
*Cyclades, Dodecanese,
and Saronic Islands*

CHAPTER 55

AEGINA KOLONNA

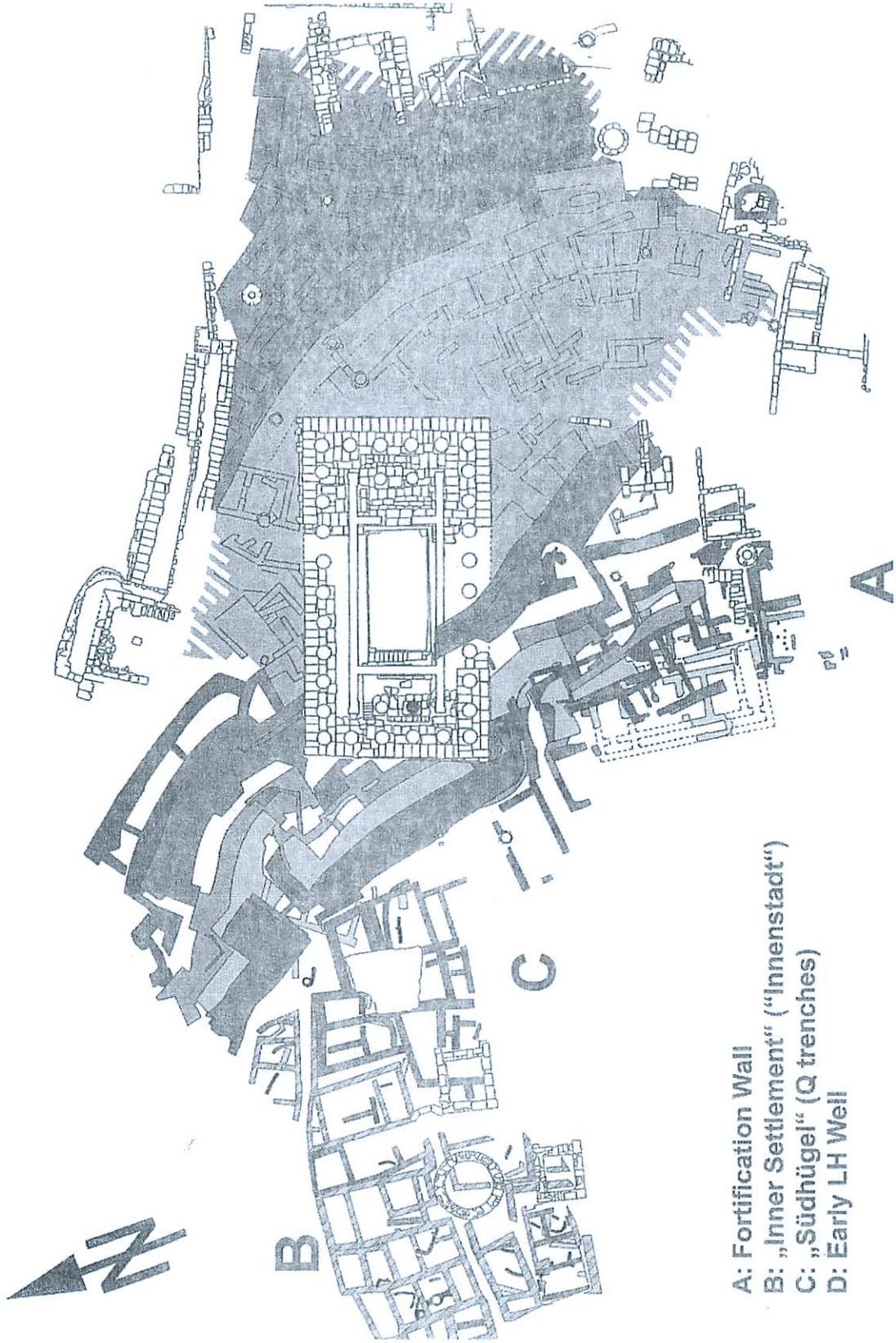
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GENERAL INFORMATION

Aegina was one of the major centers of the Aegean Bronze Age. This chapter summarizes the most important information about the site of Kolonna, the main settlement known on the island (see figure 55.1). Excavation and research work were begun in the late 19th century and continue even today (Welter 1938; Gauss 1999; Felten 2007). Since 2002 a new series of excavations has focused on the MBA stratigraphic and ceramic sequence (Felten et al. 2003, 2004, 2005, 2006, 2007, 2008).

