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A New View of Neolithic Crete in the Context of the Aegean

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This paper argues for a substantial re-dating of Neolithic sites on Crete based on a comprehensive review of the literature. Ceramics by necessity of their chronological and comparative significance form the core of the discussion. The focus of the paper is on the Late Neolithic period in Crete, c. 5400–4400 BC.

As Neolithic Knossos remains the only site with published absolute dating on the island, it provides the basis for this chronological reevaluation. In particular, the independent excavations conducted over forty years by totally separate teams provide an excellent way of cross-checking the stratigraphic observations and radiocarbon dating. Although the site remains to be fully published, J.D. Evans' 1964 publication provides ample data, particularly for Trench AC in the Central Court. Evans' data, together with the recent information from the 1997 excavations by A. Karetsou and N. Efstratiou, enables a different interpretation to emerge. Similarly, a different relative dating of Neolithic Phaistos is also proposed, by rectifying the traditional relative dates from the original publication and maintained ever since, and in part due to the changes observed at Knossos. The proposed shift in the relative dating of Phaistos combined with the chronological refinement of Knossos clarifies the much debated relationship between these sites.

Supporting these date changes on Crete are recent major chronological shifts both of the individual phases of sites and also of entire Neolithic periods in Greece, Anatolia, and the Balkans. These changes on the Greek mainland and in the wider region must be taken into account when consulting previous Cretan-related scholarship that used off-island relative dating to assist with the Cretan sites. These revisions will be highlighted by region, focusing in particular on individual site stratigraphy, site phases, radiocarbon dates, and traditionally relatively dated ceramic types (with occasional reference to other artifact types) at sites used by scholars working on Crete.

Lastly, these new propositions lead to interpretations that are often contrary to the traditional narrative of Neolithic Crete; they demonstrate that Knossos is a typical Neolithic site that follows the pattern observed in Late Neolithic Greece, as well in the wider region of the Balkans and Anatolia.

Introduction

In matters Neolithic, Crete has long held an unusual position.[1] It is often excluded from discussions by mainland scholars of Neolithic Greece due to its peculiar traditional chronology and terminology.[2] Further, it is usually treated

[1] Acknowledgements. This paper is a more focused result of an invited talk that was given at Mochlos, Crete, Greece, on June 28, 2019 as part of the Institute for Aegean Prehistory Study Center Summer Lecture Series. It was the second of two lectures on "Regional Pottery Practices in Neolithic Greece: Technology, Chronology, and Interaction." The first part, "Northern Greece – Pottery Technology and Mobility in Northern Greece," was delivered by my colleague Dr. Niki Saridaki. I presented the second part, "Southern Greece – Observations on Pottery Characteristics and Chronology." I would like to thank INSTAP SCEC for this catalytic opportunity. The global pandemic begun in 2019 provided me with time to prepare a manuscript of my talk, this time focusing specifically on Crete. I would also like to extend my sincerest thanks to Dr. Melissa Eaby, Dr. Doniert Evely, Dr. Agathe Reingruber, and the anonymous *Aegean Archaeology* reviewer for their editorial help and constructive criticisms of my paper. Thanks also to Eleftheria Almasidou for bibliographical assistance in scanning articles and emailing them as PDFs during a time of limited library access.

I sincerely thank Dr. Nikos Efstratiou, Dr. Alexandra Karetsou, and Dr. Simona Todaro for allowing me look at the ceramic material from the most recent excavations and Dr. Caroline Thurston, former Knossos Curator, for her help with J.D. Evans' material in the Stratigraphic Museum at Knossos. Lastly, I thank Dr. Peter Tomkins, Dr. Simona Todaro, Dr. Krzysztof Nowicki and Dr. Fanis Mavridis, for their discussions with me regarding various aspects of Neolithic Crete. Special thanks to Dr. John E. Coleman for sharing a draft of his new manuscript with me. Lastly, I thank the publishers who responded to my requests for permission to reproduce images.

[2] BONGA 2019a, 164.

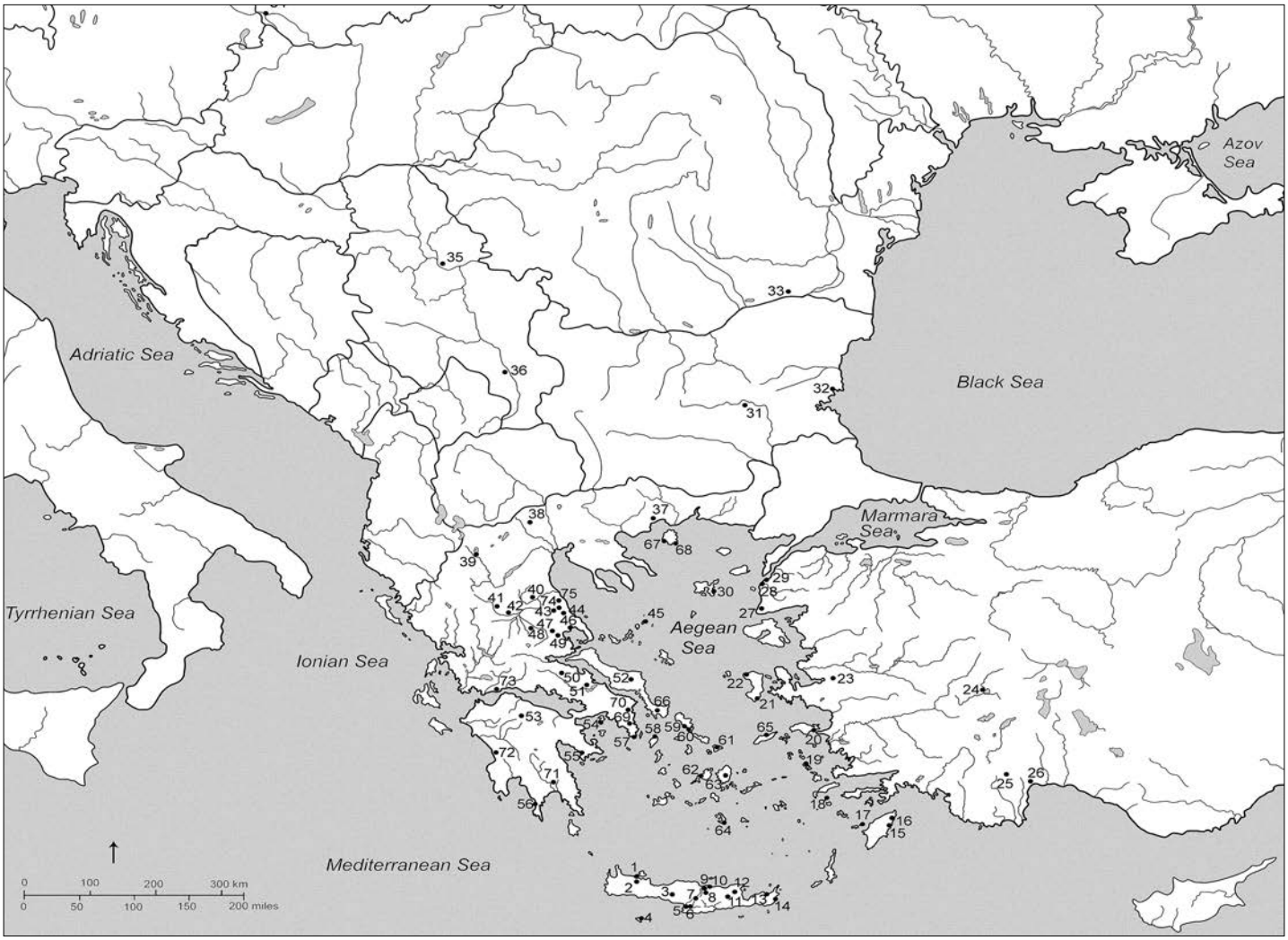


Fig. 1. Map of sites mentioned in the text. 1. Nerokourou, 2. Lendeka Cave, 3. Ellenes Rock Shelter, 4. Siopata/Metochi Rock Shelters, 5. Phaistos, 6. Mitropolis, 7. Idean Cave, 8. Knossos, 9. Katsambas, 10. Eileithyia Cave, 11. Lasithi Caves (Trapeza, Skaphidhia), 12. Kastelli (Phourni) well, 13. Petras Kephala, 14. Pelekita Cave, 15. Koumelo Cave, Rhodes, 16. Ayios Georgios Cave, Rhodes, 17. Alimnia, 18. Yali, 19. Partheni, Leros, 20. Tigani, Samos, 21. Emporio, Chios, 22. Ayia Gala, Chios, 23. Ulucak, 24. Beycesultan, 25. Bağbaşı, 26. Karain Cave, 27. Gülpınar, 28. Beşik-Sivritepe, 29. Kumtepe, 30. Poliochni, 31. Karanovo, 32. Varna, 33. Gumelniţa, 35. Vinča-Belo Brdo, 36. Pločnik, 37. Dikili Tash, 38. Mandalo, 39. Dispilio, 40. Larisa, 41. Plateia Magoula Zarkou, 42. Tsangli, 43. Prodromos, 44. Palioskala, 45. Cave of the Cyclops, Youra, 46. Pefkakia, 47. Petromagoula, 49. Mikrothives, 50. Alepotrypa Cave, 50. Elateia, 51. Sarakenos Cave, 52. Skoteini Cave, Euboea, 53. Cave of the Lakes, 54. Cave of Euripides, Salamis, 55. Franchthi Cave, 57. Kitsos Cave, 58. Kephala, Kea, 59. Strofilas, Andros, 60. Plaka, Andros, 61. Ftelia, Mykonos, 62. Saliagos, Antiparos, 63. Zas Cave, Naxos, 64. Akrotiri, Santorini, 65. Nifi, Ikaria, 66. Ayia Triada Cave, Euboea, 67. Limenaria, Thasos, 68. Ayios Ionannos, Thasos, 69. Merenta, 70. Tsepi, 71. Kouveleiki Cave, 72. Ayios Dimitrios, 73. Pangali, 74. Galini. (map prepared by the author)

by Neolithic scholars on Crete without reference to the mainland. Although there have been a few attempts to integrate Crete into the wider regional accounts of the Neolithic, many of these attempts maintain the artificial insularity of Crete to accommodate the (incorrect) relative chronology and misuse of absolute dating discussed here.[3]

[3] E.g., ALRAM-STERN 2011; VAGNETTI 1972-73; VAGNETTI and BELLI 1978; VAGNETTI et al. 1989; TOMKINS 2001; 2007; 2008; 2014; TOMKINS AND DAY 2001; NOWICKI 2002; 2008; 2014.

This paper proposes to develop a better scheme whereby one may integrate the studies of a large geographical region (Fig. 1) and over long chronological duration.

This paper critically re-examines the only radiocarbon data for Crete (from Knossos), following similar re-examinations across the wider Aegean and at sites within Greece. The sites include: Kephala on Kea, Ftelia on Mykonos, Strofilas and Plaka on Andros, Saliagos near Antiparos in the Cyclades, Emporio and Ayia Gala on Chios, Tigani on Samos, and the Skoteini Cave on Euboea

for the Aegean islands; Rhodes, Leros, and Alimnia in the Dodecanese; and finally the Franchthi, Alepotrypa, and Sarakenos Caves on the mainland. From Western Anatolia are Beycesultan, Kumtepe, Beşik-Sivritepe, and Gülpınar in the Troad. From the Balkans are the sites of Varna in Bulgaria and Vinča in Serbia.

In particular, the critical re-evaluation of the radiocarbon data must be applied. Too often the absolute dates from Neolithic sites have been treated as equal, regardless of the sample origin (e.g., bone, shell, wood, and seed), and the inherent ambiguities from the source material (e.g., reservoir, old-wood effects) thus has been ignored.[4] Similarly, the internal consistency of dates from sites with deep stratigraphy (and often without specific contextual details) has also been taken at face value, which overlooks the reversed (inverted) dates feasible by depositional occurrences.[5] Similarly, plateaus of the international calibration curve, particularly at c. 4000–3800 BC,[6] obscures chronological precision (particularly at sites with otherwise earlier dates). By removing the outlying and uncertain dates and those not consistent with stratigraphy, a much clearer and more limited – chronology results. Similarly, the weight of a single radiocarbon date of some item on its own must be considered in relation to other similar material with absolute dates: a single date does not carry the same weight as a longer sequence.[7] The dates in the figures are those given in the primary publications, using the then current calibration curve, and their sample numbers are also provided.[8]

Critical re-evaluations of context and stratigraphy made on a regular basis are imperative to ensure accurate modeling of radiocarbon dating, which in turn affects the interpretations. Reconsiderations of the definitions of the utility of the chronological meaning of "culture" have also been discussed.[9] Similarly, the perceived observations of stratigraphical continuity have often been proven to be deceptive;[10] hiatuses in occupation not readily apparent without radiocarbon determinations are now documented throughout the mainland.

Recent reexaminations of individual sites have revealed both shorter gaps in occupation and much longer hiatuses, particularly from the end of the Neolithic to the Early Bronze Age; for instance, 600 or more years between the Neolithic and Early Bronze Age at Sitagroi in Eastern Macedonia, 1,000 or more years at Megalo Nisi Galanis and Mandalo in Western Macedonia, and again at the Cave of the Cyclops on Youra.[11] A hiatus or gap, however, does not mean that there was no continuation within a region or even at a site (as occupation could have merely shifted to other nearby areas). Conversely, supporting arguments for continuity should not be overstated in an effort to present narratives of linear development based on idealized stratigraphy or preconceived notions of uninterrupted (literal) continuity.

The dominant terminology (e.g., Reingruber, Tsirtsoni) for Neolithic Greece is employed for the periodization and absolute dating (Fig. 2); specifically, the divisions of Late Neolithic I–II are the focus of this paper.[12] The more neutral divisions of Late Neolithic I–II are used in the rest of Greece; however, these divisions slightly differ in their absolute dating according to scholars. The Late Neolithic I–II of Tsirtsoni and Reingruber et al. date the end of Late Neolithic II to c. 4500 BC. In Sampson's system (see below), [13] the periods are defined

[4] BANNING 2002.

[5] It has become increasingly common for the calibrated date to be refined using Bayesian statistical analysis (such as with the OxCal and Calib programs), but for this to be a meaningful method the samples used must be well chosen. The statistical weight of changes depends on whether all available dates are used as opposed to carefully selected, secure ones. Bayesian analysis is useful for groups of determinations that can be associated with events in a known stratigraphic context, such as a hypothesis if two determinations belong to the same event, the timing and duration of periods, and the identification of outliers if not already removed. The modeling of these temporal intervals, however, requires further refinement, as their distributions may overlap. For Fourier-based ^{14}C-analysis as an alternative, see WENINGER and EDINBOROUGH 2020.

[6] REINGRUBER et al. 2017, 49; MANIATIS, OBERLIN and TSIRTSONI 2016, 48; COLEMAN and FACORELLIS 2018, 60.

[7] Furthermore, any absolute date gives a range during which the singular event creating the sample occurred (such as the carbonization of the sample material or the death of marine or terrestrial animal), but it is the total span of the amassed singular calibrated dates that are used for creating periods.

[8] The uncalibrated dates can be found in the primary publications, or in the database of KATSIANIS et al. (2020), which enables their use based on any curve developed in the future. The uncalibrated dates were not recalibrated using IntCal20 Northern Hemisphere Radiocarbon Age Calibration Curve (REIMER et al. 2020) for this paper, as these refinements do not affect the general arguments made in the paper.

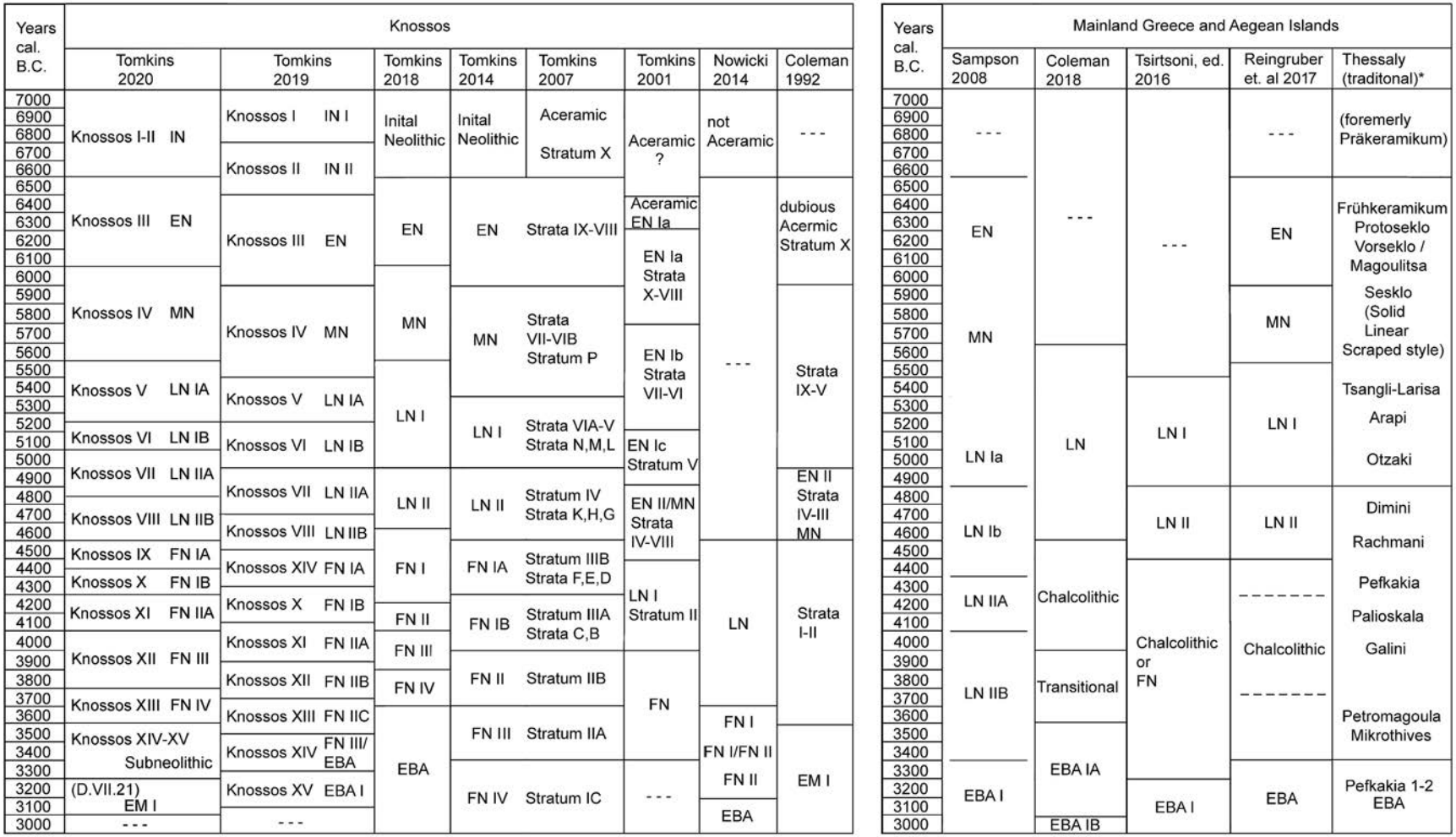
[9] TSIRSTONI ed. 2016; TSIRTSONI 2017.

[10] COLEMAN 2011, 20, endnotes 5, 19, 36. EFSTRATIOU et al. 2013, xx–xxi.

[11] COLEMAN 1992, 276–278.

[12] TSIRTSONI ed. 2016; REINGRUBER et al. 2017.

[13] Sampson's chronology combined his radiocarbon dates with others from Greece but relied more on ceramics from his excavations due to stratigraphic uncertainties and lack of dates. The start of Late Neolithic IIA was defined by the appearance of red "pattern-burnished" pottery, as based both on Kumtepe Ia, shortly after 4000 BC following the traditional dating of the Chalcolithic in Anatolia, and from an absolute date from Ayios Dimitrios in the Peloponnese, c. 4300 BC. The Late Neolithic IIA–B division is not clearly dated nor is the duration of Late Neolithic IIB.



Long dashes (– – – –) indicate probable phases.
Short dashes (- - -) indicate periods not addressed in cited article.
*Traditional Thessalian phases updated with new sites and current chronolgy based on Reingruber et al. 2017.

Fig. 2. Comparative chronology charts for the different radiocarbon dating and periodization terminology for Knossos (a), and mainland Greece (b) (prepared by the author)

differently (e.g., Late Neolithic II ends at the start of the Early Bronze Age, c. 3300 BC, and the Late Neolithic periods are further subdivided),[14] and the chronological parallels are not adjusted in absolute dates for the changes in the other regions (e.g., Thessaly).[15] Most recently, such neutral periodizations, particularly of Sampson was explicitly rejected for Crete because it lacks the "elegance and economy" connoted by "Knossos … and the Knossos sequence, by virtue of its duration and completeness."[16] (Fig. 2)

There is no consensus on what the period post-4500 BC until the start of the Early Bronze Age should be called either on Crete or in the Aegean, but "Chalcolithic" is increasingly being used on the mainland.[17] The term has been applied to Crete, but it is not commonly used.[18]

Similarly, the term "Final Neolithic" was proposed by W. Phelps in the 1960s for the Peloponnese,[19] as a brief transition phase to the Early Bronze Age, c. 3500–3200 BC, based on the available archaeological data and radiocarbon dates. The term "Final Neolithic" was popularized and made synonymous with the "Attica-Kephala culture" in the early 1970s by Renfrew,[20] and these terms were then used for the southern Aegean,[21] including Crete. On Crete, however, the term "Final Neolithic" has been subsequently redefined; there remains an ongoing debate and lack of consensus for the definition, features, and dating of a Cretan "Final Neolithic." Nevertheless, the term remains in use by most scholars working on Crete, with few exceptions.[22]

In any case, the "Final Neolithic" does not immediately precede the Bronze Age. Furthermore, it seems that "continuing to use the term 'Attica-Kephala culture' as a chronological marker … is totally inappropriate for the description of the phenomenon post-dating 3900/3700 BC." In fact, "Final Neolithic" features[23] have been shown to begin c. 4500 BC,[24] and end earlier, c. 4000 BC.[25] An earlier dating is confirmed also by the stratigraphic analysis of sites presented in this article.[26] For these reasons, the term, "Final Neolithic" as synonymous with "Attica-Kephala" has fallen out of use, even in the limited regions in which it had been initially been employed, with the exception of Crete.

At present, radiocarbon data from Greece for the 4th millennium BC is more abundant than two decades ago when it was called "the missing millennium,"[27] but the situation today remains somewhat obfuscated due to the noted plateaus of the international calibration curve at the transition to the 4th millennium BC. The number of securely dated sites remains sparse:[28] Limenaria on Thasos, Dispilio in Western Macedonia, Kouveleiki Cave B in Laconia, Aleopotrypa Cave in the Mani, and Palioskala in Thessaly for the period c. 4000–3800 BC; Ayios Ioannis on Thasos, Doliana, and Mikrothives for the periods c. 3600–3200 BC.[29] To the latter may be added Galini in Thessaly group,[30] as well as Pit 39 at Tsepi Marathon,[31]

14 MAVRIDIS 2006, 117.

15 Compare in the same volume (TSIRTSONI ed. 2016) the chronology tables of MAVRIDIS and TANKOSIĆ (2016, 420, table 1) with TSIRTSONI (2016, 19, table 1). The first follows the absolute dating and phasing of SAMPSON, while the latter adjusted the subdivisions to their proper dating in absolute terms for Greece. SAMPSON (2008, 395, table 15), for instance, applied his radiocarbon dating and period division (SAMPSON 1993), but his corresponding phases in Thessaly are not in their proper location (they all need to be shifted earlier).

16 TOMKINS 2020, 50, 53.

17 E.g., COLEMAN 1992; 2011;COLEMAN and FACORELLIS 2018, ASLANIS 2003, 39; KARKANAS AND STRATOULI 2008; TSIRTSONI 2016; REINGRUBER et al. 2018.

18 See NOWICKI 2014, 61–76 for a review and TOMKINS 2020, 80–82 for a new reintroduction of the term.

19 PHELPS 2004 [1975].

20 RENFREW 1972.

21 see MAVRIDIS 2006, 116–117 for a concise review.

22 WATROUS et al. 2012.

23 E.g., "pattern-burnished," "crusted paint," "rolled-rim bowls," "horned handles," "cheese-pots," "elephant head lugs," etc. (often associated with "Rachmani" on the mainland).

24 E.g., Pangali (dated to c. 4600–4200 BC) on Mt. Varassova in Aitolia (MAVRIDIS 2006) and as early as c. 4700/4600 BC., as at Prodromos in Thessaly (KARAGIANNOPOULOS 2016; REINGRUBER et al. 2017, 46).

25 TSIRTSONI (2017, 75) states that, "[n]o Thessalian sites with levels including 'Rachmani' features ("crusted" paint, incised pottery, etc.) provided dates after 4000 cal BCE (TSIRTSONI 2014; 2016a), and the site of Rachmani itself seems to end as early as 4300 cal BCE (REINGRUBER et al. 2017, 48; TOUFEXIS, KARAPANOU, and MANGAFA 2000; MANIATIS, OBERLIN and TSIRTSONI 2016, 60).

26 For instance, the "Final Neolithic," "Attica-Kephala" type of red "pattern-burnishing." It seems to have both chronological and region chronological dimensions, suggestive of several types/phases that require closer examination, however. Few sites have absolute dates to confirm this type of pottery, namely Ayios Dimitrios in Triphyllia, Peloponnese, c. 4300 BC (ZACHOS 2008 [1987], 223), closer to the originally proposed date of Kephala on Kea. Notably, this late red "pattern-burnished" style has not be found on Crete, and its absence may be due to chronological difference, although it is found in the Cyclades (e.g., Strofilas on Andros).

27 MANNING 2001, 168.

28 Following the more limited number of sites as discussed in COLEMAN and FACORELLIS (2018, 36;). See their discussion on the date from Kitsos Cave in Attica, the Kouveleiki Cave B in Laconia, Halieis in the Argolid, Markiani on Amorgos, the Agia Triada Cave at Karyistos on Euboea, and the Zas Cave on Naxos.

29 See also MAVRIDIS and TANKOSIĆ (2016, 434–436) for a review of this period.

30 TOUFEXIS 1999, 425.

31 PANDELIDOU-GOFA 2016.

and Merenta in Attica.[32] Perhaps the best way of dealing with this period (and sites without absolute dates) is to refer to the dating by millennium or century until more information becomes available.

Neolithic Knossos

The relative chronology for Crete is almost exclusively restricted to a small area within the Central Court of the Palace of Minos at Knossos, excavated in the late 1950s and early 1960s.[33] Ten stratigraphic layers were discerned by the excavator, numbered from the top down with Roman numerals (Fig. 3). Following Furness,[34] J.D. Evans[35] grouped these strata stylistically based on pottery into the Early Neolithic I, Early Neolithic II, Middle Neolithic, and Late Neolithic,[36] but with the addition of Aceramic; Evans did not correlate the strata using the available radiocarbon dates published in his second report.[37] Had he done so, it would have been immediately evident that his Neolithic periods did not correspond in absolute dates to the same periods in mainland Greece (see below and Fig. 2). The correct radiocarbon correlation of Crete to mainland Greece was recognized by Coleman.[38]

Although Tomkins set about rectifying the terminology of the Neolithic periods at Knossos based on its radiocarbon dates[39] and off-island parallels in the Aegean and mainland, the ultimate aim was to create stylistic ceramic groups that closely correlated with each successive stratigraphic layer and in reference to petrographic analysis of the ceramics (similar to the method of "comparative stratigraphy" developed by Milojčić in Thessaly). This approach uncritically relied on radiocarbon dates from Knossos[40] and also the acceptance of what can be now shown to be erroneous relative and absolute dates of sites and entire periods in establishing relative parallels in the wider region (see below).

