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Pottery Technologies and Sociocultural Connections Between the Aegean and Anatolia During the 3rd Millennium BC

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Eva Alram-Stern
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Contents

Settlement and Society in Early Bronze Age Heraion: Exploring Stratigraphy, Architecture and Ceramic Innovation After Mid-3rd Millennium BC

Ourania Kouka[1] *– Sergios Menelaou*[2]

To the memory of Miltiades Apostolou

Abstract: The key position of Samos between the central Aegean and western Anatolia as well as the appraisal of the settlement at Heraion, as being the largest Early Bronze Age (EB) early urban site in the insular eastern Aegean, has led several scholars in the past to suggest that Samos may have constituted the cultural mediator in the transmission of ideas, technological innovations and goods (e.g. new serving and drinking pottery sets) between these regions in the EB II late–III. The period called the 'Anatolian Trade Network' in Anatolian terms and 'Lefkandi I-Kastri Group' in Helladic-Cycladic terms as well as the related pottery assemblage assigned to this period has recently been revised regarding its chronological, geographical and cultural homogenous character on the basis of newly-emergent data from various Anatolian and Aegean sites. Taking these into account, this paper provides an introduction to the EB strata excavated at Heraion from 1953–2013 focusing on the political, social and economic meaning of architecture from the EB I–III phases. This provides the background for a contextual, chronological and technological re-evaluation of the pottery produced between c. 2650 and 2000 BC, namely within the phases Heraion I–V. The chronological review of the ceramic developments at Heraion and the reconsideration of shapes traditionally considered to be 'local' (eastern Aegean/western Anatolian) and 'foreign' (Cycladic/Cycladicising) provide a secure basis for a synchronisation with pottery developments in western Anatolia and the central Aegean in the EB II early–III periods.

Keywords: Greece, Aegean, Samos, Early Bronze Age, architecture, pottery, technology, trade, emergence of urbanism, social stratification

Introduction: Prehistoric Samos

Archaeological research on Samos from the last century onwards has so far revealed five prehistoric sites located all in the only extensive fertile plain of the southern part of this extremely mountainous island.[3] The earliest occupation of Samos dates back to the Late (LN) and Final Neolithic (or Chalcolithic, FN/Ch) as displayed by stratified levels at Kastro-Tigani[4] and recently also at Heraion.[5] Only at Heraion has the Early Bronze Age (EB) habitation been documented extensively through rich architectural sequences in old and new excavations.[6] The Middle Bronze Age (MB) is known through stray finds at Kastro-Tigani and from recently discovered successive architectural phases at Heraion.[7] Furthermore, the Late Bronze Age (LB) is documented through

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3 For geomorphology, geology, climate, resources and inter-site analysis on Samos see Kouka 2002, 279–284, Karte 25–28 (with relevant bibliography).

4 Felsch 1988; Kouka 2014, 47–49.

5 Kouka 2014, 49–52; Kouka 2015, 226, fig. 6.

6 Milojčić 1961; Niemeier – Kouka 2010, 113, fig. 16; Niemeier – Kouka 2011, figs. 17, 18; Niemeier – Kouka 2012, fig. 21; Kouka 2014, 575–576; Kouka 2015, 226–228, figs. 1–3, 7; Kouka in press a.

7 Kouka 2014, 576; Kouka 2015, 228–230, figs. 1, 4–5, 8.

stray finds and lately also by stratified finds below the Altar of the Heraion (Late Minoan IA),[8] as well as through Mycenaean (Late Helladic IIIA–B) chamber tombs at Heraion and Myloi. Finally, stray prehistoric finds are reported from Phanari and Mesokampos (Fig. 1).[9] The distribution of prehistoric settlements in the southern part of Samos and specifically in the plain of Pythagoreion – the plains of Marathokambos and Karlovasi did not reveal any prehistoric sites –, in which the ancient city of Samos was extended from the Geometric to the Byzantine Periods, should be explained by the fertility of this micro-region due also to alluvial deposits, the abundance of resources, as well as the existence of safe anchorages at Pythagoreion and Heraion and their location close to the western Anatolian coast and opposite the Delta of the Maeander River.

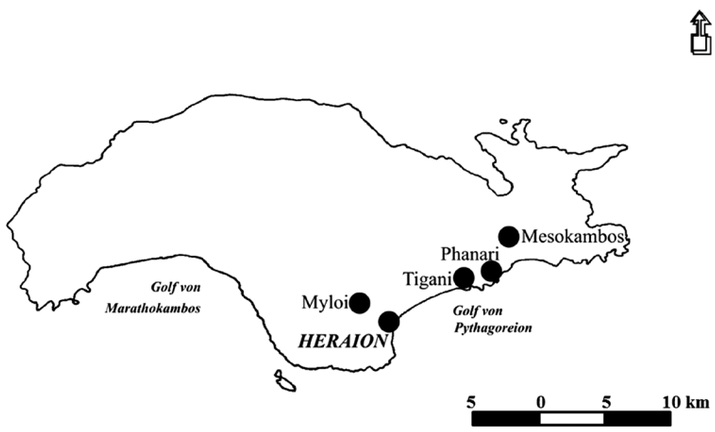

Fig. 1 Prehistoric sites on Samos (Ou. Kouka)

Early Bronze Age Heraion (3000–2000 BC)

The EB settlement at Heraion on Samos is mainly known from successive architectural levels unearthed in the excavations conducted north of the Temple of Hera and the North Stoa of the Sanctuary (1953, 1955) and published by V. Milojčić.[10] Further EB architecture uncovered later, in deep trenches under the north and east Prostasis and east of the temple by H. Walter (1958–1960) and north of the North Stoa by P. Isler (1966), are published only in short preliminary reports.[11] Milojčić has defined five EB phases, Heraion I–V that were synchronous with Troy I (late) – Troy IV and correspond with the later stage of the EB II early–III (Tab. 1). Earlier finds, dating to phase Heraion I and earlier, were excavated in 1981 by H. Kyrieleis and H.-J. Weisshaar beneath the Late Roman settlement north of the Sacred Road.[12] In the latter area excavations by

8 Niemeier – Kouka 2010, 114, fig. 17.

9 Kouka 2002, 280, Karte 28 with relevant bibliography. For a discussion of settlement patterns on prehistoric Samos see Kouka 2002, 281–284.

10 Milojčić 1961.

11 Walter 1963, 286–289; Isler 1973. From this excavation Walter has published an impressive reconstructed plan of the prehistoric settlement in his short guide through Heraion (Walter 1976, fig. 3).

12 Kyrieleis et al. 1985, fig. 2, 35–37. Due to the lack of detailed information in the preliminary report these architectural strata have been presented by Kouka as belonging to a phase ‘früher als Heraion I’ (Kouka 2002, 286, tab. 1).

Ou. Kouka (2009–2013)[13] – within the framework of the excavations of the Deutsches Archäologisches Institut (DAI) – have revealed five architectural phases dating to the EB I–II early phases (Heraion 5–1), as well as cultural levels and parts of the fortification wall of the EB II late–III phases (Heraion II–V), all founded on settlement deposits of the Chalcolithic (Tab. 1, Fig. 2).[14]

The five successive architectural phases Heraion 5–1, ranging in date from the EB I phase to the later stage of the EB II early settlement (later stage of Heraion I), were discovered north of the Sacred Road (Fig. 3)[15] and included rectangular houses with one or two partite long-rooms built with stone foundations and a mudbrick superstructure. Two phases have been preliminarily dated to the EB I (Heraion 5–4) and three to the early EB II (Heraion 3–1) (3000–2550 BC). The settlement was fortified during the initial EB I with a stone-built fortification supported by a stone ramp and comprised of a gate flanked by rectangular bastions (Heraion 5–2). Very close to the gate, there was a remarkable two-storied communal storage structure, the so-called *Communal Building I* (Heraion 2) (Fig. 3).[16] The location of *Communal Building I* directly north of the settlement gate, the strong building construction, which equals that of the fortification wall, as well as its dimensions indicate a product of communal effort, comparable to the synchronous *Communal Storage* and *Communal Hall* of Poliochni on Lemnos.[17] A preliminary analysis of households allowed the identification of areas for food preparation (installations for grinding and for limited olive oil production, cooking in hearths) as well as storage (grains and wine in pithoi and amphorae).[18]

EB I pottery included bowls with carinated rims and horizontally-pierced lug-handles (*Knickrandschalen*), wide-mouthed jugs, cut-away spouted jugs and one-handled cooking pots. The pottery of the EB II early phase comprised of carinated bowls, a conical saucer with a ring base, amphorae with incised handles, tripod cooking pots, and big pithoi – one with a relief T-form application with stamped circles.[19] In addition, a dark burnished miniature collar-necked jar, and a part of a twin tripod pyxis of Early Cycladic I–II (EC) inspiration, as well as parts of sauceboats have been found.[20] Small finds included blades made from flint and Melian obsidian, as well as copper/bronze artefacts, such as a tiny bead, a fragment of a pin and fragments of a thin blade.[21] The aforementioned finds attest to both the exploitation of local resources for the production of pottery and stone tools, and to external contacts with the Cyclades for acquiring obsidian and possibly copper.

