UNIVERSITY OF THESSALY
DPT OF HISTORY, ARCHAEOLOGY
AND SOCIAL ANTHROPOLOGY

ARISTEIA

REGIONAL STORIES TOWARDS A NEW PERCEPTION OF THE EARLY GREEK WORLD

Acts of an International Symposium in honour of Professor Jan Bouzek

Volos 18-21 June 2015

EDITED BY
ALEXANDER MAZARAKIS AINIAN
ALEXANDRA ALEXANDRIDOU & XENIA CHARALAMBIDOU

VOLOS 2017

ISBN: 978-960-9439-42-8

Cover: Oropos, Geometric period; 3D reconstruction of compound by Markos Mazarakis Ainian

UNIVERSITY OF THESSALY
DPT OF HISTORY, ARCHAEOLOGY
AND SOCIAL ANTHROPOLOGY

REGIONAL STORIES TOWARDS A NEW PERCEPTION OF THE EARLY GREEK WORLD

Acts of an International Symposium in honour of Professor Jan Bouzek

Volos 18-21 June 2015

EDITED BY
ALEXANDER MAZARAKIS AINIAN
ALEXANDRA ALEXANDRIDOU & XENIA CHARALAMBIDOU

VOLOS
2017

CONTENTS

CONTENTS

PART III. ARCHAEOMETRICAL AND BIOARCHAEOLOGICAL STUDIES

CONCLUDING REMARKS

THE SPATIAL DEVELOPMENT OF EPHESOS FROM CA. 1000 – CA. 670 BC AGAINST THE BACKGROUND OF OTHER EARLY IRON AGE SETTLEMENTS IN IONIA*

Michael Kerschner

History of research and archaeological evidence

Thinking of Archaic towns in Ionia, Richard Nicholl's famous bird's eye view of Smyrna in the late 7th century BC (**fig. 1**) will leap immediately into our minds (Cook 1958-1959, 15, fig. 3). This drawing was created over half a century ago and has often been reproduced since then, so that it "has become part of the collective memory", as Jan-Paul Crielaard recently stated (Crielaard 2009, 351). Perceived by Nicholls himself as "an imaginative reconstruction"(Cook 1958-1959, 15, caption of fig. 3), it was based on comparatively small sectors of the whole settlement investigated down to early Archaic levels during the Anglo-Turkish excavations at Smyrna from 1948-1951(Cook 1958-1959, 3. site plan pl. 74; Lang 1996, 235-244, fig. 101; Mazarakis Ainian 1997, fig. 395, and Mariaud 2006, 177, fig. 2, who adds the sectors of the ensuing Turkish excavations). Much of it is in fact extrapolation. We do not know if the density of building was consistent throughout the settlement, as assumed. Neither do we know if a largely regular grid plan was actually the layout of the early Archaic town,[1] as suggested.

Such sparseness of the archaeological record applies not only to Smyrna, but to all Ionian sites of the Geometric and Archaic period (for an overview see Lang 1996, 195-243, figs. 66-107. On Klazomenai: Aytaçlar 2004; Ersoy 2004. Cf. Greaves 2010, 22-26): Just small parts of the entire settlements have been excavated, and we cannot be sure that the explored portions were typical of the whole settlement. Ground plans of houses and the layout of neighbourhoods may differ from one quarter to the other (Cf. Damgaard Andersen *et al.*

* I want to thank the organisers of the ARISTEIA conference, Alexander Mazarakis Ainian and his team, for the possibility to participate in this highly stimulating meeting. The ideas presented in this paper owe a lot to numerous discussions with my colleagues in Ionia and beyond, among which I want to name particularly H. Cevizoğlu, J. Coulton, Y. Ersoy, R. Frederiksen, A. Herda, M. Kadıoğlu, M. Koutsoumpou, A. von Miller, W.-D. Niemeier, M. Steskal and M. Viglaki.

1. In the following I refer to the Archaic Greek polis in its political meaning as a city-state with a "polis town" as its urban centre, following Hansen 1997; Morgan & Coulton 1997; Hansen & Nielsen 2004; Crielaard 2009 and others. For a discussion of the terminology see Hansen 1997, and Osborne 2005.

1997, 11). Such intra-site variations can be observed at Miletos in the 6th century BC (For an overview of the Archaic remains in the different excavation areas at Miletos: Müller-Wiener 1986; Lang 1996, 198-217, figs. 71-88). Whereas on the fringes of the town, at the south slope of Kalabaktepe, spacious courtyard houses were built, the layout of the houses in the urban districts farther north ('Südschnitt' and around Athena temple) are more compact, and in the centre of the late Archaic town near the sanctuary of Apollon Delphinios, a residential block with rooms of similar size embedded in a grid street plan was excavated (for the location of the sectors cf. **fig. 9**).[2]

This range of variation should be taken into account, when we consider the archaeological record at Ephesos, where a section of an Archaic settlement was excavated beneath the later Tetragonos-Agora (**fig. 6**) (Langmann 1993; Kerschner *et al.* 2000; Scherrer 2006a; 2007, 330-331, fig. 2).[3] Six successive building phases dating from the early 7th to the third quarter of the 6th century BC provide us with important insights into the layout and structure of this residential area and its development over time, despite the limited size of the excavated sector.[4] These houses, however, were not part of the main settlement, the "palaia polis" mentioned by Herodotos (1.26), which can be located on Ayasuluk hill some 2.5 km to the northeast (**fig. 5**).[5] Therefore, it is uncertain if the "old town" was structured in the same way and if its layout underwent a similar development as we can notice at the Agora settlement.

It is no coincidence that Smyrna and Emporio are still regarded as prototypes of an early Ionian settlement: Both sites offered ideal conditions for extensive excavation, since they were not occupied in the Hellenistic and Roman periods, when buildings were constructed more solidly and their foundations penetrated deep into earlier layers. In most of the Ionian towns, however, the Geometric and Archaic layers were heavily overbuilt (Cf. Greaves 2010, 3-6). Hence, earlier structures were partly destroyed and can be excavated only in restricted patches in between later foundations. It is very difficult to interpret such fragmented ground plans, let alone to reconstruct the layout of a whole habitation quarter.

Ephesos is such a case of extensive reshaping especially in the Roman and Byzantine periods. The "palaia polis" on Ayasuluk hill and the Archaic coastal settlements at the western slopes of Panayırdağ (**fig. 5**) were largely overbuilt.

A further problem complicating the exploration of pre-Hellenistic Ephesos is the strong geomorphological dynamics. The alluvia of the river Kaystros and its tributaries infilled the inner part of the gulf of Ephesos so that the former harbour town is now ca. 7 km away from the modern coast line (Brückner 1996; Kraft *et al.* 2000; Scherrer 2007; Stock *et al.* 2013;

2. Kalabaktepe: von Gerkan 1925, 39-44, figs. 27-30, pls. 3, 16, 2, 18-19; Lang 1996, 198-217, figs. 71-72, 85-88; Senff 1999; 2000; 2007; von Graeve 2006, 243-249. Around the sanctuary of Athena: von Gerkan 1925, 73-82, figs. 43-45, pls. 7, 25; Müller-Wiener 1986, 100, fig. 26; Lang 1996, 201-203, fig. 74; Niemeier & Niemeier 1997, 215-218, figs. 21-28. Archaic buildings west of the later Bouleuterion: Kleiner & Müller-Wiener 1972, 64, 71 appendix 7.1; Voigtländer 1982; Lang 1996, 205-206, figs. 83-84. Whereas Kleiner & Müller-Wiener (1972, 64) interpreted the building as "Bazar-Quartier" with workshops and storerooms, Lang 1996, 214 shows that traces of crafts have been found in all domestic quarters of Miletos. On the grid plan of Miletos and its late Archaic origin: von Graeve 2006, 258-259, figs. 8-10; Weber 2007.

3. Langmann 1993; Kerschner *et al.* 2000; Scherrer 2006a; 2007, 330-331, fig. 2. On the stratigraphy and pottery finds: Miller in press a; in press b.

4. Due to the great depth of the Archaic layers and to later overbuilding the excavated area was limited to 370 m^2.

5. On the location of the "palaia polis": Kerschner 2016. On the settlement development of pre-Hellenistic Ephesos: Kerschner *et al.* 2008, 109-126, pls. 47-51; Stock *et al.* 2014, 36-38. 51-58, fig. 8 with bibliography. For a proposal to identify the Agora-settlement with the suburban village Smyrna mentioned by the late Archaic Ephesian poet Hipponax: Langmann 1993; Scherrer 2006b.

2014; Steskal 2014). Furthermore, the southeastern tributaries of the Kaystros silted up the plain in between both Ayasuluk hill and Panayırdağ. Hence fluvial sediments of 4 m thickness and more have buried the Geometric, Archaic and Classical levels in the sanctuary of Artemis and its vicinity. There, adjoining the temenos, habitation quarters were laid out in the mid-6th century and used until the first half of the 3rd century BC according to Strabo (14, 21, 13-14).[6] This literary tradition has been tested only once so far. In 1929, J. Keil dug two test trenches in the plain southwest of the Artemis temple, in which he discovered a layer with Classical pottery suggesting use of the area in the 5th-4th century BC. Yet, no contemporary architectural structures were found in the small areas excavated (Keil 1930, 34-38; cf. Kerschner *et al.* 2008, 123-126, pl. 51). Geophysical prospection turned out to be of little use for the exploration of pre-Hellenistic remains in this area because of the great depth combined with the non-monumental nature of the structures and their heavy later overbuilding. In addition, the area available for geophysical prospection has been limited by recent planting of orchards.

Approach

In view of these conditions, the archaeological research of EIA settlements at Ephesos and a number of other sites in Ionia is a challenge. If we want to include in our discussion all the towns with later overbuilding, that constitute by far the majority, we have to find ways to make use of the entire evidence we are able to compile. The approach applied in the following is compiling and mapping various kinds of archaeological data, which are directly or indirectly indicative for an ancient use of a certain area for settlement, burial or agriculture.

Therefore, not only proper houses and other architectural structures are mapped in **figs. 3-5**. Also small, single features like graves, wells, cisterns or terrace walls give valuable information about the use of a certain area within or around the town. If we include also deposits with pottery and other objects, we can considerably increase our knowledge on the use of certain areas in specific periods. If the ceramic assemblage comprises enough diagnostic finds, a functional analysis of the range of shapes will allow us to draw conclusions on the original use of a certain place even if no or only scarce remains of architecture have been preserved. Assemblages of Geometric and Archaic pottery from later contexts are included if they comprise an appreciable number of diagnostic pieces making it likely that these were originally used at the same place or close-by.

A successful, cost-efficient method of researching deep, not easily accessible strata is core drilling. Such cores provide insights not only into the process of geological sedimentation, but also into the sequence of cultural layers. If diagnostic pottery fragments or other finds are present, occupation layers can be dated (**fig. 2**) (Stock *et al.* 2014, 39-42, fig. 2, tab. 2). Since the diameters of the cores are narrow – usually 6 to 8 cm –, there is often not much archaeological material included. Therefore it will be best to drill several cores in short distance in order to control the results[7].

The advantage of this combined approach is evident: it extends our information on the

6. Strabo 14, 21, 13-14: "Now Ephesus was thus inhabited until the time of Croesus, but later the people came down from the mountainside and abode round the present temple until the time of Alexander" (translation H.L. Jones).

7. On the systematic core drilling combining geological and archaeological data carried out at Miletos: Brückner *et al.* 2006; 2014; Herda *et al.* 2009.

early periods sizeably, especially at sites with a long-term occupation. In this way, a maximum of significant evidence can be considered. On the other hand, there are limitations: when interpreting the distribution maps, account should be taken of the fact that the diverse kinds of data are of different diagnostic value. If the available ceramic assemblage is too small, the implications of the quantification will be unsound. It may happen that through processes of re-deposition two or more originally separated assemblages had been mixed, for example material from dwellings and from an adjacent sanctuary. If this is the case, the image will be blurred and the functional interpretation ambiguous.

The geographical setting and the choice of the location

The pattern of settlement is influenced by the topography of the chosen location. There is an interrelationship of natural geography and the way a town develops. A survey of the Ionian poleis will show that a specific configuration evolved at every site. Nevertheless, some recurrent templates can be observed.

EIA Ephesos was located on Ayasuluk hill (**fig. 3**), a site already settled in the BA and possibly to be identified with Apasa, the capital of the Luwian kingdom of Arzawa mentioned in Hittite texts[8]. The LBA pottery from the site is dominated by Western Anatolian wares, whereas Greek pottery prevails from the PG period onwards (Kerschner 2006, 366-369, figs. 5-8). Ayasuluk, a hill of 87 m altitude, was located directly at the coast during the LBA and EIA. Its isolated position and its steep rocky slopes on three sides offered natural protection against attackers, while the gently slanting south side was well suited for building houses.

The main sanctuary of Ephesos, the Artemision, was situated in immediate vicinity of Ayasuluk hill, at its southwestern foot (**fig. 3**). The location of the temenos is so close to the settlement that it can be defined as peri-urban in contrast with the extra-urban sanctuaries of Hera on Samos and of Apollon at Didyma, both of which were several kilometres away from the urban centre (Kerschner 2015, 226).[9] In the EIA, the seashore ran close to the Artemision (Kraft *et al.* 2000, 185-186, fig. 6-7).[10] The sanctuary was located in a swampy area in the estuary of a river and close to a coastal lake (Stock *et al.* 2014, 39-44, figs. 2-7). Such a location "in the marshes" (ἐν λίμναις) with their exuberantly growing vegetation was frequently chosen for early Greek sanctuaries, especially of Artemis (Kerschner 2015, 211-213).[11] Cultic activity in the Artemision can be traced back to the end of the 11th century BC (on the EIA Artemision: Kerschner 2003; 2015, 201-213; Forstenpointner *et al.* 2008, 33-35, figs. 12-18; Kerschner & Prochaska 2011, 76). The area was already frequented in the LBA, but the scanty archaeological record consisting of some 70 fragments of Mycenaean pot-

8. On the excavations: Büyükkolancı 2000; 2007; 2008. On the identification with Apasa: Hawkins 1998, 1, 22-24; Büyükkolancı 2000; 2007; 2008; Seeher 2005, 35; Niemeier 2007b, 63-64, figs. 4-5; Scherrer 2007, 325. 327; Herda 2009, 48, fig. 4. The identification of Ephesos with Apasa had already been proposed before the discovery of LBA remains on Ayasuluk hill, mainly on the basis of linguistic arguments and on the interpretation of Hittite sources: Cornelius 1958, 395; Garstang & Gurney 1959, 84, 88-89; Güterböck 1983, 138. Extensive excavations by M. Büyükkolancı on the summit and on the southern slope of Ayasuluk hill, carried out between 1996-2008, unearthed a considerable amount of finds of the LBA, mostly pottery, yet no substantial architectural structures of this period.