The importance of both the site and the entire island is mainly the result of its location in the center of the Saronic Gulf, at the maritime crossroads between central mainland Greece, the northeast Peloponnese, the Cyclades, and Crete. The material culture of Kolonna is generally associated with the Greek mainland, but foreign influences from the Cycladic islands and Crete also played a significant role, particularly in the MBA. Kolonna flourished for almost a millennium, from the late EBA II to at least the Shaft Grave period, as its impressive fortifications and wealth of material remains show.

Kolonna seems to be the earliest example of a ranked society in the Aegean, outside Crete, and a large commercial and perhaps political center in the Saronic Gulf. Jeremy Rutter has argued that “Kolonna has emerged as a Middle Helladic site without peer on the Greek mainland” (1993, 776, 780), while Wolf-Dietrich Niemeier goes even further and suggests the emergence of a state on Aegina comparable to contemporary political entities on Crete (1995).



- A: Fortification Wall
- B: „Inner Settlement“ („Innenstadt“)
- C: „Südhügel“ (Q trenches)
- D: Early LH Well

Figure 55.1. Plan of Aegina Kolonna (courtesy of the author and Aegina excavations, Salzburg University).

LATE AND FINAL NEOLITHIC

The oldest remains at Kolonna can be dated to the Late and Final Neolithic periods (table 55.1). The pre-World War II excavations first reached Final Neolithic remains, published by Welter (1937) and restudied by Weisshaar (1994). The pottery, most of which was presumably produced locally, is characterized by pattern-burnished bowls of the Attica-Kephala culture, plastic and incised decoration, some of which have crusted decoration. Other finds of interest are a completely preserved, oval-shaped flask and the fragments of a small table. The latter, as well as the fragments with crusted decoration, indicate connections to Thessaly (Aram-Stern 1996, 220; Maran 1998, 30–31).

Above bedrock, the excavations of the 1970s and 1990s often reached a thick and hard fill layer of densely packed stones and earth, together with Final Neolithic to Early Helladic (EH) I pottery. This fill layer leveled the settlement area for the EBA II settlement and buried all earlier remains.

A number of postholes carved into bedrock and flimsy, single-rowed, straight-sided, and curved stone walls erected directly on bedrock are the only preserved architectural remains of the Kolonna I settlement phase that covers Late Neolithic to EH I. Two of the architectural remains were reconstructed: a number of postholes from an oval-shaped building (“Flechtwerkhaus”) and the remains of a stone wall from a rectangular structure (“Haus mit Stützen”) (Walter and Felten 1981, 10–11; Aram-Stern 1996, 220).

Recently found carinated and matt-painted sherds of the earlier stages of the Late Neolithic indicate that the nucleus of the settlement was even older than originally thought. Other important new finds are the fragments of a marble bowl, and most interesting small human clay figurines, some of them clearly male, were found in layers also containing pattern-burnished pottery (Felten and Hiller 1996, 2004). While the more recently excavated remains are not fully published, it is likely that the Final Neolithic settlement covered the entire area of the EBA settlement.

Elsewhere on Aegina there might have been other important Neolithic communities, as indicated by surface finds of two Late Neolithic female figurines of marble and seashell in the Eastern part of the island (Buchholz and Karagheorgis 1971, 98 cat. 1181–82; Papathanassopoulos 1996, 156, 318 cat. 239). Meanwhile, in the Peloponnese at Franchthi Cave, Aeginetan andesite was identified in the pottery of phase 4 (Vitelli 1993, 209), and andesite millstones originating from the Saronic Gulf region were found in Middle and Late Neolithic layers at the Athenian Agora, Franchthi, Kitsos, and Lerna, indicating early networks of exchange (Vitelli 1993, 111; Rutter 1993, 769–70).

Table 55.1. Phases of Aegina Kolonna

	Settlement Phase	Ceramic Phase	Research Areas	Imports First Appearance	Historical Chronology ^c	
Neol to EH I	I	Phase A ^a	1	No information yet available		
EH II	II	Phase B ^b	2	Peloponnese (phase B or C) Cycladic (phase B or C)	EM III/MM IA transition	
	III	Phase C ^b				
EH III	III (Rebuild.)	Phase C	3	Lefkandi I features (phase C)	2160 to 2025 BC 2160/2025 to 1979/1900 BC 1979/1900 to before 1800 BC before 1800 to 1750 BC	
	IV	Phase D		Peloponnese (phase D)		
	V (Destr.)	Phase E		Central Greece (phase E)		
	V (Reconstr.)	Phase E		Cycladic (phase F)		
	VI	Phase F		Phase F		Local Cycladic Imitations (phase F)
						Lustrous Decorated (phase G)
MH I	VI	Phase G	4	Minoan (phase H)		
	VII	Phase G		Cycladic (phase G)		
	VIII	Phase H				
	VIIIA	Phase H				