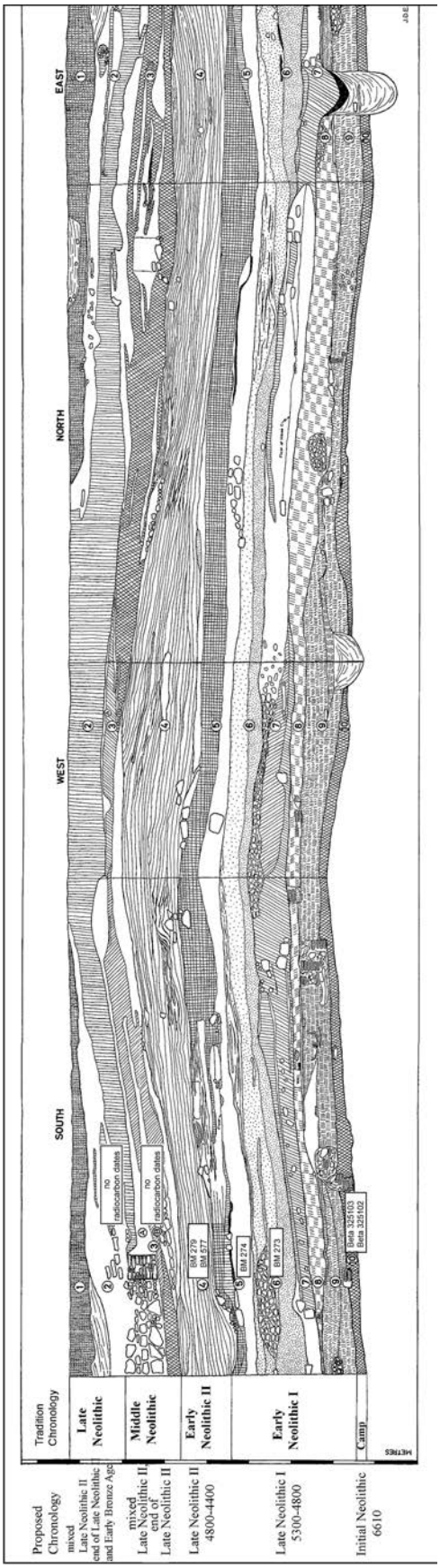


Fig. 3. Radiocarbon dating and sample numbers superimposed on 1963 Knossos stratigraphic section of the four sides of Area AC. Outliers and rejected dates are omitted (after EVANS et al. 1964, fig. 4, with annotations by the author)

[32] KAKAVOGIANNI et al. 2016.
[33] EVANS et al. 1964; WARREN et al. 1968; EVANS 1971.
[34] FURNESS 1953.
[35] EVANS 1964, 194.
[36] FURNESS 1953.
[37] EVANS 1971; WARREN et al. 1968.
[38] COLEMAN 1992, 207 Fig. 5, 263–264.
[39] TOMKINS 2007. TOMKINS (2007; 2014; 2018; 2019; 2020) has revised the phasing of Knossos but has shifted the time periods of the strata back and forth and has created and deleted additional subdivisions.
[40] REINGRUBER and THISSEN 2009, 758–760; REINGRUBER 2015a; 2016, 151; DOUKA et al. 2017; BONGA 2019a, 164–166.

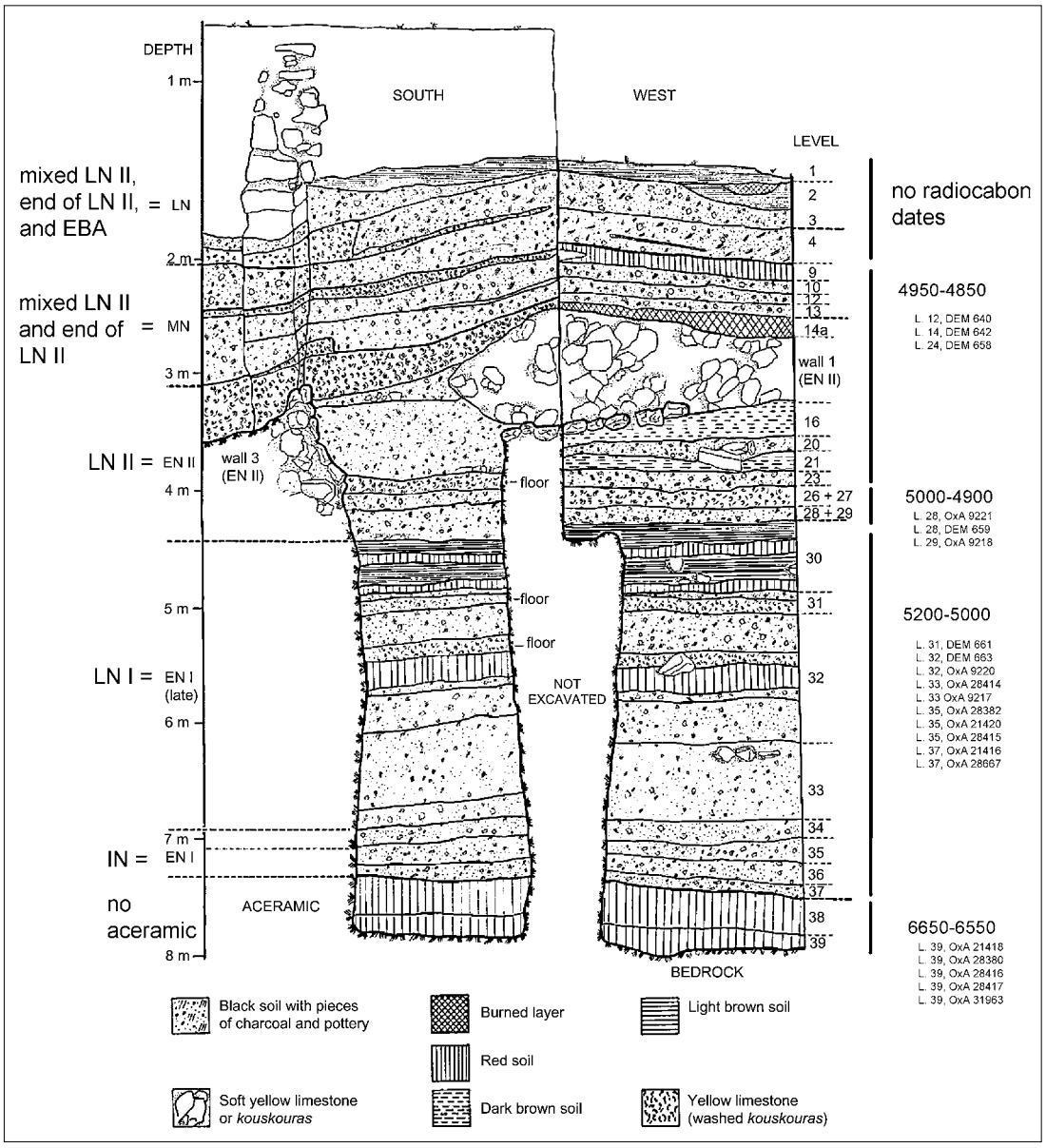


Fig. 4. Radiocarbon dating and sample numbers superimposed on 1997 Trench II, southwest corner. Outliers and rejected dates are removed (after EFSTRATIOU, KARETSOU and BANOU 2013, fig. 1.4, with annotations by the author)

The 1996 excavation[41] identified thirty-nine stratigraphic layers (also numbered from the top down),[42] and these were able to be correlated with the periods as established by J. D. Evans (Fig. 4). Although the ceramics from this excavation remain to be fully published, the available details of the pottery and the other small finds are comparable to the material found by J. D. Evans. The excavators dismissed the lack of radiocarbon dates in the upper strata as having not much significance as the data matched that of the previous excavation. The radiocarbon dates from this campaign, however, confirm and refine the chronological picture of the site:[43] they clearly demonstrate a hiatus between the earliest levels and the later ones[44] that – most importantly – was not apparent in the

[41] EFSTRATIOU et al. 2013.

[42] Levels 8–5 do not appear on the section (EFSTRATIOU et al. 2013, 4, Fig. 1.4).

[43] EFSTRATIOU et al. 2004; MANIATIS and FACORELLIS 2013; DOUKA et al. 2017.

[44] DOUKA et al. 2017, 315.

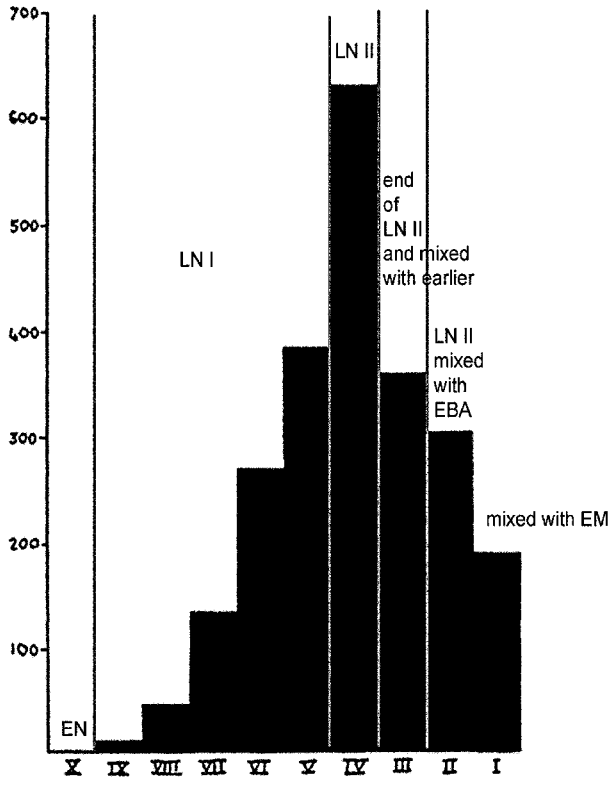


Fig. 5. Total weight of sherds (in kilograms) from each stratum of the Neolithic deposit in Area AC with periodization suggested in the text superimposed (after EVANS at al. 1964, 203, fig. 44, with annotations by the author)

stratigraphy itself, as well as an abandonment of the area in the centuries after the turn of the 5th millennium BC.[45]

The Central Court at Knossos remains the focus due to the fact that it is the only part of Neolithic Knossos that is relatively well published.[46] It is the only area that has the full stratigraphy excavated,[47] corresponding radiocarbon dates for the strata, and all of its ceramics preserved.[48] In fact, the majority of the ceramics from J.D. Evans' 1957–1960 excavations came from this area: from a total of some 3.5 tons (3,500 kg), Trench AC yielded 2.5 tons (or 2,500 kg).[49] When the absolute dates are superimposed on the bar graph of the pottery recovered in Trench AC, the narrower dating of Knossos is at once evident (Fig. 5).

Most importantly still, virtually all of the pottery from both excavations was neither found inside structures nor *in situ*.[50] Instead, nearly all the Knossos ceramic material comes from secondary refuse in exterior spaces, mixed up by pit digging, leveling and re-dumped material (especially for the upper levels, Strata I–III).[51] J.D. Evans described the ceramics he recovered as very fragmentary, with few complete or reconstructable pots, or even large or joining sherds.[52] It seems that the disturbed nature of the material combined with the original stretching of radiocarbon dates gave rise to the interpretation that the ceramics evolved slowly and were characterized as conservative in nature.[53] The apparent homogeneity of the ceramic assemblage is now seen to be due rather to the much shorter duration of the site, a fact not appreciated in previous interpretations.

J.D. Evan's temporal frequency seriations (by weight of vessel morphology and decoration) as presented in proportional bar graphs by weight to make a critical analysis between strata, absolute dating, and ceramics possible (Fig. 6).[54] This pottery data not only enables one to determine during which site-phase particular shapes and decoration were most common (but not unique), but it also allows for more precise comparison with other sites.[55] The proportion of diagnostic particulars within an assemblage must be considered for any relative dating of

[45] EFSTRATIOU 2013.

[46] No new Neolithic pottery from Knossos has been published since J. D. EVANS et al. 1964., with the exception of MANTELI and EVELY 1995 Throne Room System sherds. TOMKINS (2007) reused Evans' illustrations with few additions, and the pottery from the 1990s excavations (EFSTRATIOU, KARETSOU and NTINOU 2013) remains unpublished.

[47] EVANS et al. 1964, 137. Only Areas a and C were excavated to bedrock, while Areas B and D were abandoned and backfilled.

[48] The entirety of pottery from Trench AC alone was retained; in other trenches, the featureless body sherds were discarded (EVANS et al. 1964, 192). Similarly, all of the sherds from only nine test pits were kept by Arthur Evans and D. Mackenzie (FURNESS 1953, 94). J.D. Evan's ceramic material from his later excavations, like that of the 1997 excavation, remains unpublished.

[49] EVANS et al. 1964, 192, 194.

[50] Evans (EVANS et. al 1964, 194) stated that what appears as a pottery peak in the amount of pottery retrieved in Stratum IV is due to "an exceptionally thick deposit of habitation refuse, with scarcely any trace of architectural remains" and that "Stratum I and some of Stratum II was removed in this area when the Central Court was constructed in Middle Minoan times." TOMKINS (2001, 253) also described Stratum V as "highly mixed."

[51] EVANS et al. 1964, 194; WARREN et al. 1968, 276; 1971, 114; TOMKINS 2007, 16–17, 32, 35, 39, 42, 45.

[52] EVANS et al. 1964, 192, 196.

[53] E.g., EVANS et al. 1964, 194; EVANS 1971, 114; MANTELI 1996, 132; 1993.1, 3, 170.

[54] EVANS (EVANS et al. 1964, Figs. 44–46) presented rough pottery statistics and serration in bar graphs of total weight in kilograms by strata, morphology, and decorative type.

[55] See WASHBURN (1983) for symmetry analysis of incised motifs from Knossos and white-painted pottery from Saliagos (MANTELI 1993.1, 159). The changing proportion of local to non-local ceramics at Knossos from Area AC is shown in pie charts by TOMKINS (2004, 47, Fig. 3.2) but the number of petrographic samples represented is not indicated for each strata.

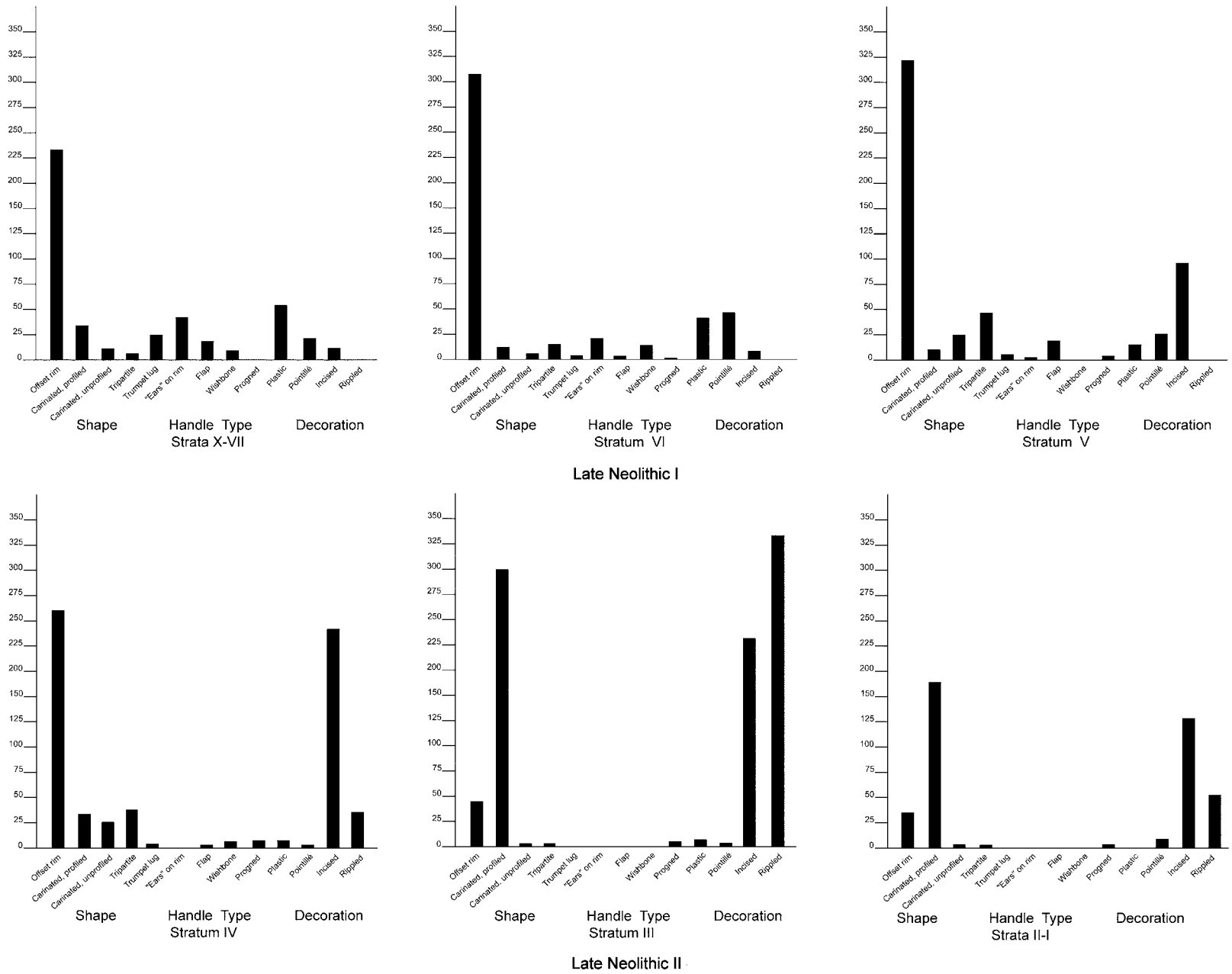


Fig. 6. Frequency of shape, handle type, and decoration per 100 kilogram of pottery by strata in Area AC at Knossos (after EVANS et al. 1964, 205–206, figs. 45–46, combination of charts by the author)

Neolithic ceramics, not merely the simplistic "presence or absence." Simply looking at the pottery from Knossos, stratum by stratum, with the more limited radiocarbon dates and stratigraphic information (including the mixed and secondary nature of the deposits) supports the proposal that Stratum III was probably the end of Neolithic Knossos (see below; Figs. 3, 5, 7, 15).

The previous oversight regarding the early levels at Knossos (Strata X–IV, levels 39–34) has been discussed in detail elsewhere,[56] but the salient "corrected" features should be reiterated here: the earliest radiocarbon date from grain (BM-436) from Knossos (Stratum X) is dated to c. 6770–6430 (median at 6610 BC) and is followed by a period of abandonment;[57] radiocarbon dates for the Early and Middle Neolithic periods are lacking and the scant finds cannot be clearly relatively dated to these periods;[58] the next group of absolute dates begins at 54/5300 BC, again matching the relative dating of the artifacts;[59] and finally there is a dearth of dates from the Central Court (Strata III–I, levels 13–9) after 4400 BC (Fig. 7).[60] These three uppermost strata appear to be thoroughly mixed. Based on the ceramic data and relative dating with adjacent geographical regions, however, these strata must date to before 4500 BC.

For example, the nearly complete carinated bowl (Profiled Carinated Bowl, Type 3B, "walled bowls which are about equally wide at the carination and the rim") with small lugs at the carination and vertical "ripple-burnishing" from Stratum III, pottery pit D at the southwest part of square D outside of House A,[61] suggests around the transition to the Late Neolithic II. The corresponding levels from the 1990s excavation (Knossos Levels 13–9) have an abundance of sherds with "ripple-burnishing", which are dated to c. 4950–4850 BC (DEM-640, DEM-642, DEM-658); "ripple-burnishing" is chronologically sensitive within Greece and the Balkans, ending around c. 4800 BC or shortly thereafter. If the Cretan decoration is true "ripple-burnished," in the sense of the wider region, than it must date earlier than has been traditionally accepted for Crete, and in turn, the sites on Crete with this type of decoration (e.g., Kephala Petras and Mitropolis) will need to be chronologically adjusted accordingly.[62]

Like Stratum III, Strata II and I involve mingled earlier and later pottery: more tellingly, they seem predominately to contain Minoan material, with Neolithic sherds appearing only in limited areas of the excavation.[63] Mixed Stratum II also contains elements that could be dated earlier, and the ceramic assemblage from Stratum I is not fully described in the publication because the material from it was originally mislaid;[64] less than two dozen mostly undiagnostic sherds are illustrated. The absolute dates and material evidence, therefore, strongly suggest that the main Neolithic occupation of the Central Court at Knossos was from c. 5400–4850 BC (and possibly less intensely until c. 4650/4400 BC; see below).[65] The majority of the material dates to Late Neolithic I (Strata IX–V) and slightly less to Late Neolithic II (Stratum IV). Strata III seems to be closely related to Stratum IV. While Strata I–II are marked by their greater differences from the earlier set;[66] it seems likely that these strata are of

[56] REINGRUBER and THISSEN 2009; 2016; REINGRUBER 2008; 2015a; EFSTRATIOU 2013; DOUKA et al. 2017; BONGA 2019a; YANOVICH 2021; TOMKINS (2020 76, footnote 162) states he will refute these claims in a new paper.

[57] REINGRUBER and THISSEN 2009, 758–760; 2016; REINGRUBER 2015a, 151; DOUKA et al. 2017; BONGA 2019a, 165; YANOVICH 2021.

[58] DOUKA et al. 2017, 310, Fig. 3. EFSTRATIOU (2013, 30) noted a "gap of approximately 1,500 between the end of the Aceramic phase (as ostensibly marked by BM-272, 6590–6250) and the end of the EN I period." REINGRUBER and THISSEN (2016) did not model BM-272 due the fact that it cannot be ruled out that it is from the same event as is the date on grain (BM-436), which it is overlapping at 1σ at 6590–6430 calBC. If this date and the others rejected by REINGRUBER and THISSEN (2016) are retained for the 7th millennium, then the lack of substantial artifacts may be attributed to episodes of habitation and abandonment.

[59] REINGRUBER and THISSEN 2009, 760–761; 2016; DOUKA et al. 2017, 315. In addition to the ceramics as noted by Reingruber and Thissen, other artifacts also match the Late Neolithic dating. For instance, the naturalistic marble male figurine found by J.D. EVANS (1964, 134; KANTA and KOKOSALI 2017, 66–67, Fig. 1) in square C, Pit a outside of House A, in the top of Stratum VIII, was dated to the Early Neolithic c. 6400–6000 BC by TOMKINS (2007; 2014) when the radiocarbon dates actually belong to the Late Neolithic, c. 5300–4800 BC. Similarly, the dark-on-light painted sherds with cross-hatch motif from Trench X in the Central Court (EVANS 1971) may also date to the early Late Neolithic rather than the Middle Neolithic as TOMKINS (2007, 27, Fig. 1.6) stated based on outdated citation of (PHELPS 1975, 96, 120). It remains uncertain when red-on-white pottery ceases to be produced (SAMPSON 2008) as sporadic and unrelated red-on-white sherds are found in Late Neolithic contexts (e.g., Sitagroi Phases II, KEIGHLEY 1986, 356).

[60] DOUKA et al. 2017; REINGRUBER and THISSEN 2016.

[61] EVANS et al. 1964, 199, Fig. 40, no. 4 (pot no. 5), 178, and Plate 44.

[62] Otherwise, this vessel shape has even earlier parallels on the mainland, around c. 5500–5300 BC (and may suggest dumping and levelling redeposition).

[63] EVANS et al. 1964, 188.

[64] MANTELI and EVELY 1995, 5.

[65] This dating also applies to nearby Katsambas (GALANIDOU and MANTELI 2008).

[66] The corresponding levels 3–1 (Evans' I–II) from the 1997 excavation were also less than 1 m thick, poor in finds, and heavily exposed to later disturbances and without radiocarbon dates (EFSTRATIOU 2013, 39).

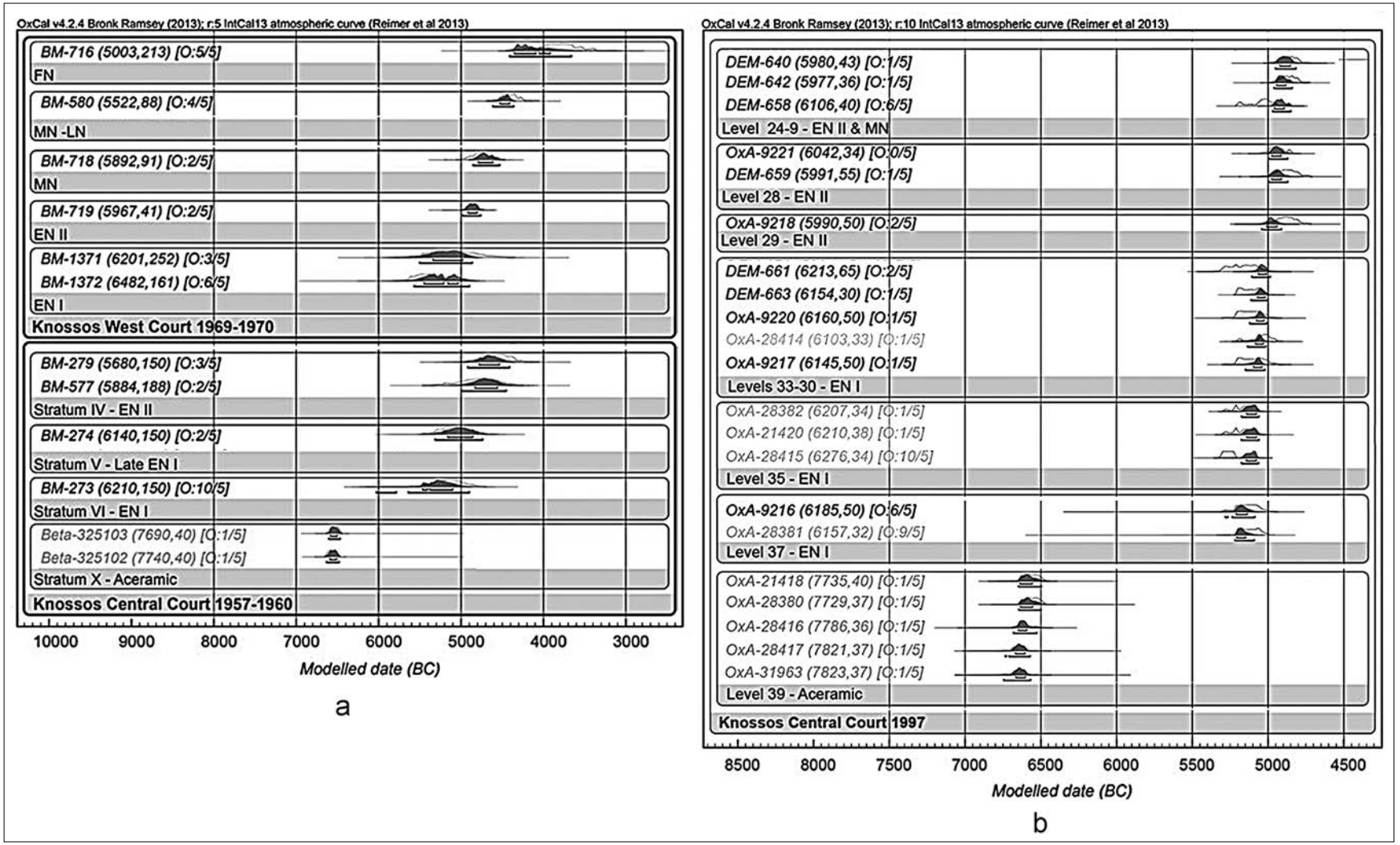


Figure 7. (a) Calibration and Bayesian modelling of radiocarbon determinations from the Central Court 1957 – 1960 (top) and the West Court 1969 – 1970 (bottom); (b) Calibration and Bayesian modelling of radiocarbon determinations from the 1997 excavations in the Central Court. Outliers and rejected dates are omitted, and new AMS determinations are shown in grey. (after DOUKA et al. 2017, figs. 3 and 4, with annotations by the author)

a short duration and do not immediately precede the traditional start of the Bronze Age at 3200 BC (see below).[67]

Furthermore, these latest strata have traditionally been related to Phaistos; in particular, the first ceramic parallels with Phaistos were recognized in sounding FF in the West Court.[68] Yet the absolute dates from the West Court also date more narrowly within the Late Neolithic (Fig. 7),[69] including the latest date from Knossos (BM-716), which has a wide range, c. 4400–3650 BC. The next earliest date (BM-580) of c. 4600–4400 BC is probably more accurate.[70] As the pottery from the West Court is not published, it is not possible to draw any firm conclusion, but it can be suggested that due to the noted differences in shape and slightly later dates, the occupation of this area may extend a few centuries beyond 4800 BC and as late as 4440 BC. As in the Central Court, Evans noted that the West Court was characterized by middens and was disturbed by later leveling operations.[71]

The nearly complete "black-topped" carinated conical bowl decorated with incisions and red ochre from this sounding,[72] for instance, is canonical Late Neolithic I in its shape (carination above the belly), firing technique (smudging), and additional decorative elements (crusted decoration), both in the Balkans and in Greece.[73] Coleman already noted parallels for the shape and decoration and dated it to the Late Neolithic I (prior to 4800 BC);[74] a date in Stratum IIA, however, at c. 3600–3300 BC has also been proposed.[75]

J.D. Evans suggested that the lack of definition for a clear end in Strata III–I may relate to the changing picture of Late Neolithic on Crete as a whole, which he characterized by the expansion of communities throughout the island, or, alternatively, due to the particular site history of the excavated area in the Central Court, which was extensively leveled in following periods;[76] these two factors are not mutually exclusive. The layers corresponding to Strata III–I from the 1997 excavation (Layers 3–1) were also described as consisting of "mainly the closing stage of a long occupation period."[77]

In conclusion, the early date from Stratum X locates the Knossos at the earliest stage of the Early Neolithic "Neolithisation" on both sides of the Aegean (a pattern manifested both in the date itself and by the subsequent abandonment of the site). The lack of dates from the mid-5th millennium onward is also in accordance with sites throughout Greece, the Balkans, and Anatolia (see below). Taken together, all of the data (e.g., details of stratigraphy, artifacts, dating, broader regional comparisons, etc.) suggest that Knossos was not continually inhabited in the area of the Central Court. Additionally, the appearance of a constantly expanding Neolithic site over time is misleading (e.g., Evans 1971): it is a misreading of the fundamental nature of organizational space and site use over time, in which habitation shifts around to different areas; this explains the slight differences in pottery and dates in the West Court (or Throne Room). When viewed from these physical and temporal perspectives, Knossos turns out to be a typical Late Neolithic site.[78] With this new chronological understanding of Knossos, other Neolithic sites on Crete can also have their relative chronology updated. Ties to be drawn with sites throughout the Aegean and the mainland help reiterate the "normalness" of Knossos as a Late Neolithic site.