9. Such a location is characteristic for Artemis sanctuaries: Morizot 2013, 95-105.

10. For a revised and more detailed version see: Stock *et al.* 2014, 44-51, figs. 4-9; Stock & Brückner 2015, 199-201, figs. 1.10-11.

11. Cf. also the location of the Artemision on Samos in the marshes of Glyphada: Tsakos 2007, 194, pl. 24; 2011, 95, fig. 45.

tery does not allow specifying the type of use (Forstenpointner *et al.* 2008, 33, fig. 11; Kerschner & Prochaska 2011, 76 with bibliography; Kerschner 2015, 187).

Until the Classical period, a small embayment at the southwestern foot of Ayasuluk hill could be used as anchorage (**figs. 3-5**) (Stock *et al.* 2014, 39-42. 51-54, figs. 7-8). Situated between the settlement and the peri-urban sanctuary, this was presumably the "sacred harbour" mentioned by the historian Kreophylos around 400 BC.[12] To the southeast of Ayasuluk hill extends a small, yet fertile plain, which had been cultivated since the Neolithic period.

The topographical situation of Erythrai is closely comparable to Ephesos (Akurgal 1993, 52-54, figs. 79-84, pl. 16. 79-83; Lang 1996, 195; Mazarakis Ainian 1997, 248, fig. 394; Greaves 2010, 98-99; Hoepfner 2011, 146-151, fig. 88). A steep hill at the coast offers natural protection. A contiguous cove is well suited as anchorage. Two nearby rivers provide fresh water, and arable land lies in short distance from the settlement.

At Samos (**fig. 10**), Mt Ampelos is higher and larger than the hills at Ephesos and Erythrai, and it was also used in a different way. Ampelos was not settled itself; it rather served as a secure place of refuge for the Samians who lived in the narrow littoral at its foot. In the 6th century BC, the late Archaic fortification wall included the summit and eastern ridge of the mountain, which were still not inhabited (Kienast 1978, 17-36; Lang 1996, 218-219; Frederiksen 2011, 184-185). The settlement extended along the coast and the harbour in the southeast, but did not reach far up the southern slope of Ampelos (Tsakos 1967; 1968; 1973; 1978; 1980; 2003; 2007; 2011, 87-88, fig. 45; Tölle-Kastenbein 1974, 139-147, 195; 1976, 72-91, figs. 8-12, map 2; Viglaki 1983; Lang 1996, 219-220, fig. 89). The harbour basin presumably extended further inland in the EIA, protected towards the sea by the flat hill of Kastro Tigani (Tölle-Kastenbein 1976, 72-82, fig. 8, pl. 8a. 11, map 2; Lang 1996, 220-221; Tsakos 2011, 89). K. Tsakos assumed that there existed a second embayment used as anchorage at the western end of the town in front of the Archaic sanctuary of Artemis (Tsakos 2011, 89).

The location of Emporio on Chios is comparable to Samos (Boardman 1967; Lang 1996, 24, 58-59, 65-66, fig. 66; Mazarakis Ainian 1997, 197-199, figs. 368-382; Archantidou-Argyri 2003. On the fortifications: Frederiksen 2011, 137). The ancient name of this small LG and EA settlement in the southeast of the island is unknown (Boardman 1967, 253-256; Rubinstein 2004, 1062). It combines a naturally sheltered embayment, perfectly suited as harbour, with a steep hill at some distance and a fertile valley. The settlement lies about half a kilometre inland, just out of sight of potential enemies approaching from the sea (Boardman 1967, 34, pl. 7d). Unlike Samos, the houses of Emporio were built on the steep western slope of Profitis Elias hill. In this way, no arable land of the narrow plain was wasted. Farmland was much more limited here than on Samos with the vast plain around the Heraion to the west of the town. Consequently, the inhabitants of Emporio tried not to waste their agricultural resources.

The early Ionian settlements of Phokaia (Akurgal 1993, 55-59, pl. 8.101-108; Özyiğit 1994; Rubinstein 2004, 1090-1091; Tréziny 2006, 240-243, fig. 12; Özyiğit 2007; Greaves 2010, 96-97; Frederiksen 2011, 182-183, figs. 93-94; Hoepfner 2011, 166-169, fig. 110), Smyrna (**fig. 1**) (Cook 1958-1959; Akurgal 1983; 1993, 44-48, figs. 1-76, pls. 1.29-45; 2007; Lang 1996, 235-243, figs. 97-107; Mazarakis Ainian 1997, 86, 99, 108, 119, 122, 203, 251, figs. 395-414; Cook & Nicholls 1998; Rubinstein 2004, 1099-1101; Mariaud 2006, 199-202, figs. 1-2; Hoepfner 2011, 155-160, figs. 99-103) and Lebedos huddled on small peninsulas,

12. FGrH 417 F 1, quoted in Athenaios 8, 361c-e (62). On the identification: Stock *et al.* 2014, 54.

which could be effectively defended against attackers from the mainland (Rubinstein 2004, 1080; Greaves 2010, 100; Hoepfner 2011, 128-131, figs. 74-75). Another advantage of a peninsula is that it provides sheltered anchorage on the two opposite sides of the isthmus, which can be used depending on the direction of the wind. In all three towns, there were residential quarters also on the adjacent mainland added later to the core settlement of the EIA[13]. At Smyrna, there is evidence for dwellings on the neighbouring slopes of the mainland from the early 7th century BC onwards (Cook 1958-1959, 15-16, fig. 3; Mariaud 2006, 174-175, fig. 1). Smyrna was fortified with a massive fortification wall already in the late 9th century BC, earlier than any other Ionian town (Nicholls 1958-1959; Lang 1996, 235-237; Cook & Nicholls 1998, 44-46; Akurgal 2007, 134, pl. 15.2; Frederiksen 2011, 188-190, figs. 100-103). It encircled only the core settlement on the peninsula, but obviously functioned also as refuge for the inhabitants of the suburbs.

In the EIA, Klazomenai was also situated on a headland with the prehistoric site of Limantepe at its tip (**figs. 11-13**) (Ersoy 1993; 2004; 2007; Aytaçlar 2004). It widened towards the hills in the west rather than forming a narrow isthmus. At its eastern side it adjoined a deep marine inlet.[14] A smaller cove to the west of Limantepe was used as (main) harbour (Goodman *et al.* 2009; Erkanal 2014). In the Archaic period the harbour basin was protected by a jetty against northeastern winds (Erkanal 2014, 299-300, figs. 4-5, map 3). The urban area of Klazomenai did not include any of the neighbouring hills to the west as fortified place. Yıldıztepe which has been interpreted as the Archaic acropolis is too low to serve effectively as a natural barrier against enemies.[15] The Klazomenians presumably fled to the off-shore islets, if they were assaulted by an enemy.[16] In the mid-7th century BC Klazomenai was surrounded by a fortification wall (Cevizoğlu & Güngör 2008, 318-323, 328-332, figs. 7-14; 2009, 234-237, 246-247, figs. 1-2; Cevizoğlu 2010, 186-189, figs. 1-3, 13-14; Frederiksen 2011, 156).

Miletos, the biggest Ionian town in the Archaic period (**figs. 7-9**), and neighbouring Myous, one of the smallest, were founded on elongated peninsulas with several harbour bays.[17] This topographical situation combined two advantages: it facilitated the defence of the settlement in case of an assault by focusing all defensive forces on the narrow isthmus, and, in addition, it offered several well-sheltered embayments as anchoring berths for ships. The town area of Archaic Miletos included three hills – Humeitepe at the northern tip of the pe-

13. Smyrna: Cook 1958-1959, 15-16, fig. 3; Mariaud 2006, 175-177, figs. 1-2. Lebedos: Hoepfner 2011, 128-131, figs. 74-75.

14. Paleogeographic research on the progradation of the shoreline: Ersoy 2004, 15, map B; Goodman *et al.* 2008; 2009. Hoepfner (2011, 153-155, fig. 96) does not consider recent research on the EIA and Archaic town of Klazomenai.

15. On archaeological excavations on Yıldıztepe: Ersoy 2000, 403-404, fig. 285; Ersoy 2003, 254.

16. The earliest known traces of use on the closest of the off-shore islets, Karantina adası, date back to the beginning of the 6th century BC, while there is evidence for settlement in the Classical period: Ersoy 2004, 63, 75, n. 72. It is, however, likely that Klazomenians fled to Karantina adası already previously in cases of emergency, given that their settlement had no natural protection. Moreover, other neighbouring off-shore islets may have been used in this way, especially the larger island of Dromousa (Uzun ada). Archaeologically, it is difficult to trace such short stays without permanent structures.

17. Overviews of EIA and Archaic Miletos (with bibliographies): Kleiner 1966; Müller-Wiener 1986; Lang 1996, 198-217, figs. 71-81; Mazarakis Ainian 1997, 109-110, figs. 415, no. 2, 419-421; Longo 1999; Senff 1999; 2000; Gorman 2001, 13-128, 165-213; Greaves 2002; Rubinstein 2004, 1082-1088; von Graeve 2006; Niemeier 2007a; 2009; Herda 2009, 72-90, figs. 6-8. The maps in Hoepfner 2011, 67-74, figs. 31, 34 neglect important aspects of recent research. On the harbours of Miletos: Brückner *et al.* 2014a; 2014b. On Myous: Lang 1996, 217; Rubinstein 2004, 1088-1089; Greaves 2010, 104-105, fig. 5.1; Hoepfner 2011, 79-84, figs. 41-43.

ninsula, Kaletepe south of it, and Kalabaktepe at the southern fringe. None of the three, however, was part of the EIA settlement, which was situated around the sanctuary of Athena (**fig. 7**) (Lang 1996, 201-203, fig. 74; Niemeier & Niemeier 1997, 215-218, figs. 21-28). This area was already the centre of the LBA settlement (Niemeier & Niemeier 1997, 190-200, 218-248; Niemeier 2007a, 13-17, fig. 1; 2009). Kalabaktepe and Kaletepe were settled in the course of the 8th century BC (**figs. 8-9**), whereas the earliest archaeological traces known so far from Humeitepe date back to the Archaic period (Müller-Wiener 1986, 96, fig. 24).[18] It seems that there were still marshes south of the settlement around the Athena sanctuary during the EIA, which offered a natural barrier against potential attackers.[19] In addition, the hills of Kaletepe and Kalabaktepe could have been used as secure places of refuge in case of an assault.

The topographical situation of Teos (**fig. 14**) is unique in Ionia.[20] The town was built on the isthmus rather than on the peninsula itself. In this way, Teos possessed two well-protected harbours, one to the south and another to the north; the latter was invisible from the open sea. The isthmus must have been much narrower in Geometric and Archaic times, and presumably the passage was further narrowed by marshes.[21] The acropolis hill is lower than the mountainous peninsula to the west, but has steep slopes on its north, east and south sides. As far as we know, the western peninsula was used as necropolis from the LG period onwards, but it was not inhabited or fortified (İren & Ünlü 2011, 309-310, fig. 1; Kadıoğlu 2013, 1).

Diachronic development of settlement patterns

In the area of Ephesos, there are only two sites yielding archaeological evidence for human activity from the late 11th to the mid-8th century BC: the settlement on Ayasuluk and the adjacent sanctuary of Artemis at the southwestern foot of the hill (**fig. 3**). A fundamental change in this pattern can be observed in the second half of the 8th and in the beginning of the 7th century BC (**fig. 4**), when the Ephesians expanded their activities to the northern and western slopes of Panayırdağ.

Up to now, the archaeological record there consists of assemblages of LG pottery, whereas architectural structures are missing so far. Albeit it has to be taken into account that most of these areas were heavily overbuilt in the Hellenistic and Roman periods and earlier layers largely disturbed (Kerschner *et al.* 2008, 21-23, 109-114, pl. 39). Furthermore the trenches dug down to Archaic levels in the area around Panayırdağ were mostly restrict-

18. Recently, fieldwork on Humeitepe has been resumed by Ch. Berns: Berns 2015, 319-321, fig. 6.

19. As Brückner *et al.* (2014a, 800, fig. 2; 2014 b, 56-58, fig. 10) recently showed, the area around the later Athena sanctuary, as well as Kaletepe together with Humeitepe, were originally islands which became attached to the mainland by siltation in the course of the 2nd millenium BC. The 'South trench' with Mycenaean pottery kilns and LG oval houses – von Graeve 1973-1974; 1975; Kleine 1979 – is located closer to the foot of Kalabaktepe hill – cf. Müller-Wiener 1986, fig. 24; Niemeier 2007a, 14, fig. 1.2. It was always part of the mainland and was situated south of the presumed swampy zone: Brückner *et al.* 2014a, 776, fig. 2.

20. On EIA and Archaic Teos: Boysal 1962; Öğün 1964; Boysal 1965; Rubinstein 2004, 1001-1002; Strang 2009, 1-74; Hoepfner 2011, 131-139, fig. 76 (the schematic course of the Hellenistic fortification wall on fig. 76 is not correct, cf. Kadıoğlu *et al.* 2015a, 346, map 1); İren & Ünlü 2012; Kadıoğlu 2013; Kadıoğlu *et al.* 2015b. For an overview on recent research on Archaic Teos: Kadıoğlu *et al.* 2015a.

