includes Anatolian types of pottery; depas and one-handed cups. Both shapes are also found in the Syros phase in the other Cyclades. A number of shallow bowls and plates have been found at Ayia Irini in deposits similar to the “Temple Lane” group (Coleman 1974:343).

### Table

<table>
<thead>
<tr>
<th>Troad</th>
<th>Aphrodisias</th>
<th>Karatash</th>
<th>Beycesultan</th>
<th>Karahuyuk</th>
<th>Cilicia</th>
</tr>
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<tbody>
<tr>
<td>Troy V</td>
<td></td>
<td>VI</td>
<td>IV</td>
<td></td>
<td>EBIIIb</td>
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<tr>
<td>Troy IV</td>
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<tr>
<td>Troy III</td>
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<td>III</td>
<td>Trench 37</td>
<td>XII</td>
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<tr>
<td>Troy IIg</td>
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<td>XIII</td>
<td>VI</td>
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<td>Troy IIc</td>
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<td>VI</td>
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<td></td>
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<td>VIII</td>
<td>(Megara 1–4)</td>
<td>(Tombs 1,41)</td>
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<tr>
<td>Troy Ia</td>
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<td>IX</td>
<td></td>
<td>XVI</td>
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<td></td>
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<td>V</td>
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<tr>
<td>Troy Ij</td>
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<td>XI</td>
<td>Mound I</td>
<td>XVII</td>
<td>EBII</td>
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<tr>
<td>Troy Ib</td>
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<td>VII</td>
<td>L. Ch.3</td>
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<td>L. Ch.2</td>
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<td>XXVII</td>
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<td>Hanaytepe</td>
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*Note: The table above represents a chronological chart for various archaeological sites and periods in Anatolia and the Aegean region.*
— Close similarities are not evident between the forms of Troy I period and those of the Grotta-Pelos group. On the other hand best parallels to the Troy I context may be found in the Keros-Syros complexes. This is further supported by the stratified pottery sequence at Keos (Ayia Irini) (Caskey 1972:363, 370).

— The Keos stratigraphy does not suggest an ECI occurrence of the glazed ware in the Cyclades, as assumed by Easton (1976:151) and Mellaart (1977). Therefore, there should be no objections to equating EC II = Troy I. The question is that the Troy I bowl found at Eutresis I (pre-EHI) contradicts the equation of EHI = Troy I (French 1968:162–171) based on the imported “Urfirnis” sherds. If it is impossible to accept both the Helladic or Cycladic “Urfirnis” sherds at Troy and the Troy I bowl at Eutresis (Diamant 1974:348) then the latter “evidence” can be rejected. This will be consistent with French’s view that “one must consider all and then choose a consistent set of alternatives” (Diamant 1974:348).

* Macedonnia:
— The Sitagroi stratigraphy reflects the pottery sequence between the Aeneolithic Gumeñiña culture and the Early Bronze Age (Howell 1973:91). The typical Baden features were found in level IV and links with Troy I culture could be seen in level Vb. The evidence at Sitagroi suggests that there may be a phase missing the Bulgarian sequence known from Karanovo and Ezero (Howell 1973:91).

— At Dikili Tash, Dehayes identified two EB phases (I–II) following the Gumeñiña period (1972). The EBI (levels 12–26) has a pottery culture with strong Danubian elements. The second phase (EB II), which partly continues the earlier tradition, provides correlations with Troy I and EBA levels at Ezero.
— From the evidence of Sitagroi and Dikili Tash it would seem that the Troy I group belongs to a late stage of the Baden horizon (see Howell 1973:91; Renfrew 1972:118).

Finally it should be pointed out, with some cautious satisfaction, that at

<table>
<thead>
<tr>
<th>Anatolia (relative dates)</th>
<th>Calibrated C-14 dates (average figures)*</th>
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<tbody>
<tr>
<td>2050 B.C.</td>
<td></td>
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<tr>
<td>UR III</td>
<td>Aphrodiasis Complex IV–II 2400–2150 B.C.</td>
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<tr>
<td>EBII</td>
<td>Malatya (Arslantepe) EBIIb 2120 B.C.</td>
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<tr>
<td>ED IIIb</td>
<td>Gedikli EBIII 2300 B.C.</td>
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<tr>
<td>2500 B.C.</td>
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<td>ED IIIa</td>
<td>Lerna late EH II 2450 B.C.</td>
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<td>Eutresis EH II 2850 B.C.</td>
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<tr>
<td>EBII</td>
<td>Emporio (destruction of Troy I level) 2500 B.C.</td>
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<td></td>
<td>Karataq-Semayük EBII 2900 B.C.</td>
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<tr>
<td>EDI</td>
<td>Korucutepe EBII 2800–2500 B.C.</td>
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<tr>
<td>2800 B.C.</td>
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<td>ED I</td>
<td>Sakyol Pulur EBII/L. Ch. 3400–3000 B.C.</td>
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<td>Alaça Hüyük XII–XI EBII 2900 B.C.</td>
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<tr>
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<td>Malatya (Arslantepe) EBII 3200 B.C.</td>
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<tr>
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<td>Eutresis EHI 3300–2900 B.C.</td>
</tr>
<tr>
<td>Jemdet Nasr</td>
<td>Sitagroi IV/Va EBII–III 2900–2400 B.C.</td>
</tr>
<tr>
<td>3200 B.C.</td>
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</table>

* The calibrated dates are based on 5568 half-life and have been taken from Easton’s list (1976:168–173).
least some of the calibrated C-14 dates (average figures) from Anatolia and the Aegean are more or less in accordance with the relative dates derived from historical synchronizations.