The EB I–II early fortified settlement north of the Sacred Road displays the earliest habitation core of the EB Heraion, which extended inland to the north. Communal works, such as the fortification with the bastions and the *Communal Builiding I* indicate a wealthy settlement with evolved political, economic and social structures already from the beginning of the EB, similar with those of Troy I early–middle, Poliochni Blue, Thermi II–IIIB and Liman Tepe VI.[22]

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13 The project has been generously financially supported by the University of Cyprus-Research Project A. G. Leventis, the Department of History and Archaeology of the University of Cyprus, the Institute for Aegean Prehistory (INSTAP), the INSTAP-Study Center for East Crete (INSTAP-SCEC), the Fritz Thyssen Stiftung für Wissenschaftsförderung, and the J. F. Costopoulos Foundation.

14 Niemeier – Kouka 2010, 113, fig. 16; Niemeier – Kouka 2011, figs. 17, 18; Niemeier – Kouka 2012, fig. 21; Kouka 2014, 575–576; Kouka 2015, 226–228, figs. 1–3, 7; Kouka in press a.

15 Kouka 2015, 226–227, figs. 2–3; Kouka in press a.

16 Niemeier – Kouka 2011, 104–105, figs. 17, 18.

17 Kouka 2002, 49–50, plans 3–4. For communal and storage buildings in contemporary insular settlements of the eastern Aegean and western Anatolia (Liman Tepe) see Kouka 2002, 295–296; Kouka 2014, 570–572, fig. 3.

18 More information with relevant references, see Kouka 2015, 226–227.

19 Niemeier – Kouka 2011, fig. 18.

20 Kouka in press a, fig. 8.1, 4–9. The EB pottery deriving from the excavations of 1981 and 2009–2013 is being studied by Sergios Menelaou (Ph.D. cand., University of Sheffield).

21 Kouka in press a, fig. 8.2–3.

22 Kouka 2002, 295, plans 3, 4, 15, 18, 56a; Kouka 2014, 570, fig. 2; Kouka – Şahoğlu in press.

Fig. 2 Prehistoric Heraion. Settlement plan (H. Birk, Ou. Kouka)

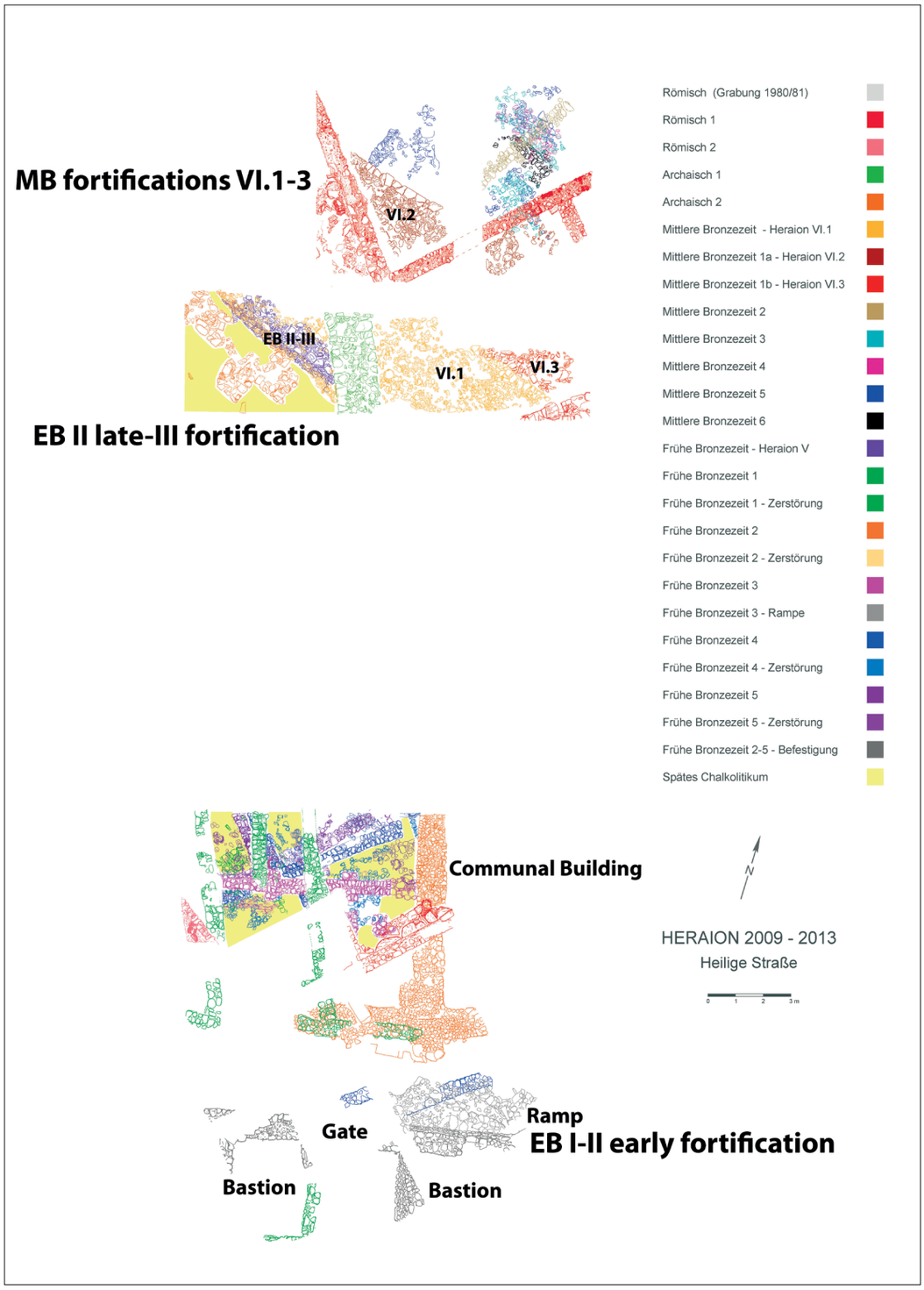

Fig. 3 Heraion, Sacred Road. General plan of the excavated sectors in 1981 and 2009–2013 (H. Birk, Ou. Kouka, K. Ragkou, N. Hellner, A. Tanner, M. Jaumann)

Before the end of the EB II early phase, namely before the end of Miloičić's phase Heraion I (c. 2650 BC, end of Heraion I dates c. 2550 BC), the fortification fell out of use (Fig. 3). It was built over with long-room houses in phase Heraion 1, and the settlement was expanded towards the west, up to the main branch of the Imbrassos River (later the area of the Hera Temple). A new fortification wall was erected along the river and was in use until the end of the EB III (Figs. 2, 4). This radical change in settlement structure should be interpreted as a result of demographic, economic, social, and political factors that precipitated a new settlement concept, as was also the case in some other contemporary settlements of the northern and eastern Aegean (Troy I late, Poliochni Green, Thermi IVA, Emporio III, Liman Tepe V, Bakla Tepe).[23] The east limit of this new settlement was identified in 2013 north of the Sacred Road, as house deposits and parts of a strong and very well preserved stone fortification wall have been documented along the east branch of the Imbrassos, the periodical flooding of which may also have caused – besides the aforementioned factors – the new settlement organisation.

Kouka's intra-site analysis, as well as her household analysis of the later stage of the EB II early – III settlement at Heraion, namely of phases Heraion I–V (2650–2000 BC), based on the publication of Milojčić and the preliminary report of Kyrieleis and Weisshaar,[24] has demonstrated that Heraion I–V (Tab. 1, Figs. 4–5) extended on the flat ground between the two main branches of the Imbrassos River in an area of 35,000m². It was the largest EB settlement in the insular eastern Aegean and had early urban characteristics.[25] A synopsis of the cultural features of these phases will be presented below.