21. Systematic paleogeographical research has not yet been carried out at Teos. The coastline given in fig. 14 is therefore conjectural, geared to the contour lines – cf. Hoepfner 2011, 133, fig. 76 – and including information from rescue excavations in the area of the modern town of Sığacık.

ed with the only exception of the Archaic settlement beneath the Tetragonos-Agora (**fig. 6**). Hence LG structures may turn up in future excavations. Some of them were possibly built of wood like the earliest building of the Agora-settlement (**fig. 6**, phase 1) (Scherrer 2006a, 61, fig. 78, map 19a (F); von Miller in press a). The functional analysis of the ceramic assemblages indicates that they presumably originate from domestic contexts. It seems therefore likely that a temporary or permanent settlement along the shores of Panayırdağ began in the late 8th century BC and was presumably laid out in dispersed nuclei (Kerschner *et al.* 2008, 114-116, graph 7; von Miller in press a). Thus Ephesos participated in a development which can be observed throughout the entire Aegean region from the mid 8th century BC onwards, where an increase in population and in prosperity led to the foundation of new settlements and habitation quarters (Schallin 1997, 30; De Polignac 2005, 45-46; Crielaard 2009, 361).

In the course of the 7th century BC the archaeological evidence increases both in quantity and density (**fig. 5**). It is still found in the same coastal area, where the LG finds had turned up. The distribution pattern becomes clearer now so that we can assume three nuclei of habitation (**fig. 5.1-3**) (Stock *et al.* 2014). All three were situated close to embayments well suited for anchorage: two at the northern slope of Panayıdağ flanking the Koressian harbour and the third – the Agora settlement – in a narrow coastal plain at a wide bay which later served as harbour of Hellenistic Ephesos (Steskal 2014, 331-334, figs. 9-10).

Obviously, the Ephesians made use of areas situated close to protected embayments, which offered excellent shelter for boats and ships (Kerschner *et al.* 2008, 116-118, pl. 49; Steskal 2014, 326-331, fig. 6; Stock *et al.* 2014). Choosing stony slopes for dwellings avoided wasting arable land. The same strategy can be observed at Emporio, but also on the rocky peninsulas of Smyrna (**fig. 1**), Phokaia and Lebedos. In contrast, Samos (**fig. 10**), Klazomenai (**figs. 11-13**) and Teos (**fig. 14**) possessed an extensive chora with fertile land for agriculture and hence could be more generous with this resource.

A similar development can be observed at Miletos. Until around 800 BC, Miletos (**fig. 7**) seems to have been confined to the settlement around the sanctuary of Athena, judging by the available archaeological record. In the first half of the 8th century BC, new terrain was settled at a distance of some 800 m to the south, on the north edge of the eastern terrace of Kalabaktepe (**fig. 8**).[22] With its height of 57 m, it is the highest of the hills within the urban area. In the EIA Kalabaktepe was still a rugged limestone mountain with two peaks, a higher one at its western and a lower at its eastern end (Musmann 2003; Stümpel *et al.* 2005, 192-194, fig. 8; von Graeve 2006, 245-246, fig. 2). The eastern peak, which is closer to the central settlement around the Athena sanctuary, was settled first. No traces of contemporary MG II habitation have been found in the interjacent part of the plain. Possibly this zone which had silted up not long before was still partly swampy and not suited to build houses there[23].

The situation changed soon afterwards, in the second half of the 8th century BC, when the settlement at Miletos expanded considerably (**fig. 9**). In the LG period, the plain in the southern part of the peninsula was settled for the first time (von Graeve 1973-1974; 1975; Kleine 1979; Lang 1996, 203-205, figs. 71, 76-81; Mazarakis Ainian 1997, 109-110, fig. 415, no. 2; 419-421).[24] Remains of at least two, presumably three LG houses with oval ground

22. On the MG II context: M. Kerschner 2010, 64: http://www.oeai.at/tl_files/img/Dateien/Kopie%20von%20Jb_2011_ebook_kleiner.pdf. On the excavation in the sanctuary of Artemis Kithone on Kalabaktepe: Kerschner 1995; 1999; Kerschner & Senff 1997.

23. Cf. above n. 19.

24. This area was overlooked in Greaves 2000, 64-65, fig. 3, when he suggested "a bipartite settlement". The archaeological record (**fig. 9**) points rather to dispersed settlement nuclei than to a "bipartite" structure. Further-

plan have been excavated half way between of the Athena sanctuary and Kalabaktepe. An extension of the built-up area can also be observed on Kalabaktepe, where the western peak and its southern slope were inhabited back then (von Graeve 1987; 1995; 2006, 243-249; Lang 1996, 198-217, figs. 71-81; Mazarakis Ainian 1997, 109-110, figs. 415, no. 2, 419-421; Senff 1999; 2000; 2007).

Despite this expansion of settled areas, it is not clear, if the whole plain between Kalabaktepe and the core settlement around Athena temple was continuously built-up by that time. It seems rather that Miletos consisted of individual habitation nuclei dispersed over the peninsula in the LG period (Cf. Morris 1991, 29; Lang 1996, 25-26, 214; Tréziny 2006, 245; Crielaard 2009, 361. More cautious: Longo 1999, 187-190). It is likely that these nuclei were all part of the same polis emerging at that time, since they were too close to form separate towns (Lang 1996, 26; Morgan & Coulton 1997, 92; De Polignac 2005, 60-61; Osborne 2005, 9; Tréziny 2006, 245).

At Samos, the settlement of the 8th century BC obviously extended along the coast and around the main harbour in the southeast, but did not reach far uphill (**fig. 10**) (Tsakos 1967; 1968; 1973; 1978; 1980; 2003; 2007; 2011, 87-88, fig. 45; Tölle-Kastenbein 1974, 139-147, 195; 1976, 72-91, figs. 8-12, map 2; Viglaki 1983; Lang 1996, 219-220, fig. 89). The existence of graves in between architectural remains, which can be interpreted as dwellings and workshops on the basis of the contextual finds, indicates a settlement pattern rather consisting of several clusters of houses than a densely built-up area (Tsakos 2007, 191; cf. Mariaud 2006, 174). An extensive necropolis of the 9th-7th centuries BC gives an indication for the western border of LG Samos (Tsakos 2007, 191). Later, from the second half of the 8th century BC onwards, an area to the northwest of the first one uphill the slope of mount Ampelos was also used for burials and became the most important necropolis of the polis in the 6th century BC ('western necropolis') (Tsakos 2007, 195. On the 'Western Necropolis' in the Archaic period: Boehlau 1898).

General features and developments from the PG to the EA period

If we compare the evidence available from the Ionian towns, we can trace some common tendencies, but we can hardly establish general rules, which would be applicable to every single settlement. The individual communities found varied responses to the challenges of their time suitable to their specific geographic situation and according to the choices and possibilities of their communities (Cf. Damgaard Andersen *et al.* 1997, 11).

Choice of site

The topographic situation of the Ionian poleis shows a considerable range of variation, but there are significant common traits. Smyrna (**fig. 1**), Phokaia and Lebedos were built on

more, there is no indication of "defended citadel" on Kalabaktepe, as proposed by Greaves. The fortification wall preserved on the south foot of Kalabaktepe dates to the third quarter of the 7th century BC – von Graeve 1995, 238-244, figs. 40-44; 2006, 247; Lang 1996, 199-201, 214-216, figs. 71-73, 88; Cobet 1997, 249-284; Frederiksen 2011, 168-170, figs. 76-78 –, not to the 8th, as depicted in Greaves 2000, 65, fig. 3 (upper row, middle). The hypothesis of Hoepfner (2011, 68-69, fig. 31) that Kalabaktepe was a "Carian settlement" is not supported by the archaeological record. On Miletos and the Carians: Herda & Sauter 2009.

a small peninsula with further habitation nuclei on the opposite coast, Miletos (**figs. 7-9**) and Myous on an elongated peninsula with deep inlets perfectly suited as harbours. Step hills offered natural protection to the small settlements of the early first millennium BC at Ephesos (**figs. 3-5**) and Erythrai. The same applies to Lebedos, there in combination with a small peninsula. Samos used a nearby steep hill as place of refuge (**fig. 10**),[25] Klazomenai presumably its offshore islets (**figs. 11-13**). Teos, as a particular case, was situated on an isthmus, benefiting of two protected natural harbours (**fig. 14**).

All Ionian poleis are coastal places, with the only exception of Kolophon, which had a harbour on her territory at Notion some 15 km to the southeast.[26] Hence, the selection of site was not only conditioned by the availability of nearby land suitable for agriculture and arboriculture, which was a basic need for the small autarkic communities of the EIA Aegean. The deliberate choice for an appropriate anchorage suggests that fishing played an important role in their subsistence, too. Seaborne trade was another aspect of economy already in the EIA as is shown for example by ceramic imports reaching Ephesos from Attica, Euboea, the Argolid and from Kos (Kerschner 2006, 370, 372; 2014, 109-110, 118-122, 130-133, figs. 11-13). Furthermore, defensibility was a major concern of most communities in the EIA Aegean, and this can also be observed in Ionia.

Taken together, all coastal towns of Ionia have three features in common:

- a territory suited for agriculture, arboriculture and pasture farming[27]
- a naturally sheltered harbour, sometimes two or even more coves suitable for anchorage;
- a topographical feature supporting the situation of the defenders in case of a military attack on the town. This is often a hill with steep slopes as natural barrier against attackers, either as place of the settlement itself or as nearby refuge. Small peninsulas facilitated defence, which could be focused on the narrow isthmus. Offshore islands provided temporary refuge during assaults.

Geomorpholocial dynamics

Geomorpholocial dynamics should be taken into account, when settlement development is interpreted. In several Ionian towns, the progradation of the coastline provoked responses of the communities. At Ephesos, the harbour was transferred and new habitation nuclei developed next to them (**figs. 3-5**) (Kerschner *et al.* 2008, 116-126, pls. 47-51; Stock *et al.* 2014). At Old Priene and at Myous the effect of the sedimentation was more dramatic, so that the location was finally abandoned (Pausanias 7.2.10-11; Rubinstein 2004, 1089, 1092; Müllenhoff 2005, 187-215; Brückner *et al.* 2014b, 84-86).

Not only changes of the coastline have effects on the pattern and development of settlements. The same applies to marshes which can serve as natural barriers against potential attackers, as it can be observed at Miletus (**figs. 7-8**) and Teos (**fig. 14**). On the other hand

25. Ampelos hill was included in the late Archaic fortification wall of the third quarter of the 6th century BC: Kienast 1978, 17-36; Lang 1996, 218-219; Frederiksen 2011, 184-185. Due to its steep slopes, it offers natural protection, and therefore it is very likely that it had been used already before as place of refuge in times of danger.

26. An independent polis became Notion later, presumably during the 5th century BC, in an obviously conflictual process: Rubinstein 2004, 1089-1090. On Kolophon: Holland 1944; Rubinstein 2004, 1077-1080; Hoepfner 2011, 120-125; Bruns-Özgan *et al.* 2012.

27. Cf. Osborne 2005, 8 on the relation between the population figure and the required size of agricultural territory.

they hampered habitation. After having dried out naturally or by organised drainage, they offered new land for agriculture or building, as it was probably the case at Miletus (**fig. 9**).[28]

Development of dispersed settlements in the 8th – early 7th centuries BC

During the 10th and 9th centuries BC, Ionian settlements were small and limited to one nucleus (**figs. 3, 7, 11**). This pattern changed in the course of the 8th and early 7th century BC, when further small settlements or hamlets were founded.[29] This phenomenon can be observed at Ephesos, Miletos and Smyrna so far (**figs. 1, 4-5, 8-9**), and it seems likely that further Ionian towns can be added in the future, when more archaeological evidence will be available. These habitation nuclei are usually situated at a distance of a few hundred meters from each other. Hence they were too close to form separate towns and should rather be interpreted as individual nuclei belonging to the same community (Morris 1991, 29; Lang 1996, 25-26, 142; Morgan & Coulton 1997, 92; De Polignac 2005, 60-61; Osborne 2005, 9; Tréziny 2006, 245; Crielaard 2009, 361. Contra Frederiksen 2013, who makes a case for large, continuous settlement in EIA Corinth).

We can assume that the inhabitants of these dispersed settlement nuclei joined in the cult in the major sanctuaries of the town and frequented a common meeting place, which finally became the agora. Thus they were part of the same political and religious entity (De Polignac 2005, 60-61). The archaeological record from Ionia may well reflect a situation that Thucydides (1.10.2) described from Sparta of his days: The town "is neither built in a compact form nor adorned with magnificent temples and public edifices, but composed of villages after the old fashion of Hellas (κατὰ κώμας δὲ τῷ παλαιῷ τῆς Ἑλλάδος τρόπῳ οἰκισθείσης)" (cf. Williams 1982; Lang 1996, 25-26, 142; Morgan & Coulton 1997, 92-95; Hansen & Nielsen 2004, 19; Osborne 2005, 9; De Polignac 2005, 47-48, 58-61; Tréziny 2006, 245; Crielaard 2009, 361).

Not all of these nuclei offered protection in case of a military attack. When threatened, the inhabitants presumably fled to a secure place of refuge which could be either a hill site – the 'palaia polis' on Ayasuluk hill at Ephesos (**figs. 4-5**), Kalabaktepe or Kaletepe at Miletos (**figs. 8-9**), mount Ampelos at Samos (**fig. 10**) – or an offshore island – at Klazomenai (**figs. 11-13**) and possible also at Teos (**fig. 14**) – or the fortified core settlement like at Smyrna (**fig. 1**).

Thus, the Geometric and Archaic settlements in Ionia participated in the developments, known also from other parts of the Aegean and from mainland Greece. Beyond these general tendencies, however, it becomes evident that the individual conditions at a certain site had considerable influence on the pattern of a specific settlement.

BIBLIOGRAPHY

Akurgal, E., 1983. *Alt-Smyrna* I. *Wohnschichten und Athenatempel*, Ankara.
Akurgal, E., 1993. *Eski çağda Ege ve İzmir*, Izmir.
Akurgal, M., 2007. Hellenic Architecture in Smyrna 650-546 B.C., in Cobet *et al.* 2007, 125-136.

28. De Polignac 2005, 58 on a marsh at the area of the later agora at Thasos.

29. Generally on this development in early Greek settlements: Lang 1996, 26; Morgan & Coulton 1997, 92-95; Osborne 2005, 9; De Polignac 2005, 58-61; Crielaard 2009, 361.