MH II	IX	Phase I	⋮	Local Minoan Imitations (phase I)	MM IIB MM IIIA MM IIIB LM IA LM IB LM II LH IIIA1	1750 to 1700 BC 1700 to 1640/30 BC 1640/30 to 1600 BC 1600/1580 to 1510/1485 BC 1510/1485 to 1435 BC 1435 to 1400/1390 BC 1400/1390 to 1365/55 BC
MH III	X	Phase J	⋮		MM IIB MM IIIA MM IIIB	1750 to 1700 BC 1700 to 1640/30 BC 1640/30 to 1600 BC
LH I	X	Phase K		SE-Aegean	LM IA LM IB LM II	1600/1580 to 1510/1485 BC 1510/1485 to 1435 BC 1435 to 1400/1390 BC
LH II		Phase L			LH IIIA1	1400/1390 to 1365/55 BC
Hiatus						
LH IIIA		Phase M		Cypriote		

^a with subphases (A1, A2, etc.)

^b according to L. Berger 2004

^c after Warren-Hankey 1989, Warren 2006, 2007 and Bietak-Höfelmayer 2007

Research Areas: (1) Fortification Wall, (2) "Inner Settlement" (Innenstadt), (3) South Slope, Q-trenches (Südhügel), (4) Well Deposit
 Existing Deposits, but not in Vertical Stratigraphic Sequence

Source: Based on information until September 2008 by W. Gauss, E. Kiriati, M. Lindblom, K. Pruckner, R. Smetana, P. Steier, F. Weninger, E.M. Wild. Table courtesy of the author.

EARLY HELLADIC I AND II

Clear statements on the site's development in EH I and during the early parts of the EH II are difficult, as the recently excavated material has not yet been published in full detail (table 55.1). Early Helladic I deposits are few and include the "Eckhaus," attributed to settlement phase Kolonna I. The pottery of this context is characterized by red, highly burnished open shapes with thickened rims (Felten and Hiller 1996, 54, pl. 12:1; Alram-Stern 1996, 219–20; 2004, 559; Maran 1998, 31). The leveling of the settlement area in advanced EH II is most likely responsible for the absence of substantial earlier architectural remains at the site (Felten and Hiller 2004, 1090).

The two following phases of occupation, Kolonna II and III, are attributed to the advanced and late EH II period. Significant amounts of pottery belonging to the first parts of EH II have not yet been isolated (Berger 2004, 1097).

The Kolonna II settlement is characterized by a corridor house, the "Haus am Felsrand," and by a large, freestanding structure, the "Herdhaus." The Haus am Felsrand was presumably two-storied and roofed with tiles (Walter and Felten 1981, 12–13; Maran 1998, 31–33; Alram-Stern 2004, 559). The excavations of the 1990s reached rich EH II layers, but only a few architectural remains were discovered, and a sequence of subsequent EH II layers was not achieved (Berger 2004, 1093).

The pottery of the Kolonna II settlement phase (ceramic phase B) is of high quality and characterized by the absence of clearly late EH II features. The repertoire of shapes and patterns is very similar to other EH II sites from the Greek mainland. Most characteristic are sauceboats in various types and bowls/saucers (flat or ring based). The overall amount of light painted (or yellow mottled, respectively, white slipped) pottery in ceramic phase B is high in comparison to phase C, and of excellent quality (Berger 2004, 1095–97). The Kolonna II settlement and its pottery of ceramic phase B are to be synchronized with Lerna phases III B late and III C (Maran 1998, 35; Berger 2004, in press).

The most important building of the Kolonna III settlement is a large corridor house ("Weißes Haus," ca. 9 by 18 m), replacing the older Haus am Felsrand. The architectural remains attributed to the Kolonna III settlement indicate that a number of large, freestanding buildings existed at the same time and at a relatively close distance to each other. One of them, the "Färberhaus," had most likely even larger dimensions (ca. 10 by 20 m) than the corridor house (Felten and Hiller 2004).

The walls of the corridor house are ca. 0.8 m thick and consist of a stone wall with mud-brick superstructure. A staircase leads to the upper story, and the building was roofed with tiles. Remains of the hearth, a round clay basin with an incised rim ("Stempelroller"), was found in one of the rooms (but not in situ) together with one pithos. Unlike the "House of the Tiles" at Lerna, no seals or seal impressions were found in the corridor house at Kolonna (for EH II seals and impression found unstratified or in later contexts: CMS V Suppl. 1A cat. 33; CMS V Suppl. 3, 1 cat. 1–2). The Kolonna III settlement was also presumably not protected by a fortification wall. The "Weißes Haus" and other buildings of that phase underwent slight modifications in their plan, perhaps indicating that the settlement lasted for some time.