Heraion – Architectural Phases		**Cultural Periods**	**Absolute Chronology**
Hera Temple	Sacred Road		
Heraion V	Heraion V	EB III	c. 2200–2000 BC
Heraion IV	Heraion IV	EB III	
Heraion III	Heraion III	EB II late	c. 2550–2200 BC
Heraion II	Heraion II	EB II late	
Heraion I	Heraion I / Heraion 1	late EB II early late EB II early	c. 2650–2550 BC
	Heraion 2	EB II early	c. 2750–2650 BC
	Heraion 3	EB II early	
	Heraion 4	EB I	c. 3000–2750 BC
	Heraion 5	EB I	
	LCh	LCh	c. 4000–3000 BC
	MCh	MCh	c. 4500–4000 BC

Tab. 1 Stratigraphy of the Chalcolithic and the Early Bronze Age settlement at Heraion (Ou. Kouka)

Stratigraphy, Phasing and Ceramic Developments of Phases Heraion I–V

Of particular interest for its technological, economic and social value is the pottery of phases Heraion I–V and more importantly of Heraion II–IV that correspond to the period of Şahoğlu's

[23] Erkanal – Özkan 1999; Kouka 2002, 295; Erkanal 2011; Erkanal – Şahoğlu 2012a; Erkanal – Şahoğlu 2012b; Kouka 2013, 570–571, figs. 2–3.

[24] Kouka 2002, 285–294, figs. 24–28, plans 45–55, tabs. 92–110, diagrams 18–21.

[25] Kouka 2002, 295–306.

'Anatolian Trade Network'[26] in western and central Anatolia and the Lefkandi I-Kastri group of the Greek Mainland and the Cyclades respectively.[27] From the Heraion II phase onwards a remarkable enrichment in the repertoire has been observed in the form of a new serving and drinking set. A similar phenomenon has been noted at other sites throughout the inland and the littoral of western Anatolia and the islands of the eastern Aegean. Variants of eating and drinking vessels used in Heraion II–III were used either by the eastern Aegean and western Anatolian elite in specific communal buildings or by the entire community during communal feasts, as indicated in Troy, Liman Tepe and Küllüoba.[28] This set has been adopted in EC settlements (e.g. Ayia Irini on Kea, Kastri on Syros, Panormos on Naxos, Dhaskalio on Keros, Akrotiri on Thera)[29] during the EC II late phase.[30]

In view of the political, economic and social dynamics that led to the aforementioned particular intra-site organisation of Heraion I–V on the one hand (Fig. 4), and the exceptional wide range of eating, drinking and serving pots used at Heraion after the mid-3rd millennium BC on the other, a discussion with emphasis on the stratigraphic and contextual sequence of these specific ceramic shapes, their morphology, and their technology will be undertaken below. Specific questions addressed in the framework of this study concern: (1) The chronological implications of the comparative chronologies between Anatolia and the Aegean. (2) The relationship between the late EB II newly emergent fine-ware shapes and the previous and synchronous local ceramic tradition. (3) The continuity or change in ceramic traditions in the transition from Heraion 1, that displays the later stage of the early EB II (Heraion I) to the late EB II (Heraion II–III), and the transition from the late EB II to the EB III (Heraion IV–V) (Tab. 1).

Heraion I (Figs. 4–5)

The architecture of Heraion I displays a substantial new type of organisation in the EB settlement, as seen by the aforementioned abandonment of the earliest EB fortified settlement north of the Sacred Road (Fig. 3), the building of long-room rectangular houses (architectural phase Heraion 1 = later stage of Heraion I) on top of the first EB I fortification, the expansion of the settlement towards the west as far as the western branch of the Imbrassos River, and the erection of a new protection/fortification wall along the river in the area of the later Hera Temple (Fig. 2). Apart from the recently discovered houses north of the Sacred Road, this phase is represented in the temple area in two *Kellergruben* and also testified by floors of long-room houses (9 × 4 m). Apart from the houses, there is an extraordinary building, the *Grossbau* (Figs. 2, 4), distinctive for its massive stone construction and dimensions (5 × 4 m), which was erected next to the southern part of the fortification wall (beneath the Pronaos),[31] most probably as a successor of the above mentioned *Communal Building I* (architectural phase Heraion 2, Fig. 3) of the EB II early settlement core north of the Sacred Road. A re-evaluation of the stratigraphy in combination with a preliminary contextual and typological examination of the old and new ceramic material has led to the dating of this architectural level to the final stage of the early EB II.[32]

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26 Şahoğlu 2005.

27 Rutter 1979; Rutter 2012, 73–79. For further discussion on the origins, dating, and significance of this pottery group with relevant bibliography see also Day et al. 2009, 335–340.

28 Efe 2007; Kouka 2011, 47–49 with relevant bibliography; Kouka 2013, 573–574.

29 For a recent critical synopsis of the ceramic evidence of the EC II early and late see Wilson 2013, 420–424, 427–431, tab. 12.

30 Kouka 2002, 300–301; Şahoğlu 2005; Day et al. 2009. Petrographic and chemical analysis of those shapes from Panormos and Akrotiri within the interdisciplinary project 'Kastri-Group Project' concluded that they had been produced locally using local fabrics.

31 Milojčić 1961, 27, plans 4–5, pl. 5.1; Kouka 2002, 286–287, fig. 24, plans 46–47.

32 Kouka 2015.

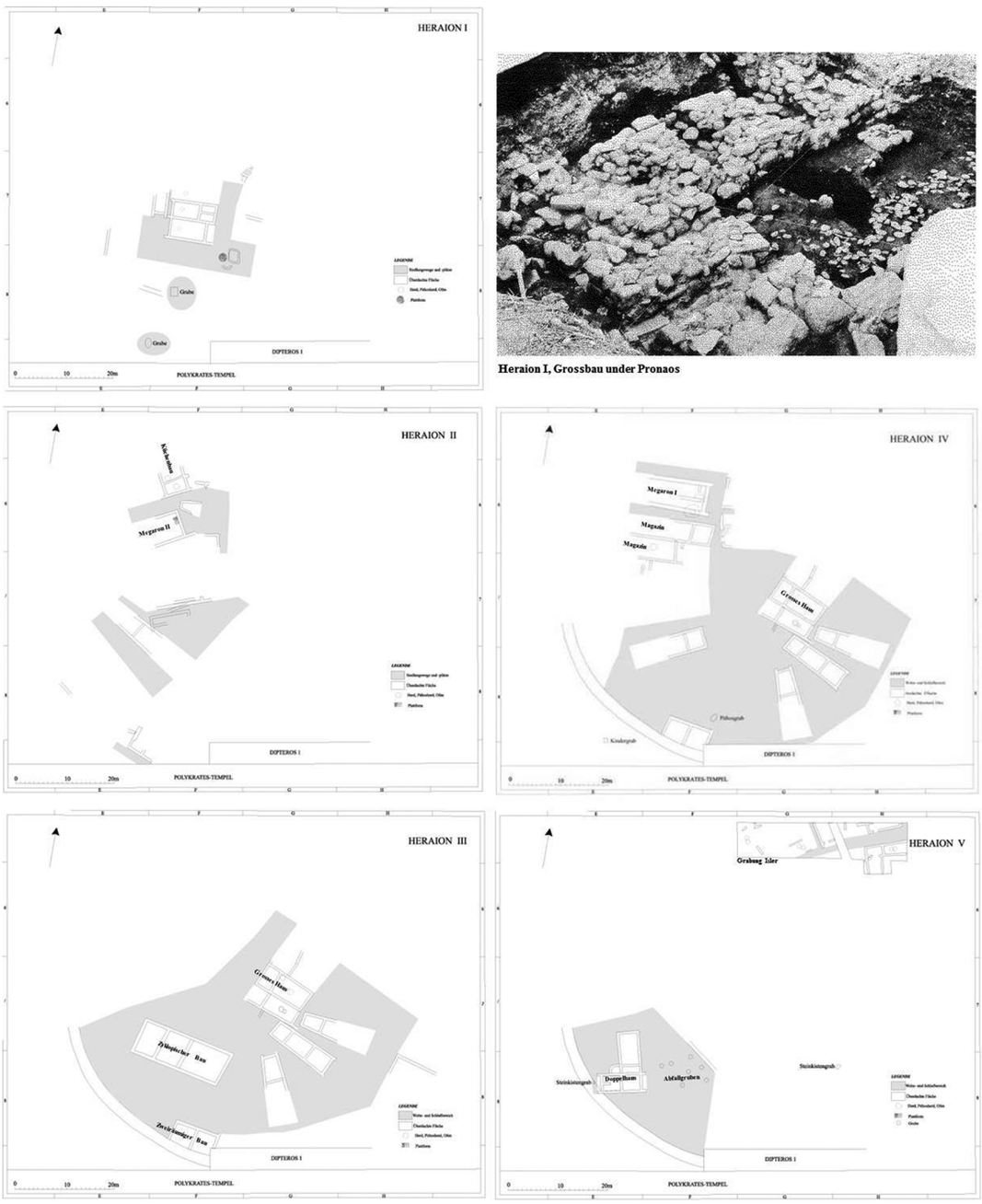

Fig. 4 Heraion I–V. Architecture in the area of Hera Temple (plans based on Kouka 2002, plans 46, 48, 50, 52, 54; photo: Milojčić 1961, pl. 5.1)