Archantidou-Argyri, A., 2003. *Emporio. A Settlement of the Early Historical Times*, Chios.
Aytaçlar, N., 2004. The Early Iron Age at Klazomenai, in A. Moustaka, E. Skarlatidou, M.-C. Tzannes & Y. Ersoy (eds.), *Klazomenai, Teos and Abdera: Metropoleis and Colony. Proceedings of the International Symposium held at the Archaeological Museum of Abdera. Abdera, 20–21 October 2001*, Thessaloniki, 17-41.
Bakır, G., Ersoy, Y., Cevizoğlu, H., Güngör, Ü., Hasdağlı, İ., 2006. Yılı Klazomenai kazısı, in *29. Kazı Sonuçları Toplantısı, Kocaeli 28 Mayıs – 01 Haziran 2007*, vol. 3, Ankara, 313-332.
Berns, Ch., 2015. Forschungen in Milet: Rückblick und Perspektive, in Ü. Yalçın & H.-D. Bienert (eds.), *Anatolien – Brücke der Kulturen. Aktuelle Forschungen und Perspektiven in den deutsch-türkischen Altertumswissenschaften, Tagungsband des Internationalen Symposiums „Anatolien – Brücke der Kulturen" in Bonn vom 7. bis 9. Juli 2014*, Bochum, 311–324.
Boehlau, J., 1898. *Aus ionischen und italischen Nekropolen. Ausgrabungen und Untersuchungen zur Geschichte der nachmykenischen griechischen Kunst*, Leipzig.
Boardman, J., 1967. Excavations in Chios 1952–1955. Greek Emporio, *BSA* Suppl. 6, Oxford.
Boysal, Y., 1962. 1962 senesi Teos kazıları hakkında kısa rapor, *TürkArkDerg* 12, 5-7.
Boysal, Y., 1965. Teos kazısı 1965 yılı kısa raporu, *TürkArkDerg* 14, 231-233.
Brückner, H., 1995. Geomorphologie und Paläo-environment der Milesia, *AA*, 329-333.
Brückner, H., 1996. Geoarchäologie an der türkischen Ägäisküste. Landschaftswandel im Spiegel geologischer und archäologischer Zeugnisse, *Geographische Rundschau* 10, 568–574.
Brückner, H., Müllenhoff, M., Gehrels, R., Herda, A., Knipping M. & Vött, A., 2006. From Archipelago to Floodplain. Geographical and Ecological Changes in Miletus and its Environs during the last six Millennia (Western Anatolia), *Zeitschrift für Geomorphologie* Suppl. 142, 63-83.
Brückner, H., Kelterbaum, D., Marunchak, O., Porotov A. & Vött, A., 2010. The Holocene Sea Level Story since 7500 BP – Lessons from the Eastern Mediterranean, the Black and the Azov Seas, *Quaternary International* 225, 160-179.
Brückner, H., Herda, A., Müllenhoff, M., Rabbel, W., Stümpel, W., 2014a. Der Löwenhafen von Milet – eine geoarchäologische Fallstudie, in Ladstätter, Pirson & Schmidts 2014, 773-806.
Brückner, H., Herda, A., Müllenhoff, M., Rabbel, W., Stümpel, W., 2014b. On the Lion Harbour and other Harbours in Miletos: Recent Historical, Archaeological, Sedimentological, and Geophysical Research. *Proceedings of the Danish Institute at Athens* 7, Athens, 49-104.
Bruns-Özgan, Ch., Gassner, V., Muss, U., 2012. Kolophon. Neue Untersuchungen zur Topographie der Stadt, *Anatolia Antiqua* 19, 199-239.
Büyükkolancı, M., 2000. Excavations on Ayasuluk Hill in Selçuk/Turkey. A Contribution to the Early History of Ephesus, in Krinzinger 2000, 39-43.
Büyükkolancı, M., 2007. Apaša, das alte Ephesos und Ayasoluk, in Cobet *et al.* 2007, 21-26.
Büyükkolancı, M., 2008. Selçuk Ayasuluk Tepesi (Eski Efes) „Appasas" mı?, in A. Erkanal-Öktü, S. Günel & U. Deniz (eds.), *Batı Anadolu ve Doğu Akdeniz Geç Tunç Çağı kültürleri üzerine yeni araştırmalar*, Ankara, 41-55.
Cevizoğlu, H., 2010. *Reliefkeramik archaischer Zeit aus Klazomenai*, Langenweissbach.
Chatzi-Vallianou, D., 1977. Pythagoreio, *ArchDelt* 32, *Chr.*, 299-303.
Cobet, J., 1997. Milet 1994-1995: Die Mauern sind die Stadt. Zur Stadtbefestigung des antiken Milet, *AA*, 249-284.
Cobet, J., Starke, F., von Graeve, V., 2000. Miletos (2), in H. Cancik & H. Schneider (eds.), *Der Neue Pauly. Enzyklopädie der Antike* 8, Stuttgart, 170-180.
Cobet, J., von Graeve, V., Niemeier, W.-D. & Zimmermann, K. (eds.), 2007. *Frühes Ionien. Fine Bestandsaufnahme, Panionion-Symposion Güzelcamli 26. September - 1. October 1999, Mainz.*
Cook, J.M., 1958-1959. Old Smyrna, 1948-1951, *BSA* 53-54, 1-34.
Cook, J.M. & Nicholls, R.V., 1998. Old Smyrna Excavations: The Temples of Athena, *BSA* Suppl. 30, London.
Crielaard, J.P., 2009. Cities, in K. Raaflaub & H. van Wees (eds.), *A Companion to Archaic Greece*, Malden, MA, 349-373.
Damgaard Andersen H., Horsnæs, H.W., Houby-Nielsen, S. & Rathje, A., 1997a. Urbanization in the Mediterranean in the 9th to 6th Centuries BC. An Introduction, in H. Damgaard Andersen, H.W.

Horsnæs, S. Houby-Nielsen & A.Rathje (eds.), *Urbanization in the Mediterranean in the 9th to 6th Centuries BC*, *ActaHyp* 7, Copenhagen, 9-15.
De Polignac, F., 2005. *Forms and Processes: Some Thoughts on the Meaning of Urbanization in Early Archaic Greece*, in Osborne & Cunliffe 2005, 45-69.
De Polignac, F., 2006. Analyse de l'espace et urbanisations en Grèce archaïque: quelques pistes de recherches récentes, *RÉA* 108, 203-223.
Erkanal, H., 1999. Early Bronze Age Fortification Systems in the İzmir Region, in P. Betancourt, V. Karageorghis, R. Laffineur & W.-D. Niemeier (eds.), *Meletemata. Studies in Aegean Archaeology Presented to Malcolm H. Wiener as He Enters His 65th Year*, Eupen, 237-242.
Erkanal, H., 2014. Klazomenai/Liman Tepe'nin Limanları, in S. Ladstätter, F. Pirson & T. Schmidts (eds.), *Hafen und Hafenstädte im östlichen Mittelmeerraum von der Antike bis in byzantinische Zeit. Neue Entdeckungen und aktuelle Forschungsansätze, Istanbul, 30.05.-01.06.2011*, Istanbul, 295-304.
Ersoy, Y.R., 1993. Clazomenae: The Archaic Settlement, Bryn Mawr (unpublished PhD thesis).
Ersoy, Y., 2000. East Greek Pottery Groups of the 7th and 6th Centuries B.C. from Clazomenae, in F. Krinzinger (ed.), *Die Ägäis und das westliche Mittelmeer. Beziehungen und Wechselwirkungen 8. bis 5. Jh. v. Chr. Akten des Symposions Wien 24-27. März 1999*, Vienna, 399-406.
Ersoy, Y., 2003. Pottery Production and Mechanism of Workshops in Archaic Clazomenae, in Schmaltz & Söldner 2003, 254-257.
Ersoy, Y., 2004. Klazomenai: 900-500 BC. History and Settlement Evidence, in A. Moustaka, E. Skarlatidou, M.-C. Tzannes & Y. Ersoy (eds.), *Klazomenai, Teos and Abdera: Metropoleis and Colony. Proceedings of the International Symposium held at the Archaeological Museum of Abdera. Abdera, 20-21 October 2001*, Thessaloniki, 43-76.
Ersoy, Y., 2007. Notes on History and Archaeology of Early Clazomenae, in Cobet *et al.* 2007, 149-178.
Ersoy, Y., Cevizoğlu, H., Güngör, Ü., Hasdağlı, İ. & Ulusoy, P., 2009. 2007 Yılı Klazomenai kazısı, in *30. Kazı Sonuçları Toplantısı, Ankara 26–30 Mayıs 2008*, vol. 3, Ankara, 233-254.
Ersoy, Y., Cevizoğlu, H., Güngör, Ü., Ulusoy, P., Özbay, F., Ercan, H., 2010. 2008 Yılı Klazomenai kazısı, in *31. Kazı Sonuçları Toplantısı, Denizli 25–29 Mayıs 2009*, vol. 1, Ankara, 185-204.
Forstenpointner, G., Kerschner, M., Muss, U., 2008. Das Artemision in der späten Bronzezeit und frühen Eisenzeit, in U. Muss (ed.), *Die Archäologie der ephesischen Artemis. Gestalt und Ritual eines Heiligtums*, Vienna, 33-46.
Frederiksen, R., 2011. *Greek City Walls of the Archaic Period 900-480 BC*, Oxford.
Frederiksen, R., 2013. The Seventh Century B.C. City Wall at the Potters' Quarter in Corinth. Topographical Implications, in K. Kissas & W.-D. Niemeier (eds.), *The Corinthia and the Northeast Peloponnese. Topography and History from Prehistoric Times until the End of Antiquity. Proceedings of the International Conference organised by the Directorate of Prehistoric and Classical Antiquities, the LZ´ Ephorate of Prehistoric and Classical Antiquities and the German Archaeological Institute, Athens, Held at Loutraki, March 26-29, 2009*, Munich, 79-90.
Garstang, J. & Gurney, O.J., 1959. *The Geography of the Hittite Empire*, London.
Gerkan von, A., 1925. *Kalabaktepe, Athenatempel und Umgebung*, *Milet* 1.8, Berlin.
Goodman, B., Reinhardt, E., Dey, H., Şahoğlu, V., Erkanal, H. & Artzy, M. 2008. Evidence for Holocene Marine Transgression and Shoreline Progradation due to Barrier Development in Iskele, Bay of Izmir, Turkey, *Journal of Coastal Research* 24, 1269-1280.
Goodman, B., Reinhardt, E., Boyce, J., Dey, H., Şahoğlu, V., Erkanal, H. & Artzy, M., 2008. Multi-proxy Geoarchaeological Study Redefines Understanding of the Paleocoastlines and Ancient Harbours of Liman Tepe (Iskele, Turkey), *Terra Nova* 21, 97-104.
Gorman, V.B., 2001. *Miletos, the Ornament of Ionia. A History of the City to 400 B.C.E.*, Ann Arbor.
Graeve von, V., 1973-1974. Milet. Bericht über die Arbeiten im Südschnitt an der hellenistischen Stadtmauer 1963, *IstMitt* 23-24, 63-115.
Graeve von, V., 1975. Milet. Vorläufiger Bericht über die Grabung im Südschnitt an der hellenistischen Stadtmauer 1966, *IstMitt* 25, 35-59.
Graeve von, V., 1986. Grabung auf dem Kalabaktepe, *IstMitt* 36, 8-12.
Graeve von, V., 1987. Grabung auf dem Kalabaktepe, *IstMitt* 37, 6-33.

Graeve von, V., 1995. Milet 1992-1993, *AA*, 195-333.
Graeve von, V., 2006. Milet, in W. Radt (ed.), *Stadtgrabungen und Stadtforschung im westlichen Kleinasien*, Istanbul, 241-262.
Greaves, A.M., 2000. The Shifting Focus of Settlement at Miletos, in P. Flensted-Jensen (ed.), *Further Studies in the Ancient Greek Polis*, Stuttgart, 57-72.
Greaves, A.M., 2002. *Miletos. A History*, London.
Greaves, A.M., 2010. *The Land of Ionia. Society and Economy in the Archaic Period*, Chichester.
Güterböck, H., 1983. The Hittites and the Aegean World: Part 1. The Ahhiyawa Problem Reconsidered, AJA 87, 133-138.
Hansen, M.H., 1997. The Polis as an Urban Centre. The Literary and Epigraphical Evidence, in M.H. Hansen (ed.), *The Polis as an Urban Centre and as a Political Community. Symposium August, 29-31, 1996*, Copenhagen, 9-86.
Hansen, M.H. & Nielsen, T.H. (eds.), 2004. *An Inventory of Archaic and Classical Poleis*, Oxford.
Hawkins, J.D., 1998. Tarkasnawa King of Mira. 'Tarkondemos', Boğazköy sealings and Karabel, *AnatSt* 48, 1-31.
Herda, A., 2009. Karkiša – Karien und die sogenannte Ionische Migration, in F. Rumscheid (ed.), *Die Karer und die Anderen. Internationales Kolloquium an der Freien Universität Berlin 13. bis 15. Oktober 2005*, Bonn, 27-108.
Herda, A., Brückner, H. & Müllenhoff, M., 2009. Geoarchaeology in the City of Thales – Deciphering Palaeogeographic Changes in the Agora Area of Miletus, in Th. Mattern & A. Vött (eds.), *Mensch und Umwelt im Spiegel der Zeit. Aspekte geoarchäologischer Forschungen im östlichen Mittelmeergebiet*, Wiesbaden, 95-108.
Herda, A. & Sauter, E., 2009. Karerinnen und Karer in Milet: Zu einem spätklassischen Schüsselchen mit karischem Graffito aus Milet, *AA*, 51-112.
Hoepfner, W., 2011. *Ionien – Brücke zum Orient*, Darmstadt.
Holland, L.B., 1944. Colophon, *AJA* 13, 91-171.
İren, K. & Ünlü, A., 2012. Burning in Geometric Teos, in K. Konuk (ed.), *Stephanèphoros. De l'économie antique à l'Asie mineure. Hommages à Raymond Descat*, Bordeaux, 309-333.
Kadıoğlu, M., 2013. *Teos (Seferihisar/Sığacık). Rehber kitap – Guide book*, Ankara.
Kadıoğlu M., Özbil, C., Kerschner, M., Mommsen, H., 2015a. Teos im Licht der neuen Forschungen - Yeni Araştırmalar Işığında Teos, in U. Yalçın & H.-D. Bienert (eds.), *Anatolien – Brücke der Kulturen. Aktuelle Forschungen und Perspektiven in den deutsch-türkischen Altertumswissenschaften, Tagungsband des Internationalen Symposiums „Anatolien – Brücke der Kulturen" in Bonn vom 7. bis 9. Juli 2014*, Bochum, 345-366.
Kadıoğlu M., Yalçın, D.Ö., Tamsü Polat, R., Adak, M. & Özbil C., Polat, Y. & Tuğcu, İ., 2015b. 2012-2013 Teos Kazı Çalışmaları (3.-4. Sezon), 36. Kazı Sonuçları Toplantısı, Gaziantep 02-06 Haziran 2014, vol. 3, Ankara, 437-471.
Kerschner, M., 1995. Die Ostterrasse des Kalabaktepe, *AA*, 214-220.
Kerschner, M., 1999. Das Artemis-Heiligtum auf der Ostterrasse des Kalabaktepe. Stratigraphie und Keramikfunde der Sondagen des Jahres 1995, *AA*, 7-51.
Kerschner, M., 2003. Zum Kult im früheisenzeitlichen Ephesos. Interpretation eines protogeometrischen Fundkomplexes aus dem Artemisheiligtum, in Schmaltz & Söldner 2003, 246–250.
Kerschner, M., 2006. Die Ionische Wanderung im Lichte neuer archäologischer Forschungen in Ephesos, in E. Olshausen & H. Sonnabend (eds.), *„Troianer sind wir gewesen" – Migrationen in der antiken Welt, Stuttgarter Kolloquium zur Historischen Geographie des Altertums* 8, *2002*, Stuttgart, 364-382.
Kerschner, M., 2014. Euboean Imports to the East Aegean and East Aegean Productions of Pottery in Euboean Style: New Evidence from Neutron Activation Analyses, in M. Kerschner & I.S. Lemos (eds.), *Archaeometric Analyses of Euboean and Euboean Related Pottery: New Results and their Interpretations. Proceedings of the Round Table Conference held at the Austrian Archaeological Institute in Athens 15 and 16 April 2011*, Vienna, 109-140.
Kerschner, M., 2015. Der Ursprung des Artemisions von Ephesos als Naturheiligtum. Naturmale als kultische Bezugspunkte in den großen Heiligtümern Ioniens, in K. Sporn, S. Ladstätter & M. Kersch-