The pottery of the Kolonna III settlement phase (ceramic phase C) is characterized by technological innovations and new shapes and decorations. Most important is the influence, first via appearance and then adoption, of East Aegean and Anatolian elements characteristic of the Lefkandi I-Kastri Group, such as one-handed tankards, bell-shaped cups, large shallow plates, scribble burnishing, and incised and impressed decorations (Berger 2004, 1101; in press). Flat-based bowls and saucers, some decorated with a red cross on the interior, are quite common. A new type of hybrid sauceboat that combines elements of the sauceboat and the askos makes its first appearance, as does a class of pottery with a gray core and a black slip. Light painted pottery is very rare in ceramic phase C, and dark painted pottery (already present in ceramic phase B) is now dominant (Berger 2004, 1098). Settlement phase Kolonna III and its pottery of ceramic phase C can be synchronized with Lerna phase III D (Maran 1998, 35; Berger 2004, 1097).

Small standardized weights of imported stone (e.g., marble) found in some quantities at the site are known in the central Mediterranean and indicate early standardization and trading networks at that time (Rahmstorf 2006b [for Aegina, cf. 73–79]; 2006a [for Aegina, cf. 24–28]). Recent excavations unearthed an important metal hoard of semiprecious, silver and gold jewelry in a late EH III or even an early MH context. The jewelry itself can be dated on stylistic arguments to EH II and shows connections to the Cyclades and the Near East (Reinholdt 2003, 2004, 2008).

EARLY HELLADIC III

Three phases of occupation, Kolonna IV to VI, have been distinguished for the EH III period, perhaps allowing Kolonna VI to last until the very beginning of the Middle Bronze Age (Walter and Felten 1981, 23–50, 105–122; Maran 1992, 323–25; 1998, 35–36; Gauss and Smetana 2002, 2003, 2004, 2007a, 2007b, in press a) (table 55.1).

New excavation work in the center of the prehistoric settlement has provided important stratigraphic information on the EH III to LH I sequence for not only the relative but also the absolute chronology (for recent C^{14} data see Wild et al., in press). No transitional phase EH II/III, as defined in Tiryns, was isolated at Kolonna.

The remains of the Kolonna IV settlement are few and situated on top of the ruins of the Kolonna III settlement, thus indicating a continuous habitation. The time span of the Kolonna IV settlement covers the first part of EH III, contemporary with the first phase of Lerna IV. The layout and size of the Kolonna IV settlement is unknown, and perhaps only a few houses existed at the site for some time.

The most important installation is the metal furnace that was erected in the ruins of the corridor house (the “Weißes Haus”), providing evidence for an early metal industry at the site (Walter and Felten 1981, 23–28). A number of crucibles were found in later EH III contexts, and lead ingots were reported by the pre-World War II excavators.

The pottery of the Kolonna IV settlement (ceramic phase D) is not well known. It is basically locally produced with occasional imports from the Peloponnese but no imports from the Cyclades. The range of shapes and patterns is totally different from that of the preceding ceramic phase C and characterized by the total absence of sauceboats, saucers, or any other characteristic EH II and Lefkandi I–Kastri group features. New shapes such as so-called bass bowls make their first appearance.

The Kolonna V settlement is thus far the only known fortified EH III site (Walter and Felten 1981, 28–42). Its layout and fortifications show signs of communal planning—approximately sixty to seventy houses were protected by the fortifications in the uppermost settlement area. The settlement lasted for some time—until it was destroyed in a massive fire. The time span of the Kolonna V settlement covers the middle and advanced part of the EH III period and is contemporary with the second and third phases of Lerna IV (Gauss and Smetana 2003, 2007b).

Due to the fiery destruction, rich deposits of pottery were found, characterizing ceramic phase E. The most common open and closed shapes are the bass bowls mentioned earlier (one handled cups and tankards), as well as medium-sized, belly-handled jars. The pottery is mainly locally produced and predominantly unpainted, with closest similarities to the pottery found at Lerna (Gauss and Kiriatzi in press). Imports from the Peloponnese and the mainland are attested, but none from the Cyclades are known. At Lerna, a presumable Aeginetan import was found in EH III layers (Dorias and Shriner 2002).