The pottery included coarse ware vessels belonging to pithoi with or without relief decoration (Fig. 5, Heraion I.g),[33] open jars with slightly outward curving or flaring rim,[34] and cooking pots

[33] Milojčić 1961, pls. 32.1–2, 4–5; 37.66; 48.31; Menelaou et al. 2016, figs. 4b and 6b.
[34] Milojčić 1961, pls. 35.41; 37.36, 44–46, 81.

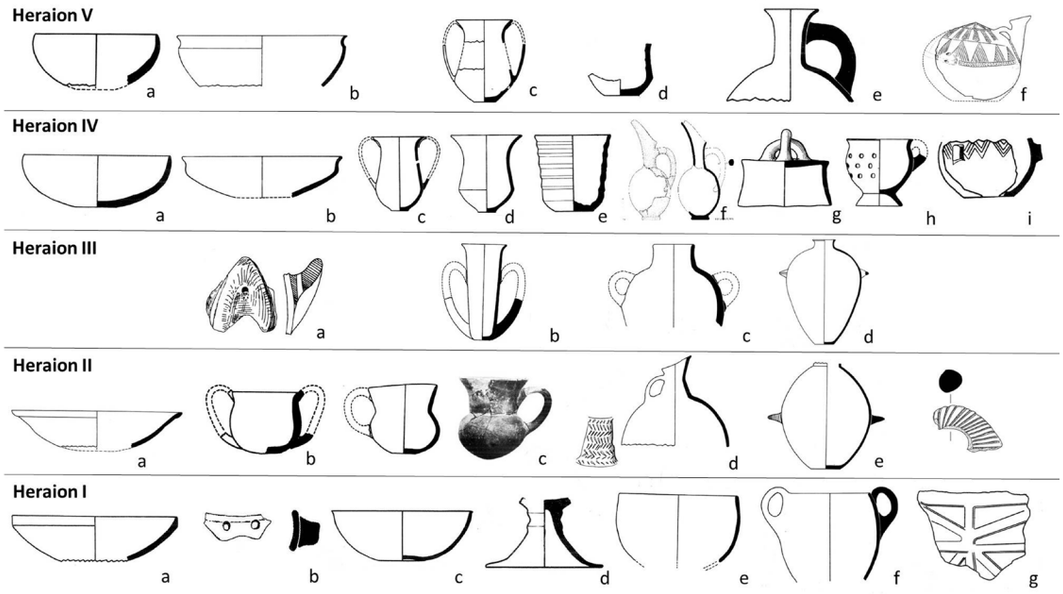

Fig. 5 Heraion I–V. Pottery shapes from stratified contexts (drawings not to scale, Ou. Kouka, S. Menelaou)

with usually vertical, loop handles below the rim (Fig. 5, Heraion I.f),[35] as well as flat lids.[36] The most commonly occurring ware used for the coarse ware vessels are those with brown to dark grey/brown and reddish brown plain or poorly smoothed/slipped surfaces. Another well-defined coarse ware is that of closed jars/pithoi which is red-slipped and well burnished on the outer surface, while the inner surface was scored with a comb or chaff leaving behind parallel marks.[37] The latter mentioned ware is rarely present during the late EB II–III periods, and is more common in the first half of the 3rd millennium BC.

Medium-coarse open and closed vessels mostly are made of dark/black burnished or polished ware and less commonly of reddish brown slipped ware (Fig. 5, Heraion I.e). The most common shapes are bowls of different types and sizes, such as deep bowls with simple flat or slightly outward curving rims,[38] and deep, slightly hemispherical bowls (Fig. 5, Heraion I.a–c).[39] The most characteristic open shapes among the tableware are the bowl with carinated rim or body, with or without pierced lugs and more rarely horizontal or pointed handles (Fig. 5, Heraion I.a–b),[40] as well as low and high footed bowls with or without carinated rim and occasionally with grooved decoration at the foot (Fig. 5, Heraion I.d).[41] Similar types are well known from Troy,[42] Poliochni Blue,[43] and Emporio V–IV and II.[44] These shapes were very common in earlier periods (EB I–early EB II) and show a decline from Heraion I onwards until they completely disappear by the

35 Milojčić 1961, pls. 35.17, 19, 29; 37.69, 80, 84–85; Menelaou et al. 2016, fig. 5a.
36 Milojčić 1961, pls. 35.88; 36.11; 37.58; 38.12.
37 Milojčić 1961, pls. 31.2; 48.35.
38 Milojčić 1961, pls. 35.27, 70–71; 37.32, 35, 37, 52.
39 Milojčić 1961, pls. 35.10, 12, 44.
40 Milojčić 1961, pls. 28.9; 35.4, 15, 28, 68, 79–81; 36.4, 9; 37.1–2, 4–5, 15, 24, 26, 29, 34, 50–51, 68, 74–76; 38.17; 46.8–12, 14–17, 20–23, 25.
41 Milojčić 1961, pls. 28.10–12; 35.8, 20–21, 56, 58, 87; 37.7–8, 35, 47, 82, 89; 38.13–15; 46.13, 18, 24.
42 Blegen et al. 1950, fig. 129, types A6 and A7.
43 Bernabò Brea 1964, pl. IXb–d.
44 Hood 1981, 369, fig. 167, 438–439, fig. 198.

beginning of the EB II late phase. The ceramic repertoire of this phase is complemented by a few cut-away spouted jugs.[45]

In terms of fabrics, the pottery provides evidence for the use of silty and sandy, non-calcareous fabrics that likely represent the exploitation of different sources/areas near the settlement. The identified fabrics mostly have poorly sorted non-plastic inclusions that may imply the utilisation of unrefined, naturally occurring alluvial sediments rich in silicate minerals that are related to metamorphic geological environments. Observations regarding the technology and provenance of these fabrics and the ones presented below have been discussed in more detail elsewhere.[46] This phase is preliminarily dated to the final EB II early period and can by synchronised with Ayia Irini II early phase.[47]

Heraion II (Figs. 4–5)

Heraion II includes a long-room house and for the first time also trapezoidal houses with antae at both short sides (F6 and E–F 7–8). They display different orientations, were built mostly independent from each other, and were protected with a fortification wall.[48] The houses were furnished with clay hearths and a variety of storage facilities, such as rectangular stone platforms and pithoi in shallow cavities that indicate a higher surplus in this phase.[49] These facilities as well as a large amount of pottery allowed for the identification of household activities in *Megaron II* (F6) and in the *Küchenbau* (F6/77–78), such as food preparation, cooking, storage, etc. Heraion II was destroyed by an earthquake.