ner (eds.), *Natur – Kult – Raum. Akten des internationalen Kolloquiums Paris-Lodron-Universität Salzburg, 20.–22.01.2012*, Vienna, 187-243.
Kerschner, M., 2016. Neue Forschungen zu den Befestigungen von Ephesos in archaischer und klassischer Zeit: Archäologischer Befund und Schriftquellen, in R. Frederiksen, S. Müth, P. Schneider & M. Schnelle (eds.), *Focus on Fortification: New Research on Fortifications in the Ancient Mediterranean and the Near East. Papers of the conference on the research of ancient fortifications, Athens 6-9 December 2012*, Oxford, 337-350.
Kerschner, M. & Senff, R., 1997. Die Ostterrasse des Kalabaktepe, *AA*, 120-122.
Kerschner, M. & Prochaska, W., 2011. Die Tempel und Altäre der Artemis in Ephesos und ihre Baumaterialien, *ÖJh* 80, 73-153.
Kerschner, M., Lawall, M., Scherrer, P. & Trinkl, E., 2000. Ephesos in archaischer und klassischer Zeit. Die Ausgrabungen in der Siedlung Smyrna, in F. Krinzinger (ed.), *Die Ägäis und das westliche Mittelmeer. Beziehungen und Wechselwirkungen 8. bis 5. Jh. v. Chr., Akten des Symposions Wien 24-27. März 1999*, Vienna, 45-54.
Kerschner, M., Kowalleck, I. & Steskal, M., 2008. *Archäologische Forschungen zur Siedlungsgeschichte von Ephesos in geometrischer, archaischer und klassischer Zeit. Grabungsbefunde und Keramikfunde aus dem Bereich von Koressos* 9, Vienna.
Kienast, H.J., 1978. *Die Stadtmauer von Samos*, *Samos* XV, Bonn.
Kleine, J., 1979. Milet. Bericht über die Arbeiten im Südschnitt an der hellenistischen Stadtmauer 1968-1973, *IstMitt* 29, 109-159.
Kleiner, G., 1966. Alt-Milet, Wiesbaden.
Kleiner, G. & Müller-Wiener, W., 1972. Die Grabung in Milet im Herbst 1959, *IstMitt* 22, 45-92.
Kraft, J.C., Kayan, İ., Brückner, H. & Rapp, G.(R.), Jr., A Geological Analysis of Ancient Landscapes and the Harbors of Ephesus and the Artemision in Anatolia, *ÖJh* 69, 175-233.
Krinzinger, F. (ed.), 2000. *Die Ägäis und das westliche Mittelmeer. Beziehungen und Wechselwirkungen 8. bis 5. Jh. v. Chr., Akten des Symposions Wien 24-27. März 1999*, Vienna.
Ladstätter, S., Pirson, F. & Schmidts, T. (eds.), 2014. *Häfen und Hafenstädte im östlichen Mittelmeerraum von der Antike bis in byzantinische Zeit. Neue Entdeckungen und aktuelle Forschungsansätze, Istanbul, 30.05.-01.06.2011*, Istanbul.
Lang, F., 1996. *Archaische Siedlungen in Griechenland. Struktur und Entwicklung*, Berlin.
Lang, F., 2002. Housing and Settlement in Archaic Greece, in J.-M. Luce (ed.), *Habitat et urbanisme dans le monde grec (Xe-VIe S. av. J.-C.) de la fin des palais mycéniens à la prise de Milet (494 avt. J.-C.), Pallas* 58, Toulouse, 13-32.
Langmann, G., 1993. Smyrna gefunden, in G. Dobesch & G. Rehrenböck (eds.), *Die epigraphische und altertumskundliche Erforschung Kleinasiens. Hundert Jahre Kleinasiatische Kommission der Österreichischen Akademie der Wissenschaften. Akten des Symposiums vom 23. bis 25. Oktober 1990*, Vienna, 283-287.
Longo, F., 1999. Mileto, in E. Greco (ed.), *La città greca antica. Istituzioni, società e forme urbane,* Rome, 183-203.
Mariaud, O., 2006. Rituel funéraire et transformations spatiales en Ionie archaïque: Le cas des tombes d'enfant à Smyrne, *REA* 108, 173-202.
Mazarakis Ainian, A., 1997. *From Rulers' Dwellings to Temples. Architecture, Religion and Society in Early Iron Age Greece (1100–700 B.C.)*, Jonsered.
Meral Akurgal, 2007. Hellenic Architecture in Smyrna 650-546 B.C., in Cobet *et al.* 2007, 125-136.
Miller von, A.Ch.J., in press a. *Archaische Siedlungsbefunde in Ephesos. Stratigraphie, Bauphasen, Keramik und Kleinfunde aus den Grabungen unter der Tetragonos-Agora. Archaische Keramikfunde aus dem Theater und von der Nordwestseite des Panayırdağ*, *Forschungen in Ephesos* 13.3.
Miller von, A.Ch.J., in press b. Korinthisierende Kotylen in Ephesos: ein Fallbeispiel zur ionischen Gefäßproduktion nach korinthischem Vorbild im späten 8. und frühen 7. Jahrhundert v. Chr., *IstMitt*.
Morgan, C. & Coulton, J.J., 1997. The Polis as a Physical Entity, in M.H. Hansen (ed.), *The Polis as an Urban Centre and as a Political Community. Symposium August, 29-31, 1996*, Copenhagen, 87-144.

Morizot, Y., 2013. Artémis périurbaine, in P. Darcque (ed.), *Proasteion. Recherches sur le périurbain dans le monde grec,* Paris, 95-123.

Morris, I.M., 1991. The Early Polis as City and State, in J.W. Rich & A. Wallace-Hadrill (eds.), *City and Country in the Ancient World*, London, 25-57.

Müllenhoff, M., 2005. *Geoarchäologische, sedimentologische und morphodynamische Untersuchungen im Mündungsgebiet des Büyük Menderes (Mäander), Westtürkei*, Marburg.

Müllenhoff, M., Herda, A., Brückner, H., Geoarchaeology in the City of Thales. Deciphering Palaeogeographic Changes in the Agora Area of Miletus, in T. Mattern & A. Vött (eds.), *Mensch und Umwelt im Spiegel der Zeit. Aspekte geoarchäologischer Forschungen im östlichen Mittelmeergebiet*, Wiesbaden, 97-110.

Müller-Wiener, W., 1986. Bemerkungen zur Topographie des archaischen Milet, in W. Müller-Wiener (ed.), *Milet 1899-1980. Ergebnisse, Probleme und Perspektiven einer Ausgrabung. Kolloquium Frankfurt am Main 1980*, Tübingen, 95-104.

Musmann, P., 2003. 3D-Refraktionsseismisches Imaging am Beispiel des Kalabaktepe in Milet (Westtürkei), University of Kiel (unpublished Master thesis).

Nicholls, R.V., 1958-1959. Old Smyrna: the Iron Age Fortifications and Associated Remains on the City Perimeter, *BSA* 53-54, 35-137.

Niemeier, W.-D., 2007a. Milet von den Anfängen menschlicher Besiedlung bis zur ionischen Wanderung, in J. Cobet, V. von Graeve, W.-D. Niemeier & K. Zimmermann (eds.), *Frühes Ionien. Eine Bestandsaufnahme, Panionion-Symposion Güzelçamlı 26. September - 1. Oktober 1999*, Mainz, 3-20.

Niemeier, W.-D., 2007b. Westkleinasien und Ägäis von den Anfängen bis zur Ionischen Wanderung. Topographie, Geschichte und Beziehungen nach dem archäologischen Befund und den hethitischen Quellen, in Cobet *et al*. 2007, 37-95.

Niemeier, W.-D., 2009. Milet und Karien vom Neolithikum bis zu den ‚Dunklen Jahrhunderten'. Mythos und Archäologie, in F. Rumscheid (ed.), *Die Karer und die Anderen. Internationales Kolloquium an der Freien Universität Berlin 13. bis 15. Oktober 2005*, Bonn, 7-25.

Niemeier, B. & Niemeier, W.-D., 1997. Milet 1994-1995. Projekt „Minoisch-mykenisches bis protogeometrisches Milet": Zielsetzung und Grabungen auf dem Stadionhügel und am Athenatempel, *AA*, 189-248.

Öğün, B., 1964. Teos Kazıları (1963), *TürkArkDerg* 13, 115-117.

Osborne, R., 2005. Urban Sprawl: What is Urbanization and Why does it Matter?, in Osborne & Cunliffe 2005, 1-16.

Osborne, R. & Cunliffe, B. (eds.), 2005. *Mediterranean Urbanization 800-600 BC*, Oxford.

Özyiğit, Ö., 1994. The City Walls of Phokaia, in P. Debord & R. Descat (eds.), *Fortifications et défense du territoire en Asie mineure occidentale et méridionale. Actes de la table ronde CNRS, Istambul, 20-27 mai 1993*, Bordeaux, 77-109.

Özyiğit, Ö., 2007. Die jüngsten Ausgrabungen in Phokaia, in L.A. Scatozza Höricht (ed.), *Kyme e l'Eolide da Augusto a Constantino. Atti dell'Incontro internazionale di studio Missione archaeologica Italiana, Napoli, 12–13 dicembre 2005*, Naples, 21-44.

Rubinstein, L. (with the collaboration of A. Greaves), 2004. Ionia, in Hansen & Nielsen 2004, 1053-1007.

Schallin, A.-L., 1997. Urban Centres, Central Places and Nucleation in Greek Islands Versus the Greek Mainland, in H. Damgaard Andersen, H.W. Horsnas, S. Houby-Nielsen & A. Rathje (eds.), *Urbanization in the Mediterranean in the 9th to 6th Centuries BC, ActaHyp* 7, Copenhagen, 17-44.

Scherrer, P., 2006a. Der Forschungsstand zur Besiedlung von Ephesos in archaisch-klassischer Zeit, in P. Scherrer & E. Trinkl, *Die Tetragonos Agora in Ephesos. Grabungsergebnisse von archaischer bis in byzantinische Zeit – Ein Überblick. Befunde und Funde klassischer Zeit, Forschungen in Ephesos* 13.2, Vienna, 59-64.

Scherrer, P., 2006b. Smyrna? Zur Lokalisierung und Identifizierung einer vorhellenistischen Siedlung, in P. Scherrer & E. Trinkl, *Die Tetragonos Agora in Ephesos. Grabungsergebnisse von archaischer bis in byzantinische Zeit – Ein Überblick. Befunde und Funde klassischer Zeit, Forschungen in Ephesos* 13.2, Vienna, 60-61.

Scherrer, P., 2007. Von Apaša nach Hagios Theologos. Die Siedungsgeschichte des Raumes Ephesos von prähistorischer bis in byzantinische Zeit unter dem Aspekt der maritimen und fluvialen Bedingungen, *ÖJh* 76, 321-351.

Schmaltz, B. & Söldner, M. (eds.), 2003. *Griechische Keramik im kulturellen Kontext. Akten des Internationalen Vasen-Symposions in Kiel 24.-28. 9. 2001*, Münster.

Seeher, J., 2005. Überlegungen zur Beziehung zwischen dem hethitischen Kernreich und der Westküste Anatoliens im 2. Jahrtausend v. Chr., in B. Horejs, R. Jung, E. Kaiser & B. Terzan (eds.), *Interpretationsraum Bronzezeit. Bernhard Hänsel von seinen Schülern gewidmet*, Bonn, 33-44.

Senff, R., 1999. *Wohnhäuser, Handwerksbetriebe und öffentliche Bauten im archaischen Milet, in Çağlar Boyunca Anadolu'da Yerleşim ve Konut Uluslararası Sempozyumu, Istanbul 5 - 7 Haziran 1996. International Symposium on settlement and housing in Anatolia through the Ages, Istanbul 5 - 7 June 1996*, Istanbul, 389-404.