Neolithic Phaistos

Neolithic Phaistos has no radiocarbon dates. Similar to Knossos, the Neolithic levels lie below the later Minoan palace, and they were reached through early soundings dug by Mosso (1908), Pernier (1935),[79] Levi (1957–1958),[80] and Vincenzo La Rosa (early 2000s). Vagnetti

67 TOMKINS (2020, 51) now explains the lack of remains in the Central Court as due to a shifting pattern of use and abandonment to characterize his Final Neolithic, c. 4500–3200 BC, but this shift seems to have occurred earlier, c. 4800 BC.

68 EVANS 1971, 113–114.

69 EVANS 1971, 117, Appendix I.

70 The 750 year span of BM-716 is in part due to a plateau in the calibration curve: this ambiguity is seen at sites with late dates throughout Greece (TSIRTSONI ed. 2016).

71 EVANS 1971, 113–114.

72 EVANS 1971, 113 and pl. III, right; TOMKINS 2007, 40, Fig. 1.12, no. 27.

73 See BONGA 2013, 143, 151–152 for review; KEIGHLEY 1986, 365; DEMOULE, PERLÈS and MANOLAKAKIS 1988, 39; DEMOULE and PERLÈS 1993; ANDREOU et al. 1996, 569.

74 COLEMAN 1992, 264. He cited parallels in Thessaly (MILOJČIĆ et al. 1976, pl. 14, no. 11; HAUPTMANN 1981, Beil 1, no. 23), Central Greece (SAMPSON 1980, Fig. 73, no. 712), and Attica (LAMBERT 1981, 3113, CP 33), to which Macedonia must be added where the technique of "black-topped" was most common and where white paint, graphite, red ocher, rippling, channeling were also used (BONGA 2013, 151–154). For instance, the bowl could be compared to the collar-carinated bowl from Dikili Tash in Eastern Macedonia (TSIRTSONI 2000, 21, Fig. 2, no. H2i; Dikili Tash website) and is dated to c. 5200 BC.

75 TOMKINS 2007, 40, Fig. 1.12, no. 27.

76 EVANS 1971, 99.

77 EFSTRATIOU 2013, 410.

78 As noted above, it is possible that the site was visited, occupied for short periods, and abanonded during the Middle Neolithic period.

79 PERNIER 1935.

80 LEVI 1958.

published Levi's 16 soundings (I–XVI) that were the least affected by later levelling.[81] The Neolithic deposits were almost never deeper than 1.60 meters (with the exception of Saggio VI and VII), architectural remains were scant (e.g., a few rectilinear walls and a circular hut), and they were often overlain by Minoan floors or mixed deposits.[82] In some trenches (e.g., Saggio VI, VII) thick layers of fill separated the Neolithic strata from one another.[83] As at Knossos, it seems that the ceramics are found in secondary contexts, with rare exceptions.[84]

Vagnetti dated the material to the "Final Neolithic" period and established a stylistic typology of seven classes based on vessel surface treatment, wall thickness, and shape.[85] She believed the ceramics belonged to one period with an earlier and later phase (strato neolitico inferior and strato neolitico superiore, or Final Neolithic I and II, respectively) based on the ratio of wares, but she noted that the difference between the phases was slight.[86] The lower stratum was characterized mainly by black-burnished pottery and the use of red-crusted paint, incisions, and pointillé, while the upper stratum had mostly brown and red-burnished ware, with few black-burnished sherds, no red-crusted decoration, and "granulata"[87] was used.

For absolute dating, Vagnetti referred to one absolute date (BM 579, dated to 3584 ± 76 BP) from Stratum II in the West Court at Knossos as dating earlier than the foundation of Phaistos[88] and the sole date from charcoal powder and ashes recovered in a "sub-Neolithic" hearth[89] in the Lendeka Cave (Sa-241, dated to 2550 ± 300 BP)."[90] Vagnetti also referred to the only other known radiocarbon date for the Aegean at the time, a single seed (P-1280, c. 3300–3200 BP) from Kephala (see below) on the island of Kea,[91] and she therefore concluded that Neolithic Phaistos dated to the second half of the fourth millennium BC.[92] By using these dates, Phaistos was conceived as bridging the Neolithic to the Early Bronze Age, a transition she believed was a short phase, lying at the end of the second half of the fourth millennium.[93]

The relationship between Phaistos and Knossos has long been debated.[94] It was not until the excavation of sounding FF in the West Court at Knossos that conclusive parallels with Phaistos were provided (e.g., V-shaped spouts, fabric, and fluted surfaces); these again were mixed with earlier material.[95] Manteli confirmed the chronological relationship between the two sites by identifying Phaistian typological parallels at Knossos in the Central Court Strata I and II, West Court sounding FF, and in the Throne Room System.[96]

Vagnetti and Belli equated Stratum I of Knossos as contemporary with Phaistos,[97] and relatively dated it to "Final Neolithic" but used absolute dates that are not accepted today (e.g., Kephala on Kea). According to the argument presented in this paper, Phaistos probably dates c. 4800–4500 BC or a few centuries thereafter; it is precisely during this period that the focus or activity ceased to be in the area of the Central Court at Knossos, and it seems to have shifted to the areas of the West Court and Throne Room. For example, the particular type of strap handle (Fig. 8) with a conical protrusion[98] has parallels throughout the Aegean, including the Skoteini Cave,[99] where it is dated c. 4800 BC and lasts no later than 4500 BC (see below), which fits with the proposed

81 VAGNETTI 1972-73, fig, 1.

82 MANTELI 1993.2, 61.

83 TODARO 2018, 426. TODARO (2018a, 428, 430) describes breaks within the "Final Neolithic" including the sudden abandonment of Phaistos I and the "major discontinuity" of the violent destruction of Phaistos II.

84 TODARO and DI TONTO 2008; TODARO 2018; 2020; DI TONTO 2018.

85 VAGNETTI 1972–73, 49.

86 The upper stratum has all classes (A–G), while in the lower stratum classes F and G are absent or scarce.

87 "Granulata"(VAGNETTI 1972–73, 87, Fig. 76, nos. 1–2) is "a thick granulation obtained wth a spread of dilute clay mixed with snad and small stones" (VAGNETTI and BELLI 1978, 130).

88 VAGNETTI 1972–73, 128.

89 FAURE 1964, 37, note 3; 1965, 57.

90 DELIBRIAS et al. 1965; WARREN 1976.

91 CASKEY 1971, 391.

92 VAGNETTI (1972–73, 128) was also reluctant to accept the Suess correction (SUESS 1958) which would have shifted the dating in calendar years back into the 4th millennium from the 3rd millennium, but this data is still incorrect for Kephala on Kea (see below for Kephala on Kea).

93 VAGNETTI 1972–73, 129.

94 For reviews of the literature see: TODARO and DI TONTO 2008, 179; NOWICKI 2002; 2008; 2014, 62–66; TOMKINS 2007; 2014; MENTESANA 2014.

95 EVANS 1971, 113–114.

96 MANTELI 1993.1, 97–98, 102. For the Throne Room see: MANTELI and EVELY 1995.

97 VAGNETTI and BELLI 1978, 132. They also note there are no major differences between Strata I and II.

98 There are many types of knobs and protrusions on Late Neolithic II handles, and care must be made to distinguish between these types. It should be noted that similar handles are also found at Pefkakia (among other sites) in Thessaly, but knobs are at the bottom of the handle, not the top; the orientation of the illustrated sherds in Figure 8 follows the orientation in their respective publications and have not been personally inspected by the author. I thank Agathe Reingruber for reminding me of this difference.

99 SAMPSON 1993, 177, Fig. 147, no. 3. Unlike in other Sampson publications (e.g., Sarakenos Cave), the specific layer and context for this handle is not stated; it was placed in Sampson's Late Neolithic II.

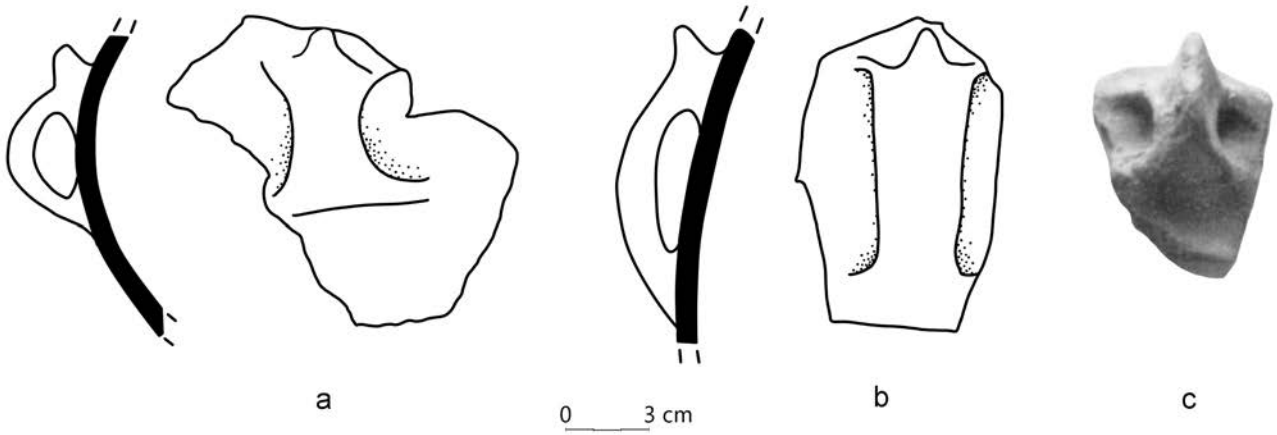


Fig. 8. Strap handle with conical protrusions from (a) Phaistos Saggio VII, strato inferior, (b) Skoteini Cave and (c) Skaphidhia Cave; (a) redrawn by the author after VAGNETTI 1972–73, 59, fig. 59, 9, (b) SAMPSON 1993, 177, fig. 147, no. 3, (c) photograph after PENDLEBURY, MONEY-COUTTS and PENDLEBURY 1937–1938, pl. 5, no. 8.

dating of Phaistos (Saggio VII, strato inferiore)[100] and helps correlate and similar examples from the Skaphidhia Cave[101] in the Lasithi plateau.[102]

Subsequent Chronological Relationships between Sites

Vagnetti interpreted the Neolithic pottery from her subsequent rescue excavations at the settlement of Nerokourou[103] as partially overlapping with Phaistos and Knossos, but mainly later.[104] The challenge of relatively dating Knossos Strata I–II, Phaistos, and Nerokourou was exacerbated by references only on Crete; broader developments on the mainland and their resulting impacts on Crete were not addressed.[105] Even the pioneering work of Renfrew's (1972; based on his 1965 dissertation) synthesis of the prehistory of the Cyclades was written over forty years ago, and the more recent information must be taken into account.[106]

Further, it has been overlooked that although J.D. Evans excavated at Saliagos near Antiparos between his campaigns at Knossos; he made no cross-references between the sites. Similarly, Furness made few comments on the relations between Knossos and the Dodecanese.[107] It seems that the relations are indeed few due to chronological differences,[108] otherwise parallels between the sites surely would have been noted by these scholars. If these sites are contemporary with one another, then it must be asked whether different sea routes and connections contributed to their different trajectories (and

100 VAGNETTI 1972–73, 59, no. 9.

101 PENDLEBURY, MONEY-COUTTS and PENDLEBURY 1937–38, pl. 5, no. 8.

102 Another example, dating slightly later, but certainly prior to 4000 BC, is a type of wide-holed pierced strap handle recovered Saggio VII, strato neolitico superior (VAGNETTI 1972–73, 59, Fig. 59, 3). This type of handle has links at several sites on Crete, including Knossos (Central Court, Stratum IIA), the Ideon Andron Cave on the Nida plateau of Mount Psiloritis (MANTELI 2006, 14) and the Siopata/Metochi rock shelters on Gavdos (KOPAKA and THEOU 2015, 449, Fig. 46.9, second row from bottom, left). On the mainland, one example recovered in the Alepotrypa Cave (PHELPS 2004 [1975], 234, Fig. 60, 12) demonstrates that this type must date prior to c. 4000 BC, if not earlier (see section on Alepotrypa Cave below). Additionally, it should be noted that the material from Kavos Tsargoulio on Gavdos that was once dated in the Final Neolithic period (KOPAKA and PAPADAKI 2006) is now dated by the excavators to the Knossian Middle and Late Neolithic periods of Tomkins (KOPAKA 2015; KOPAKA and THEOU 2015; 2018, 443, 446).

103 VAGNETTI et al. 1989.

104 VAGNETTI 1996, 37–38.

105 Important site reports such as GALLIS (1987) or SAMPSON (1993). Major synthetic reviews of Neolithic Greece include: COLEMAN 1992; DEMOULE and PERLÈS 1993; ALRAM-STERN 1996; 2014; ANDREOU et al. 1996 [2001]; PAPATHANASSOPOULOS 1996; JOHNSON 1999; PAPADIMITRIOU and TSIRTSONI 2010.

106 E.g., TOMKINS (2020) started citing PHELPS (2004) when it was previously available, and still refers to the 1975 unpublished and outdated dissertation on the Peloponnese rather than the 2004 published version with an addendum. Conversely, Nowicki does not refer to Phelps at all and relies more on the Late Aegean Neolithic chronology system of Sampson, but again SAMPSON 2004 is a reprint without an addendum his other excavations and chronological updates such as SAMPSON 1993.

107 FURNESS 1953; 1956.

108 TOMKINS (2007, 29) recognized more off-island parallels in creating his new chronology, such as recognizing links of Strata VIA–V with the southern Aegean (including Saliagos and the Franchthi Cave). TODARO (2020, 327) suggested that characteristics of Neolithic Phaistos can be detected at Saliagos and Ftelia.

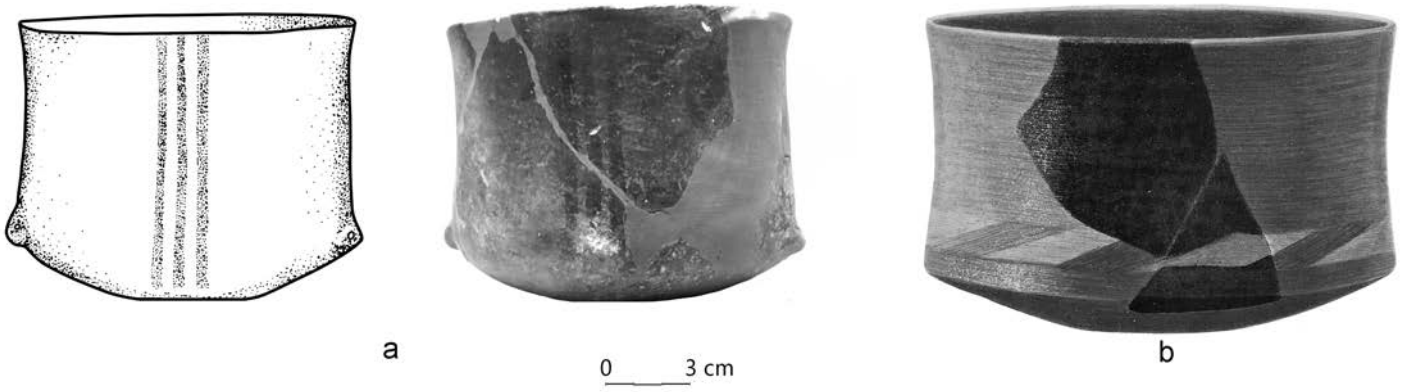


Fig. 9. (a) White-painted bowl with low carination and horizontal string-hole lugs from the Ellenes Cave; (b) Pattern-burnished bowl with low carination (probably had horizontal string-hole lugs) from Elateia (after VAGNETTI and BELLI 1978, pl. VII, 6 (a, left); photo by the author (a, right); after KUNZE 1931, pl. 1, 2 (b))

dissimilarities),[109] or even if their connections were simply overlooked due to methodological biases.

As an example of unrecognized chronological features linking Crete to the broader region, one may cite the use of white paint. Although there are no published examples of white-painted Neolithic pottery from Knossos, all scholars,[110] with the exception of Tomkins, noted the use of white or red fill or encrustation at Knossos, particularly on incised and pontillé decorated pieces.[111] Relying on Tomkins (2007) led Di Tonto to erroneously claim that crusted decoration like the early levels at Phaistos "does not find a comparison in Crete;" furthermore, all of the comparative sites for Phaistos to which Di Tonto refers date much earlier than "the end of the Neolithic period" (e.g., Kephala on Kea, Zas Cave on Naxos, Tigani on Samos, Emporio on Chios, etc.).[112]

Similarly, traces of white paint seem to be unrecognized or were misidentified elsewhere on Crete.[113] For instance, the straight-walled bowl with a low carination and vertically-pierced lugs from the Ellenes Cave (also known as the Ellenes Rock Shelter or Marieles Cave) near Amari has been identified as pattern-burnishing.[114] It is possible, however, that this bowl was really white-painted, with the area of the missing paint appearing as a "paint ghost,"[115] a darker area than the worn vessel surface, and thus it produced an effect similar to pattern-burnishing (Fig. 9). Such broad, vertical lines as on this vessel are indeed a documented motif for white-painted pottery, [116] but *not* for pattern-burnished.

The shape of this partially published vessel is also typical of the Late Neolithic,[117] such as in the pattern-burnished example from Elateia (formerly Drachmani).[118] Due to the (arguably incorrect) identification of the surface decoration, the vessel from Ellenes cave was assigned to the "Attica-Kephala" type of burnishing and dated to 3200 BC,[119] introducing a further error in that it follows the incorrect dating of "Attica-Kephala" (see below). It should probably be re-dated some 2,000 years earlier.

[109] Such as the interaction zones proposed by Sampson (1984, 246, Fig. 6).

[110] MACKENZIE 1903, 159; A. EVANS 1921, 36; FURNESS 1953, 115; J.D. EVANS et al. 1964, 210; MANTELI 1993.1, 64.

[111] MANTELI 1993.1, 9; MANTELI and EVELY 1995, 6; personal observation.

[112] DI TONTO 2018, 422, 422, 424.

[113] Such oversight is documented on the mainland. For instance, WELSCH (1918–19, 46) misidentified Late Neolithic Ib Graphite-painted pottery from Dikili Tash as white paint (Γ2α1) (BONGA 2013, 145) due to its appearance from over-firing (YIOUNI 2001, 18).

[114] ZOIS 1973, pls. 7–8; 973, 203–204; VAGNETTI and BELLI 1978, 139; MANTELI 1993.1, 124.

[115] PHELPS 2004, 74. See also discussion in MAVRIDIS (2017a, 70).

[116] E.g., the white-painted Late Neolithic pottery from the Pelekita Cave near Kato Zakros (BONGA 2019b; KANTA, FERRENCE, and BONGA 2020).

[117] DEMOULE, GALLIS and MANOLAKAKIS 1988, 34–35, 38.

[118] KUNZE 1931, pl. 1, no. 2; HOLMBERG 1964a, pl. 111; 1964b, pl. IX.2).

[119] This bowl is displayed in the recently renovated Rethymnon museum; visited November 2019. It is labeled as: 16. Pyxis, Ellenes Cavern, ca. 3200 BC.

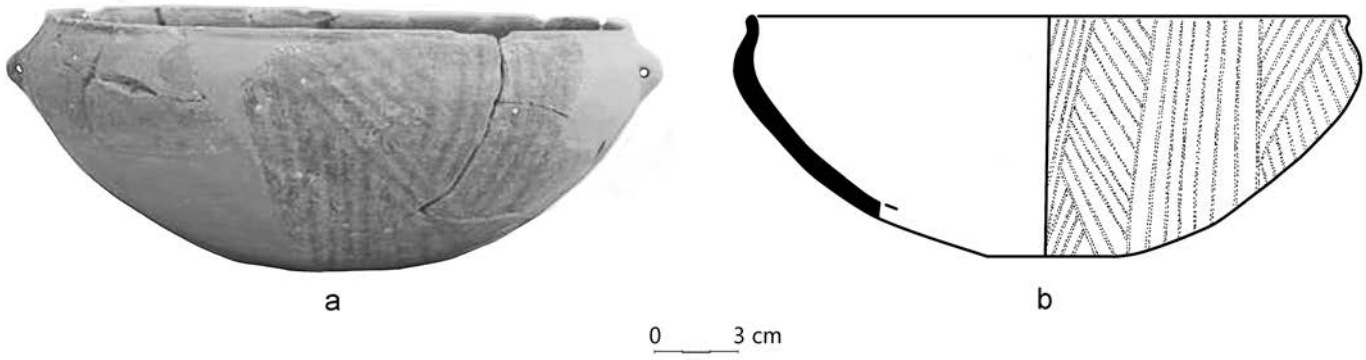


Fig. 10. Similar shallow hemispherical bowl with red pattern-burnishing from (a) Strofilas and (b) Sarakenos Cave (after TELEVANTOU 2018, 398, fig. 40, no. 3 (a); SAMPSON 2008, 279, fig. 153, no. 400 (b)

Relative Dating Outside Crete, Part 1: The Aegean Islands

The Cyclades: Kephala on Kea, Saliagos near Antiparos, Ftelia on Mykonos, and Strofilas and Plaka on Andros

Kephala on Kea

Kephala on Kea has one absolute date (P-1280, 3300–3200 BC), from a single seed that Coleman rejected as contaminated because it was found near the surface and because the relative dating of the associated material was consistent with that found at the earlier sites known at the time (e.g., Saliagos near Antiparos, the Kitsos Cave in Attica, and the Franchthi Cave in the Peloponnese).[120] Instead, Coleman originally suggested a date 4300 BC, but he later moved it back to 4500 BC[121] based on new radiocarbon data from sites with similar material (not limited to pottery) in Thessaly, Macedonia, and Thrace.[122] This revised date, c. 4500 BC, is universally accepted by all scholars,[123] except those on Crete (see below), but the possibility of its dating into the beginning of the 4th millennium cannot be ruled out.[124] The correct dating of Kephala on Kea was even reflected in the title of Coleman's 1977 volume, *Kea: a Late Neolithic Settlement and Cemetery*.[125] To conclude, the proper dating of Kephala on Kea is most likely in the centuries around 4500 BC or c. 43/4200 BC,[126] but probably not later than 4000 BC.

Strofilas and Plaka on Andros

In like fashion, Strofilas and Plaka on Andros have also been misdated at times to the end of the 4th millennium on the basis of ceramic and small finds parallels with Kephala on Kea. These two sites on Andros are not fully published and the below observations are tentative.

120 COLEMAN 1974; 1977, 110; 1992, 260; 2000, 124; CASKEY 1971, 391.

121 COLEMAN 2011, footnotes 11 and 35.

122 ALRAM-STERN 2007, table 1.

123 COLEMAN 2011, 17; JOHNSON 1999; MARAN 2000; ALRAM-STERN 2007, 2; COLEMAN 2011; TSIRSTONI ed. 2016; TSIRSTONI 2017; SAMPSON 1993, 286.

124 COLEMAN and FACORELLIS 2018, 41. Although the international calibration curve currently enables a lower dating of Kephala on Kea due to the plateaus at c. 4000–3800 BC, dating centuries later than 4300 BC seems unlikely given all the earlier parallels prior to 4000 BC.

125 COLEMAN 1977, 110. Additionally, Kephala on Kea is not a "Final Neolithic" site, nor is it the so-called "Attica-Kephala" culture (see below), as it is often called in the secondary literature (and which is also an outdated misnomer) as cultural elements associated with it are not isolated to the region the name implies but are found throughout central Greece, the Peloponnese, the Cyclades, and even the Adriatic (DEMOULE and PERLÈS 1993, 398; SAMPSON 1993, 292). The "Attica-Kephala culture" has also been called "Attica-Saronic Gulf" (PHELPS 1975, 307), the "Saliagos-Kephala" culture or horizon (MAVRIDIS 2010, 21; 2017a; 2017b, 251; MAVRIDIS and TANKOSIĆ 2016) and the Attica-Kephala-Euboea culture (SAMPSON 1993). Perhaps the tendency by Aegean prehistorians to mischaracterize and incorrectly date Kephala on Kea is also due to their traditional beliefs that do not allow them to accept the existence of copper metallurgy at such an early date, despite the evidence of polymetallurgy as early as the Middle Neolithic throughout Greece (ZACHOS 2010; GRAMMENOS 1984, 59, 81; 1997, 270, 291–294), as well as in the Balkans (e.g., MUHLY [2006] also points out that the Balkan character of Greek Neolithic metallurgy is undeniable as does Zachos 2010), including the existence of early tin-bronze at the Vinča site of Pločnik c. 4650 BC (Radivojević et al. 2013, 1031; the find is from a secure context BORIĆ 2009, 214).