The pottery (Fig. 5, Heraion II) included a few coarse ware cooking pots with dark grey/brown plain surfaces. Contrary to the previous phase, from Heraion II onwards there is an increase of small vessels and fine/medium wares consisting of reddish brown slipped, fine/medium red slipped and well burnished and, less commonly, black slipped and burnished wares.[50]

The pottery from the *Küchenbau* comprises of the first wheel-made plates (Fig. 5, Heraion II.a), one beaked jug with a two-stage neck profile and an incised handle with zig-zag decoration (Fig. 5, Heraion II.d), one pithoid transport jar with horizontal incised strap handle (Fig. 5, Heraion II.e), and one jug with globular body.[51] The pottery repertoire of this phase from other areas of the settlement included also two-handled bell-shaped cups (Fig. 5, Heraion II.b),[52] one-handled cups with elongated cylindrical body,[53] and one-handled tankards with simple or twisted handles (Fig. 5, Heraion II.c).[54] According to Sotirakopoulou, the latter type most probably spread from the Izmir region and Samos to the Cyclades and the Greek mainland.[55] A new shape that probably makes its first appearance already in Heraion I is the short-necked cup. It is known from EB II late contexts of Liman Tepe and Bakla Tepe, where it is considered as an earlier version of the tankards and it occurs in black-burnished and red-washed wares.[56] This type is suggested by Şahoğlu to have

45 Milojčić 1961, pls. 35.75; 36.3; 37.21.
46 Menelaou et al. 2016, tabs. 1–2.
47 Wilson 2013, tab. 12.
48 Milojčić 1961, 25, pl. 3; Kouka 2002, 288, plans 48–49.
49 Milojčić 1961, 36–37; Kouka 2002, 288–289, fig. 25, plans 48–49.
50 Menelaou et al. 2016, tab. 1.
51 Milojčić 1961, 37, 43, pls. 16.3; 44.1–4; Podzuweit 1979, 83; Kouka 2002, tab. 97.
52 Milojčić 1961, pls. 14.9; 39.23, 28; 40.19; 47.8, 12. The variants of this shape, that differ in the formation of the rim and the position of the handle either above the rim or attached below it, probably indicate a chronological difference between the types.
53 Milojčić 1961, pl. 16.4.
54 Milojčić 1961, pls. 15.6; 21.1; 47.4, 6.
55 Sotirakopoulou 2008a, 547.
56 Şahoğlu 2008, 160, fig. 2d-f.

been originated from the Izmir region. Similar examples, although of a later date, are known also from Ayia Irini Phase III on Kea.[57]

Macroscopic study combined with petrographic analysis led to the identification of a range of fabrics. The coarse fabric groups that relate to metamorphic-rich and alluvial clay pastes show a continuation from the previous phase and are used for local shapes of cooking pots and deep bowls/jars. A range of calcareous, finer fabrics were used for the typical eastern Aegean/western Anatolian red-slipped and burnished one-handled tankards, small cups and bowls, and a dark brown slipped plate.[58] The provenance of these calcareous fabrics will be defined based on systematic analytical work that is currently in progress, but preliminary observations imply both local and off-island provenance. In addition, a finer fabric that has been identified is characterised by a fine micaceous matrix with rare fine quartz and metamorphic rocks; it is used for red-slipped, fine orange shallow bowls.

Apart from the local and still unprovenanced fabrics already discussed above, there are a few fabrics that are securely characterised by an off-island provenance. The beaked jug with a two-stage neck profile is of Cycladic origin and is commonly found throughout the Cyclades.[59] It has an exact typological, chronological, and probably fabric match with finds from Panormos on Naxos (Fig. 5, Heraion II.d).[60] A similar fabric and decoration of the strap handle can be found at Markiani Phase III on Amorgos, although the shape is a wide-mouthed jug.[61] These vessels are all made of a dark red/reddish brown coarse fabric usually covered with a matt slip and characterised by the presence of low grade metamorphic rocks. This well-known ware/fabric is easily identifiable macroscopically due to its common purple/red angular inclusions; at Markiani is usually is called 'Blue Schist' or 'Glaucophane-Schist' fabric,[62] or characterised as 'Phyllite-Quartzite' by Vaughan.[63] This fabric can be positively identified as local to the island of Amorgos, as it has been recorded in numerous sites throughout the island and in larger amounts than at any other sites in the Cyclades,[64] e.g. at Ayia Irini on Kea, Akrotiri on Thera, Phylakopi on Melos, Panormos on Naxos,[65] Dhaskalio islet and Kavos on Keros.[66]

More imported pottery of the same fabric, and other off-island fabrics, were identified in the area of the Hera Temple[67] and north of the Sacred Road.[68] These comprise of a smaller beaked jug with two-stage neck, as well as rims/necks and horizontal handles decorated with incised radiating lines on the upper surface of collared transport jars (Fig. 5, Heraion II.e).[69] Such jars are known in the Cyclades from the EC II period onwards.[70] Storage vessels of this type have been

57 Wilson 1999, 101–102, nos. III-8, III-313–315, III-451.
58 Menelaou et al. 2016, tabs. 1–2, figs. 4a and 5c. These shapes are called *Anatolianising* in other Aegean regions.
59 Sotirakopoulou 1993, 11–13 and further bibliography; Sotirakopoulou 1997, 526.
60 Angelopoulou 2008, 151, fig. 16.12; Angelopoulou 2014, 228, BIa3, fig. 3.68.
61 Birtacha 2006, 137, fig. 7.14:1, pl. 33c–d.
62 Angelopoulou 2008, 151; Marthari 2008, 79; Marangou et al. 2008, 102.
63 Vaughan 2006.
64 Vaughan 2006, 99–101; Day – Wilson 2016, 29.
65 Day et al., this volume.
66 Hilditch 2007, 239, 247, fig. 6.48; 2013, 471–472; Hilditch 2015, 234 (V3A Macroscopic Group), 242 (P4 Petrographic Group).
67 Milojčić 1961.
68 Kouka in press a, fig. 9.7.
69 Milojčić 1961, pls. 16.3; 24.1; 44.3; 48.33.
70 Sotirakopoulou 1993, 15; Day – Wilson 2016.

identified at many EC/EB sites, such as Markiani III–IV on Amorgos,[71] Panormos on Naxos,[72] Skarkos on Ios,[73] Poliochni on Lemnos,[74] Troy II,[75] and Emporio V–IV and II.[76]

The presence of newly emergent drinking and serving shapes such as wheel-coiled and wheel-finished plates, tankards, bell-shaped cups, beaked jugs with a two-stage neck profile, and the EC transport jars with horizontal incised/slashed handles suggest a synchronisation of this phase with late EB II period corresponding to the beginning of the 'Kastri Group' in the Cyclades.

Heraion III (Figs. 4–5)

After the destruction of Heraion II by an earthquake, a re-organisation of the settlement took place. Heraion III encompasses a strong (2m thick) stone fortification wall with a gate,[77] and has a long-room rectangular house (9 × 4m) as well as trapezoidal (14.5 × 5m), bi- or tripartite houses in an arrangement radiating outwards towards the curvilinear fortification wall, built either independently or in groups of at least three buildings sharing common walls.[78] In addition, the *Zweiraumiger Bau* in F8 was attached to the fortification wall. This phase is best represented by the level between *Megaron II* and *Megaron I*, as well as in the area beneath the *Haus* in G7/70–80.

The most astonishing building of this phase is the rectangular tripartite *Zyklopischer Bau* (E–F 7–8),[79] that is distinctive through its location, dimensions (18.5x8m) and monumental construction that resembles those of the fortification. Because of these characteristics, this building has been interpreted as having a special social or political function, e.g. it may have been used for hosting communal meetings, or may even have housed the settlement's chief,[80] who may have coordinated the new settlement planning of Heraion III. Unfortunately, no finds were retrieved from this building that could help us to infer something more specific about its function.

Of particular interest is also the *Grosses Haus* (G7)[81] and the house beside it (*Anbau von Grossem Haus*), that preserves floors and hearths with storage vessels,[82] and included the majority of the finds ascribed to Heraion III.[83] Besides pottery a wide variety of tools for textile production, bronze tools (two hooks), weapons (dagger), and prestige objects (alabaster vase) have been recorded.[84]

During this phase, we see the first appearance of *depata amphikypella* in fine-medium dark grey ware (Fig. 5, Heraion III.b),[85] found in the layer between *Megaron I* (Heraion IV) and *Megaron II* (Heraion II), as well as Trojan lids (*Kronendeckel*), closed jars with vertical loop handles (Fig. 5, Heraion III.c),[86] and collar-necked jars with horizontal arched handles without incised decoration (Fig. 5, Heraion III.d)[87] that constitute the local variants of the late EC II transport jars known from Heraion II. Among the coarse ware vessels are storage vessels that have a relief band below the rim, incised decoration of oblique lines on the rim, and examples with impressed