Senff, R., 2000. Die archaische Wohnbebauung am Kalabaktepe in Milet, in Krinzinger 2000, 29-37.

Senff, R., 2007. Die Ergebnisse der neuen Grabungen im archaischen Milet – Stratigraphie und Chronologie, in J. Cobet, V. von Graeve, W.-D. Niemeier & K. Zimmermann (eds.), *Frühes Ionien. Eine Bestandsaufnahme, Panionion-Symposion Güzelçamlı 26. September - 1. Oktober 1999*, Mainz, 319-326.

Steskal, M., 2014. Ephesos and its Harbors: A City in Search of its Place, in S. Ladstätter, F. Pirson & T. Schmidts (eds.), *Hafen und Hafenstädte im östlichen Mittelmeerraum von der Antike bis in byzantinische Zeit. Neue Entdeckungen und aktuelle Forschungsansätze, Istanbul, 30.05.-01.06.2011*, Istanbul, 325-338.

Stock, F., Pint, A., Horejs, B., Ladstätter, S., Brückner, H., 2013. In Search of the Harbours: New Evidence of Late Roman and Byzantine Harbours of Ephesus, *Quaternary International* 312, 57-69.

Stock, F., Kerschner, M., Kraft, J.C., Pint, A., Frenzel, P. & Brückner, H., 2014. The Palaeogeographies of Ephesos (Turkey), its Harbours, and the Artemision - a Geoarchaeological Reconstruction for the Timespan 1500–300 BC, in M. Engel & H. Brückner (eds.), *Akten der Tagung der European Geoscience Union, Mai 2012*, Stuttgart, 33-66.

Strang, J.R., 2007. The City of Dionysos: A Social and Historical Study of the Ionian City of Teos, University of New York at Buffalo (unpublished PhD thesis).

Stümpel H., Wölz, S., Musmann, P. & Rabbel, W., 2005. Geophysikalische Prospektion in Milet. Arbeiten in den Kampagnen 2000–2002, *AA*, 183-194.

Tölle-Kastenbein, R., 1974. *Das Kastro Tigani. Die Bauten und Funde griechischer, römischer und byzantinischer Zeit*, *Samos* XIV, Bonn.

Tölle-Kastenbein, R., 1976. *Herodot und Samos*, Bochum.

Tréziny, H., 2006. L'urbanisme archaïque des villes ioniennes: Un point de vue occidental, *REA* 108, 225-247.

Tsakos, K., 1967. Σάμος - Πυθαγόρειον, *ArchDelt* 22, *Chr.*, 463.

Tsakos, K., 1968. Εκ Σάμου, *AAA* 1, 168-169.

Tsakos, K., 1973. Αρχαιότητες και μνημεία Σάμου, *ArchDelt* 28, *Chr.*, 521-543.

Tsakos, K., 1978. Σάμος, *ArchDelt* 33, *Chr.*, 331-337.

Tsakos, K., 1980. Σάμος, *ArchDelt* 35, *Chr.*, 460–472.

Tsakos, K., 2003. *Samos. Historischer und archäologischer Führer*, Athen.

Tsakos, K., 2007. Die Stadt Samos in der geometrischen und archaischen Epoche, in Cobet *et al.* 2007, 189-199.

Tsakos, K., 2011. Samos, in W. Hoepfner, *Ionien - Brücke zum Orient*, Stuttgart, 84-98.

Viglaki, M., 1983. Σάμος. Πυθαγόρειο, *ArchDelt* 38, *Chr.*, 344-346.

Voigtländer, W., 1982. Milet 1981. Die Grabung westlich Buleuterion in Milet, *IstMitt* 32, 17-25.

Weber, B.F., 2007. Der Stadtplan von Milet. Einhundert Jahre Stadtforschung, in Cobet *et al.* 2007, 327-362.

Williams, Ch.K., 1982. The Early Urbanization of Corinth, *ASAtene* 60, 9-20.

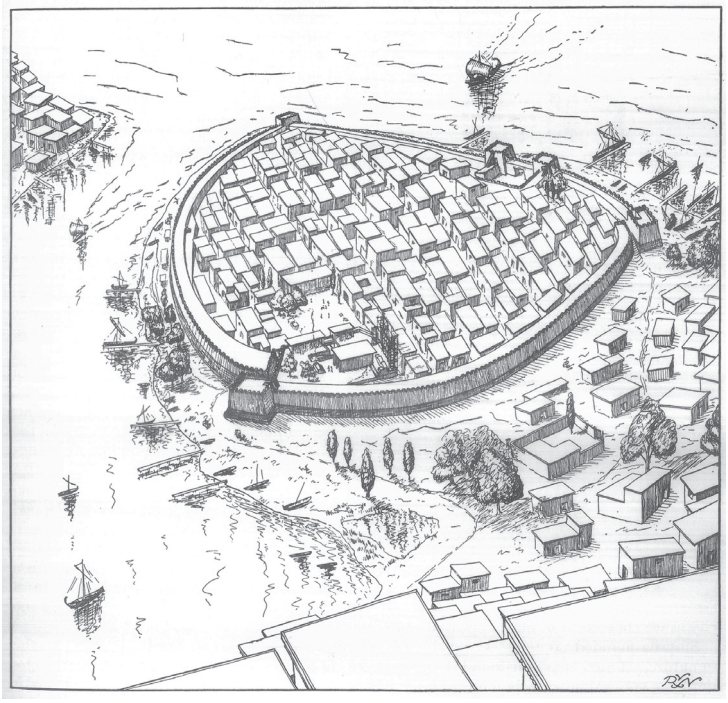

Fig. 1. *Imaginative reconstruction of Smyrna around 600 BC (Cook 1958-1959, 15, fig. 3. Drawing: R. V. Nicholls).*

Fig. 2. *Drill core no. Eph 210, taken in the area between the temple of Artemis and Ayasuluk hill (Photo: F. Stock [Köln]).*

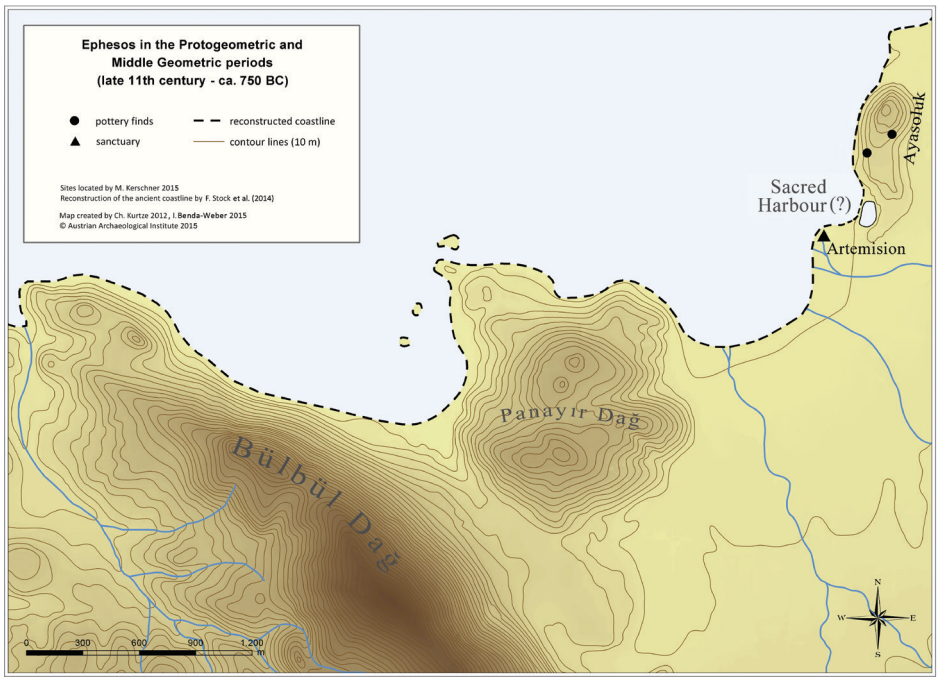

Fig. 3. *Ephesos in the PG and MG periods (late 11th century-ca. 750 BC)*
(Map: I. Benda-Weber, M. Kerschner, Ch. Kurtze [Austrian Archaeological Institute Vienna]).

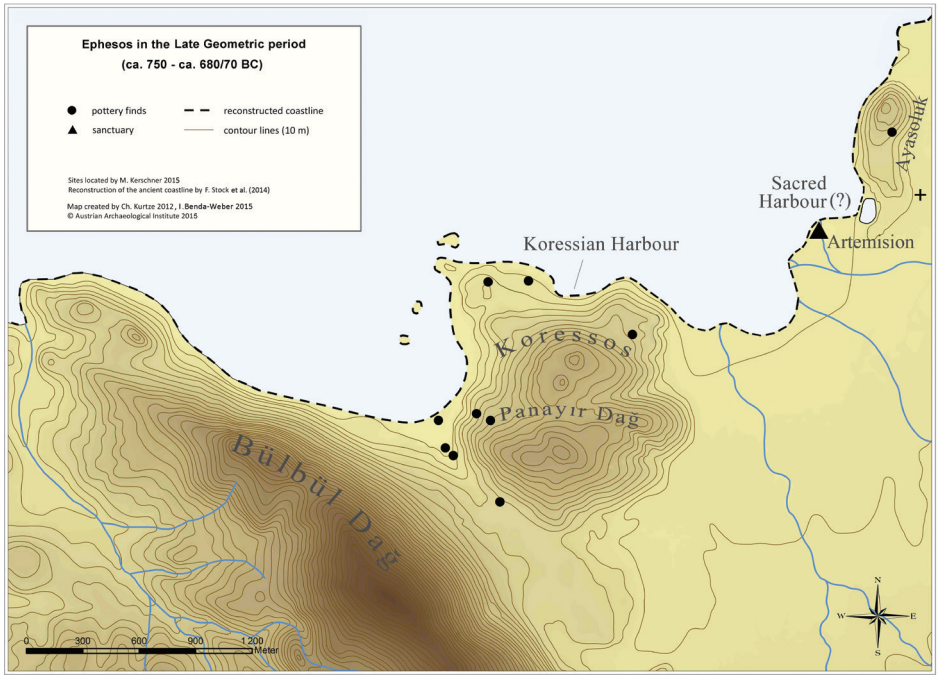

Fig. 4. *Ephesos in the LG period (ca. 750-680/670 BC)*
(Map: I. Benda-Weber, M. Kerschner, Ch. Kurtze [Austrian Archaeological Institute Vienna]).

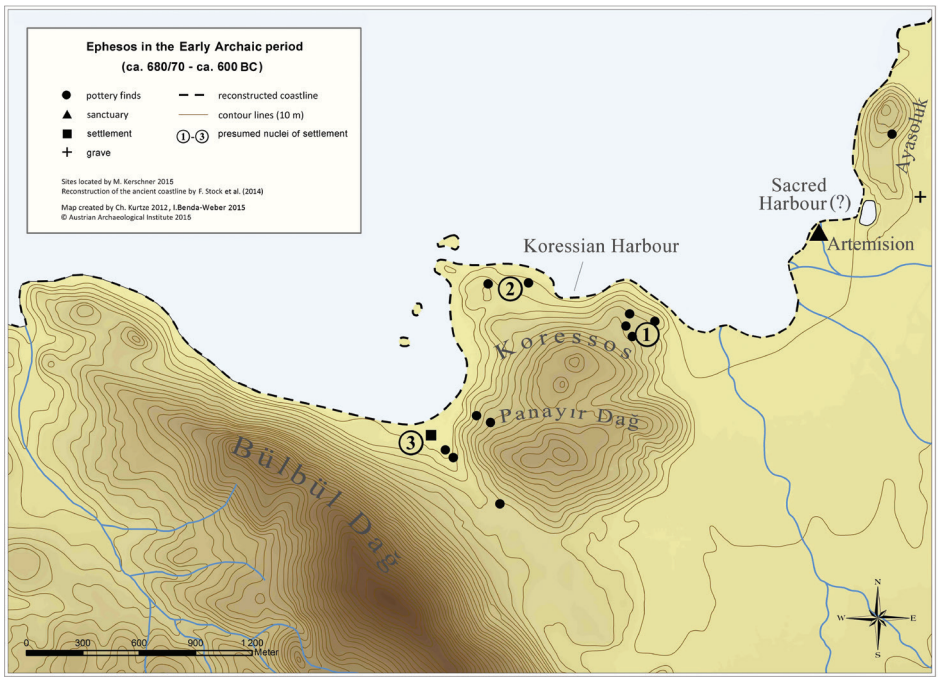

Fig. 5. *Ephesos in the EA period (ca. 680/670-600 BC) (Map: I. Benda-Weber, M. Kerschner, Ch. Kurtze [Austrian Archaeological Institute Vienna]).*

Fig. 6. *Ephesos. Archaic settlement beneath the later Tetragonos-Agora. Building phases (ca. 680/670-550/530 BC) (Map: A. von Miller in press, 2).*

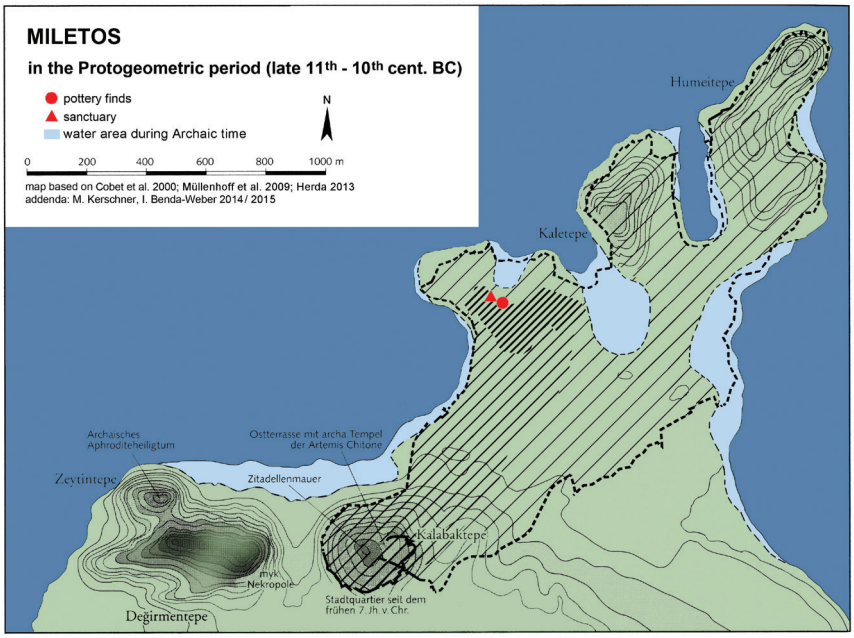

Fig. 7. *Miletos in the PG period (late 11th-10th century BC) (Map: based on Cobet* et al. *2000; Müllenhoff* et al. *2009; Brückner et al. 2014a, mapping of the sites: M. Kerschner & I. Benda-Weber).*