126 Based on parallels with Ayios Dimitrios in Triphyllia, Peloponnese, c. 4300 BC (ZACHOS 2008 [1987], 223), closer to the originally proposed date of Kephala on Kea.

Strofilas was initally dated to the mid-4th millennium using luminescence on a stone in a wall (c. 3520 ± 540 BC) and by obsidian hydration of two obsidian blades (c. 3400 ± 200 BC), which served as confirmation of the site's location in the "Final Neolithic in Aegean c. 4500–3200 BC."[127] Although the recently proposed[128] dating acknowledges an earlier phase, c. 5000–4500/4300 BC seems possible based on the photographs and descriptions of the ceramics, metal finds, figurines, chipped stone, "ring-idols," and architecture. This earlier dating is also supported by the shared bowl morphology and decoration from Strofilas[129] and the Sarakenos Cave,[130] (the Sarakenos Cave dates all end before 4500 BC, see below) (Fig. 10).

Ftelia on Mykonos

Ftelia on Mykonos yielded radiocarbon dates and a material culture with many parallels throughout the Aegean. Looking at only the radiocarbon dates from charcoal (not shell) and excluding reversed (or inverted) dates according to stratigraphic depth,[131] only two dates from Trench A5, Layer 10 (DEM-870, DEM-872) provide a narrower range from c. 4950–4600 BC. It is unclear why the excavator (Sampson 2018, 11) rejected the later dates but not the earlier ones when he narrowed the range of Ftelia from c. 5100–4460 BC to c. 5000–4750 BC.[132]

Sampson (2002; 2018) compared the Ftelia "cheese-pots" to those from the Dodecanese, which he dated to the second half of the 4th millennium BC in his chronological system.[133] At Ftelia,[134] however, "cheese-pots" are characteristic of the earliest phase (around 5000 BC), while in the last construction phases they are scarce.[135]

A proper analysis of "cheese-pots" is beyond the scope of this paper;[136] as this type of vessel has yet to be properly studied (e.g, morphological, geographical, chronological differences, proposed uses), but a few relevant observations can be made. The chronological arguments made in this paper suggest the dating of this vessel is possible within a few centuries just after the transition from the Late Neolithic I–II, c. 4800–4600 BC;[137] the possibility of the same form reappearing and dating later (or continuing in some areas into the Early Bronze Age, e.g., Cyclades, Dodecanese, Samos), however, cannot be ruled out due to lack of adequate study.

The rarity of these perforated basins at Saliagos near Antiparos (and occurence only in the last phase) and Kephala on Kea also suggests a chronological difference between these sites,[138] but maritime networks and geographic factors may also play a role, given the fact that this type is not well represented in the Sarakenos or Franchthi Caves.[139] The same situation applies to Crete, where a careful chronological reconsideration of "cheese-pot" definition and distribution is necessary. The shape is rare or absent at Knossos, Phaistos, and Nerokourou; yet "cheese-pot" sherds are ubiquitous finds in surveys and are typically relatively dated by Cretan scholars to c. 3600 or 3400 BC based on the examples dated to this period from the Dodecanese.[140]

127 LIRITZIS 2010, 1375. It is entirely possible, and most likely, that the rock-carvings were made in different periods.

128 Most recently, TELEVANTOU (2019, 155–156) dated two of the architectural phases of the "megaron," the first Phase Strofilas a (SA) to the "Late Neolithic I period," which she dates to c. 5000–4500 BC, and the second, Strofilas B (SB), to the "Late Neolithic II/Final Phase," which she dates to 4500–3200 BC. These dates could be moved earlier based on SAMPSON 2018, which is not in the bibliography, but his other works were.

129 TELEVANTOU 2018, 398, Fig. 40, no. 3.

130 SAMPSON 2008, 279, Fig. 153, no. 400. This particular vessel comes from Trench C (see above in text). There is no published profile for this trench, but here too the dates are mixed (e.g. DEM-1140, DEM-1141, DEM-1142) for the Neolithic levels, which begin in level 10 (SAMPSON 2008, 49). The depth of level 16 in Trench C is stated as the same level as layer 13 in Trench a and the date for level 13, Trench a (DEM-1061) 5050–4810 BC, was assigned to his Late Neolithic Ib (SAMPSON 2008, 27, Fig. 6).

131 MANNING 2008, 56.

132 They are also stated as c. 5050–4660 BC (FACORELLIS and MANIATIS 2002, 310–311) or c. 5051–4457 BC (FACORELLIS 2018, 248).

133 SAMPSON (2018, 6) acknowledges similarities between the "early" Ftelia "cheese-pots" and the "later" ones from Yali near Nissiros (SAMPSON 1988) and Nifi on Ikaria (SAMPSON 2014, Fig. 33, no. 23) and states that an extensive comparative study of Dodecanese, Cyclades, and Crete must be performed to clarify the issue.

134 This updating, along with others (discussed throughout this paper), were not taken into account by NOWICKI (2014, 303, n. 6), leading to his skepticism of the dating of Ftelia, in particular with regard to the "cheese-pots," chipped stone (particularly the tanged points) (GALANIDOU 2002, 317), and the metal objects (particularly the coil pin) (MAXWELL 2002, 147), although the comparative corpus for these finds has also been re-dated earlier (but no later than c. 4000 BC), such as the metal objects at Varna in Bulgaria (see below in text and also ZACHOS 2010).

135 SAMPSON 2018, 10.

136 See ALOUPI 2002 and DOUKAKI 2018 for Ftelia and a short overview; DIMOULA et al. 2021.

137 Both the revision of relatively dated sites in the northern Aegean (e.g., Emporio on Chios, Tigani on Samos) and at least some of the sites in the Dodecanese (e.g. Ayios Georgios Cave at Kalythies, Rhodes), as well as sites with absolute dates (e.g., Alepotrypa Cave, Skoteini Cave on Euboea, and Ftelia on Mykonos) appear to confirm the Ftelia dating.

138 They suggest a sequence with minimal overlap at Saligoas, Ftelia, and Kephala (from oldest to most recent).

139 SAMPSON 2008.

140 PAPADATOS 2008; PAPADATOS and TOMKINS 2014; NOWICKI 2002; 2008; 2014.

Saliagos near Antiparos

Saliagos is a small islet between Antiparos and Paros excavated by J. D. Evans and Colin Renfrew 1964 between J. D. Evans' campaigns at Knossos on Crete. The pottery typology of Saliagos, and particularly white-painted pottery,[141] has drawn the attention of many scholars,[142] but there is no consensus if parallels should be drawn with the mainland Greece, the southeastern Aegean, Euboea, elsewhere in the region, or if it is more appropriate to recognize Saliagos as a local phenomenon in the Cyclades.

Three site phases were identified, but there were no stratified deposits.[143] Absolute dates from shell and sediments[144] put the site from the late 6th to approximately the middle of the 5th millennium.[145] Dating somewhere between c. 5000 and 4600 BC seems plausible,[146] as it would emolliate the differences with Ftelia (e.g., white-painted and "cheese-pots") if the peak of occupational intensity at Saliagos were in fact slightly earlier than exactly and fully contemporary with Ftelia; alternatively, the height of occupation could span closer to c. 4700–4300 BC due to the presence of "Final Neolithic" elements.[147] Several phases may also be possible (as at Ftelia and Strofilas).

Skoteini Cave on Euboea and the Islands of the Dodecanese

In addition to his excavation of Ftelia on Mykonos, excavations by A. Sampson on the islands of Euboea and the Dodecanese will be briefly discussed for their chronological contributions to Neolithic Greece, their application to Crete, and the issues they have raised. Scholars on Neolithic Crete have focused only on his excavations in the Cyclades and Dodecanese, rather than the totality of his work including sites on the mainland and elsewhere in the Aegean such as the Sporades, Euboea, and the Peloponnese.

Euboea: Skoteini Cave, Tharrounia

Based on his excavations in the Skoteini Cave at Tharrounia on Euboea (as well as on the studies of Gallis 1987 and 1988, see below), Sampson modified the chronology that he had proposed on the basis of several islands of the Dodecanese (see below). This excavation and the chronological framework then become a reference for all subsequent excavations by Sampson (e.g., Ftelia, Cave of the Cyclops, Sarakenos Cave, Cave of the Lakes, etc.), and many scholars working in central and southern Greece follow his dating.[148]

The validity of the Skoteini Cave stratigraphy and dating system, however, has been questioned by several scholars.[149] By looking just at the absolute dates and rejecting the three dates (DEM 93-104, DEM 93-105, DEM 93-172) from upper levels in Trench A following Coleman,[150] the many inconsistent dates in Trenches A and G are apparent. If all of the reversed (inconsistent or invented) dates are eliminated then the dates span only from c. 5200–4800 to 4500 BC at the latest (see Figs. 11).[151]

This viewpoint also compresses Sampson's Late Neolithic II into his Late Neolithic Ib (as noted above and in footnote 12). The more limited dating is possible as it more closely aligns Sampson's divisions with the mainstream division of Neolithic Greece used in Thessaly and Northern Greece (see footnote 14 and Fig. 2).The same pattern of chronological limitation and compression is found in all of Sampson's other excavations (three of which are discussed in this paper). Furthermore, although Sampson emphatically states that Skoteini was not inhabited continuously, and there are hiatuses,[152] the fact that on his chronological tables there are no strict divisions

[141] The subsequent finds of similar pottery at the Ayia Triada Cave at Karystos on Euboea in contexts (e.g., Trench 4) with radiocarbon dates spanning to the early 4th millennium, however, raises the question if this type of pottery has a longer duration (MAVRIDIS 2017a, 84, table 2; MAVRIDIS and TANKOSIĆ 2016, 434).

[142] See MAVRIDIS (2017a, 75–77) for a review.

[143] MAVRIDIS 2010, 21.

[144] STUCKENRATH and LAWN 1969; RENFREW 1972.

[145] MAVRIDIS 2007; 2009; 2010; MAVRIDIS 2017a, 76; MAVRIDIS and TANKOSIĆ 2016.

[146] COLEMAN (1992, 260) suggested that Saliagos was a late stage of Late Neolithic I, probably contemporary with Ayia Sofia phase in Thessaly, which would date to c. 4900–4700 or 4600 BC. (REINGRUBER et al. 2017, 45) and FELSCH (1988, 128) relatively dated Saliagos between Tigani I and II, which would date to c. 5400/5300–5000/4900 BC (see below).

[147] MAVRIDIS 2017a, 75, footnote 95; MAVRIDIS and TANKOSIĆ 2016a; ZACHOS 1996, 129–130.

[148] E.g., MAVRIDIS 2007; 2010; MAVRIDIS and TANKOSIĆ 2016.

[149] COLEMAN 2000, 123–131; 2011, 15–17 and endnote 17; GABRIEL 2014, 1033. SAMPSON (2020, 38:59–40:19, 1:04:00–1:05:42) refutes these criticisms.

[150] COLEMAN 2011; COLEMAN and FACORELLIS 2018.

[151] This dating supports the fact that the earliest phases of the Late Neolithic are less represented in the cave (e.g., amount of black-burnished pottery compared to Varka, near Psachna, Euboea; SAMPSON 1993, 282, Fig. 63, 286; 1977).

[152] SAMPSON 1993, 298–299. COLEMAN (2011, endnote 17) locates a major "gap in the use of the Skoteini cave from about c. 4000–3000 BC, if not longer."

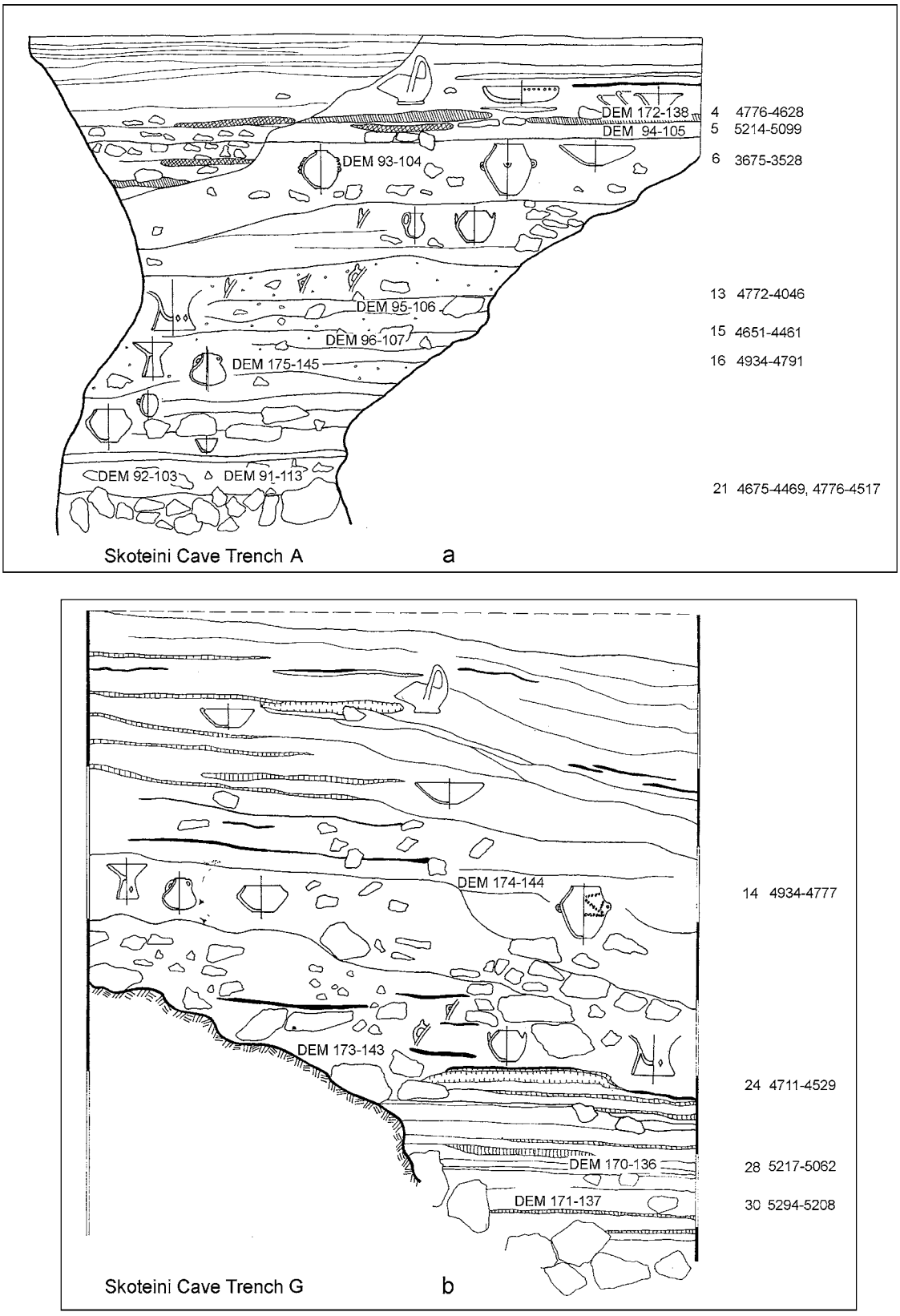


Fig. 11. Calibration of radiocarbon determinations and sample numbers superimposed on stratigraphic section of (a) Skoteini Trench A, south wall; (b) Skoteini Trench G, north wall. Outliers and rejected dates are omitted. (after SAMPSON 1993, figs. 19, with annotations by the author)

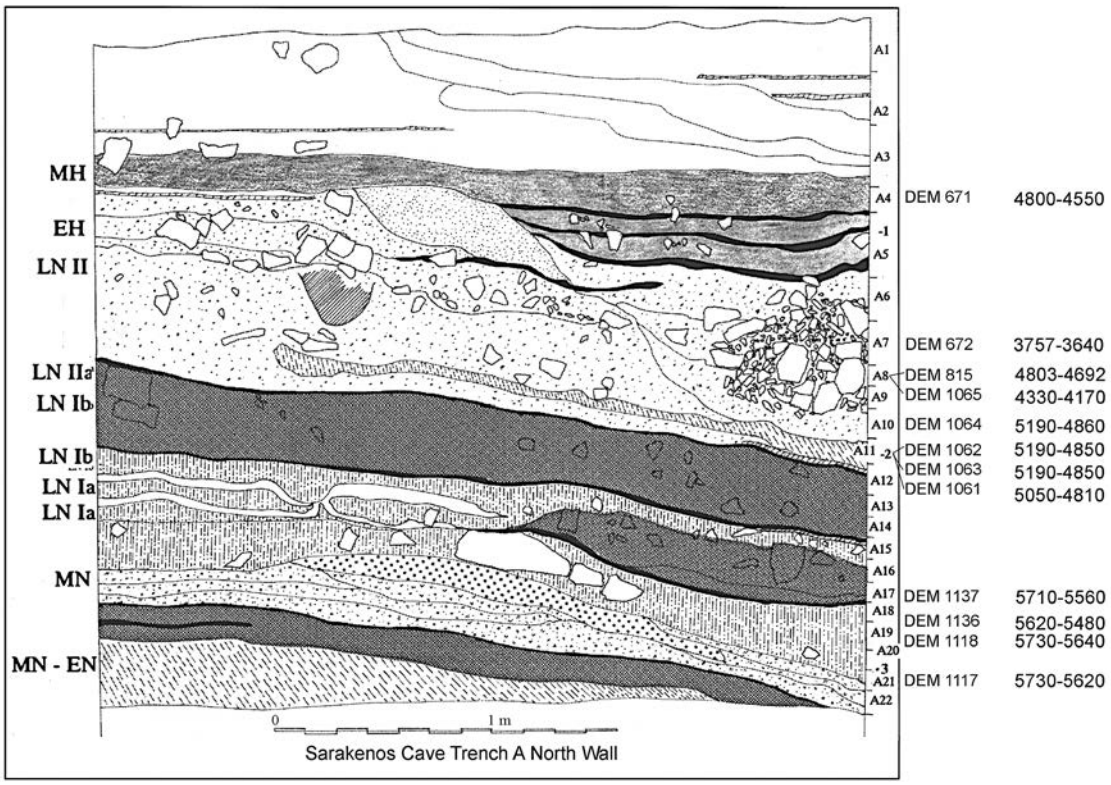


Fig. 12. Calibration of radiocarbon determinations and sample numbers superimposed on stratigraphic section of Sarakenos Cave Trench A, north wall. Outliers and rejected dates are omitted (after SAMPSON 2008, 27, fig. 6, with annotations by the author)

between periods[153] means this ambiguity has led to the interpretation by other scholars that the latest phase continues uninterrupted into the Early Bronze Age.[154]

The Dodecanese

In the 1980s, Sampson[155] created a chronological system based on previous work on the Dodecanesian islands and the Troad,[156] particularly his excavations on Rhodes, Leros, and Alimnia, to unite the Aegean Neolithic with mainland Greece and Anatolia. There are two main issues with this system, both of which are due to the dates of these publications (in the 1980s), that must be addressed.[157] First, they did not take into account the correct chronological location of the Thessalian 'Tsangli-Larisa' phase of black-burnished pottery, which was crucial to understanding both the relationship of the ceramic sequence within Greece and in relation to both Anatolia and the Balkans.[158] This phase had erroneously been dated to the end of the Neolithic – Early Helladic transition for most of the 20th century[159] until its correct stratigraphic position and dating was demonstrated by Gallis[160] at Plateia Magoula Zarkou in Thessaly.[161] It actually belongs millennia earlier, c. 5500 BC.[162] Sampson subsequently revised his chronology to account

153 GABRIEL (2014, 1033) also points out that due to the clear interruptions from sporadic use for temporary shelter and the stratigraphic situation it is not surprising that there are difficulties in correlating the C-14 data with the finds.

154 SAMPSON (1993, 286) states: LN Ia dates to the end of the 6th and beginning of the 5th millennium BC, c. 5100 – 4900 BC, LN Ib to the mid 5th millennium, c. 4500 – 4350 / 4500 – 4230 BC, LN IIA begins with "pattern-burnish," end of the 5th and most of the 4th millennium BC, and LN IIB has no clear distinction with LN IIA, but "pattern-burnish" gradually ends and "cheese-pots" are characteristic.

155 SAMPSON 1984; 1987 [2003]. SAMPSON (2003) is a reprint of SAMPSON (1987) without changes or an addendum.

156 FURNESS 1956.

157 The shortcomings of this system have been addressed by COLEMAN (1992, 262).

158 This misdating was reproduced in general studies, such as RENFREW (1972, 68 – 69), who incorrectly followed MILOJČIĆ and BIESANTZ (1959) at Oztaki in placing Black-burnished pottery after Dimini.

159 MILOJČIĆ 1959.

160 See chart in SAMPSON (1984, 248; 2003, 59), where Larisa is still placed before Rachmani at c. 3550, but it should date with Tsangli c. 5500 BC; compare with the updated location of Larisa in SAMPSON 2008, 154, table 1.

161 GALLIS 1982; 1987.

162 REINGRUBER et al. 2017, 45.

for the Thessalian change, as well as to account for his excavations of the Skoteini Cave at Tharrounia on Euboea (see above).

Second, the Aegean chronological system was based on the Late Chalcolithic 1–4 phasing as developed for Anatolia at Beycesultan.[163] Beycesultan Late Chalcolithic 1–4 was interpreted by excavators[164] to demonstrate continuous development into the Early Bronze Age, and it has long been a reference site, despite the difficulties of correlating other material with it (such problems that were either ignored or cursorily skimmed over).[165] Recent work has shown that neither pottery typology nor radiocarbon dates support the old hypothesis of continuity at the site. It is now understood from absolute dates that Beycesultan covers only a part of the Late Chalcolithic in Anatolia, c. 3800–3400 BC.[166] Stratigraphic re-examination by Schoop[167] also demonstrated stratigraphic discontinuity after the Late Chalcolithic, including the leveling of the entire mound to construct the Early Bronze Age fortification wall. The traditional (and outdated) Late Chalcolithic 1–4 Beycesultan chronology remains used not only by Sampson[168] but by scholars working on Crete,[169] even though traditional comparisons with the Late Chalcolithic Beycesultan can no longer be maintained.[170]

Additionally, it has been pointed out that[171] the sequence in the Dodecanese was built on the stratigraphy of two caves (Koumelo Cave at Archangelos, and Ayios Georgios Cave at Kalythies) on Rhodes and a few short-lived open air sites where only one phase is represented. The four radiocarbon dates from the Koumelo and Ayios Georgios caves do not make up a robust sequence. In fact, one date from each site falls too late (the 3rd millennium BC, HD11342 and HDII343) for the corresponding pottery, while the dates from the Ayios Georgios Cave are reversed (HDII343, HDII345) according to stratigraphic depth, and one sample from the Koumelo Cave (HDII329) based on soil containing charcoal has a wide range of over a thousand years, confirming the unsuitability of radiocarbon dating soil.[172] Even if these issues are ignored, the radiocarbon dates for these two caves yielded dates spanning from the mid-6th millennium to the mid-5th millennium BC,[173] not the 4th millennium BC as they have been cited in the Aegean and Cretan chronologies.

Relative Dating Outside Crete, Part 2: Mainland Greece

The Franchthi, Sarakenos, and Alepotrypa Caves

Three caves in central and southern Greece have also served as chronological references: Franchthi Cave at Kiladha in the southeastern Argolid, Sarakenos Cave at Akraephnion in Boeotia, and Alepotrypa Cave at Diros in Lakonia (Mani peninsula). The speleological characteristics and use of these caves vary, but all three caves (like every other cave in Greece) were used sporadically throughout the Neolithic period, primarily for temporary shelter, storage, and burial. In all cases the stratigraphy of the upper layers was disturbed and no cave has definitive proof of Neolithic use later than c. 4000 BC until the Early Bronze Age.

Franchthi Cave

The Franchthi Cave is better characterized as a rock-shelter due to a large rock overhang and abundant light (there are no deep, dark, cavernous chambers). The disturbed nature of the stratigraphy of Franchthi was recognized during excavation and in the sediment/stratigraphic study,[174] as well as in the ceramic analysis.[175] Several hiatuses have recently been recognized,[176] including several similar to Knossos (early dates from

163 SAMSPSON 1984, 245.

164 LLOYD and MELLAART 1962.

165 E.g., as at Bağbaşı (ESLICK 1992), Pekmez (SHARP JOUKOWSKY 1986), and Tigani (FELSCH 1988) or simply dated to another period (e.g., Kuruçay, DURU 1996).

166 KROMER, KORFMANN and JABLONKA 2003. Late Chalcolithic in Anatolia is dated to c. 4250–3000 BC (STEADMAN and MCMAHON 2011, 161–162).

167 SCHOOP 2005, 149–196.

168 E.g., SAMSPSON 2008, table 6; SAMPSON 2014.

169 TOMKINS 2007, 12, table I.1; 2014, 352, Fig. 1. NOWICKI (2014, 76, table 2, 302, n. 2) uses the correct Late Chalcolithic 1–4 Beycesultan chronology.

170 GABRIEL 2014.

171 NOWICKI 2014, 62.

172 SAMSPSON, FACORELLIS and MANIATIS 1999.

173 Using OxCal 20: c. 5500–4800 BC (HDII345) for Ayios Georgios Cave and c. 5500–45/4400 BC (HDII329) for Koumelo Cave.

174 FARRAND 2000; VITELLI 1999.

175 VITELLI (1999, 11, 18, 89) determined evidence of disturbed stratigraphy and gaps in the ceramic sequence (e.g., hiatus between FCP 2 and 3, and that FCP 4 pottery made by different people during short-lived occupations). These hiatuses are also confirmed by radiocarbon dating between FCP 3 and FCP 4 as well as between FCP 4 and FCP 5.

176 According to REINGRUBER and THISSEN (2017): The dates for the first three Franchthi Ceramic Phases (FCP1, FCP2 and FCP3) overlap between c. 5900 and 5500 BC (the time of the Middle Neolithic in Thessaly), followed again by a gap before the Late Neolithic phase FCP4 starts at c. 5200 BC. After another gap of 1000 years, two dates attest to a Final Neolithic (Chalcolithic) occupation in FCP5 at 4200–3900 BC.