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71 Birtacha 2006, Phase III: 135, fig. 7.14:6, pl. 33f; Phase IV: 149, fig. 7.22:1–5, 9–11, pl. 36d.
72 Angelopoulou 2008, 151, fig. 16.5:5–6, 16.7.
73 Marthari 2008, 79, fig. 9.18.
74 Bernabò Brea 1976, pl. CCXXIV.d.
75 Blegen et al. 1951, fig. 401, 35:479.
76 Hood 1981, 402, fig. 182, pl. 73 no 1233; 417, pl. 78a4; Hood 1982, 460, fig. 206, no 1717; 498, no 2046; 542, no 2412, pls. 88b, 90:1718, 1720.
77 Milojčić 1961, 7, 58, 68.
78 Milojčić 1961, 24–25, plan 1; Kouka 2002, 289–290, fig. 26, plans 50–51.
79 Milojčić 1961, 17–19, 69, plan 2.
80 Kouka 2002, 290, plan 51.
81 Milojčić 1961, 23–24, plan 1, pl. 6, 8.2; Kouka 2002, 290.
82 Milojčić 1961, 23f, pl. 41.29–30; Kouka 2002, plan 51, tab. 101.
83 Kouka 2002, tabs. 98–101, diagrams 18–21.
84 Milojčić 1961, 24, pl. 50.1, 15, 16, 20; alabaster fragment: Milojčić 1961, 23, pl. 33.4; 41.24.
85 Milojčić 1961, pls. 28.7; 47.7, 9.
86 Milojčić 1961, pl. 40.2.
87 Milojčić 1961, pl. 40.5, 7.

decoration.[88] Pithoi with relief bands are typologically paralleled by Cycladic examples of the late EB II ('Kastri Group' phase), e.g. from Panormos on Naxos,[89] while pithoi with conical necks and incised decoration on the rim are well known from neighbouring Emporio on Chios.[90] Another typological parallel is given by the presence of a single lug of a winged jar (Fig. 5, Heraion III.a),[91] which is known from Troy II late phase, Thermi IV on Lesbos[92] and Poliochni Yellow.[93]

The ceramic fabrics from Heraion III exhibit a similar variety of red-slipped, fine micaceous wares as in the previous phase. One possible import is a transport jar with a medium-coarse light yellowish brown ware, which can be differentiated macroscopically and microscopically from the rest of the assemblage.[94]

Heraion IV (Figs. 4–5)

During the Heraion IV phase, the fortified settlement of Heraion III with its rectangular and trapezoidal long-room houses continued to be in use. New rectangular houses were built only in the north part of the settlement, and they too had a radial arrangement. The best-preserved contexts with the majority of pottery are those of the *Grosses Haus*, which was in use since Heraion III,[95] *Megaron I* with its domed horseshoe-shaped oven built directly next to the long wall of the building,[96] the *Magazine*,[97] and the area of the *Zisterne*. The arrangement of floors, hearths and pithoi in shallow cavities and the distribution of finds do not indicate any changes in household activities. However, more prestige goods were found in houses, such as two clay figurines and one marble schematic figurine[98] as well as a bronze blade. Moreover, a bronze pendant, a miniature axe and a pendant, both made from lead,[99] were found in the two pithos burials. Such graves were found for the first time in the settlement area (*Pithosgrab* and *Kindergrab*), and are likely to have belonged to special members of the Heraion's society.[100] The rich inventories of houses were sealed by a destructive fire that most probably followed an earthquake.[101]

Coarse ware pottery mostly comes from the *Grosses Haus* and the *Magazine* and comprises pithoi,[102] amphorae with vertical or horizontal plain or incised handles,[103] collared jars with arched horizontal handles,[104] cooking jars with vertical loop handles,[105] and a wide-mouthed jar/deep bowl with crescent lug below the rim[106] that has typological parallels at Panormos on Naxos,[107] Zas IV on Naxos,[108] Dhaskalio on Keros,[109] Markiani Phase IV,[110] and Akrotiri on Thera.[111]

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88 Milojčić 1961, pl. 31.3–7.
89 Angelopoulou 2008, fig. 16.5:2–4.
90 Hood 1981, 199, 411, nos. 1292–1293, 1295, fig. 187.
91 Milojčić 1961, pl. 48.30.
92 Lamb 1936, 82 Class C, pl. 37, 442–443, fig. 29a.
93 Bernabò Brea 1976, pl. CXCIV, CVCVb, e; Doumas – Angelopoulou 1997, 549, fig. 13.
94 Menelaou et al. 2016, fig. 6a.
95 Milojčić 1961, 23.
96 Kouka 2002, plans 52–53.
97 Milojčić 1961, 32–34.
98 Milojčić1961, 52, pl. 34.1, 3; 55, pl. 34.6.
99 Milojčić 1961, pls. 40.4; 50.21.54.
100 Milojčić 1961, 10–11; Kouka 2002, 291.
101 Milojčić 1961, 69.
102 Milojčić 1961, pls. 35.1; 36.21.
103 Milojčić 1961, pls. 40.16–17, 26.
104 Milojčić 1961, pls. 22.1–2; 26.4; 41.30; 42.10.
105 Milojčić 1961, pls. 36.16; 41.29; 43.11.
106 Milojčić 1961, pl. 40.31.
107 Angelopoulou 2008, fig. 16.2:1–2.
108 Zachos – Dousougli 2008, fig. 15.2–3.
109 Broodbank 2007, 147, type 4, fig. 6.17:233–234.
110 Eskitzioglou 2006, fig. 7.17:1–6, pl. 36e.
111 Angelopoulou 2008, 160.

In comparison with the EB II late phase assemblage, the ceramic repertoire of this phase shows changes in terms of drinking/serving shapes (disappearance of bell-shaped cups and tankards) and continuity in terms of the fine fabrics that were first found in limited use in Heraion III. Common shapes of this phase are Trojan lids[112] (*Kronendeckel*) (Fig. 5, Heraion IV.g) and beak-spouted jugs (Fig. 5, Heraion IV.f),[113] which find many typological parallels across the Aegean and western Anatolia, from Troy III–V[114] to Vathy Cave on Kalymnos.[115] The red-slipped and/or burnished ware shallow/hemispherical bowls with incurved rim and a reddish yellow/orange, high-fired fabric is only rarely seen before phase IV (Fig. 5, Heraion IV.a);[116] this class has comparanda in EB III sites of the Dodecanese, i.e. the Serraglio on Kos, Asomatos on Rhodes,[117] and Vathy Cave on Kalymnos.[118] Bowls with S-shaped/carinated rim are suggested to have originated from western Anatolia (Fig. 5, Heraion IVb).[119] Wheel-made plates already known from Heraion II[120] increase in number. A rather rare shape is the one-handled pedestal 'strainer' (Fig. 5, Heraion IV.h)[121] which is known, e.g., from Poliochni Red-Yellow,[122] Troy IV,[123] Akrotiri on Thera[124] and Palamari III on Skyros.[125]

The ceramic repertoire of fine ware vessels is completed by new shapes such as the neck-handled ovoid jug with trumpet mouth (cf. Fig. 5, Heraion V.e),[126] which is known also from Vathy Cave on Kalymnos;[127] a local, red-painted variant datable to the later EH III is known from Kolonna on Aegina.[128] A probable Samian ceramic creation also appears in the EB III phase: it is a hybrid version of EB II late two-handled tankards and *depas* cups, and can be wheel-made or handmade with or without strap handles (Fig. 5, Heraion IV.c–e).[129] It is characterised by an S-profile and metallic-looking appearance and is particularly common in southwestern Anatolia and Samos.[130] This shape is closely paralleled at Vathy Cave,[131] Seraglio and Asomatos,[132] Troy IVc–e,[133] Beycesultan XIIa–XI,[134] Aphrodisias,[135] and Miletus IIc.[136]

Among the Cycladic or Cycladicising shapes[137] represented at Heraion are the incised spherical or truncated conical pyxides (Fig. 5, Heraion IV.i),[138] as well as the askoi/duck vases (Cf. Fig. 5, Heraion V.f) that appear in various sizes – even as miniature examples – and imply a local