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Postscript

J. Mellaart has recently proposed a uniform time scale for Egypt, Near and Middle East by combining a high historical chronology with dendrochronology-corrected radiocarbon dating (1979). His choice and application of Anatolian C-14 dates in adjusting the Mesopotamian sequence into a high chronological framework calls for some remarks.  

The Warka III = Jemdet Nasr = Amuq G = C. Anatolian EB IIA = 3400–3100 B.C. equation is based on eleven C-14 dates (1979:14) eight of which are

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20 For a different assessment of Carbon 14 dating and the Near Eastern chronology see Dayton 1978:413–419.
from Arslantepe early EB I. The charred grain (R-1010) from room 28 of the EB temple gives a date of 3180 ± 50 B.C. (time of its destruction). However, the charred grain (R-1019a), more recent dates than the charred grain of 1–2 years growth (Radiocarbon 18, 1976:336). Despite this discrepancy, which demonstrates the need for improved C-14 dating and calibration curve, if we take the average of ten calibrated dates (including R-1017:3155 ± 50 B.C.) and apply the 50 years tolerance factor, the estimated beginning of this period in Malatya will be 3200–3100 B.C. The date from Alacahöyük (P-1434) agrees with this estimation. As for the 3350 ± 250 B.C. date from Alişar 14, this was obtained in 1951 before samples were pre-treated for visible and invisible contamination.

Also in view of its 250 years variation factor this date should have been left out by Mellaart in the “process of selection”. The Pulur (Sakyl) date (P-2040) from level XII (= L.Chalco./EBI) is no less problematic when studied in the light of four other Pulur C-14 dates not used by Mellaart (see Radiocarbon 14, 1972: 192). Level V at Pulur gives a higher date than the older levels VI and IX. And the date of level VIII is considerably earlier than the preceding level IX. If these four dates (M-2170–2173) were considered unreliable, what makes (P-2040) more reliable than the rest? On the basis of Arslantepe and Alişar which provide ten out of twelve dates there is no reason to adjust the beginning of the Jemdet Nasr period to 3400 B.C. Also, the proposed 3200–2900 B.C. date for ED I is hardly supported by Anatolian C-14 dates. An average of three Gedikli dates (1979:14) provides a date between 2981 and 2861 B.C. The Korucutepe EB I–II dates which were not used by Mellaart (see Easton 1976:170–171) give an average of 2970 ± 62 (MASCA corrected) which certainly agrees with the more conservative dates based on the middle chronology.

Finally the Akkadian period is placed by Mellaart between 2470 and 2300 B.C. (p. 13). He uses only two out of five Arslantepe C-14 dates to support the high chronology. However, the remaining three dates (Radiocarbon 18, 1976: 338–339 – R-1011, R-1012 and R-930a) do not fit the high chronology proposed by him. And an average of all five dates will produce a date of 2222 ± 80 B.C., in other words, a range of 2300–2140 B.C. for the Akkadian period. The Gedikli dates are somehow confusing (p. 13). GrN-5581 gives a corrected date of 2330 ± 40 B.C. However, while P-1461 in its uncorrected form is only 57 years older than GrN-5581, in the corrected form the difference becomes 150 years. Any such correction derived from the presently

21 While some scientists maintain that C-14 is evenly spread over the earth, the fact remains that there are regional differences in the C-14 amounts in contemporary trees and plants (Dayton 1978:417). As for dendrochronology, it has been proved that tree-ring patterns can vary within a fairly short distance. The question constantly asked is can an artificially smoothed-out calibration curve (e.g. Suess's curve based on the bristle-cone pine in Arizona) be used to correct Near Eastern dates? Dayton suggests to replace the calibration curve with a straight line and represent the C-14 deviations in a cluster (Dayton: 1978:418).

22 Although most samples are now pre-treated (including bleaching with 2N NaOH) for possible contamination, radioactive and electronegative impurities are not totally eliminated even after the samples are converted into a gas form. Despite all scientific measures to eliminate contamination which include the use of a vacuum system to remove invisible impurities from converted samples, some dates are still rejected by laboratories with the following comment: “aberrant date was rejected but no satisfactory explanation possible” (Radiocarbon 18, 1976:337, R-1016a).

23 Mellaart equates Troy I with Uruk IV. According to this equation and his date for Uruk IV (Mellaart 1979:Chart) Troy I should have started by 3750 B.C.
available calibration curves can hardly be considered very reliable. If we exclude this last date there is no C-14 basis which puts the beginning of the Akkadian period as early as 3400 B.C.

I agree that calibrated C-14 dating, despite its deficiencies, cannot be totally ignored. But I suggest that all reliable dates, and not only those fitting any particular chronology, should be considered in the process of selection. As it stands now most Anatolian C-14 dates do not really favour a chronology as high as the one proposed by Mellaart.