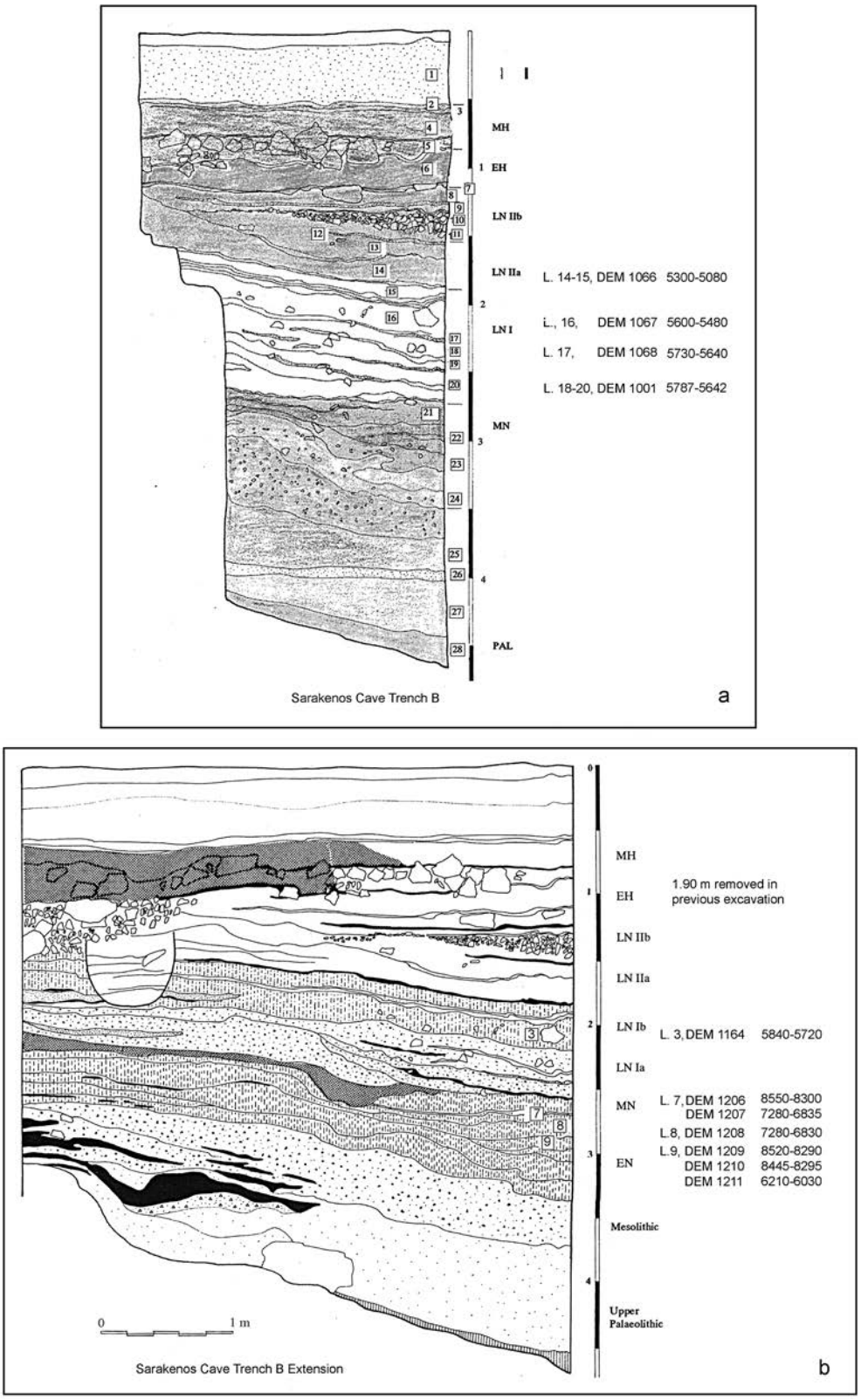


Fig. 13. Calibration of radiocarbon determinations and sample numbers superimposed on stratigraphic section of (a) Sarakenos Cave Trench B; (b) Sarakenos Cave Trench B extension. Outliers and rejected dates are omitted. (after SAMPSON 2008, 41, fig. 26, 44, fig. 27, with annotations by the author)

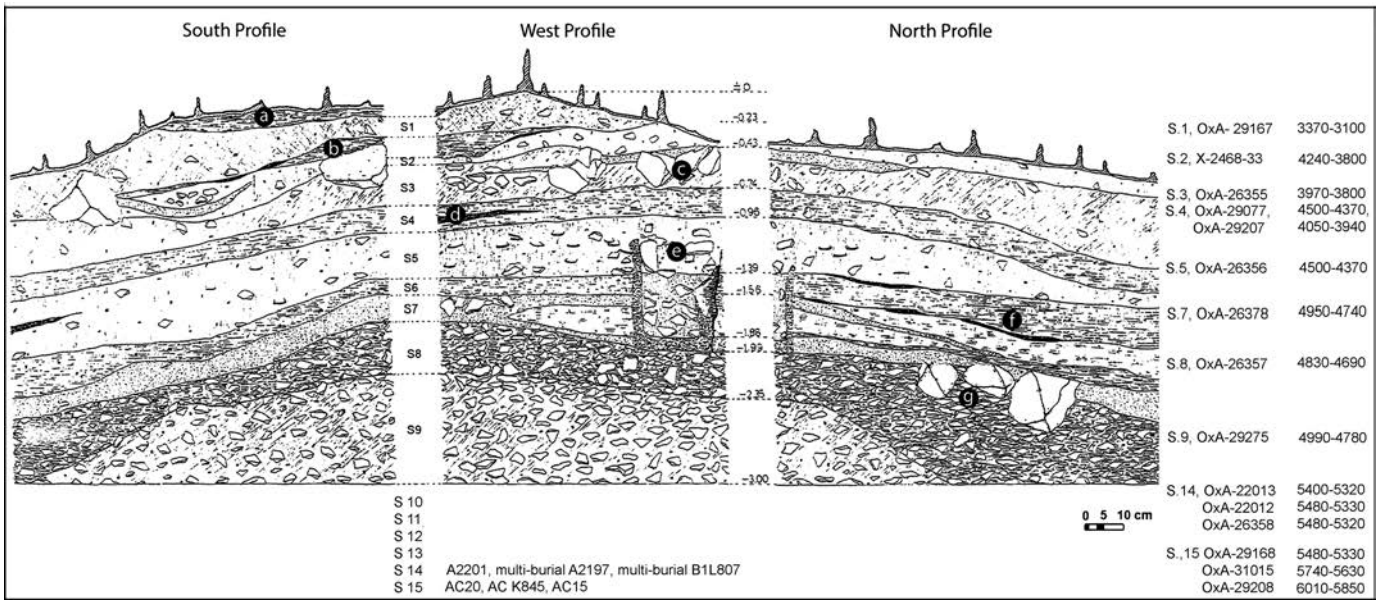


Fig. 14. Calibration of radiocarbon determinations and sample numbers superimposed on stratigraphic section of the nine layers (S1–9) of 1971 of Alepotrypa Cave Trench B1. Outliers and rejected dates are omitted. (after KATSIPANOU-MARGELI 2018, 35, fig. 4.4, with annotations by the author)

seeds followed by abandonment, reoccupation at a later date in the Middle Neolithic, and a *terminus post quem* c. 4000 BC),[177] as well as at the end of the Late Neolithic period.[178]

Regarding the Late Neolithic period, the transition from Late Neolithic I–II is not represented in absolute dates.[179] Coleman notes that the two dates on charcoal from Franchthi Ceramic Phase 5 (FCP 5) fall in the second half of the 5th millennium BC, and therefore are not "Final Neolithic" nor immediately preceding the Early Bronze Age. He noted that the date from FCP 5.1 (P-1660) agrees with the "fairly standard Chalcolithic pottery," like the upper stratum of "Rachmani" at Pefkakia, while the wide range of the date from FCP 5.2 (P-1659) could still date to the end of the 5th millennium BC, but it comes from shallow and mixed deposits, which undermines the ability of this date to be used with confidence. If these FCP dates are rejected as insecure, the last secure date is closer to c. 4800 BC (P-1630).

Sarakenos Cave

At the Sarakenos Cave (at Akraephnion in Boeotia) discrepancies occur among textual descriptions of stratigraphy, radiocarbon dating, and chronological periods as labeled on stratigraphic sections as repeated in each trench (Fig. 13), which has been noted by others.[180] Following the methodology of this paper, a narrower dating of extending only to c. 4500 BC at the latest is suggested.

Alepotrypa Cave

The Alepotrypa Cave (at Diros on the Mani peninsula in Lakonia) provides a new example of recent excavation that enables the testing of the methodology and chronology presented in this paper as based on absolute dates, stratigraphy, and relative ceramic chronology. It is also one of the closest Neolithic sites on the mainland to Crete. The cave differs from other Neolithic examples in Greece in that it was used systemically and repeatedly for burials. The radiocarbon dates from the cave come from several areas within the large cavern, and the dates span c. 6200–4000 BC.[181] As with the other examples discussed in this paper, the stratigraphic layers in trench B1 were disturbed and the radiocarbon dates in the upper levels reversed (Fig. 14).[182]

Based on the absolute dates from the human bones themselves (atop trench B1 and elsewhere in the cave, particularly ossuaries I and II), 18 of them cluster between c. 4240–3990 BC,[183] and the fact that none of the pottery

177 BONGA 2019a; REINGRUBER and THISSEN 2016; 2009, 762; REINGRUBER 2008.
178 COLEMAN 2011, endnote 19.
179 REINGRUBER and THISSEN 2016, Fig. 1.
180 COLEMAN 2011, 19; NOWICKI 2014, 302, footnote 2.
181 PAPATHANASIOU 2018, 7.
182 PAPATHANASIOU 2018, 19, table 2.1.
183 PAPATHANASIOU 2018, 18, 20.

was relatively dated later than 4000 BC[184] is in accordance with the dating system presented in this paper.[185]

Relative Dating Outside Crete, Part 3: The Balkans, the Troad, and Adjacent Northern Aegean Islands

The Balkans: Varna and Vinča

The necropolis at Varna was conventionally dated to 3500–3200 BC,[186] but new radiocarbon dates now give a timespan of c. 4600–4300 BC,[187] with the dates from the human bones themselves ranging c. 4560–4450 BC.[188] This dating revision fits within the larger chronological revision of the Kodzhadermen-Gumelniţa-Karanovo VI complex,[189] to which Varna belongs.

The dating of Varna is instrumental for sites in Greece which have similar (though rare) finds such as copper tools, *spondylus* shells, "ring-idols," and gold jewelry. As with the chronological changes to the Dodecanese based on the shift in the traditional dating for Beycesultan or for the "Tsangli-Larisa" phase in Thessaly, these important updates in the Balkans have not been absorbed by scholars working on Neolithic Crete (also in part because of the use of the incorrect dating of Kephala on Kea).

The few extant metal finds on Crete may likewise be dated to the first half of the 5th millennium BC, [190] but remains speculative.[191] Perhaps one of the most notable examples is the silver "ring idol" from the Eileithyia Cave at Amnissos on Crete.[192] Silver "ring-idols" have also been found at Ftelia on Mykonos,[193] in the Cave of Euripides on Salamis,[194] and in the Alepotrypa Cave in the Mani,[195] in contrast to primacy of gold examples in Northern Greece.[196]

Similarly, both the tell site of Vinča-Belo Brdo[197] and other Neolithic Vinča sites in southeastern Europe[198] have recently had their relative ceramic chronology refined by radiocarbon dates; the Vinča horizon can now be dated to c. 5300–4500 BC. Previously, it was thought to span a longer period (from c. 5700–4200 BC).[199] The influence of Vinča in Greece (and southeastern Europe) has a long history of scholarship,[200] and perhaps it is time to consider Crete as the southernmost extent of this sphere of interaction (particularly in the black-burnished or dark-faced burnished ware of Anatolia and the Balkans).[201] Vinča chronology is relevant to Greece since

184 E.g., KATSIPANOU-MARGELI 2018; PSIMOGIANNOU 2018, 129, 138, 149; VALVIS 2018, 100; KATSAROU 2018, 100; PENTEDEKA 2018.

185 Elsewhere in the cave, the same discrepancy between traditional, relative, and absolute dating was repeated in different contextual circumstances. For instance, the divergent dating of the human bones and pottery in ossuaries I and II suggests that the ceramics were unrelated to burials, and that they were produced and circulated over a short period (KATSAROU 2018, 100).

186 IVANOV 1983.

187 IVANOV 2000, 12.

188 HIGHAM et al. 2007; 2018; HONCH et al. 2006. These dates have generally been accepted (e.g., TSIRTSONI ed. 2016; TSIRTSONI 2017) with few objections (e.g., DZHANFEZOVA 2013, 35, 37, 55), but the lower end of the dating is plausible based on the two graves (111, 117) with both human and animal bone, (REINGRUBER 2015b, 314, Fig. 17).

189 TSIRTSONI 2014; 2016; 2017; REINGRUBER 2015b. The KGK VI complex may begin c. 4600 cal BCE or earlier, and spans the second half of fifth millennium BC, and in most regions (e.g., Greek Eastern Macedonia) and cases, sites were destroyed and abandoned between 4350 and 4250 BC, see TSIRTSONI (2017, 68, 70).

190 Two copper ores and six pieces of copper slag with "Final Neolithic–Early Minoan I" pottery below an Early Minoan I floor at Petras Kephala (PAPADATOS 2008, 269) were dated to Final Neolithic IV, c. 3300–3000 BC (PAPADATOS and TOMKINS 2014, 336), as were crucible fragments and pottery with melted copper at Gavopoula on Gavdos (KOPAKA and THEOU 2018, 452); both of these could be earlier based on Kephala on Kea (see above) as well as metallurgy in the Cyclades and mainland Greece.

191 Other metal objects from Crete include a copper fragment in Saggio II from the later Neolithic strata and an awl from Phaistos (VAGNETTI 1972–73, 94; PERNIER 1935, 125, Fig. 52; LEVI 1958, 348); a copper ax from a questionable context a "Late Neolithic house" (EVANS 1928 II.i, 14–15, ig, 3fa). MUHLY (2006, 155, 165) does not rule out the possibility of "Final Neolithic" metallurgy at Chrysokamino, c. 4500–3500 BC as based on JOHNSON (1996, 271; 1999 slightly different date), Some of the metal finds from the Trapeza Cave (PENDLEBURY, PENDLEBURY and MONEY-COUTTS 1935–36) may be Neolithic in date.

192 DEMAKOPOULOU 1998, 64, no. 63; 2007, 174. MEHOFER (2014, 470, Fig. 6) notes the shape is similar to Balkan examples.

193 SAMPSON 2002, 124.

194 LOLOS 1998, 64, pl. 62; DEMAKOPOULOU 1998, 64, no. 62; ZACHOS 2007, 174.

195 PAPATHANASOPOULOS (ed.). 2012.

196 Perhaps the use of silver and rock-pecked depictions characterized the representation of this shape in the Cyclades and Crete. Copper, stone, shell, and clay "ring-idols" also occur, and the shape is also depicted in painted representations on three styles of painted pottery (Dimini matt-painted and crusted) as well as in plastic decoration (BONGA 2013, 56–58).

197 SCHIER 1996; 2000; GLÄSER 1996; BORIĆ 2015; TASIĆ et al. 2015; 2016.

198 BORIĆ 2009; ORTON 2012; WHITTLE et al. 2016.

199 CHAPMAN 1981, 17–32.

200 e.g., GRUNDMANN 1932; HEURTLEY 1939; MILOJČIĆ 1949b; SCHACHERMEYR 1955; HOLMBERG 1964A; BRUKNER 1983.

201 MAVRIDIS (2017a, 77) has similarly stressed the need to consider the wider context of the Balkan Karanovo III and early Vinča cultures and the dark-faced pottery traditions in western Anatolia in understanding similar pottery in the Cyclades (e.g. Saliagos) and Ayia Triada Cave at Karystos on Euboea.

the traditional relative chronology of Neolithic Greece devised by Milojčić[202] was partially based on parallels with Vinča, which in turn was thought by the excavator of Vinča-Belo Brdo to be contemporary with Troy I and dated to c. 2700–2025 BC.[203]

The Troad: Kumtepe, Beşik-Sivritepe, Gülpınar, and the Adjacent Northern Aegean Islands

Along with Beycesultan, Varna and Vinča in the Balkans, sites on the Northern Aegean islands and the Troad have often served as reference points in relative chronologies connecting one another due to their similarities in material culture. This region is related to the wider region, including the Aegean, as "between 5000 and c. 4000 BC the Troad seems to have been part of a more or less unified cultural entity based on a system of several interacting sub-regions, i.e. northwest Anatolia, Turkish Thrace, and southeast Europe."[204] Many of the sites in the Northern Aegean, however, lacked absolute dates, but the recent data from the three sites of Kumtepe, Beşik-Sivritepe, and Gülpınar in the Troad have clarified a situation that was until now interpreted differently by various scholars. The recent absolute dating of these sites in turn better reveals their relationship to Crete.

The Troad: Kumtepe, Beşik-Sivritepe, Gülpınar

Kumtepe, Beşik-Sivritepe, and Gülpınar are only partially contemporary with one another,[205] as is evident in the stylistic differences in ceramics[206] and radiocarbon dates.[207] Thus Kumtepe Ia[208] and Beşik-Sivritepe[209] belong to two successive phases, c. 5400/5300–5000/4900 and 5000/4900–4300 BC,[210] respectively.[211] Gülpınar belongs to the earlier group;[212] as its ceramic assemblage demonstrates interaction both with the Aegean and the Balkans in addition to sites in Anatolia and Thrace (e.g., Bağbaşı, Karain Cave, Ulucak, etc.) and it is therefore useful for intra-regional comparisons.[213]

The absolute dating of these sites in the Troad also corroborate the existence of a hiatus between Kumtepe Ia and Ib,[214] which affects the relative dating of sites on Aegean islands around the Troad (e.g., Emporio on Chios and Tigani on Samos, Poliochni on Lemnos) as well as those in the Dodecanese considered by Sampson (e.g., Koumelo Archangelos and Kalythies Caves on Rhodes, Partheni on Leros, Giali, and Alimnia).[215] Although the

202 MILOJČIĆ 1949a; 1949b.

203 VASIĆ 1932, 87. Although there were early objections, such as FEWKES (1935). Troy I is now dated to c. 2820–2719 BC (YAKAR 2011, 21, table 4.5, 23).

204 BLUM 2014, 136. e.g., Alacalıgöl, Ilıpınar, İkiztepe, Kumtepe IA and Beşik-Sivritepe Karanovo V/Marica and sites of the Kodžadermen-Gumelniţa-Karanovo complex.

205 TAKAOĞLU 2002; 2005; 2006.

206 GABRIEL 2014, 1000, n. 17.

207 KORFMAN and KROMER 1993; GABRIEL 2014, 994, table 1.

208 Except for the dated graves from Kumtepe Ia, the radiocarbon samples do not come from any specific context and none are from the architectural horizon overlying the graves (GABRIEL 2014, 996).

209 The 14C data from Beşik-Sivritepe indicate that the site is partially contemporaneous with Kumtepe Ia, but mostly later, c. 4700–4500 BC (GABRIEL 2014, 994, table 1).

210 TAKAOĞLU and ÖZDEMIR 2018, 488; GABRIEL 2014, 994, table 1, 1037. The absolute dates from sites in the Troad cluster into two groups, between c. 5500–5000 and 5000–4500 cal BC (GABRIEL 2014, 1037).

211 See BLUM (2014, 127–137) for a brief review of the material and dating of these three sites.

212 The 14C data on bone and charcoal from Gülpınar (in the Sanctuary of Apollo Smintheus/Smintheion) are not yet fully published (GABRIEL 2014, 1006). Gülpınar (phase II) dates between 5200 and 4800 cal BC, Gülpınar III from 4930–4450 BC and Gülpınar II from 5320–4940 BC (TAKAOĞLU and ÖZEDMIR 2018, 481). They appear earlier than the expected (GABRIEL 2014, 1006) c. 5200–4800 cal BC (and possibly with a focus on the end of the 6th millennium cal BC). Optically Stimulated Luminescence and Thermoluminescence dated pottery also placed the site at c. 5000 BC to 4500 BC (KIYAK, TAKAOĞLU and ERGINAL 2010, 41). The bone and shell samples come from layers in the lower area of the tumulus in secondary deposits on the bedrock and in situ layers were only found in LL83 and NN82, from which there no 14C data (GABRIEL 2014, 996). Reservoir effect on the marine samples must also be taken into account when assessing this data (e.g., Hd-11348 from an oyster) (GABRIEL 2014, 1007).

213 TAKAOĞLU 2006, 290. Scholars working on Neolithic Anatolia (e.g., TAKAOĞLU 2006; GABRIEL 2014) who cite Sampson's work in the Aegean have not pointed out the inconstancies/outdated references in Sampson's work in relation to their geographic area of specialty.

214 The traditional view holds that Kumtepe Ia and Ib were successive phases (LAMB 1932, 128), with Emporio VIII equated with Kumtepe Ia and dark-faced pattern-burnished pottery (HOOD, CLUTTON-BROCK and BIALOR 1982, 76). ÖZDOĞAN (1993, 183) challenged this interpretation based on the absolute dates and stratigraphic evidence from his excavations at Hoca Çeşme Ia in Turkish Thrace, which revealed Toptepe Phase I material along with Karanovo III/IV, which contradicted the traditional chronology of Kumtepe 1a and Ib as immediately successive, and was more suggestive of a gap; this hypothesis was subsequently confirmed by new excavations and radiocarbon dates from charcoal (Hd-17705 and Hd-17515) at Kumtepe itself, which pushed back the dating of Kumtepe Ia somewhere to within 4805–4370 BC (GABRIEL 2000; KORFMANN et al. 1995), almost a millennium before that of the Kumtepe Ib (TAKAOĞLU 2004, 5). The new dates were questioned by SCHOOP (2005, 262–263), who suggested that the gap between Kumtepe Ia and Ib might be errant due to calibration errors from marine effects related to the coastline formation.

215 Additionally, SAMPSON's 1984 and 1987 [2003 reprint] correlations of sites in the Dodecanese with those in Western Anatolia, the Troad, and Turkish Thrace) have also been substantially revised (TAKAOĞLU 2004).

comparison of Kumtepe Ia pottery with the ceramics from Beycesultan Late Chalcolithic 2 (as suggested by Sperling[216]) can no longer be maintained on a stylistic basis or from absolute dates,[217] Sperling's work continues to be used for relative dating, leading to incorrect relative dating of sites.[218] Kumtepe Ia and Beşik-Sivritepe are still incorrectly cited as contemporaneous with Beycesultan Late Chalcolithic 2–4,[219] following Sperling.[220] Any comparisons of Cretan material to Beşik-Sivritepe and Kumtepe must take these changes into account, something recent publications have failed to do.[221]

Adjacent Northern Aegean Islands: Tigani on Samos and Emporio on Chios

As a result of the recent work and revisions of Kumtepe Ia, Beşik-Sivritepe, and Gülpınar, it has been suggested that the traditional dating of Tigani and Emporio on the island of Chios could similarly be pushed back in time due to the similarities of ceramic assemblages.[222] In particular, Tigani I–III and Emporio X–VIII are roughly contemporary with Kumtepe Ia and Beşik-Sivritepe (while material from the subsequent phases of Emporio VII and Tigani IV can be compared with Beycesultan and Kumtepe Ib).[223] Hood's dating of Emporio X–VII on Chios as a "relatively early phase of the Aegean Neolithic" and earlier than Ayia Gala is not substantiated.[224]

At Tigani, a typological break in the ceramic inventory was observed between the phases Tigani III–IV that both Felsch and Schoop interpreted as a hiatus;[225] the material studied by Felsch, however, was from pits (their stratigraphic validity and interpretation is not of the same weight as Emporio, which included architectural remains). As at Tigani (and many other sites discussed in this paper), it has also been suggested that the Emporio sequences are not continuous as previously thought.[226] This scholarship must be taken into account for scholars working on Neolithic Crete and referring to these sites.[227]

Conclusions

It has become apparent through new excavations, re-examination of old stratigraphy, and improvements in radiocarbon data that the traditional narratives of southeastern Europe during the Neolithic period at many key sites is not as complete or as clear as was once thought.[228] As Katsipanou-Margeli states: *"dates, pottery styles, cultural phases and their subdivisions have been faithfully adhered to by scholars for decades, without being subjected to sufficient systematic scrutiny and calibration. As a result, possible discrepancies have been unwittingly reproduced and introduced, as the pottery contexts of the new excavations are adapted to fit the old established patterns, rather than the opposite, which is more methodologically correct."*[229]

This paradigm applies to Neolithic Crete, as shown by this short review of the available radiocarbon data, relative dating of ceramics, and excavation stratigraphy from Knossos along with several "key" reference sites in the wider region used by scholars on Crete. At present, uninterrupted millennia-long occupation throughout the entire Neolithic period and including the transition to

216 SPERLING 1976, 358.

217 As GABRIEL (2014, 1000, n. 17) points out, "Es erstaunt, dass die Forschung seinem Datierungsansatz so lange unhinterfragt gefolgt ist."

218 E.g., ÇILINGIROĞLU and ABAY 2005, 9; ÇILINGIROĞLU et al. 2004, 20; SAMPSON 2008, 516, where Beycesultan LC1 is dated to 5000 BC, while Kumtepe Ia1 is located next to Beycesultan LC3 to 4300 cal BC; SAMPSON 2006, 147; TREUIL (ed.). 2004, 265.

219 GABRIEL 2014, 999.

220 SPERLING 1976, 358.

221 TODARO (2018, 435), for instance follows RENFREW (1972, 77) in dating Lebena to the Partira-Agios Nikolaos group based on pattern-burnishing parallels with Beşik-Sivritepe. If this Cretan material is to be compared with Beşik-Sivritepe, then it must date earlier than either scholars date the Partira–Ayios Nikolaos group.

222 GABRIEL 2014; BLUM 2014; TAKAOĞLU 2006.

223 GABRIEL 2014, 1027; MAVRIDIS and TANKOSIĆ 2009. The identification of a fragmented copper ring found at Emporio IX–VIII and interpreted as a "ring-idol" also fits with this dating (HOOD, CLUTTON-BROCK and BIALOR 1982, 657, 661, Fig. 295, no. 17).

224 HOOD, CLUTTON-BROCK, and BIALOR 1982, 715–725. Hood decided that Emporio was even older than Ayia Gala. Ayia Gala is also without absolute dates and has a reconstructed stratigraphy (FURNESS 1956, 194, 197). Some of the material from the Lower Cave dates earlier in the Neolithic and has parallels in Turkish Thrace (e.g., the Hoca Çeşme Cave).

225 FELSCH 1988; SCHOOP 2005, 238, 251; GABRIEL 2014, 1027–1028. Schoop also pointed out differences in architecture and in the pottery from Emporio VII, indicative of a gap, whereas Hood (HOOD, CLUTTON-BROCK, and BIALOR 1982 , viii) interpreted stylistic ceramic changes as being introduced by foreign immigrants, but maintained the continuity of settlement.

226 GABRIEL 2014, 1027.

227 E.g., TOMKINS (2007) dated Tigani I to c. 3900–3600 BC, but subsequently (2014) pushed it back to c. 5300–4900 BC, where it should have been in the first place according to FELSCH (1988) and TAKAOĞLU (2004; 2006).

228 ANTHONY 2007; 2010; COLEMAN 2000; 2011; TODOROVA 2003; ÖZDOĞAN 2003, 354; TSIRTSONI 2016. and BIALOR 1982 , viii) interpreted stylistic ceramic changes as being introduced by foreign immigrants, but maintained the continuity of settlement; GABRIEL 2014, 1027; E.g., TOMKINS.

229 KATSIPANOU-MARGELI 2018, 87.

the Early Bronze Age is not documented at any site in Greece.[230]

Knossos is no exception, and the recent interpretations have been somewhat more diligent in their stratigraphic analysis and cautious of interpretation (e.g., acknowledgement of intermittent occupation and hiatuses).[231] The Neolithic chronology of Crete must also be seriously reconsidered and updated,[232] in line with the most recent absolute dating in the wider region (Fig. 15); Knossos cannot remain the only reference for Neolithic Crete,[233] even if suplemented by Phaistos. Recently excavated Neolithic sites in Crete must also adjust for these changes.[234]

The revised absolute dating for Knossos suggested by the data and presented in this paper reveals that the area of Central Court was intensely occupied for only a portion of the Neolithic period,[235] the Late Neolithic, as indicated by analysis of J.D. Evans' stratigraphy, radiocarbon data, and ceramics (Figs. 3, 5, 6, 7) and confirmed by the findings from the more recent excavation in the 1990s. Occupation may actually have begun at the Middle Neolithic or Middle Neolithic–Late Neolithic transition, but the peak of intensity is in the Late Neolithic I, with a sudden drop-off in Late Neolithic II. This later period in absolute dates is not well defined (see above). In the area of the Central Court habitation seems to have begun c. 4800 BC and ended shortly thereafter, although it may have lasted until c. 4400 BC, based on radiocarbon dates and pending full publication of the West Court where it seems to last slightly longer.