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112 Milojčić 1961, pls. 17; 43.2–3, 10–13, 26.
113 Milojčić 1961, pls. 16.1–2; 19.7; 21.7; 22.6, 8; 36.18; 41.20.
114 Podzuweit 1979, 169, 174, fig. 9.1:4c, types IV–V.
115 Benzi 1997, pl. 2b.
116 Milojčić 1961, pls. 14.10; 22.9; 36.20; 42.13; 43.34–36; Menelaou et al. 2016, fig. 3a.
117 Marketou 1990, 41–42, figs. 1, 3–4.
118 Benzi 1997, 384, pl. 1b.
119 Milojčić 1961, pls. 38.29; 40.9, 23; 42.1–5; 43.38, 39, 46; Sotirakopoulou 2008a, 549.
120 Milojčić 1961, pls. 29; 38.19–21, 24–25, 30–31; 46.4–7.
121 Milojčić 1961, pls, 41.21; 47.11.
122 Bernabò Brea 1964, pl. CXLIVh; Doumas – Angelopoulou 1997, 549, fig. 12.
123 Podzuweit 1979, pl. 5:H4.
124 Angelopoulou 2008, 162, fig. 16.19; Sotirakopoulou 2008b, 127, fig. 14.10.
125 Parlama – Theochari 2015, 41, fig. 3γ:1.
126 Milojčić 1961, 46, pls. 13.1–2; 19.1–3; 27.4; 42.15–16; 43.14; 47.13; Menelaou et al. 2016, fig. 3b.
127 Benzi 1997, pl. 1f.
128 Gauss – Kiriatzi 2011, 168, figs. 106, 123 [KOL 265].
129 Milojčić 1961, 46, pls. 14.6–8; 15.4, 8; 21.5; 41.9–15; 43.22, 33, 37; 47.1, 3, 10; Menelaou et al. 2016, fig. 4c.
130 Şahoğlu 2014, 305, fig. 5.6.
131 Benzi 1997, 385, pl. 1d–e.
132 Marketou 1990, 40–41, fig. 2.
133 Podzuweit 1979, 154, pl. 6.1:B II; Blum 2016, pl. 1:A44.
134 Lloyd – Mellaart 1962, 205, 263, fig. 47.6.
135 Joukowsky 1986, 390, fig. 323.
136 Kouka 2013, fig. 4 right; Kouka in press b.
137 Sotirakopoulou 1993, 8.
138 Milojčić 1961, pls. 15.3; 22.3; 24.3–4; 36.19; 43.17; 49.8–9.

production on Samos.[139] The latter shape has similarities to material from the Serraglio on Kos,[140] Asomatos on Rhodes,[141] Vathy on Kalymnos[142] and Miletus IIIc.[143]

Macroscopic and preliminary petrographic examinations revealed a series of fine and semi-fine micaceous fabrics that can be separated into subgroups based on their inclusions and technological features (clay mixing, non-calcareous and calcareous base clays). These fabrics are closely correlated with the newly emergent reddish yellow/orange, high-fired fabric/ware and red/light orange-slipped surfaces, the latter usually not preserved because of the high water table. These are the dominant fabrics during the phases Heraion IV–V and, although it is difficult to identify the precise origin of this range of fine micaceous clay mixes, it is likely that they are largely local, as they have been used for pottery of different shapes and sizes. Apart from the predominantly local fabrics, a number of off-island ones have been identified in shapes like pyxides and transport jars.[144]

Heraion V (Figs. 4–5)

The last EB III architectural phase was built immediately after the destructive fire of Heraion IV with a new orientation and planning of rectangular, two-partite houses organised in groups sharing common walls and separated by streets. The organisation of houses in groups may indicate the necessity for housing and an increased number of inhabitants, which in turn points to a flourishing period for Heraion at the end of the EB III. The settlement was still protected by the same fortification wall. Houses have been investigated in the area of the Hera Temple close to the fortification wall (*Doppelhaus*)[145] and north of the North Stoa.[146] In addition, a number of refuse pits (*Abfallgruben*)[147] and two cist graves belong to this phase.[148]

Although this phase has not revealed much pottery from the area close to the fortification excavated by Milojčić, the shapes represented continue the same ceramic tradition as in Heraion IV. These are the bowls with sharp S-shaped rim,[149] which continue in the MB, as well as hemispherical bowls,[150] neck-handled ovoid jugs with trumpet mouth,[151] one-handled cups,[152] hybrid *depas* cups[153] (mainly without handles and wheel-made), spoons,[154] Trojan lids,[155] and askoi[156] (Fig. 5, Heraion V). In terms of wares and fabrics, this phase provides evidence for continuity from Heraion IV and therefore the prevalence of fine, high-fired fabrics. Apart from the EC III 'Cycladicising' askoi, there are possible imports or local imitations of Minoan jugs in Barbotine

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139 Milojčić 1961, 48, 65, 72–3, pls. 15.2; 18; 19.8; 20.2–3, 5; 23.1; 24.7–13; 38.16; 42.17; 49.15–18; Menelaou et al. 2016, fig. 3c.

140 Marketou 1990, 41; 1997, 407.

141 Marketou 1990, 42; 1997, 401–402, fig. 6a.

142 Benzi 1997, 388–390, pl. 3a–c. For examples in western Anatolian sites see Sotirakopoulou 2008a, 548 and Blum 2016, 491–492.

143 Niemeier 2007, 8, pl. 1.5.; Kouka 2013, 575; Kouka in press b.

144 Menelaou et al. 2016, tabs. 1–2.

145 Milojčić 1961, 12–13, 19–20.

146 Isler 1973. The large amount of pottery mentioned in this preliminary report is not published and cannot be considered in this study.

147 Kouka 2002, 292–293, fig. 28, plans 54–55.

148 Milojčić1961, 25, pls. 1; 14.4–5; 42.7–9.

149 Milojčić 1961, pls. 14.1–3; 38.44–53; 39.15, 17–18; 44.13, 18.

150 Milojčić 1961, pls. 38.32–43; 44.5–6, 14. An example of a perforated bowl (pl. 39.27), probably due to restoration purposes, finds a close parallel in Vathy on Kalymnos, see Benzi 1997, 384, pl. 1a.

151 Milojčić 1961, pl. 39.6; Isler 173, 172 right.

152 Milojčić 1961, pls. 14.4–5; 42.7–9.

153 Milojčić 1961, pls. 39.4–5, 19, 22; 44.15.

154 Milojčić 1961, pls. 34.7; 39.40–41.

155 Milojčić 1961, pl. 39.7.

156 Isler 1973, 173 top centre and right.

ware,[157] which implies contacts with MM IA Crete. Similar jugs occur also at Troy IV and Aphrodisias.[158]

Discussion and Conclusions

This presentation of the main cultural features of the architectural phases Heraion I–V has illuminated aspects of settlement planning and the political, social and economic organisation of the EB settlement, laying the groundwork for a contextual, technological and chronological evaluation of the pottery produced after the mid-3rd millennium BC.

Regarding settlement organisation, the abandonment in phase Heraion I (and phase Heraion 1) (Tab. 1) of the first settlement north of the Sacred Road (phases Heraion 5–4) (Fig. 3), its planned extension to the west and its protection with a new strong, stone-built fortification wall that acted as a protective shield against the periodic flooding of the Imbrassos River may reflect new needs of the local society. The increase in wealth and power may have resulted in a growth of population that needed to be accommodated through a radical re-arrangement of the settlement conducted under a political coordination and with the cooperation of all inhabitants at the end of the EB II early (Fig. 2). Modifications undertaken in Heraion III (EB II late phase) and Heraion IV (EB III early phase) further enhanced the fortification and turned it into a landmark in the east part of the deep gulf of Pythagoreion, in which Heraion is currently the only known settlement. Apart from the monumental fortification, the settlement encompassed two additional communal buildings testifying to advanced political and economic structures in the EB II early–late phases. The *Grossbau* was erected during the fortification phase of Heraion I (Fig. 4) and must have functioned as the immediate successor of the earlier *Communal Building I* (architectural phase Heraion 2) – most probably a communal storage facility, which was found recently in the EB settlement core north of the Sacred Road (Fig. 3).[159] Furthermore, in Heraion III the *Zyklopischer Bau* was built with an impressive masonry and at a prominent location within the fortified settlement (Fig. 4), likely serving as a seat of the chief and/or a place for hosting communal meetings and feastings.[160]

Throughout the EB, the domestic architecture of the settlement was characterised by long-room rectangular and trapezoidal houses of similar size with antae on both short sides placed in a radial arrangement,[161] either independently or in groups (Fig. 4).[162]. Only in Heraion V were groups of houses most probably organised in insulae.[163] A remarkable re-orientation and re-organisation of houses took place in Heraion III, IV and V, resulting from destructive earthquakes at the end of Heraion II and IV, as well as from the need for more housing as the result of increasing population in Heraion V. The destructions in Heraion II and IV are most likely related to the 4.2ka BP climatic event that led to destruction, decline or even abandonment of sites across the Eastern Mediterranean c. 2300–1950 BC.[164] In contrast to those sites, the Heraion's economic, social and

157 Isler 1973, 175.

158 Blum 2016, 491, figs. 15–16.

159 Milojčić 1961, 27, pl. 4, 5.1; Kouka 2002, 287, plans 46–47.

160 Milojčić 1961, 17–19, 69, pl. 2; Kouka 2002, 290, plans 50–51. Cf. buildings of special function (Kouka 2002, 295–296) at Troy II (Megaron IIA) (Blegen et al. 1950, fig. 417), Poliochni Yellow (Megaron 317) and Thermi V (Building Θ) (Kouka 2002, 116, plan 10; 237, plan 30), and the central complex at Liman Tepe V (Erkanal – Şahoğlu 2012a; Kouka 2013, 570–571, fig. 3).