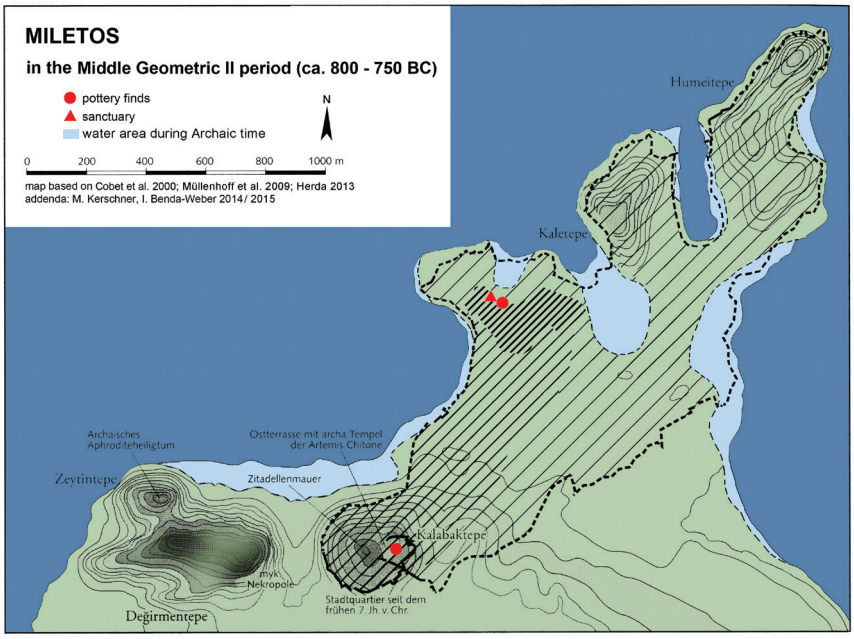

Fig. 8. *Miletos in the MG II period (ca. 800-750 BC) (Map: based on Cobet et al. 2000; Müllenhoff et al. 2009; Brückner et al. 2014a, mapping of the sites: M. Kerschner & I. Benda-Weber).*

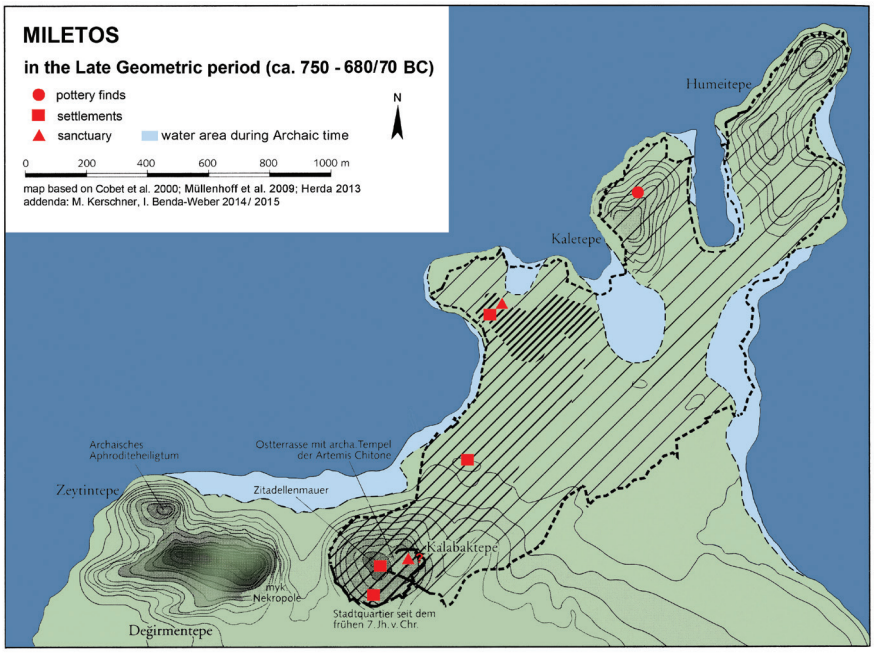

Fig. 9. *Miletos in the LG period (ca. 750-680/670 BC) (Map: based on Cobet et al. 2000; Müllenhoff et al. 2009; Brückner et al. 2014a, mapping of the sites: M. Kerschner & I. Benda-Weber).*

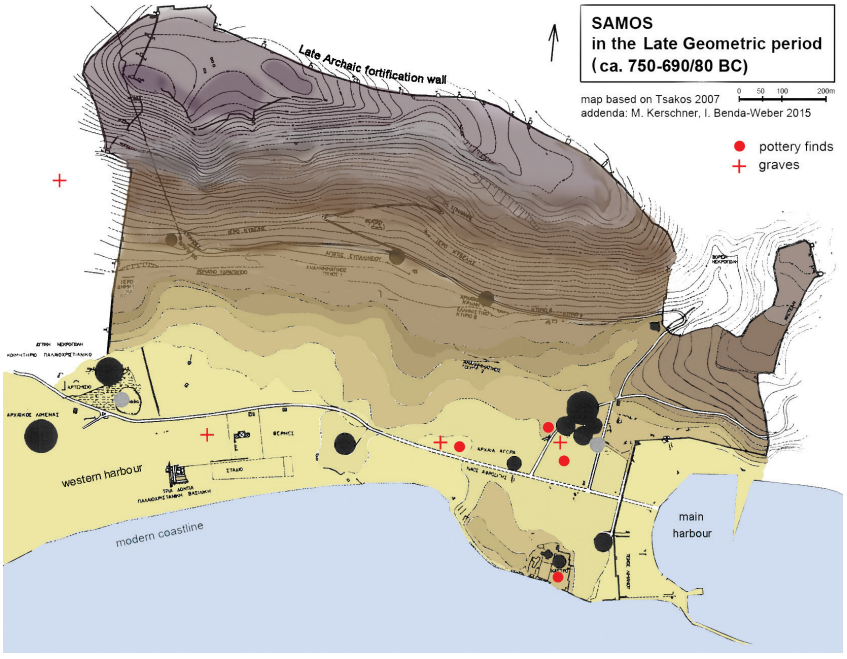

Fig. 10. *Samos in the LG period (ca. 750-680/670 BC) (Map: based on Tsakos 2007, mapping of the sites: M. Kerschner & I. Benda-Weber).*

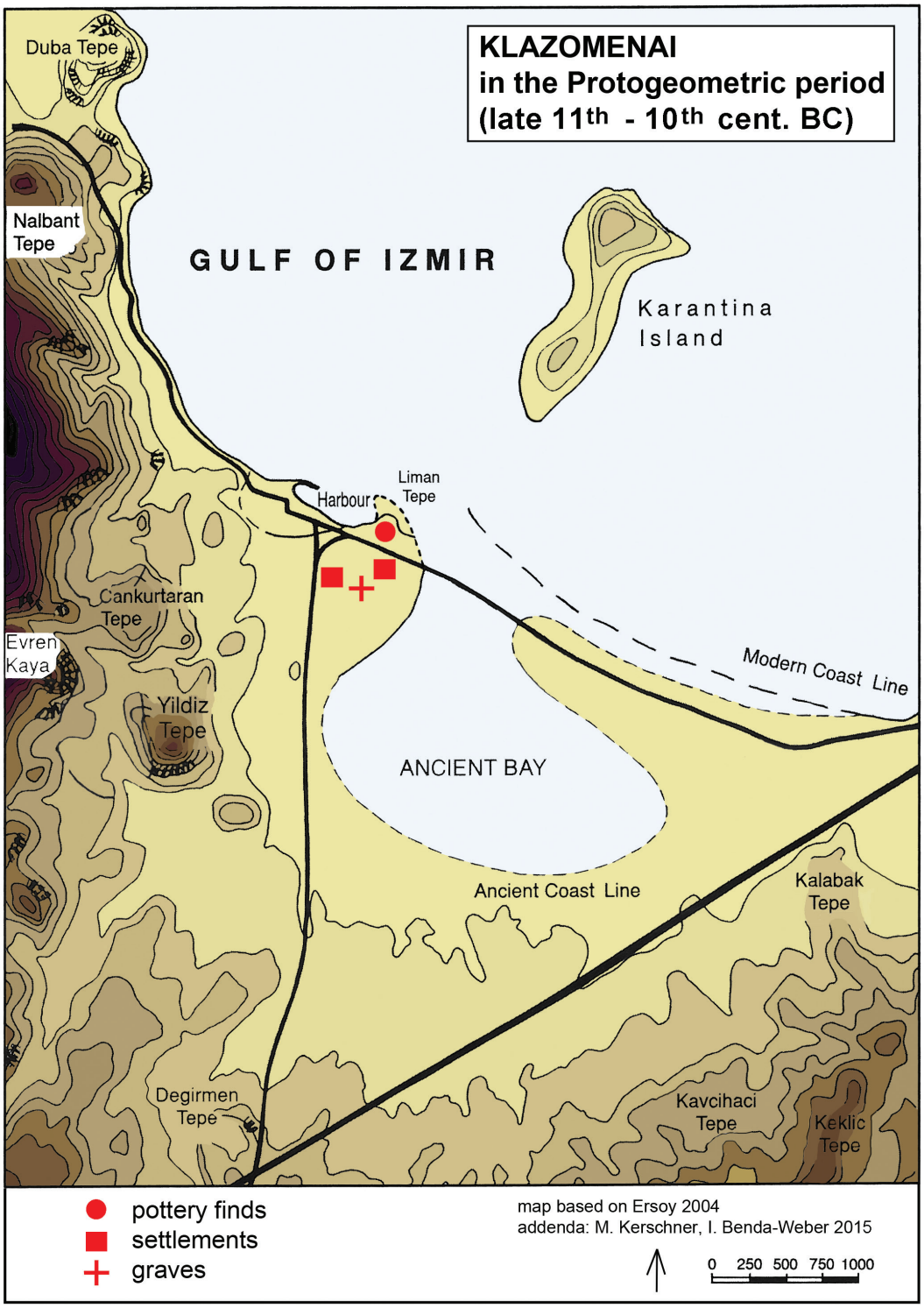

Fig. 11. *Klazomenai in the PG period (late 11th-10th century BC) (Map: based on Ersoy 2004, mapping of the sites: M. Kerschner & I. Benda-Weber).*

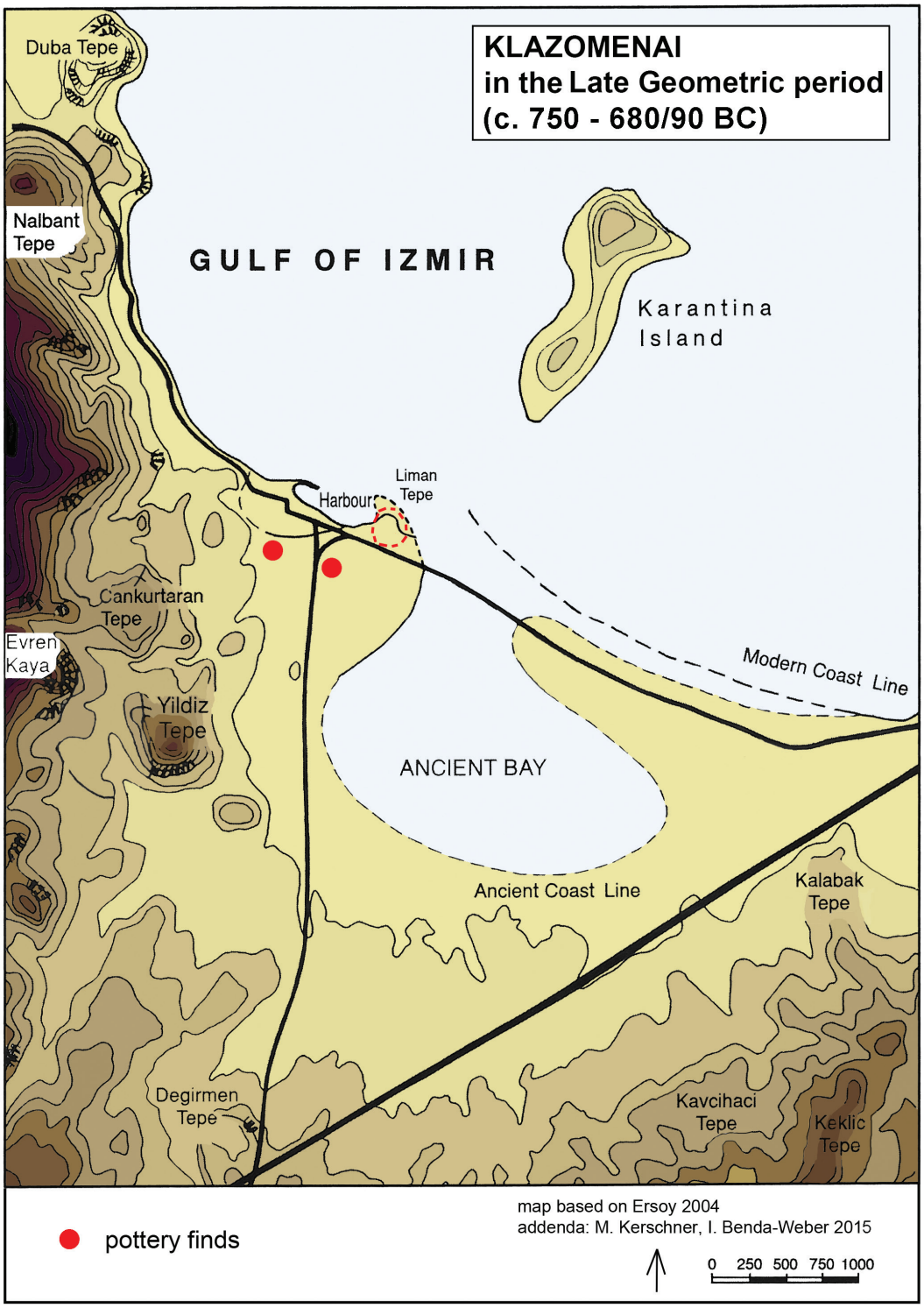

Fig. 12. *Klazomenai in the LG period (ca. 750-680/670 BC) (Map: based on Ersoy 2004, mapping of the sites: M. Kerschner & I. Benda-Weber).*