From the other end of the time-table, however, it is worth emphasizing that the Early Bronze Age on Crete remains underrepresented and unexamined in absolute dates.[236] In fact, there are no radiocarbon dates for the Early Minoan I period.[237] Crete was even totally excluded from the recent article, "Tracing the Absolute Time-Frame of the Early Bronze Age in the Aegean," due to "the lack of systematic sequences of 14C dates and also the considerable confusion about the transition from Neolithic to EBA regarding to what precisely was or was not characteristic of the beginning of the Early Minoan I (EBA I) leading to the same pottery groups being termed Neolithic or EM I by different scholars."[238]

The incomplete chronological picture for Neolithic Crete is also due two important reasons, both of which are related to the current limitations in research but both require further comment prior to closing. First, is simply the lack of targeted investigations on Crete for the Neolithic period and adequate publications. The location of open-air settlements has remained elusive, although many cave sites are recorded.[239] Parallels from the rest of Greece demonstrate cave use only during certain phases in the Neolithic period, which results in a biased set of data (e.g., difficulties with cave stratigraphy, question of cave use) and should be taken into consideration for Cretan Neolithic caves. Neolithic open-air sites on Crete have never been systematically targeted in the numerous survey projects on the island, with the exception of the reconnaissance work by Nowicki.

Such focused investigations, however, indicate that the sites are "there," albeit "somewhere," in the modern landscape. Most recently, previously undetected Late Neolithic sites, have been identified.[240] Both alluvial deposition,[241] and conversely, erosion, seem to have greatly affected the visibility of open air sites, particularly if they consisted of only a few structures of perishable

[230] GALLIS (1994), TREUIL (2014), TSIRTSONI (2016), NOWICKI (2014, 302, N. 3), and ASLANIS (2018, 30) independently came to similar conclusions as COLEMAN (2011, 13, 15; COLEMAN and FACOFELLIS 2018) for the Cave of the Cyclops, Sitagroi, Dikili Tash, Servia, and Megalo Nisi Galanis.

[231] E.g., DOUKA et al. 2017; EFSTATIOU et al. 2013: EFSTRATIOU 2013.

[232] TOMKINS (2018; 2019; 2020) seems to be potentially moving in this direction following BONGA (2017), but new Neolithic data from Knossos remains to be published.

[233] NOWICKI (2014, 67) has also argued against the utility of the reliance on Knossos for the rest of Crete.

234 These include: Neolithic cemetery at the site known as "Kephali" near the now abandoned and flooded hamlet of Sfendigli due to the Aposelemis dam (KANTA and SERPETSIDAKI 2015; ANGELARAKIS and KANTA 2019), the site of Kardoulianos near Kastelli (A. KANTA, personal communication), current excavations in the Mesara (D.Z. KONTOPODI personal communication), Sopata and Mesorachi in Eastern Crete (SOFIANOU and BROGAN 2019; SOFIANOU et al. 2019; BROGAN et al. 2021), and re-excavations in the Pelekita Cave (BONGA 2019b; KANTA, FERRENCE and BONGA 2020).

[235] Sir Arthur Evans' original observation was the Central Court consisted "entirely of the same Neolithic deposit" (1899–1900, 6–7). Due to the thickness of deposition and the early understanding of radiocarbon dates led to the misinterpretation of a slow rate of change and conservative pottery over millennia (EVANS et al 1964, 194). These established biases also affected their ceramic appreciation of the site (e.g., TOMKINS 2001; 2007; 2008).

[236] Similarly, the question as to how common must bronze be to signal the beginning of the "Bronze Age," in the same way the "Chalcolithic" period is considered with its copper, lead, tin, silver, and gold metallurgy.

[237] KATSIANIS et al. 2020; ARVANITI and MANIATIS 2018.

[238] ARVANITI and MANIATIS 2018, 752.

[239] MANTELI 1993.

[240] NOWICKI 2021 (this volume).

[241] E.g., Aposelemis, Katasmbas, and the Kasteli well were all buried under meters of alluvial deposition.

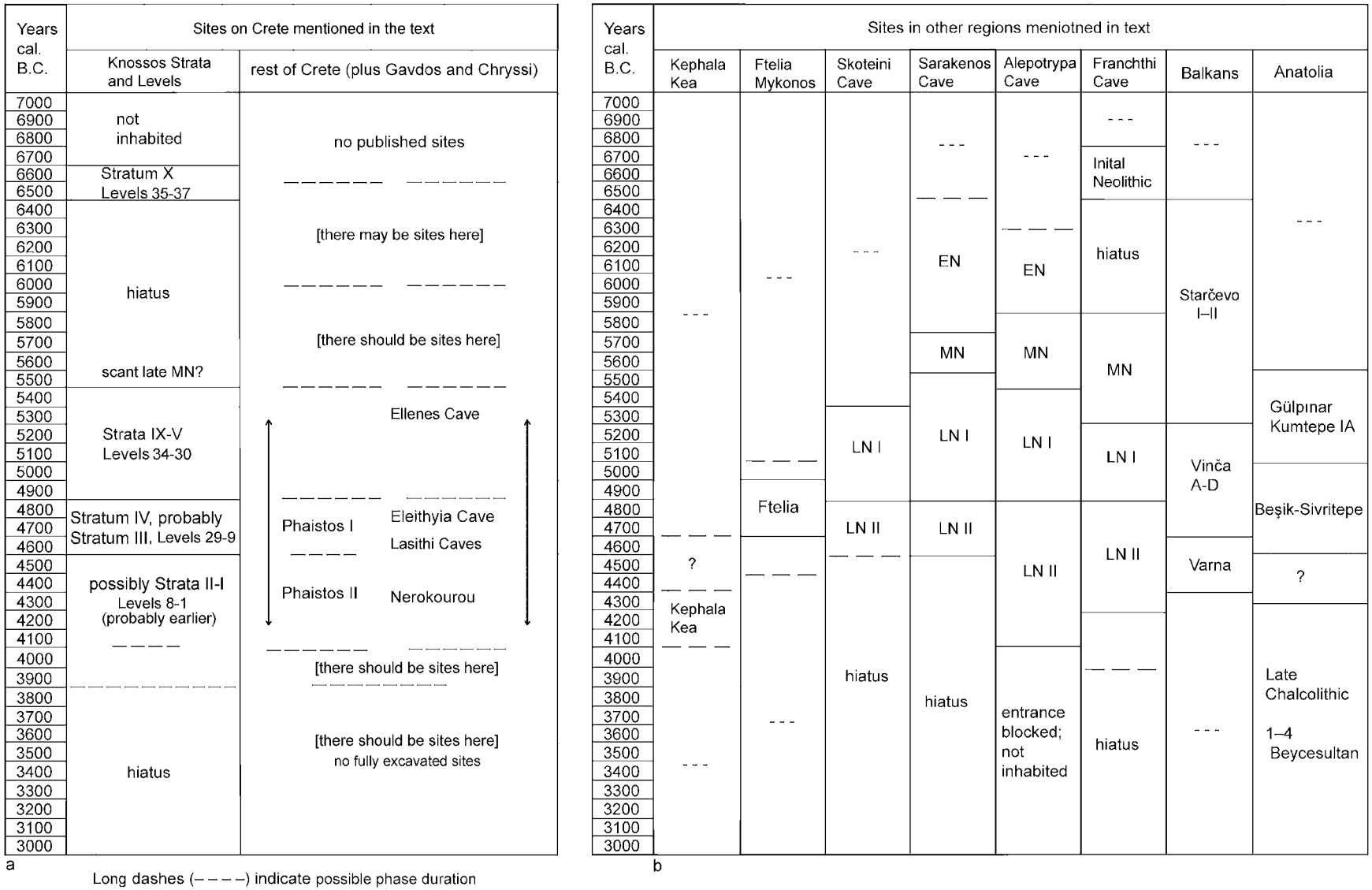


Fig. 15. Comparative chronology and periodization charts based on revised radiocarbon dating for (a) Knossos and Crete and for (b) sites and regions outside of Crete mentioned in the text (prepared by the author)

materials and/or were occupied either only for a few generations or seasonally. Most 4th millennium sites tend to be single phase sites.

Visibility in the landscape relates to the second issue regarding the incomplete chronological picture for Neolithic Crete. Regardless of the reasons[242] on Crete (e.g., refuge, defense, expansion to underused or unused landscapes), the expansion into more "archaeologically visible areas" (e.g., marginal areas, such as islands and higher altitude locations) is a noted phenomenon on Crete,[243] as it is on the mainland, but on Crete these changes are relatively dated a millennium later as compared with elsewhere in the southern Aegean.[244] Proper definition and dating of the so-called "cheese-pots" may in part help resolve this discrepancy.

Considering a more nuanced interpretation of identified discontinuities and gaps in the archaeological record, including site depositional practices (e.g., extensive leveling, dumped material) in order to better understand why some phases are better attested in the landscape than others, must also be considered.[245] Perhaps the settlement pattern on Crete is not dissimilar to the nearby Cyclades where most sites have disturbed layers or material not recovered from areas with clear stratigraphic continuity, but from different contexts.[246] Despite the disparate contexts of the assemblages, the gradual presence of Late Neolithic II (or so-called "Final Neolithic") features in multiple classes of pottery and other small finds at sites[247] has been interpreted as indicative of a continuity of cultural elements and human presence,[248] even if there are stratigraphic or radiocarbon gaps, such as at Tigani and Emporio.[249]

Aside from the depositional consideration as explanation, the issue of the imprecise dating due to the plateaus of the international calibration curve at c. 4000–3800 BC should also be taken into consideration. Although these later dates may alleviate the duration of gaps across the southern Aegean,[250] they may also artificially stretch out sequences and are often only represented by one date (not multiple samples for confirmation). It remains possible that the material used for dating was disturbed, unrelated, and not contemporary with the finds; perhaps sites were successively inhabited for shorter, intense periods but frequently revisited (causing disturbances and mixing). Only further research on Crete can elucidate some answers, but until there is substantial new data published for the Neolithic period, relative chronologies will out of necessity continue to be used, but they must be updated and revised and placed into the context of the wider region, and more nuanced possibilities need to be considered.

242 MAVRIDIS (2006, 134) has also suggested the possibility of social and symbolic aspects of domesticating the landscape as in the Balkan Neolithic, and of which Greece is a part, even Crete on the periphery.

243 NOWICKI 2002; 2008; 2014.

244 E.g., the second half of the 5th millennium BC or earlier (MAVRIDIS and TANKOSIĆ 2016, 434; MAVRIDIS 2006, 133–135).

245 MAVRIDIS and TANKOSIĆ 2016, 420.

246 E.g., Stofilas, Ftelia, Zas Cave, Antiparos Caves, and Akrotiri.

247 E.g., Saliagos, Ftelia, Strofilas, etc.

248 MAVRIDIS 2017a.

249 The material and absolute dates from the Zas Cave on Naxos (MANNING 2008) present a similar situation (COLEMAN and FACORELLIS 2018, 43), and NOWICKI (2014, 303, n. 6) has also proposed two interrupted phases at Ftelia. Two separate phases may be possible if the dates are accepted to as c. 5000/4900 BC and 4500/4400 BC (SAMPSON 2002a, 155–156). Stofilas on Andros may also fall into this category.

250 MAVRIDIS 2007; MAVRIDIS 2010, 21; MAVRIDIS and TANKOSIĆ 2016, 434–435.

Bibliography

AGELARAKIS, A. and A. KANTA. 2019. "The Aposelemis Neolithic Cemetery. Interim Report," *Ε΄ Παγκρήτια Επιστημονική Συνάντηση, Αρχαιολογικό 'Εργο στην Κρήτη, Ρέθυμνο, 21–24.11.2019***.**

ALRAM-STERN, E. 2007. "Das Chalkolithikum in Südgriechenland. Versuch einer chronologischen und stratigraphischen Gliederung," in F. Lang, c. Reinholdt and J. Weilhartner (eds.), *Stephanos Aristeios. Festschrift für Stefan Hiller zum 65. Geburtstag*, Wien.

———. 2011. "Crete and its Aegean Contacts during the Neolithic Period," in E.G. KAPSOMENOS, M. ANDREADAKI-VLAZAKI, M. ANDRIANAKIS and E.PAPADOPOULOU (eds.), *Proceedings of the 10th Cretological Congress, Chania, 1–8.10.2006,* Chania, 83–100.

———. 2014. "Times of Change: Greece and the Aegean during the 4th Millennium BC," in B. HOREJS and M. MEHOFER (eds.), *Western Anatolia before Troy. Proto-Urbanisation in the 4th Millennium BC? Proceedings of the International Symposium held at the Kunsthistorisches Museum Wien, Vienna, Austria, 21–24.11.2012* (*Oriental and European Archaeology 1*), Vienna, 305–328.

———. 2018. "Visviki Magoula, Thessaly. Reconsidering Cultural Change from the Arapi to the Dimini Phase," in S. DIETZ, F. MAVRIDIS, Z. TANKOSIĆ and T. TAKAOĞLU (eds.), *Communities in Transition: The Circum-Aegean Area in the 5th and 4th Millennia BC*, *Danish Institute at Athens, 7–9/6 2013* (*Monographs of the Danish Institute at Athens 20*), Oxford, 216–226.

ALRAM-STERN, E. (ed.). 1996. *Das Neolithikum in Griechenland, mit Ausnahme von Kreta und Zypern* (*Die Ägäische Frühzeit 2, Serie, Forschungsbericht 1975–1999*), Vienna.

ALRAM-STERN, E. and A. DOUSOUGLI-ZACHOS. 2015. *Die deutschen Ausgrabungen 1941 auf der Visviki-Magula/Velestino. Die neolithischen Befunde und Funde* I (*Beiträge zur ur- und frühgeschichtlichen Archäologie des Mittelmeer-Kulturraumes 36*), Bonn.

ALOUPI, E. 2002. "Pottery Analysis from the Late Neolithic Settlement at Ftelia, Mykonos, (Cyclades)," Provence, Technological and Functional Considerations, in A. SAMPSON, *The Neolithic Settlement at Ftelia, Mykonos,* Rhodes, 279–297.

ANDREOU, S., M. FOTIADIS and K. KOTSAKIS. 1996. [2001 reprint] "Review of Aegean Prehistory V: The Neolithic and Bronze Age of Northern Greece," *AJA* 100 (3), 537–597; reprinted 2001 in T. CULLEN (ed.), *Aegean Prehistory: a Review*, Boston, 259–327.

ANTHONY, D.W. 2007. *The Horse, the Wheel, and Language: How Bronze-Age Riders from the Eurasian Steppes Shaped the Modern World*, Princeton, NJ.

———. 2010. "The Rise and Fall of Old Europe," in D. ANTHONY (ed.), with J.Y. CHI. *The Lost World of Old Europe: The Danube Valley, 5,000–3,500 B.C.*, *The Institute for the Study of the Ancient World at New York University, November 11, 2009–April 25, 2010*, Princeton, NJ, 28–57.

ARVANITI, T. and Y. MANIATIS. 2018. "Tracing the Absolute Time-Frame of the Early Bronze Age in the Aegean," *Radiocarbon* 60 (3), 751–773.

ASLANIS, I. 1989. "Das Neolithikum und das Chalkolithikum im Nordgriechischen Raum," *in Tell Karanovo und das Balkan-Neolithikum gesammelte, Beiträge zum internationalen Kolloquium, Salzburg, 20–22, Oktober 1988*, (*Vorläufige Berichte und Vorlagen* 7), Salzburg, 65–81.

———. 1992. *Η Προϊστορία της Μακεδονίας. Ι. Η Νεολιθική εποχή*, Athens.

———. 2003. "Η 'αφανής' Χαλκολιθική εποχή στην Ελλάδα: μια άλλη μεθοδολογική προσέγγιση," *in Η προϊστορική έρευνα* στην Ελλάδα και οι προοπτικές της: θεωρητικοί και μεθοδολογικοί προβληματισμοί, Πρακτικά Διεθνούς Συμποσίου *στη μνήμη τον Δ. Ρ. Θεοχάρη, Θεσσαλονίκη-Καστοριά 26–28.11.1998,* Thessaloniki, 37–46.

———. 2004. "Das späte Neolithikum und das beginnende Chalkolithikum in Westmakedonien, Griechenland," in B. HÄNSEL and E. STUDENICOVA (eds.), *Zwischen Karpaten und Ägäis, Genenkschrift fur V. Nemejsova-Pavukova* (*Studia Honorica* 21), 39–46.

———. 2018. "Greece in the Fifth and Fourth Millennia B.C.: Searching for the 'Missing' Fourth Millennium. a New Approach," in S. DIETZ, F. MAVRIDIS, Z. TANKOSIĆ and T. TAKAOĞLU (eds.), *Communities in Transition: The Circum-Aegean Area in the 5th and 4th Millennia BC*, *Danish Institute at Athens, 7–9/6 2013* (*Monographs of the Danish Institute at Athens* 20), Oxford, 17–26.

BANNING, E.B. 2002. "Interpreting Radiocarbon Dates," in M.A. JOCHIM AND R.S. DICKENS (eds.), *The Archaeologist's Laboratory. The Analysis of Archaeological Data* (*Interdisciplinary Contributions to Archaeology*), Boston, 265–275.

BERNABÒ-BREA, L. 1964. *Poliochni: città preistorica nell'isola di Lemnos*, Rome.

BLUM, S.W.E. 2014. "The Middle Chalcolithic Cultural Sequence of the Troad," in B. HOREJS and M. MEHOFER (eds.), *Western Anatolia before Troy. Proto-Urbanisation in the 4th Millennium BC?, Proceedings of the International Symposium held at the Kunsthistorisces Museum Wien Vienna, Austria, 21–24.11.2012*, Vienna, 125–156.

BONGA, L. 2013. *Late Neolithic Pottery from Mainland Greece, ca. 5,300–4,300 B.C.* Unpublished Ph.D. Dissertation, Temple University, Tyler School of Art, Philadelphia.

———. 2017. "Southeastern Crete before the Bronze Age," *South by Southeast: The History and Archaeology of Southeast Crete, from Myrtos to Kato Zakros, Old Customs House, Pacheia Ammos, Crete, Greece, July 1–2*, *2017*, forthcoming.

———. 2019a. "Early Ceramic Styles and Technologies in the Aegean and the Balkans. Retrospect and Prospects," *Documenta Praehistorica* 46, 158–172**.**

———. 2019b. "Νεολιθική Κεραμική από το Σπήλαιο Πελεκητά, Κάτω Ζάκρος, Κρήτη. Προκαταρκτικά Συμπεράσματα*,"* in *Proceedings of 12th International Congress of Cretan Studies, Heraklion, Crete, Greece, 21–25,09.2016*, Heraklion.

BORIĆ, D. 2009. "Absolute Dating of Metallurgical Innovations in the Vinča Culture of the Balkans," in T.K. KIENLIN and B.W. ROBERTS (eds.), *Metals and Societies. Studies in Honour of Barbara S. Ottaway*, Bonn, 191–245.

———. 2015. "Mortuary Practices, Bodies and Persons in the Neolithic and Early–Middle Copper Age of Southeast Europe," in C. FOWLER, J. HARDING and D. HOFMANN (eds.), *The Oxford Handbook of Neolithic Europe*, Oxford, 927–957.

BROGAN, T.C. SOFIANOU, M. EABY, and Y. PAPADATOS. 2021. "Sopata, Mesorachi, Papadiokampos: a View of the Cretan Bronze Age from the Periphery," *New York Aegean Bronze Age Colloquium, 29 March 2021*, https://www.youtube.com/watch?v=SK9qqnF_rG4&t=957s

BROODBANK, C. 1992. *The Making of the Middle Sea: a History of the Mediterranean from the Beginning to the Emergence of the Classical World*, Oxford.

BRUKNER, B. 1983. "Die Vinča-Gruppe und ihr Verhältnis zu den spätneolithischen Kulturen Nord-Ost-Griechenlands," *Arch. Iugoslavica* 22–23 (1982–1983), 1–14.

CARTER, T. and M. YDO. 1996. "The Chipped and Ground Stone," in W. CAVANAGH, J. CROUWEL, R. W. V. CATLING and G. SHIPLEY (eds.), *The Laconia Survey, Vol. II* (*BSA Supplementary Vol.* 27), London, 141–82.

CASKEY, J. L. 1971. "*Investigations in Keos: Part I: Excavations and Explorations, 1966–1970*," *Hesperia* 40 (4), 358–396.

CHAPMAN, J. 1981. *The Vinča Culture of South-east Europe: Studies in Chronology, Economy and Society* (*BAR-IS* 117), Oxford.

ÇILINGIROĞLU, A. and E. ABAY. 2005. "Ulucak Höyük Excavations. New Results," *Mediterranean Archaeology and Archaeometry* 5 (3), 5–21.

ÇILINGIROĞLU, A., Z. DERIN, A. ABAY, I. KAYAN, and H. SAGLAMT. 2004. *Ulucak Höyük: Excavations Conducted Between 1995 and 2002* (*Ancient Near Eastern Studies, Supplement* 15), Louvain.

COLEMAN, J. E. C. 1974. "The Chronology and Interconnections of the Cycladic Islands in the Neolithic Period and the Early Bronze Age," *AJA* 78, 333–344.

———. 1977. *Kephala: A Late Neolithic Settlement and Cemetery,* (*Keos Volume* 1), Princeton.

———. 1992. "Greece, the Aegean, and Cyprus: Part 1," in *Chronologies in Old World Archaeology*, Chicago, 203–221, 247–278.

———. 2002. "An Archaeological Scenario for the 'Coming of the Greeks' ca. 3200 BC*," Journal of Indo-European Studies* 28, 101–153.

———. 2011."The Petromagoula-Doliana Group and the Beginning of the Aegean Early Bronze Age," in D. KATSONOPOULOU (ed.), *Helike IV. Ancient Helike and Aigialeia. Protohelladika: The Southern and Central Greek Mainland*, Athens, 13–44.

COLEMAN, J. E. C. and Y. FACORELLIS. 2018. "The Shadowy "Proto-Early Bronze Age" in the Aegean," in S. DIETZ, F. MAVRIDIS, Z. TANKOSIĆ and T. TAKAOĞLU (eds.), *Communities in Transition: The Circum-Aegean Area in the 5th and 4th Millennia BC*, *Danish Institute at Athens, 7–9.06 2013* (*Monographs of the Danish Institute at Athens 20*), Oxford, 33–66.

DELIBRIAS G, M. GUILLIER and J. LABEYRIE.1965. "Saclay Natural Radiocarbon Measurements II," *Radiocarbon* 7, 236–244.

DEMAKOPOULOU, K. 1998. Κοσμήματα της Ελληνικής προϊστορίας. Ο νεολιθικός θήσαυρος, Athens.

DEMOULE, J-P., K. GALLIS and L. MANOLAKAKIS. 1988. "Transition entre les cultures néolithiques de Sesklo et de Dimini: les catégories céramiques," *BCH* 112, 1–58.

DEMOULE, J-P. and c. PERLÈS. 1993. "The Greek Neolithic: a New Review," *Journal of World Prehistory* 7 (4), 355–416.

Dikili Tash website, "Neolithic Vessels, Pottery Decoration," *Dikili Tash Excavation Website*, last updated 2.12.2011, http://www.dikili tash.fr/content_en/chronologie/ neolithique/ neo_recipients_decor_ceramique.htm

DIMOULA, A., Z. TSIRTSONI , E. VOULGARI, E. STEFANI, and S. M. VALAMOTI. 2022. "Ceramic Cooking Dishes in the Prehistoric Aegean: An Exploration of Their Variability and Uses," *Hesperia* (forthcoming).

DI TONTO, S. 2009. "Il Neolithico Finale a Festòs: per una riconsiderazione funzionale die dati dagli scavi Levi," *Creta Antica* 10 (1), 57–95

———. 2011. "Evidence for Domestic Activities in the Final Neolithic Period at Phaistos," in K. T. GLOWACKI and N. VOGEIKOFF-BROGAN (eds.), *ΣΤΕΓΑ: The Archaeology of Houses and Households in Ancient Crete* (*Hesperia Supplement 44*), Athens, 15–25.

———. 2018. "The Earliest Phase of the FN at Phaistos in a Wider Cretan Context: New Perspectives," in S. DIETZ, F. MAVRIDIS, Z. TANKOSIĆ and T. TAKAOĞLU (eds), *Communities in Transition: The Circum-Aegean Area in the 5th and 4th Millennia BC, Danish Institute at Athens, 7–9.06.2013* (*Monographs of the Danish Institute at Athens 20*), Oxford, 420–425.

DOUKA, K., N. EFSTRATIOU, M. M. HALD, P. S. HENRIKSEN, and A. KARETSOU. 2017. "Dating Knossos and the Arrival of the Earliest Neolithic in the Southern Aegean," *Antiquity* 91 (356), 304–321.

DOUKAKI, A. 2018. "The Vases of Cheese Pot Type from Ftelia," in in A. SAMPSON and T. TSOUROUNI, (eds.), *Ftelia on Mykonos, Greece. Neolithic Networks in the Southern Aegean Basin, Vol. II* (*University of the Aegean Laboratory of Environmental Archaeology Monograph Series* 7), Athens, 59–81.

DURU, R. 1996. *Kuruçay II. 1978–1988 Kazilanmn Sonuçlan. Geç Kalkolitik ve Ilk Tunç Çagi Yerlesmeleri I: Results of the Excavations 1978–1988. The Late Chalcolithic and Early Bronze Settlements*, Ankara.

DZHANFEZOVA, T. 2013. "Are the 'New' AMS Varna Dates Older?," *Be-JA Bulgrian e-Journal of Archaeology* 3, 31–66.

EFSTRATIOU, N. 2013. "The Stratigraphy and Cultural Phases," in EFSTRATIOU, N., A. KARETSOU and M. NTINOU (eds.). 2013. *The Neolithic Settlement of Knossos in Crete. New Evidence for the Early Occupation of Crete and the Aegean Islands*, Philadelphia, 25–46.

EFSTRATIOU, N., A. KARETSOU, E. BANOU and D. MARGOMENOU. 2004. "The Neolithic Settlement of Knossos: New Light on an Old Picture," in G. CADOGAN, E. HATZAKI and A. VASILAKIS (eds.), *Knossos: Palace, City, State. Proceedings of the Conference in Herakleion Organised by the British School of Athens and the 23rd Ephoreia of Prehistoric and Classical Antiquities, November 2000, for the Centenary of Sir Arthur Evans's Excavations at Knossos* (*BSA Studies* 12), London, 39–51.

EFSTRATIOU, N., A. KARETSOU and M. NTINOU (eds.). 2013. *The Neolithic Settlement of Knossos in Crete. New Evidence for the Early Occupation of Crete and the Aegean Islands*, Philadelphia.

ESLICK, C. 1992. *Elmali-Karatas I: The Neolithic and Chalcolithic Periods: Bağbaşi and Other Sites*, Bryn Mawr, PA.

EVANS, A. 1899–1900. "Knossos. Summary Report of the Excavations in 1900," *BSA* 6, 1–70.

———. 1921. *The Palace of Minos. a Comparative Account of the Successive Stages of the Early Cretan Civilization as Illustrated by the Discoveries at Knossos. Volume 1, The Neolithic and Early Middle Minoan Ages*. London

———. 1928. *The Palace of Minos: a comparative Account of the Successive Stages of the Early Cretan Civilization as Illustrated by the Discoveries at Knossos, Volume 2, Part 1, Fresh Lights on the Origins and External Relations: The Restoration in the Town and Palace after Seismic Catastrophe towards Close of M. M. III, and the Beginning of a New Era*, London.

EVANS, J. D. 1971. "Neolithic *Knossos*: The Growth of a Settlement," *Proceedings of the Prehistoric Society* 37, 95–117.

EVANS, J. D. and c. RENFREW. 1968. *Excavations at Saliagos near Antiparos*. London.

EVANS, J. D., J. R. CANN, A. C. RENFREW, I. W. CORNWALL and A. C. WESTERN. 1964. "Excavations in the Neolithic Settlement of Knossos 1957–1960, Part I," *BSA* 59, 132–240.