161 Cf. e.g. Troy I: Ünlüsoy 2006, 133–135, fig. 1, 4; Thermi I–IIIB on Lesbos: Kouka 2002, 154, 170–171, 182–183, 196–197, plans 12, 15, 18, 21; Liman Tepe VI: Kouka 2013, 570, fig. 2 with earlier bibliography), or the system organised in insulae (e.g. Poliochni: fig. 3) both based on the use of rectangular long-room houses (Kouka 2002, 78–81, 98–99, plans 1, 3, 5, 7, 9).

162 Kouka 2002, 292, plans 54–55.

163 For the organisation of rectangular long-room houses in insulae see Kouka 2002, 78–81, 98–99, plans 1, 3, 5, 7, 9.

164 Massa – Şahoğlu 2015, 64–67, 69–73, fig. 11.

political capacity contributed to a planned re-building of houses and communal buildings – activities that revived the settlement in the later stage of the EB III.[165]

The planning, building and gradual enhancement of the fortification, the erection of communal buildings and the changes in architectural concept point to an effective coordination by a political authority (chief), and a communal motivation and cooperation for maintaining the prosperity and power of the settlement. Moreover, the quality, quantity and distribution of finds (pottery, small finds, imports, prestige objects), in particular in Heraion II–V,[166] provide evidence for evolved economic structures and a wealthy, socially stratified settlement that belongs to the 'Culture of the North and East Aegean'.[167] The aforementioned cultural features testify that Heraion acted as a local centre with early urban features in the southern part of Samos at least in the EB II–III periods.

Integrated contextual, typological, macroscopic and small-scale petrographic analyses[168] of the pottery allowed the establishment of a secure chronology for the multiple building phases and a preliminary synchronisation with other contemporary sites. A more clear understanding of phase Heraion I was achieved, which can now be dated to the late stage of EB II early. A significant change is observed from Heraion I to Heraion II and III, with the introduction of new smaller shapes, such as bell-shaped cups, tankards, *depas* cups, beak-spouted jugs, shallow bowls and wheel-made plates (Fig. 5). The Heraion's detailed stratigraphic sequence indicates that *depas* cups appeared at a later stage within the EB II late phase than did the bell-shaped cups and tankards, as is also the case in contemporary sites of the eastern Aegean, western Anatolia[169] and the Cyclades.[170]

As far as the new serving, pouring and drinking set is concerned, Heraion has produced examples of all the shapes known from other sites throughout western Anatolia, the Cyclades and the coastal region of the western Aegean,[171] although bell-shaped cups and *depas* cups are outnumbered by the other shapes. As in other contemporary sites, these shapes only comprise a very small percentage of the ceramic assemblages and occur in both local and off-island fabrics.

In the EB III, there is a noteworthy increase in the number of small vessels. The drinking shapes of Heraion II–III cease to exist and new shapes appear, the most common being the hybrid, metallic-looking, strap-handled or handle-less cup that is found only along the Maeander valley (Beycesultan, Aphrodisias, Miletus) and, more rarely, in the Dodecanese (Fig. 5, Heraion IV.c–d; Heraion V.c–d). These cups include wheel-made and handmade examples. In all cases, their very thin walls, their vertical strap handles that replaced the rounded-sectioned loop handles of the traditional tankards and *depas* cups (Fig. 5, Heraion II.c; Heraion III.b), the use of fine and high-fired fabrics and their geographical distribution[172] imply the imitation of metallic prototypes, especially in the case of wheel-made examples with ridging or ribbing (Fig. 5, Heraion IV.e). At the same time, their standardisation and large-scale production probably was associated with their use in social events, as they were mostly unearthed in the *Grosses Haus*. Finally, the geographical distribution of these cups suggests the establishment of a micro-regional network of interactions throughout south-central western Anatolia and the islands of the southeastern Aegean.

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165 Kouka 2013.

166 Kouka 2002, tabs. 96–110.

167 Kouka 2002, 301–302. The western Anatolian littoral also has been assigned to this cultural entity.

168 Menelaou et al. 2016.

169 Şahoğlu 2014 with relevant bibliography.

170 Cf. the evidence at the best stratified ceramic assemblages at Ayia Irini, Phase III early–late (Wilson 2013, 405–410, figs. 9–10) and Dhaskalio, Phases B–C (Sotirakopoulou 2013, 740). Most recently, Dhaskalio Phase B, which starts at c. 2550 BC, was found to have one-handled tankards, shallow bowls, a beaked jug with cut-away spout, a side-spouted pyxis and a one-handled short-necked cup (bell-shaped cup). Phase C, which starts c. 2400 BC, includes one-handled tankards, *depas* cups, one-handled short-necked cups, shallow bowls, beaked jug with cut-away spout and spherical/lentoid pyxides with incised and pointillé decoration (Sotirakopoulou 2013, 740).

171 Wilson 2013, 412–429, 424–425, tabs. 10, 12.

172 Şahoğlu 2014, 289–293, fig. 1.

Besides the aforementioned changes in ceramic forms, a number of technological changes during the EB III are remarkable as well. Among these are firing at higher temperatures, which may have been associated with the intentional use of certain clay recipes not occurring in the EB II early phase, such as calcareous fabrics and finer pastes such as fine micaceous fabrics. These in turn may imply the intentional labour-intensive processing of raw materials. In addition, a correlation between fabric composition and vessel function, the mixing of different clays and the introduction of wheel-made pottery can also be observed during the late phase of EB II.

In terms of the technological developments observed in the transition from the late EB II to the EB III, most important is probably the use of highly micaceous clays for vessels of various functions and sizes. A number of vessels traditionally considered as Cycladic or Cycladicising were also identified, the most common being the askos with incised decoration, which at Heraion occurs in various sizes. This could suggest the existence of a local tradition of askos production in the southeastern Aegean islands, and more specifically on Samos[173] and Rhodes.[174]

Apart from determining the stylistic affinities and synchronisations with other sites, this study also revealed possible imports from the Cyclades, as well as still not provenanced ceramic fabrics that require further analysis and comparative examination. It is noteworthy that these suspected imports comprise transport jars and jugs traded for their contents and that these have been commonly identified in Heraion II–III (EB II late), which are periods of intensive exchange and mobility not only in the Aegean,[175] but in the Eastern Mediterranean in general.[176]

The settlement at Heraion shows its importance for our understanding of the formation of a cultural *koiné* in the eastern Aegean from the beginning of the EB period, and the key role played by Samos in building trade networks between southwestern Anatolia (Karataş-Semayük) and the Cyclades, as well as between Crete, southern Anatolia and Cyprus in the second half of the 3rd millennium BC.[177] Samos owes its pivotal role in particular to its crucial location opposite the Maeander Delta and on a natural sea route linking the southwestern with the northwestern Anatolian coast. Finally, it seems that by the end of the EB, the settlement at Heraion was as important in the maritime trade of the southeastern Aegean as were Mikro Vouni on Samothrace, Koukonissi on Lemnos and Palamari on Skyros for the northeastern Aegean sea trade at the end of the 3rd and the beginning of the 2nd millennium BC.[178]

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173 Rutter 1985, 17.
174 Marketou 1997, 401, fig. 6; Marketou 2009, figs. 3a–3b (Asomatos, Rhodes), 4a–b (Vathy, Kalymnos).
175 Kouka 2008, 276–278.
176 Kouka 2011.
177 Kouka 2002, 295–302; Kouka 2009.
178 Kouka 2015, 230–231.

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Today archaeometric approaches to pottery are commonly utilised in Aegean Bronze Age archaeology. Pottery experts in the Aegean are now able to use various methods based on a well-established scientific framework and comparable data. This state-of-the-art interdisciplinary approach to Aegean ceramics produces a large amount of new and complex data, used by specialists and non-specialists, for interpretations about socio-cultural phenomena.

Therefore, the main aim of this conference volume is to bring together archaeometric experts, and their scientific questions and data, with traditional archaeological pottery analysis. This enables broader archaeological and cultural contextualisation within one particular geographical area and time horizon – the Early Bronze Age 1–2 periods (3000–2300 BC) on both sides of the Aegean.