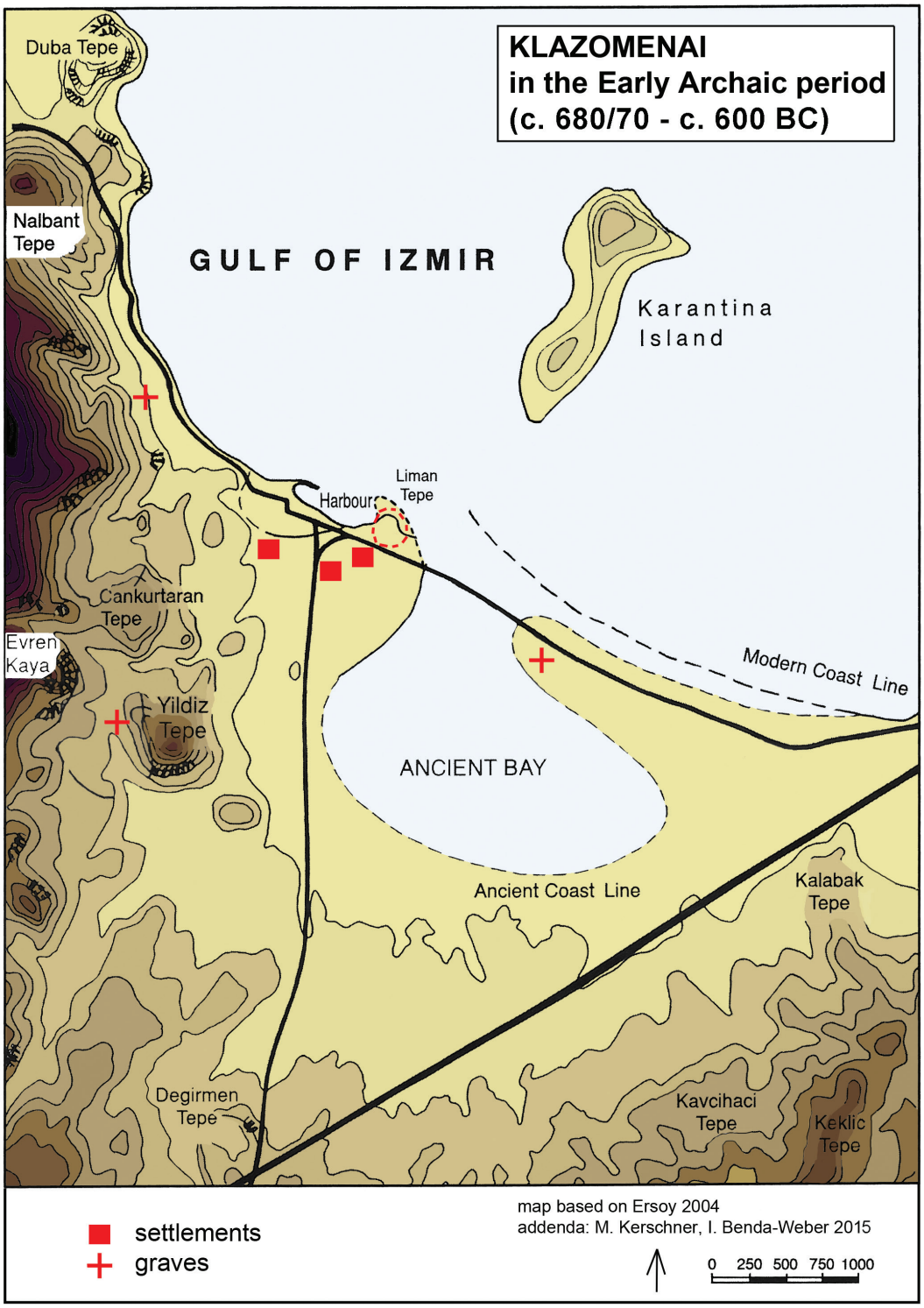

Fig. 13. *Klazomenai in the EA period (ca. 680/670-600 BC) (Map: based on Ersoy 2004, mapping of the sites: M. Kerschner & I. Benda-Weber).*

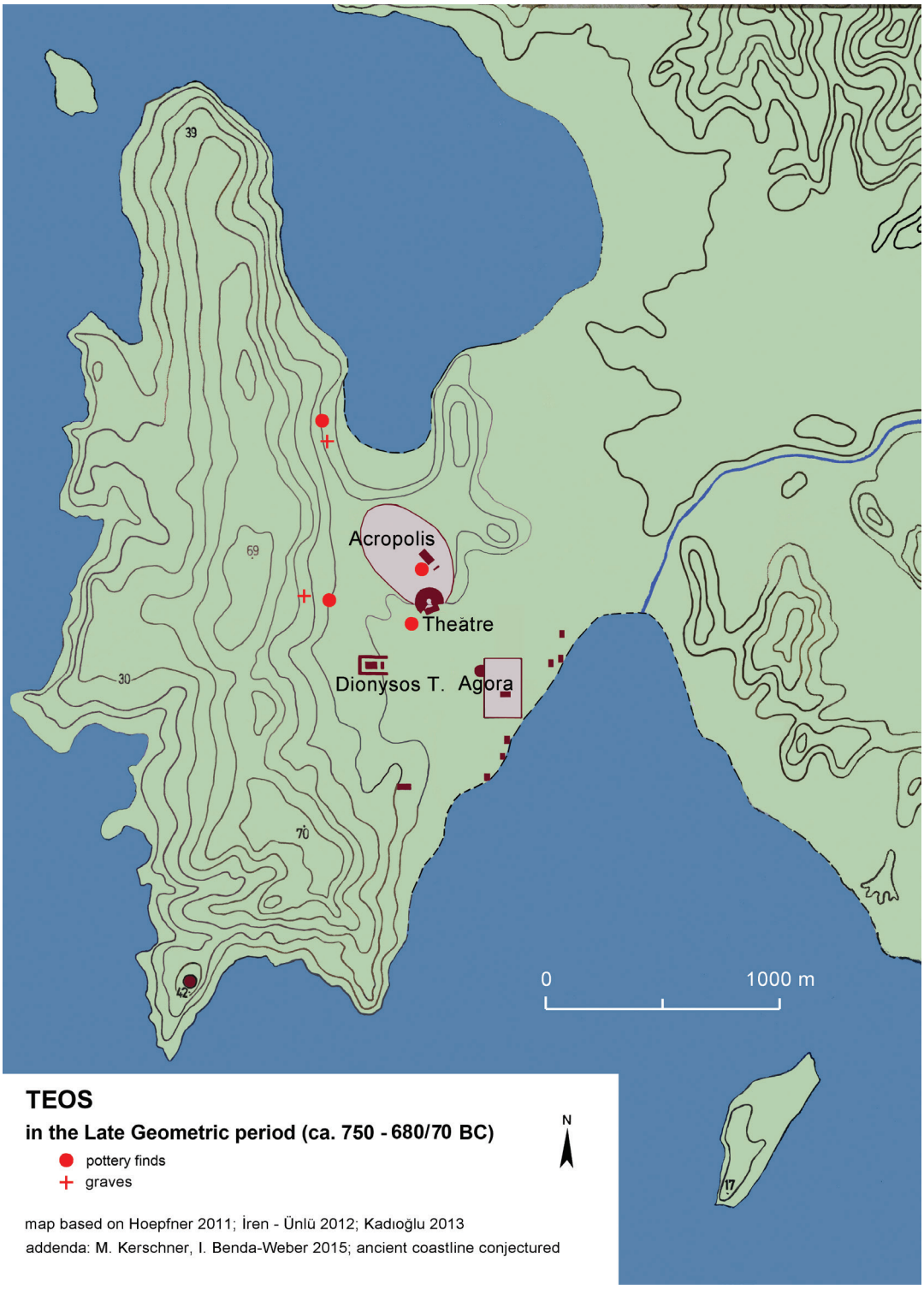

Fig. 14. *Teos in the LG period (ca. 750-680/670 BC)*
(Map: based on Hoepfner 2011; İren & Ünlü 2012; Kadıoğlu 2013, mapping of the sites: M. Kerschner & I. Benda-Weber).

LIST OF CONTRIBUTORS

Alexandridou Alexandra
Post-Doctoral Researcher
F.R.S-F.N.R.S
Centre de Recherches en Archéologie et Patrimoine (CReA-Patrimoine)
Free University of Brussels (ULB)
alexandraalexandridou@gmail.com

Apostolou Chrysostomos
Survey Engineer
University of Thessaly
xapost@me.com

Bouzek Jan
Professor of Classical Archaeology
Charles University of Prague
jan_bouzek@yahoo.com

Charalambidou Xenia
Post-Doctoral Researcher
Swiss School of Archaeology in Greece
Fitch Laboratory, British School at Athens
xenia.charalambidou@gmail.com

Chemsseddoha Anne-Zahra
Dr Archaeologist
University of Toulouse Jean Jaurès
PLH-CRATA
az_chemsseddoha@yahoo.fr

Chiotis Georgios D.
Archaeologist
The Archaeological Society at Athens
chiotisg@gmail.com

Crielaard Jan Paul
Professor in the Mediterranean Pre- and Protohistoric Archaeology
Amsterdam Free University
jp.crielaard@let.vu.nl

D'Acunto Matteo
Assistant Professor in Classical Archaeology
University of Napoli «L'Orientale»
mdacunto@unior.it

Dallas Themis G.
Dr Technical staff EDIP
University of Thessaly
tgd@ha.uth.gr

Damigos Stelios
PhD Candidate
Westfälische Wilhelms-Universität Münster
sdamig@gmail.com

Facorellis Yorgos
Associate Professor
Technological Educational Institute of Athens (TEI)
yfacorellis@yahoo.com

Gadolou Anastasia
Dr Archaeologist
Director of Prehistoric and Classical Archaeological Sites and Monuments
Greek Ministry of Culture
a.gadolou@gmail.com

Gaignerot-Driessen Florence
Post-Doctoral Researcher
Humboldt Research Fellow
Institut für Klassische Archäologie Universität Heidelberg
driessen.florence@gmail.com

Greco Emanuele
Professor of Classical Archaeology
Honorary Director of the Italian Archaeological School at Athens
direttore@scuoladiatene.it

Kaklamani Olga
PhD Candidate
University of Athens
o_l_k_a@yahoo.gr

Karouzou Eleni
PhD Candidate
University of Oxford
eleni.karouzou@lincoln.ox.ac.uk

Kerschner Michael
Dr Senior Research Member
Österreichisches Archäologisches Institut, Vienna
michael.kerschner@oeai.at

Kotsonas Antonis
Assistant Professor of Classical Archaeology
University of Cincinnati
kotsonas@ucmail.uc.edu

Lang Franziska
Professor of Classical Archaeology
Technische Universität Darmstadt
flang@klarch.tu-darmstadt.de

Laughy H. Michael
Assistant Professor of Classics
Washington & Lee University
laughym@wlu.edu

Malkin Irad
Professor of Ancient Greek History
Department of History,
Tel Aviv University, Israel
Cummings Chair for Mediterranean
History and Culture, Tel Aviv University
Malkin.irad@gmail.com

Margaritis Evi
Post-Doctoral Researcher
McDonald Institute for Archaeological Research,
Cyprus Institute, Nicosia
evimargaritis@gmail.com

Mazarakis Ainian Alexandros
Professor of Classical Archaeology
University of Thessaly
amazarakisainian@yahoo.com

Nakas Yannis
PhD Candidate
University of Birmingham
jnak77@yahoo.com

Niemeier Wolf-Dietrich
Professor of Classical Archaeology/
Honorary Director of the German
Archaeological Institute at Athens
University of Heidelberg
niemeier@athen.dainst.org

Osanna Massimo
Professor/Director
Soprintendenza Pompei
massimo.osanna@beniculturali.it

Papadopoulou Adamantia
Archaeologist
adamantiapapadopoulou@yahoo.gr

Papadopoulou Zaharoula
PhD Candidate
University of Thessaly
harapapado@hotmail.com

Pappa Eleftheria
FAPESP Post-Doctoral Researcher
Museum of Archaeology and Ethnology,
University of Sao Paolo

Paspalas Stavros
Dr Deputy Director
Australian Archaeological Institute at Athens
stavros.paspalas@sydney.edu.au

Savelli Sveva
Dr Archaeologist
Direzione Generale Archeologia
Ministry of Cultural Heritage and Tourism
sveva.savelli@beniculturali.it

Sieverling Anne
Post-Doctoral Archaeologist
Technische Universität Darmstadt
asieverling@klarch.tu-darmstadt.de

Theodoropoulou Tatiana
Post-Doctoral Researcher
UMR 7041-ArScAn
Paris
tatheod@hotmail.com

Trantalidou Katerina
Dr Archaeologist
Greek Ministry of Culture
ktrantalidou@yahoo.gr

van den Eijnde Floris
Assistant Professor of Ancient History
University of Utrecht
F.vandenEijnde@uu.nl

Villing Alexandra
Dr Curator
Department of Greek and Roman Antiquities
British Museum, London
avilling@britishmuseum.org

Vlachou Afrodite
PhD Candidate
University of Thessaly
afrothiti19@yahoo.gr

Whitley James
Professor in Mediterranean Archaeology
Cardiff University
whitleya@cardiff.ac.uk