FACORELLIS, G. 2002. "Radiocarbon Dating of the Neolithic settlement of Ftelia on Mykonos: Calculation of the Marine

Reservoir Effect in the Cyclades," in A. SAMPSON, *The Neolithic settlement at Ftelia, Mykonos*, Rhodes, 309–315.

———. 2018. "Updated Calculation of the Marine Reservoir Effect in the Cyclades during the Neolithic Period Using the Latest Issues of the International Calibration Curves INTCAL13 and MARINE13," in A. SAMPSON and T. TSOUROUNI (eds.), *Ftelia on Mykonos, Greece. Neolithic Networks in the Southern Aegean Basin, Vol. II* (*University of the Aegean Laboratory of Environmental Archaeology Monograph Series* 7), Athens, 242–249.

FACORELLIS, G., F. SOFRONIDOU and G. HOURMOUZIADIS. 2014. "Radiocarbon Dating of the Lakeside Settlement of Dispilio, Kastoria, Northern Greece," Radiocarbon, 56 (2), 511–528.

FARRAND, W. R. 2000. *Depositional History of Franchthi Cave: Sediments, Stratigraphy, and Chronology*, *(with a report on the background of the Franchthi Project by Thomas W. Jacobsen),* Bloomington, IN.

FAURE, P. 1964. *Fonctions des Cavernes Crétoises. École française d'Athènes* (École Française d›Athènes, Travaux et Mémoires des Anciens Membres Étrangers de l›École et de divers Savants, Fasc. XIV), Paris.

———. 1965. "Recherches sur le peuplement des montagnes de Crète: sites, cavernes et cultes," *BCH* 89, 27−63.

FELSCH, R. C. S. 1988. *Das Kastro Tigani: die spätneolithische und chalkolithische Siedlung* (*Samos vol.* 2), Bonn.

FEWKES, V. J. 1935. "On the Interpretation and Dating of the Site of 'Belo Brdo' at Vinča in Yugoslavia," *Proceedings of the American Philosophical Society* 75 (7), 651–672.

FOTIADI, P. 2017. "Pottery from the Neolithic Settlement of Strofilas, Andros: First Presentation of Selected Finds with Reference to Ware, Shapes, and Manufacture," Περὶ τῶν κυκλάδων νήσων. Το Αρχαιδολογικό Έργο στις Κυκλάδες */sur les îles des Cyclades Travaux archéologiques dans les Cyclades/,* διεθνές συνέδριο το αρχαιολογικό έργο στις κυκλάδες */colloque international les travaux archéologiques dans les Cyclades/, 22–26.11.2017*, Εφορεία Αρχαιοτήτων Κυκλάδων, Βυζαντινό και Χριστιανικό Μουσείο, Athens, delivered on 23.11.2017.

FURNESS, A. 1953. "The Neolithic Pottery of Knossos," *BSA* 48, 94–134.

———. 1956. "Some Early Pottery of Samos, Kalimnos, and Chios," *PPS* 22, 173–212.

FRENCH, D. H. 1961. "Late Chalcolithic Pottery in North-West Turkey and the Aegean," *Anatolian Studies* 11 (1961), 99–141.

GABRIEL, U. 2000. "Mitteilungen zum Stand der Neolithikumsforschung in der Umgebung von Troia (Kumtepe 1993–1995; Beşik-Sivritepe 1983–1984, 1987, 1998–1999)," *Studia Troica* 10, 233–238.

———. 2014. "Die Keramik der troadischen Fundorte Kumtepe IA, Beşik-Sivritepe und Çıplak Köyü im Kontext ihrer überregionalen Vergleichsfunde," in E. PERNICKA, C. B. ROSE and P. JABLONKA (eds.), *Troia 1987–2012: Grabungen und Forschungen I. Forschungsgeschichte, Methoden und Landschaft. Teil 2* (*Studia Troica Monographien* 5), Bonn, 990–1057.

GALANIDOU, N. 2002. "Chipped Stone Industry of Ftelia: An Introduction," in A. SAMPSON (ed.), *The Neolithic Settlement at Ftelia, Mykonos,* Rhodes, 317–332.

GALANIDOU, N. and K. MANTELI. 2008. "Neolithic Katsambas Revisited: The Evidence from the House," in V. ISAAKIDOU and P. TOMKINS (eds.), *Escaping the Labyrinth: The Cretan Neolithic in Context* (*Sheffield Studies in Aegean Archaeology 8*), Oxford, 172–183.

GALLIS, K. 1982. *Καύσεις νεκρών από τη Νεολιθική Εποχή στη Θεσσαλία*, Athens.

———. 1987. "Die stratigraphische Einordung der Larisa Kulture: eine Richtigstellung," *PZ* 62, 147–163.

———. 1996. "The Neolithic World," in PAPATHANASOPOULOS (ed.), *Neolithic Culture in Greece*, Athens, 23–38.

GLÄSER, R. 1996. "Zur absoluten Datierung der Vinča-Kultur anhand von 14C-Daten," in F. DRAŞOVEAN (ed.), *The Vinča Culture, its Role and Connections*, Timişoara, 175–212.

GRAMMENOS, D. V. 1984. *Νεολιθικές έρευνες στην κεντρική και ανατολική Μακεδονία*, Unpublished Ph.D. Dissertation, Aristotle University, Thessaloniki.

———. 1997. *Νεολιθική Μακεδονία* (*Υπουργείο Πολιτισμού Δημοσιεύματα του Αρχαιολογικού Δελτίου 56*), Athens.

GRUNDMANN, K. 1932. "Aus neolithischen Siedlungen bei Larisa," *Athenische Mitteilungen* 57, 102–123.

HAUPTMANN, H. 1981. *Die deutschen Ausgrabungen auf der Otzaki-Magula in Thessalien III*: Das *späte Neolithikum und das Chalkolithikum* (*BAM* 21), Bonn.

HAUPTMANN, H. and V. MILOJČIĆ. 1969. *Die Funde der frühen Dimini-Zeit aus der Arapi-Magula Thessalien,* (*BAM* 9), Bonn.

HEURTLEY, W. A. 1939. *Prehistoric Macedonia. An Archaeological Reconnaissance of Greek Macedonia (West of the Struma) in the Neolithic, Bronze, and Early Iron Ages*, Cambridge.

HIGHAM, T., J. CHAPMAN, V. SLAVCHEV, B. GAYDARSKA, N. HONCH, Y. YORDANOV and B. DIMITROVA. 2007. "New Perspectives on the Varna Cemetery (Bulgaria). AMS Dates and Social Implications," *Antiquity* 81 (313), 640–654.

HIGHAM, T., V. SLAVCHEV, B. GAYDARSKA and J. CHAPMAN. 2018. "AMS Dating of the Late Copper Age Varna Cemetery, Bulgaria," *Radiocarbon* 60 (2), 493–516.

HOLMBERG, E. J. 1964a. "The Appearance of Neolithic Black-Burnished Ware in Mainland Greece," *AJA* 68, 343–348.

———. 1964b. *The Neolithic Pottery of Mainland Greece*, (*Series A, Band* 7.2), Göteborg.

HONCH, N. V., T. F. G. HIGHAM, J. CHAPMAN, B. GAYDARSKA and R. E. M. HEDGES. 2006. "A Palaeodietary Investigation of Carbon ($^{13}C/^{12}C$) and Nitrogen ($^{15}N/^{14}N$) in Human and Faunal Bones from the Copper Age Cemeteries of Varna I and Durankulak, Bulgaria," *Journal of Archaeological Science* 33, 1493–1504.

HOOD, S., J. CLUTTON-BROCK and P.G. BIALOR. 1982. *Excavations in Chios, 1938–1955: Prehistoric Emporio and Ayio Gala, British School at Athens* (*BSA Supplement* 16), London.

HEURTLEY, W. A. 1939. *Prehistoric Macedonia. An Archaeological Reconnaissance of* Greek Macedonia (West of the Struma) in the Neolithic, Bronze, and Early Iron *Ages*, Cambridge.

IVANOV, I. 1983. "Le chalcolithique en Bulgarie et dans la néocropole de Varna," in A. G. POULTER (ed.), *Ancient Bulgaria*, Vol. 1, Nottingham, 154–163.

———. 2000. *Varna and the Birth of the European Civilization, Varna Necropolis: The Dawn of European Civilization*, Sofia.

JOHNSON, M. 1996. "Water, Animals and Agricultural Technology: a Study of Settlement Patterns and Economic Change in Neolithic Southern Greece, *OJA* 15 (3), 267–297.

———. 1999. "Chronology of Greece and South-east Europe in the Final Neolithic and Early Bronze Age," *PPS* 65, 319–336.

KAKOGIANNI, O, E. TSELEPI, K. DIMITRIOU, C. KATSAVOU, and K. DOUNI. 2016. "Chapter 23. The Neolithic and Early Bronze Age Settlement in Merenta, Attica, in Its Regional Context," in Z. TSIRTSONI (ed.), *The Human Face of Radiocarbon. Reassessing Chronology in Prehistoric Greece and Bulgaria, 5000–3000 cal BC* (*Maison de l'Orient et de la Méditerranée, Travaux de la Maison de l'Orient et de la Méditerranée* 69), Lyon, 361–380.

KALOGIROU, A. 1994. *Production and Consumption of Pottery in Kitrini Limni, West Macedonia, Greece, 4500B.C. – 3500 B.C.*, Ph.D. Dissertation, University of Indiana.

KANTA, A., S. FERRENCE and L. BONGA. 2020. "Σπήλαιο Πελεκητών Ζάκρου 2014, 2015. Προκαταρκτική Έκθεση των εργασιών," in Αρχαιολογικό Έργο στην Κρήτη *Rethymno, Fourth Meeting, 24 – 27.11.2016*, Rethymno.

KANTA, A. and I. SERPETSIDAKI. 2015. "Το έργο της ΚΓ' Εφορείας Προιστορικών και Κλασικών Αρχαιοτήτων κατά τα έτη 2011 – 2013," Έργο Κρήτης 3:A', 53 – 69.

KANTA, A. and M. KOKOSALI. 2017. "Marble Figurines in Crete: The Beginnings," in N. C. STAMPOLIDIS and P. SOTIRAKOPOULOU (eds.), *Cycladic and Cycladicizing Figurines within Their Archaeological Context, Proceedings of the International Symposium, Museum of Cycladic Art, Athens, 1 – 2.10.2015*, Athens, 65 – 88.

KARAGIANNOPOULOS, C. 2016. "Chapter 20. Prodromos Karditsas, Magoula Agios Ioannis. a Prehistoric Settlement in the Western Thessalian Plain," in Z. TSIRTSONI (ed.), *The Human Face of Radiocarbon. Reassessing Chronology in Prehistoric Greece and Bulgaria, 5000 – 3000 cal BC* (*Maison de l'Orient et de la Méditerranée, Travaux de la Maison de l'Orient et de la Méditerranée* 69), Lyon, 381 – 393.

KARKANAS, T. and G. STRATOULI. 2008. "Neolithic Lime Plastered Floors in Drakaina Cave, Kephalonia Island, Western Greece: Evidence of the Significance of the Site," *BSA* 104, 27 – 42.

KATSIANIS, M, A. BEVAN, G. STYLIARAS and Y. MANIATIS. 2020. "An Aegean History and Archaeology Written through Radiocarbon Dates," *Journal of Open Archaeology Data* 8 (1), Article 5, 1 – 6, plus supplementary data.

KATSAROU, S. 2018. "When do the Dead Become Dead? Mortuary Projects from Ossuaries I and II, Alepotrypa Cave," in A. PAPATHANASIOU, W. A. PARKINSON, D. J. PULLEN, M. L. GALATY and P. KARKANAS (eds.), *Neolithic Alepotrypa Cave in the Mani, Greece: In Honor of George Papathanassopoulos*, Oxford, 91 – 126.

KATSIPANOU-MARGELI, B. 2018. "The Stratigraphic and Pottery Sequence of Trench B1 at Alepotrypa Cave: a First Approach to the Investigation of Ceramic and Chronological Associations," in A. PAPATHANASIOU, W. A. PARKINSON, D. J. PULLEN, M. L. GALATY and P. KARKANAS (eds.), *Neolithic Alepotrypa Cave in the Mani, Greece: In Honor of George Papathanassopoulos*, Oxford, 33 – 90.

KEIGHLEY, J. M. 1986. "The Pottery of Phases I and II," in C. RENFREW, M. GIMBUTAS and E. S. ELSTER (eds.), *Excavations at Sitagroi: a Prehistoric Village in Northeast Greece* Vol. 1, Los Angeles, 345 – 390.

KIYAK, N., T. TAKAOĞLU and A. E. ERGINAL. 2010. "Luminescence Dating of Prehistoric Site of Smintheion (Gulpinar) in NW Turkey," *Mediterranean Archaeology and Archaeometry* 10 (4), 35 – 42.

KOPAKA, K. 2015. "The Gavdos project. An Island Culture on the Cretan and Aegean Fringe," *The European Archaeologist* 46, 62 – 67.

KOPAKA, K and C. PAPADAKI 2006. "Προϊστορική Κεραμική από την επιφανειακή έρευνα στην Γαύδο. Το παράδειγμα μιας μικρονησιωτικής βιοτεχνικής παράγωγης," in E. G. KAPSOMENOS, M. ANADREADAKI-VLAZAKI, M. ANDRRIANAKIS, and E. PAPADOPOULOU (eds.), Πεπραγμένα Θ' *Διεθνούς Κρυπτολογικού Συνεδρίου, Ελούντα, 1 – 6.10. 2001, Τομος Α1, Προιστορικη Περπιδος, Ανασκαφικά Δεδομένα*, Chania, 63 – 78.

KOPAKA, K. and E. THEOU. 2015. "Νεολιθικά από τη Γαύδο" in P. KARANASTASI, A. TSKOUNAKI and C. TSIGONAKI (eds.), Αρχαιολογικό Έργο Κρήτης *3,* Πρακτικά της *3*ης Συνάντησης, Ρέθυμνο *5 – 8* Δεκεμβρίου *2013,* Β΄, Rethymno, 31 – 48.

———. 2018. "Gavdos or Living on the Southernmost Aegean Island in the Neolithic Cultural Horizons," in S. DIETZ, F. MAVRIDIS, Z. TANKOSIĆ and T. TAKAOĞLU (eds.), *Communities in Transition: The Circum-Aegean Area in the 5th and 4th Millennia BC*, *Danish Institute at Athens, 7 – 9.06.2013* (*Monographs of the Danish Institute at Athens* 20), Oxford, 441 – 455.

KORFMANN, M. and B. KROMER. 1993. "Demircihüyük, Beşik-Tepe, Troia. Eine Zwischenbilanz zur Chronologie dreier Orte in Westanatolien," *Studia Troica* 3, 135 – 171.

KORFMANN, M., Ç. GIRGIN, Ç. MORÇÖL and S. KILIÇ. 1995. "Kumtepe 1993. Bericht über die Rettungsgrabung – Report on the Rescue Excavation," *Studia Troica* 5, 237 – 289.

KUNZE, E. 1931. *Orchomenos II: Die neolithische Keramik* (*Abhandlungen der Bayerischen Akademie der Wissenschaften* 5), Munich.

KROMER, B., M. KORFMANN, P. JABLONKA. 2003. "Heidelberg Radiocarbon Dates for Troia I to VIII and Kumtepe," in G. A. WAGNER and E. PERNICKA (eds.), *Troia and the Troad. Scientific Approaches*, Berlin, 43 – 54.

LAMB, W. 1932. "Schliemann's Prehistoric Sites in the Troad," *PZ* 23, 111 – 131.

LAMBERT, N. 1981. "*La céramique Néolithique*," in N. LAMBERT (ed.), *La grotte préhistorique de Kitsos (Attique), Missions 1968 – 1978*, (*Recherches sur les grandes civilisations* 7, 2 vols.), Paris, 275 – 347.

LEVI, D. 1958. "Gli scavi a Festòs nel 1956 – 7," *ASA* 19 – 20, 193 – 361.

LIRITZIS, I. 2010. "Strofilas (Andros Island, Greece). New Evidence of Cycladic Final Neolithic Dated by Novel Luminescence and Obsidian Hydration Methods," *Journal of Archaeological Science* 37, 1367 – 1377.

LLOYD, S. and J. MELLAART. 1962. *Beycesultan* 1. *The Chalcolithic and Early Bronze Age Levels* (*BIAA Occasional Monograph Series* 6), Ankara.

LOLOS, G. 1998: "Το Σπήλαιο του Ευριπίδη στη Σαλαμίνα: Τα αποτελέσματα της έρευνας του 1997", *Περίαπτο* 1, 92 – 93.

MACKENZIE, D. 1903. "The Pottery of Knossos," *JHS* 23, 157 – 205.

MANIATIS, Y. and Y. FACORELLIS. 2013. "Radiocarbon Dates from the Neolithic Settlement of Knossos: An Overview," in N. EFSTRATIOU, A. KARETSOU, M. NTINOU and E. BANOU (eds.), *The Neolithic Settlement of Knossos in Crete. New Evidence for the Early Occupation of Crete and the Aegean Islands* (*Prehistory Monographs* 42), Philadelphia, 193 – 200.

MANIATIS, Y., C. OBERLIN and Z. TSIRTSONI. 2016, "Balkans 4000. The Radiocarbon Dates from Archaeological Contexts," *The Human Face of Radiocarbon. Reassessing Chronology in Prehistoric Greece and Bulgaria, 5000 – 3000 cal BC* (*Maison de l'Orient et de la Méditerranée, Travaux de la Maison de l'Orient et de la Méditerranée* 69), Lyon, 41 – 68.

MANNING, S. W. 1995. *The Absolute Chronology of the Aegean Early Bronze Age. Archaeology, Radiocarbon and History* (*Monographs in Mediterranean Archaeology* 1), Sheffield.

———. 2001. *The Absolute Chronology of the Aegean Early Bronze Age: Archaeology, History and Radiocarbon* (*Monographs in Mediterranean Archaeology* 1), (reprint from 1995), Sheffield.

———. 2008. "Some Initial Wobbly Steps towards a Late Neolithic to Early Bronze III Radiocarbon Chronology for the Cyclades," in N. J. BRODIE, J. DOOLE, G. GAVALAS and C. RENFREW (eds*.), "Ορίζων." A Colloquium on the Prehistory of the Cyclades.* Cambridge, 55 – 59.

MANTELI, A. 1992. "The Neolithic Well at Kastelli Phournis in Eastern Crete," *BSA* 87, 103–120.

———. 1993. *The Transition from the Neolithic to the Early Bronze Age (EBA) in Crete (Greece), with Special Reference to Pottery, Volume I–II*, Unpublished PhD dissertation, University College, Institute of Archaeology University of London.

———. 1996. "The Neolithic Pottery of Crete and Entries 162–168", in G. PAPATHANASOPOULOS (ed.), *Neolithic Culture in Greece,* Athens, 132–134, 283–286.

———. 2006. "Τελετουργική χρήση του Ιδαίου Άντρου ήδη από τη νεολιθική εποχή," in E. GABRILAKI and G. Z. TSIPHOPOULOS (eds.), *Πρακτικά Διεθνούς Συνεδρίου Ο Μυλοπόταμος από την αρχαιότητα ως σήμερα, 28–30.11.200, Τόμος ΙΙΙ: Αρχαίοι Χρόνοι*, Rethymno, 11–19.

MANTELI, A. and D. EVELY. 1995. "The Neolithic levels from the Throne Room System, Knossos," *BSA* 90, 1–16.

MARAN, J. 2000. "Das ägäische Chalkolithikum und das erste Silber in Europa," in c. IŞIK, (ed.), *Studien zur Religion und Kultur Kleinasiens und des ägäischen Bereiches. Festschrift für Baki Ögün zum 75. Geburstag* (*Asia Minor Studien* 39), Bonn, 179–193.

MAVRIDIS, F. 2006. "The Neolithic Site of Pangali, Mt. Varassova, Aetolias and the Late Neolithic Ib Phase in the Aegean: Social Transformations and Changing Ideologies," in S. DIETZ and I. MOSCHOS (eds.), *Chalkis Aitolias I. The Prehistoric Periods, Part II, The Neolithic Remains at Pangali* (*Monographs of the Danish Institute at Athens* 7), Århus, 117–139, 222–220.

———. 2007. *Ένα αρχιπέλαγος πολιτισμών. Η Νεολιθική περίδος στα νησιά του Αιγαίου. Αρχαιολογικά δεδομένα, θεωρία*, Unpublished Ph.D. Dissertation, University of Athens.

———. 2010. "Salvage Excavation in the Cave of Antiparos, Cyclades: Prehistoric Pottery and Miscellaneous Finds. a Preliminary Report, *AEA* (2007–2008), 97–34.

———. 2017a. "Neolithic Pottery Groups from the Agia Triada Cave, Southern Euboea, and the Aegean Late Neolithic: Some Remarks," in Z. TANKOSIĆ, F. MAVRIDIS and M. KOSMA (eds.), *An Island Between Two Worlds. The Archaeology of Euboea from Prehistoric to Byzantine Times, Proceedings of International Conference, Eretria, 12–14.07.13* (*Papers and Monographs from the Norwegian Institute at Athens* 6), Athens, 67–97.

———. 2017b. "Η νεότερη νεολιθική περίοδος στις Κυκλάδες: στοιχεία χρονολόγησης και συνέχειας από τις έρευνες που πραγματοποιήθηκαν στο πλαίσιο έργων προστασίας και ανάδειξης αρχαιολογικών χώρων," *Το αρχαιολογικό έργο στα νησιά του Αιγίου, Διεθνές Επιστημονικό Συνέδριο, Ρόδος, 27 Νοεμβρίου – 1 Δεκεμβρίου 2013, Τόμος Υπουργείο Πολιτισμού και Αθλητισμού, Γενική Γραμματεία Αιγαίου και Νησιωτικής Πολιτικής*, Μυέλινη, 249–262.

MAVRIDIS, F. and Z. TANKOSIĆ. 2009. "The Ayia Triadha Cave, southern Euboea: Finds and Implications of the Earliest Human Habitation in the Area (A Preliminary Report), *Mediterranean Archaeology and Archaeometry* 9 (2), 47–59.

MAVRIDIS, F. and Z. TANKOSIĆ. 2016. "The Later Neolithic Stages in Central-Southern Greece Based on the Evidence from the Excavations at the Agia Triada Cave, Southern Euboea," in Z. TSIRTSONI, (ed.), *The Human Face of Radiocarbon. Reassessing Chronology in Prehistoric Greece and Bulgaria, 5000–3000 cal BC.* (*Maison de l'Orient et de la Méditerranée, Travaux de la Maison de l'Orient et de la Méditerranée* 69), Lyon, 419–436.

MAXWELL, V. 2002. "Metalworking at Ftelia," in A. SAMPSON (ed.), *The Neolithic Settlement at Ftelia, Mykonos*, Rhodes, 147–149.

MEHOFER, M. 2014. "Metallurgy during the Chalcolithic and the Beginning of the Early Bronze Age in Western Anatolia," in B. HOREJS and M. MEHOFER (eds.), *Western Anatolia before Troy Proto-Urbanisation in the 4th Millennium BC? Proceedings of the International Symposium held at the Kunsthistorisches Museum Wien, Vienna, Austria, 21–24.11.2012* (*Oriental and European Archaeology* 1), Vienna, 463–490.

MELLAART, J. 1970. "The Second Millennium Chronology of Beycesultan," *Anatolian Studies* 20, 55–67.

MENTESANA, R. 2014. "The Final Neolithic–Early Minoan Transition in Phaistos, Crete: Continuity and Change in Pottery Manufacture," in V. KASSIANIDOU and M. DIKOMITOU-EIADOU (eds*.), The Narnia Project: Integrating Approached to Ancient Material Studies, University of Cyprus, Archaeological Research Unit*, 20–31.

MILOJČIĆ, V. 1949a. *Chronologie der jüngeren Steinzeit Mittel- und Südosteuropas*, Berlin.

———. 1949b. "South-Eastern Elements in the Prehistoric Civilization of Serbia," *BSA* 44, 258–306.

———. 1955. "Vorbericht über die Ausgrabungen auf den Magulen von Otzaki, Arapi und Gremnos bei Larisa 1955," *AA* 1955, 182–231.

MILOJČIĆ, V. and H. BIESANTZ. 1959. "Bericht Über Ausgrabungen In Thessalien 1958," *JdI* 74, 268–303.

MILOJČIĆ, V., A. VON DEN DRIESCH, K. ENDERLE, J. MILOJČIĆ-VON ZUMBUSCH, and K. KILLIAN. 1976. Die Deutschen Ausgrabungen auf Magulen um Larisa in Thessalien 1966, *BAM* 15.

MUHLY, J. 2006. "Chrysokamino in the History of Early Metallurgy," in P. P. BETANCOURT (ed.), *The Chrysokamino Metallurgy Workshop and its Territory* (*Hesperia Supplement 36*), Princeton, 155–178.

NOWICKI, K. 2002. "The End of the Neolithic in Crete," *Aegean Archaeology* 6, 7–72.

———. 2008. "The Final Neolithic (Late Chalcolithic) to Early Bronze Age Transition in Crete and in the Southeast Aegean Islands: Changes in Settlement Patterns and Pottery," in V. ISAAKIDOU and P. TOMKINS (eds.), *Escaping the Labyrinth: The Cretan Neolithic in Context* (*Sheffield Studies in Aegean Archaeology* 8), Oxford, 201–228.

———. 2014. *Final Neolithic Crete and the Southeast Aegean*, Berlin.

———. 2021. "Magasa and Monastiraki Katalimata: Elucidating the Late and Final Neolithic in Crete," *Aegean Archaeology* 13, 45–94.

NAZOU, M. 2020. "Maritime Interaction in the Southern Aegean during the Final Neolithic Period," *Shima* 14 (1), 152–171.

ORTON, D. 2012. "Herding, Settlement, and Chronology in the Balkan Neolithic," *European Journal of Archaeology* 15, 5–40.

ÖZDOĞAN, M. 1993. "Vinça and Anatolia. A New Look at a Very Old Problem (or Redefining Vinça Culture from the Perspective of Near Eastern Tradition), *Anatolica* 19, 173–193.

———. 2003. "Hoca Çeşme, un site du Néolithique ancien en Thrace", *Dossiers d'Archeologie* 281, 26–29.

PAPADATOS, Y. 2008. "The Neolithic-Early Bronze Age Transition in Crete: New Evidence from the Settlement at Petras Kephala, Siteia," in V. ISSAKIDOU and P. TOMKINS (eds.), *Escaping the Labyrinth: The Cretan Neolithic in Context* (*Sheffield Studies in Aegean Archaeology* 8), Oxford, 261–275.

PAPADATOS, Y. and P. TOMKINS. 2014. "Trading, the Longboat, and Cultural Interaction in the Aegean during the Late Fourth Millennium B.C.E. The View from Kephala Petras, East Crete," *AJA* 117 (3), 353–381.

PAPADATOS, Y. and C. SOFIANOU. 2015. *Livari Skiadi, a Minoan Cemetery in Southeast Crete. Vol I, Excavation and Finds* (*Prehistory Monographs* 50), Philadelphia.

PAPADIMITRIOU, N. and Z. TSIRTSONI (eds). 2010. *Η Ελλάδα στο ευρύτερο πολιτισμικό πλαίσιο των Βαλκανίων κατά την 5η και 4η χιλιετία π.Χ.*, Athens.

PAPATHANASIOU, A. 2018. "Alepotrypa Cave: The Site Description and Its Cultural and Chronological Range," in A. PAPATHANASIOU, W. A. PARKINSON, D. J. PULLEN, M. L. GALATY, and P. KARKANAS (eds.), *Neolithic Alepotrypa Cave in the Mani, Greece: In Honor of George Papathanassopoulos*, Oxford, 10–23.

PAPATHANASOPOULOS, G. (ed.). 1996. *Neolithic Culture in Greece*, Athens.

———. 2012. Το Νεολιθικό Διρό. Σπήλαιο Αλεπότρυπα, Athens.

PANDELIDOU-GOFA, M. 2016. *Τσέπι Μαραθῶνος: Ὁ Ἀποθέτης 39 Τοῦ Προϊστορικοὺ Νεκροταφεῖου*, (*Library of the Archaeological Society at Athens* 310), Athens.

PENDLEBURY, H. W., J. D. S. PENDLEBURY and M. B. MONEY-COUTTS. 1935–36. "Excavations in the Plain of Lasithi. I. The Cave of Trapeza," *BSA* 36, 5–131.

PENDLEBURY, J. D .S., M. B. MONEY-COUTTS and H. W. PENDLEBURY. 1937–38. "Excavations in the Plain of Lasithi. II," *BSA* 38, 1–56.

PENTEDEKA, A. 2018. "The Alepotrypa Cave Pottery Assemblage: a Ceramic Petrology Approach," in A. PAPATHANASIOU, W. A. PARKINSON, D. J. PULLEN, M. L. GALATY, and P. KARKANAS (eds.), *Neolithic Alepotrypa Cave in the Mani, Greece: In Honor of George Papathanassopoulos*, Oxford, 163–178.

PERNIER, L. 1935. *Il Palazzo Minoico di Festòs,* I, Rome.

PHELPS, P. 2004 [1975]. *The Neolithic Pottery Sequence in Southern Greece,* (*BAR-IS* 1250), Oxford. [1975 Unpublished Ph.D. Dissertation, Institute of Archaeology, University of London].

PSIMOGIANNOU, K. 2018. "Patterns of Pottery Consumption, Destruction and Deposition at Alepotrypa Cave: The Case of Chamber Z during the Neolithic Period," in A. PAPATHANASIOU, W. A. PARKINSON, D. J. PULLEN, M. L. GALATY, and P. KARKANAS (eds.), *Neolithic Alepotrypa Cave in the Mani, Greece: In Honor of George Papathanassopoulos*, Oxford, 127–157.

RADIVOJEVIĆ, M., T. REHREN, J. KUZMANOVIĆ-CVETKOVIĆ, M. JOVANOVIĆ and P. NORTHOVER. 2013 "Tainted Ores and the Rise of Tin Bronzes in Eurasia, c. 6500 Years Ago," *Antiquity* 87, 1030–1045.

REIMER, P., W. AUSTIN, E. BARD, A. BAYLISS, P. BLACKWELL et al. 2020. "The IntCal20 Northern Hemisphere Radiocarbon Age Calibration Curve (0–55 cal kBP)," *Radiocarbon*, 62 (4), 725–757.

REINGRUBER A. 2008. *Die Argissa Magula: Das frühe und das beginnende Neolithikum im Lichte transägäischer Beziehungen. Die deutschen Ausgrabungen auf der Argissa Magula II* (*Beiträge zur ur- und frühgeschichtlichen Archäologie des Mittelmeerraums* 35), Bonn.

———. 2015a. "Preceramic, Aceramic or Early Ceramic? The Radiocarbon Dated Beginning of the Neolithic in the Aegean," *Documenta Praehistorica* 42, 147–158.

———. 2015b. "Absolute and Relative Chronologies in the Lower Danube Area during the 5th Millennium BC, in S. HANSEN, P. RACZKY, A. ANDERS and A. REINGRUBER (eds.), *Neolithic and Copper Age between the Carpathians and the Aegean Sea, Chronologies and Technologies from the 6th to the 4th Millennium BCE International Workshop Budapest 2012*, Bonn, 301–324.

REINGRUBER, A. and L. THISSEN. 2009. "*Depending on 14C Data: Chronological Frameworks in the Neolithic and Chalcolithic of Southeastern Europe*," *Radiocarbon* 21 (2), 751–770.

———. 2016. *The 14SEA Project. a 14C Database for Southeast Europe and Anatolia (10,000–3,000 calBC)*. http://www.14sea.org/3_IIb.html, last updated 01–31–2017.

REINGRUBER, A., G. TOUFEXIS, N. KYPARISSI-APOSTOLIKI, M. ANETAKIS, Y. MANIATIS and Y. FACORELLIS. 2017. "Neolithic Thessaly. Radiocarbon Dated Periods and Phases," *Documenta Praehistorica* 44, 34–53.

RENFREW, C. 1965. *Neolithic and Bronze Age Cultures of the Cyclades and Their External Relations*, Unpublished PhD dissertation, University of Cambridge.

———. 1972. *The Emergence of Civilization: The Cyclades and the Aegean in the Third Millennium B.C.,* London.

———. 2018. "Inventing the Final Neolithic" in S. DIETZ, F. MAVRIDIS, Z. TANKOSIĆ and T. TAKAOĞLU (eds.), *Communities in Transition: The Circum-Aegean Area in the 5th and 4th Millennia BC*, *Danish Institute at Athens, 7–9/6 2013*, (*Monographs of the Danish Institute at Athens* 20), Oxford, 3–11.

RIDLEY, C. and K. WARDLE. 1979. "Rescue Excavations at Servia 1971–1973: A Preliminary Report," *BSA* 74, 185–230.

SAMPSON, A. 1977. "'Ανασκαφή στον προϊστορικό οικισμό της Βάρκας, Ψαχνών-Εὔβοιας,"Άρχεῖον Ενξοϊκών Μελετών 21, 1–60.

———. 1980. "Η Νεολιθική και η Πρωτοελλαδική Ι στην Εύβοια," *Αρχείο Ευβοϊκων Μελετων* (*Supplement* 24), Athens.

———. 1984. "The Neolithic of the Dodecanese and the Aegean Neolithic," *BSA* 79, 239–249.

———. 1993. *Σκοτεινή Θαρρουιών. Το σπήλαιο, ο οικισμός και το νεροταφείο*, Athens.

———. 2002. *The Neolithic Settlement at Ftelia, Mykonos*, Rhodes.

———. 2003 [1987 reprint]. *Η Νεολιθική περίοδος στα Δωδεκάνησα*, Athens.

———. 2006. *Η προϊστορία του Αιγαίου, Παλαιολιθική, Μεσολιθική, Νεολιθική* (*The Prehistory of the Aegean Basin*), Athens.

———. 2008. *The Sarakenos Cave at Akraephnion, Boeotia, Greece.* Vol. I, *The Neolithic and the Bronze Age*, Athens.

———. 2014. *Ikaria. Prehistory and Ethnoarchaeology*, Athens.

———. 2018. "The Neolithic Settlement at Ftelia, Mykonos. "An Intra-site Analysis," in A. SAMPSON and T. TSOUROUNI (eds.). 2018. *Ftelia on Mykonos, Greece. Neolithic Networks in the Southern Aegean Basin.* Vol. II (*University of the Aegean Laboratory of Environmental Archaeology Monograph Series* 7), Athens, 1–14.

———. 2020. "΄Ενας «Αιρετικός» Αρχαιολόγος – Ερευνητής Αποκαλύπτει," Αντιθέσεις στην ΚΡΗΤΗ *TV*, aired 30.12.2020, http://www.cretetv.gr/antitheseis/shows-antitheseis/12724-antitheseis-enas-airetikos-arxaiologos-ereynhths-apokalyptei/

SAMPSON, A., Y. FACORELLIS and Y. MANIATIS. 1999. "New Evidence for the Cave Occupation During the Late Neolithic Period in Greece," in J. EVIN, C. OBERLIN, J. P. DAUGAS and J. F. SALLES (eds.), A*rchéologie et 14C* (*Actes du 3ème Congrès International, Lyon, 6–10 Avril 1998, Revue de l'Archeometrie Supplément 1999 et Société Préhistorique Française Memoire* 26), Lyon, 279–286.

SAMPSON, A. and T. TSOUROUNI (eds.). 2018. *Ftelia on Mykonos, Greece. Neolithic Networks in the Southern Aegean Basin.* Vol. II (*University of the Aegean Laboratory of Environmental Archaeology Monograph Series* 7), Athens.

SCHACHERMEYR, F. 1955. *Die Ältesten Kulturen Griechenlands*, Stuttgart.

SCHIER, W. 1996. "The Relative and Absolute Chronology of Vinča: New Evidence from the Type Site," in F. DRAŞOVEAN (ed.), *The Vinča Culture, its Role and Cultural Connections*, Timişoara, 141 – 162.

———. 2000. "Measuring Change: the Neolithic Pottery Sequence of Vinča-Belo Brdo," *Documenta Praehistorica* 27, 187 – 197.

SCHOOP, U.D. 2005. *Das anatolische Chalkolithikum. Eine chronologische Untersuchung zur vorbronzezeitlichen Kultursequenz im nördlichen Zentralanatolien und den angrenzenden Gebieten* (*Urgeschichtliche Studien* 1), Remshalden.

SHARP JOUKOWSKY, M. 1986. *Prehistoric Aphrodisias: An Account of the Excavations and Artifact Studies, Providence, R.I., USA: Brown University, Center for Old World Archaeology and Art* (*Archaeologia transatlantica* 3), Louvain.

SIMPSON, R. H. and J. F. LAZENBY. 1962. Notes from the Dodecanese, *BSA* 57, 127 – 179.

———. 1970. "Notes from the Dodecanese," *BSA* 65, 47 – 77.

———. 1973. "Notes from the Dodecanese," *BSA* 68, 154 – 175.

SOFIANOU, C. and T. BROGAN. 2019. "Ενδοπεριφερειακή κινητικότητα κατά την Εποχή του Χαλκού. Από τη Μεσοράχη στον Παπαδιόκαμπο της Ανατολικής Κρήτης," in *Proceedings of 12th International Congress of Cretan Studies, Heraklion, Crete, Greece, 21 – 25.09.2016*, Heraklion.

SOFIANOU, C. M., Y. PAPADATOS, M. EABY and T. BROGAN. 2019. "Rock Art and Round Buildings in Eastern Crete: the Case of Final Neolithic Sopata and Early Minoan Mesorachi," *delivered on 16 December 2019, Circle of Lectures at the Museum of Cycladic Art, Athens* https://diavlos.grnet.gr/room/650?eventid=7298&vod=7557_session

SPERLING, J. 1976. "Kum Tepe in the Troad. Trial Excavation, 1934," *Hesperia* 45, 305 – 364.

STEADMAN, S. R. and G. MCMAHON (eds.). 2011. *The Oxford Handbook of Ancient Anatolia, 10,000 – 323 B.C.E.*, Oxford.

STUCKENRATH, R. and B. LAWN. 1969. "University of Pennsylvania Radiocarbon Dates XI," *Radiocarbon*, 11 (1), 150 – 162.

SUESS, H. E. 1958. "The Radioactivity of the Atmosphere and Hydrosphere," *Annual Review of Nuclear Science* 8, 243 – 256.

TAKAOĞLU, T. 2002. "Chalcolithic Marble Working at Kulaksızlar in Western Anatolia," *TÜBA-AR* V, 71 – 106.

———. 2004. "Interactions in the Fifth Millennium B.C. Eastern Aegean: New Evidence," *Anatolia Antiqua* 12, 1 – 6.

———. 2005. *a Chalcolithic Marble Workshop at Kulaksızlar in Western Anatolia: An Analysis of Production and Craft Specialization*, (*BAR IS 1358*), Oxford.

———. 2006. "The Late Neolithic in the Eastern Aegean: Excavations at Gülpinar in the Troad," *Hesperia* 75 (3), 289 – 315.

TAKAOĞLU, T. and A. ÖZDEMIR. 2018. "The Middle Chalcolithic Period in the Troad: a New Look from Gülpınar," in S. DIETZ, F. MAVRIDIS, Z. TANKOSIĆ and T. TAKAOĞLU (eds.), *Communities in Transition: The Circum-Aegean Area in the 5th and 4th Millennia BC*, *Danish Institute at Athens, 7 – 9.06.2013* (*Monographs of the Danish Institute at Athens* 20), Oxford, 479 – 490.

TASIĆ, N., M. MARIĆ, C. B. RAMSEY, B. KROMER, A. BARCLAY, A. BAYLISS, N. BEAVAN, B. GAYDARSKA, and A. WHITTLE. 2016. "Vinča-Belo Brdo, Serbia: The Times of a Tell," *Germania* 93, 1 – 75.

TASIC, N., M. MARIC, K. PENEZIC, D. FILIPOVIC, K. BOROJEVIC, D. BORIC et al. 2015. "The End of the Affair: Formal Chronological Modelling for the Top of the Neolithic Tell of Vinča -Belo Brdo," *Antiquity* 89, 1064 – 1082.

TELEVANTOU, C. A. 2018. "Strofilas, Andros. New Perspectives on the Neolithic Aegean," in S. DIETZ, F. MAVRIDIS, Z. TANKOSIĆ and T. TAKAOĞLU (eds.), *Communities in Transition: The Circum-Aegean Area in the 5th and 4th Millennia BC*, *Danish Institute at Athens, 7 – 9.06.2013* (*Monographs of the Danish Institute at Athens* 20), Oxford, 389 – 396.

———. 2019. "Neolithic Settlement at Strofilas, Andros," *Πάπυροι -Επιστημονικό Περιοδικότόμος* 8, 146 – 181.

THEOCHARIS, D. R. 1958. "Pyrasos." *Thessalika* 2, 29 – 68.

———.1959. "Εκ της προϊστορίας της Εύβοιας και της Σκύρου," *Αρχείον Ευβοϊκών Μελετών* 6, 279 – 328.

TODARO, S. 2018. "The FN-EM I Transition in South-central Crete: New Data from Phaistos," in S. DIETZ, F. MAVRIDIS, Z. TANKOSIĆ and T. TAKAOĞLU, (eds.), *Communities in Transition: The Circum-Aegean Area in the 5th and 4th Millennia BC*, *Danish Institute at Athens, 7 – 9.06.2013* (*Monographs of the Danish Institute at Athens* 20), Oxford, 426 – 440.

———. 2020. "The Challenges of Living in the Marshes between the 5th and 3rd Millennium BC: a View from Phaistos," *Creta Antica* 19, 323 – 352.

TODOROVA H. 2003. "Prehistory of Bulgaria," in D. GRAMMENOS (ed.), *Recent Research in the Prehistory of the Balkans.* Thessaloniki, 257 – 328.

TODARO, S. and S. DI TONTO. 2008. "The Neolithic Settlement of Phaistos Revisited: Evidence for Ceremonial Activity on the Eve of the Bronze Age." in V. ISAAKIDOU and P. D. TOMKINS (eds.), *Escaping the Labyrinth: The Cretan Neolithic in Context* (*Sheffield Studies in Aegean Archaeology* 8), Oxford, 177 – 190.

TOMKINS, P. 2001. *The Production, Circulation and Consumption of Ceramic Vessels at Early Neolithic Knossos, Crete*. Unpublished Ph.D. Dissertation, University of Sheffield.

———. 2007. "Neolithic. Strata IX – VIII, VII – VIB, VIA – V, IV, IIIB, IIIA, IIB, IIA and IC Groups," in N. MOMIGLIANO (ed.), *Knossos Pottery Handbook Neolithic and Bronze Age (Minoan)* (*BSA Studies* 14), London, 9 – 48.

———. 2008. "Time, Space and the Reinvention of the Cretan Neolithic," in V. ISAAKIDOU and P. D. TOMKINS (eds.), *Escaping the Labyrinth: The Cretan Neolithic in Context* (*Sheffield Studies in Aegean Archaeology* 8), Oxford, 22 – 48.

———. 2014. "Tracing Complexity in 'the Missing Millennium': An Overview of Recent Research into the Final Neolithic Period on Crete," in B. HOREJS and M. MEHOFER (eds.), *Western Anatolia before Troy: Proto-Urbanisation in the 4th Millennium BC? Proceedings of the International Symposium held at the Kunsthistorisches Museum Wien, Vienna, Austria, 21 – 24.11.2012* (*Oriental and European Archaeology* 1), Vienna, 345 – 364.

———. 2018. "Palimpsests and Proxies. A Reconsideration of Neolithic Settlement in the Mesara before Phaistos," in G. BALDACCI and I. CALOI (eds.), *Rhadamanthys: Studi di archeologia minoica in onore di Filippo Carinci per il suo 70º compleanno. Studies in Minoan Archaeology in Honour of Filippo Carinci on the Occasion of His 70th Birthday* (*BAR-IS* 2884), Oxford, 129 – 136.

——. 2019. "Knossos I – XIII: New Light on Neolithic Stratigraphy, Phasing, Contexts and Chronology," *Ε΄ Παγκρήτια Επιστημονική Συνάντηση "Αρχαιολογικό 'Εργο στην Κρήτη", Ρέθυμνο, 21 – 24.11.2019, Σπίτι του Πολιτσμού,* Rethymnon, delivered on November 22, 2019.

———. 2020. "About Time. Rehabilitating Chronology in the Interpretation of Settlement in East Crete between the Neolithic and Early Minoan I," *Creta Antica* 19 (2018), 45 – 92.

TOMKINS, P. and P. M. DAY. 2001. "Production and Exchange of the Earliest Ceramic Vessels in the Aegean: a View from Early Neolithic Knossos, Crete," *Antiquity* 75, 259 – 260.

TOUFEXEIS, G. 1999. "Σωστική ανασκαφή στη χ.θ. 3220 – 3316 της ανατολικής Παράκαμψης Λάρισας (νεολιθική θέση στο Κοινοτικό Διαμέρισμα της Γαλήνης, Δ. Πλατυκάμπου)," *ArchDelt* 54, Χρονικά, 424 – 426.

———. 2016. "Palioskala. A Late Neolithic, Final Neolithic and Early Bronze Age Settlement in the Eastern Thessalian Plain, Central Greece," in Z. TSIRTSONI (ed.), *The Human Face of Radiocarbon. Reassessing Chronology in Prehistoric Greece and Bulgaria, 5000 – 3000 cal BC* (*Maison de l'Orient et de la Méditerranée, Travaux de la Maison de l'Orient et de la Méditerranée 69*), Lyon, 361–380.

TOUFEXIS, G., S. KARAPANOU and M. MANGAFA. 2000. "Ανασκαφική έρευνα στη μαγούλα Ραχμάνι. Πρώτα συμπεράσματα," in *1 η Επιστημονική Συνάντηση. Το έργο των Εφορειών* Αρχαιοτήτων και Νεωτέρων Μνημείων του ΥΠΠΟ στη Θεσσαλία και στην ευρύτερη περιοχή της από το 1990 μέχρι σήμερα, Βόλος, Μάιος 1997, *Ministry of Culture-13 EPKA,* Volos, 105 – 114.

TREUIL R. (ed.). 2004. *Dikili Tash, village préhistorique de Macédoine orientale,* I. *Fouilles de Jean Deshayes (1961 – 1975),* Vol. 3, *(BCH* Supplement 37), Athens.

———. 2014. "A Century of Research in Dikili Tash" in E. STEFANI, N. MEROUSIS and A. DIMOULA (eds.), *1912 – 2012:* Εκατό Χρόνια Έρευνας στην προϊστορική Μακεδονία, Πρακτικά Διεθνούς Συνεδρίου Αρχαιολογικό Μουσείο Θεσσαλονίκης, *22 – 24.11.2012* (Έκδοση Αρχαιολογικού Μουσείου Θεσσαλονίκης 22), Thessaloniki, 57 – 65.

TSIRTSONI, Z. 2000. "Les poteries du début du Néolithique Récent en Macédoine, I. Les types de recipients," *BCH* 124 (1), 1 – 55.

———. 2014. "Formation or Transformation? The 4th Millennium BC in the Aegean and the Balkans," in B. HOREJS and M. MEHOFER (eds.), *Western Anatolia before Troy. Proto-Urbanisation in the 4th Millennium BC? Proceedings of the International Symposium held at the Kunsthistorisches Museum Wien, Vienna, Austria, 21 – 24.11.2012* (*Oriental and European Archaeology* 1), Vienna, 275 – 304.

———. 2016. "Chapter 1. The Chronological Framework in Greece and Bulgaria between the Late 6th and the Early 3rd Millennium BC, and the "Balkans 4000" Project," in Z. TSIRTSONI (ed.), *The Human Face of Radiocarbon. Reassessing Chronology in Prehistoric Greece and Bulgaria, 5000 – 3000 cal BC.* (*Maison de l'Orient et de la Méditerranée, Travaux de la Maison de l'Orient et de la Méditerranée* 69). Lyon, 13 – 39.

——— (ed.). 2016. *The Human Face of Radiocarbon. Reassessing Chronology in Prehistoric Greece and Bulgaria, 5000–3000 cal BC* (*Maison de l'Orient et de la Méditerranée, Travaux de la Maison de l'Orient et de la Méditerranée* 69), Lyon.

———. 2017. "Let's Stop Speaking 'Cultures'! Alternative Means to Assess Historical Developments in the Prehistoric Balkans," in M. GORI and M. IVANOVA (eds.), *Balkan Dialogues. Negotiating Identity between Prehistory and the Present*, New York, 64 – 85.

UREM-KOSTOU, D. C. 2006. *Νεολιθική κεραμική του Μακρύγιαλου: διατροφικές συνήθειες και οι κοινωνικές διαστάσεις της κεραμικής*, Unpublished Ph.D. Dissertation, Aristotle University, Thessaloniki.

VAGNETTI, L. 1972 – 73. "L'insediamento neolitico di Festos," *ASA* 50 – 51, 7 – 138.

———. 1996. "The Final Neolithic: Crete Enters the Wider World," *Cretan Studies* 5, 29 – 39.

VAGNETTI, L. and P. BELLI. 1978. "Characters and Problems of the Final Neolithic in Crete," *SMEA* 19, 125 – 163.

VAGNETTI L., A. CHRISTOPOULOU and I. TZEDAKIS. 1989. "Saggi ne gli stati Neolitici," in I. TZEDAKIS and A. SACCONI (eds.), *Scavi a Nerokourou Kydonias* (*Recherche Greco-Italiane in Creta Occidentale* 1), Rome, 9 – 97.

VALVIS, G. 2018. "Pithoi with Relief Decoration from Alepotrypa Cave," in A. PAPATHANASIOU, W. A. PARKINSON, D. J. PULLEN, M. L. GALATY, and P. KARKANAS (eds.), *Neolithic Alepotrypa Cave in the Mani, Greece: In Honor of George Papathanassopoulos*, Oxford, 158 – 162.

VASIĆ, M. 1932. *Preistorjiska Vinča I. Industrija cinabarita i kosmetika u Vinči*, Beograd.

VITELLI, K. D. 1999. *Franchthi Neolithic Pottery II: Classification and Ceramic Phases 3 – 5*, (*Fascicle* 8), Bloomington, Indianapolis.

———. 2007. *The Neolithic Pottery from Lerna*, (*Lerna* 5), Athens.

VOUGARI, E. 2014. "The Anthropomorphism of Human-like-pots: Circular Paths in the Archaeological Thought," in H. SCHWARZBERG and V. BECKER (eds.), *Bodies of Clay. On Prehistoric Humanised Pottery, Proceedings of the Session at the 19th EAA Annual Meeting at Pilsen, 05.09.2013*, Oxford, 23 – 43.

———. 2017. "Εικόνες και αφηγήσεις από τα διακοσμημένα θραύσματα του Δισπηλιού," in E. STEFANI, N. MEROUSIS and A. DIMOULA (eds.), *1912 – 2012: Εκατό Χρόνια Έρευνας στην προϊστορική Μακεδονία, Πρακτικά Διεθνούς Συνεδρίου Αρχαιολογικό Μουσείο Θεσσαλονίκης, 22 – 24.11.2012* (Έκδοση Αρχαιολογικού Μουσείου Θεσσαλονίκης 22), Thessaloniki, 549 – 560.

WACE, A.J.B. and M.S. THOMPSON. 1912 [1979 reprint]. *Prehistoric Thessaly: Being Some Account of Recent Excavations and Explora= tions in North-Eastern Greece from Lake Kopais to the Borders of Macedonia*, Cambridge.

WARREN, P. 1976. *Myrtos: An Early Bronze Age Settlement in Crete* (*BSA Supplement* 7), London.

WARREN, P., M. JARMAN, H. JARMAN, N. SHACKLETON and J. EVANS. 1968. "Knossos Neolithic, Part II," *BSA* 63, 239 – 276.

WASHBURN, D. K. 1983. "Symmetry Analysis of Ceramic Design: Two Tests of the Method on Neolithic Material from Greece and the Aegean," in D. K. WASHBURN (ed.), *Structure and Cognition in Art*, Cambridge, 138 – 164.

WATROUS, L. V. D. HAGGIS, K. NOWICKI, N. VOGEIKOFF-BROGAN, and M. SCHULTZ. 2012. *An Archaeological Survey of the Gournia Landscape. A Regional History of the Mirabello Bay, Crete, in Antiquity* (Prehistory Monographs 3), Philadelphia.

WELSCH, F. B. 1918 – 1919. "Macedonia. III: Prehistoric Pottery," *BSA* 230, 44 – 50.

WENINGER, B. and E. EDINBOROUGH. 2020. "Bayesian ^{14}C-rationality, Heisenberg Uncertainty, and Fourier Transform. The Beauty of Radiocarbon Calibration*," Documenta Praehistorica* 47, 536 – 559.

WHITTLE, A., A. BAYLISS, A. BARCLAY, B. GAYDARSKA, E. BANFFY, D. BORIC, F. DRASOVEAN, J. JAKUCS ... M. V. LINDEN. 2016. "A Vinča Potscape. Formal Chronological Models for the Use and Development of Vinča Ceramics in South-East Europe," *Documenta Praehistorica* 43, 1 – 60.

YAKAR, J. 2011. "Anatolian Chronology and Terminology," in G. MCMACHON and S. STEADMAN (eds.), *The Oxford Handbook of Ancient Anatolia: (10,000 – 323 BCE*), online PDF version, https://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780195376142.001.0001/oxfordhb-9780195376142-e-4, 1 – 56.

YANOVICH, I. 2021. "Including Explicit Priors on Phase Duration in Bayesian 14C Dating. Re-evaluating the Dates for Basal Knossos and for Nea Nikomedeia (Early Aegean Neolithic), *Documenta Praehistorica* 48, 2 – 23.

YILMAZ, D. 2013. "A New Early Bronze Age Site in the Eastern Aegean: Surveys at Bozköy- Hanaytepe in the Troad," *International Journal of Social Science* 6 (5), 857 – 888.

YIOUNI, P. 2001. "Surface Treatment of Neolithic Vessels from Macedonia and Thrace," *BSA* 96, 1 – 25.

ZACHOS, K. 1996a. "The Cyclades," in G. PAPATHANASOPOULOS (ed.), *Neolithic Culture in Greece*, Athens, 129 – 130.

———. 1996b. "Metallurgy," in G. PAPATHANASOPOULOS (ed.), *Neolithic Culture in Greece*, Athens, 140 – 43.

———. 2007. "The Neolithic Background: A Reassessment," in P. M. DAY and R. C. P. DOONAN (eds.), *Metallurgy in the Early Bronze Age Aegean*, (*Sheffield Studies in Aegean Archaeology* 7), Oxford, 168–206.

———. 2008 [1987 *PhD thesis,* University of Boston]. *Ayios Dhimitrios: a Prehistoric Settlement in the Southwestern Peloponnese* (*BAR-IS* 1770), Oxford.

———. 2010. "Η μεταλλουργία στην Ελλάδα και στη ΝΑ Ευρώπη κατά την 5η και 4η χιλιετία π.Χ.," in N. PAPADIMITRIOU (ed.), *Η Ελλάδα στο ευρύτερο πολιτισμικό πλαίσιο των Βαλκανίων κατά την 5η και 4η χιλιετία π.Χ.*, Athens, 76 – 91.

ZOIS, A. 1973. *Κρήτη, εποχή του Λίθου*, Unpublished Ph.D. Dissertation, University of Athens.