The massive fortifications of the Kolonna VI settlement use the ruins of the Kolonna V houses; therefore, less space is available for houses in the uppermost settlement area. The original fortification wall was rebuilt and served as an outwork until the late MH. The layout of the Kolonna VI settlement is uncertain, and Felten and Hiller (2004) note the appearance of curvilinear structures. One may assume that approximately 45 to 55 houses were protected by the fortifications. The time span of the Kolonna VI settlement covers the last and final part of the EH III period, which is contemporary with the third phase of Lerna IV. There are indications of partial destruction by fire at the end of ceramic phase F. The pottery found in these destruction deposits shows both traditional and new features and is partly inspired by the Cyclades. Imports from the mainland are known, and Cycladic imports make their first appearance since EH II (Gauss and Smetana 2007a, 2007b, 2008).

MIDDLE HELLADIC

The transition to Middle Helladic (MH) is continuous and indicates no sharp break in the material culture (table 55.1). Four subsequent settlement phases, Kolonna VII to X, have been differentiated for the MH (Walter and Felten 1981, 50–85; Maran 1992, 325–28; 1998, 36–37; Rutter 1993, 775–81). The time span of the Kolonna VII and VIII settlements covers the beginning of MH (ceramic phases G to H), while the

Kolonna IX settlement covers the middle part of MH (ceramic phases I), and the Kolonna X settlement phase covers the late MH and the beginning of LH (ceramic phases J and K [Gauss and Smetana 2007b]).

The most impressive and—for the MH period—unique architectural monument is the continuously remodeled and strengthened fortification wall, which consists of an outwork and a main wall, both built of undressed stones. The entrance system of the two main gates was continuously improved and protected by bastion-like towers.

Minoan imports and technology reach Kolonna in early MH (ceramic phase H), and we note major changes in the pottery production, as demonstrated by the first appearance of Aeginetan matt-painted pottery, a type widely distributed in the Aegean (Rutter 1993, 777, figure 12; Lindblom 2001). It is handmade, most often pot marked (Lindblom 2001), and decorated mostly in geometric motifs applied with a characteristic matt, manganese-based paint (Wünsche 1977a, 1977b; Siedentopf 1991). Recent scientific analysis programs have focused on the large-scale characterization of prehistoric Aeginetan pottery (Mommsen et al. 2001; Gauss and Kiriati in press).

In early MH (ceramic phase H), the nucleus of the so-called Large Building Complex was founded, the mansion of Kolonna. Situated in the center of the innermost city, it is built of massive walls and very large stone blocks. The excavations are not yet finished, and, thus, a reconstruction of its plan is still difficult. The building covered an area between 230 and 680 m², four to ten times larger than the average MH house at Kolonna, and underwent a series of architectural changes, including an extension in the time span of the Kolonna IX settlement. High-quality, locally produced and imported pottery from Crete and the Cyclades was found inside the building and emphasizes, together with new evidence, the site's extraordinary subsistence and diet (Forstenpointner et al. in press a, b), as well as its importance and wealth.

During the time of the Kolonna IX settlement (ceramic phase I), an interesting phenomenon, namely the Aeginetan local production of Minoan-type pottery, makes its first appearance. This production is remarkably different from the other, more traditionally produced, local pottery, as it is wheel made, and no potter's marks have been identified so far. The local reproduction of Cretan technological practices may indicate that Cretan craftspeople have settled on Aegina. So far mainly drinking and cooking vessels are represented (Hiller 1993; Gauss 2006; Gauss and Smetana 2007b).

This evidence, together with other interesting finds such as so-called Minoan ritual stone hammers (Reinholdt 1992) and a double-ax mason's mark on an ashlar block (Niemeier 1995), indicate a highly "Minoanized" social elite or even Minoans living at Kolonna (Gauss 2006; Gauss-Smetana 2007b, in press b). A pit inside the Large Building Complex has yielded important new finds: two cylindrical clay objects, a seal, and an object with a positive relief made of local clay and decorated with humans, animals, and spirals. Both objects are unique finds not only at Kolonna but also on the Greek mainland and may point toward administration and bureaucracy, by that time known only from Minoan Crete or even more distant areas (Gauss and Smetana in press b).

During the time of the Kolonna IX settlement, the site extended toward the east (“mittelhelladische Vorstadt”) and was again protected by a massive fortification wall. Within the extension, a series of rooms was built against the wall. The function of these rooms is unclear, but some may have served as a workshop area since in one of the rooms a well-preserved MH potter’s kiln was found *in situ*.

Another important monument of the Kolonna IX settlement, a shaft grave that at present is the earliest known on the island, is situated immediately in front of the fortification wall of the settlement extension, close to one of the gates. The grave goods consist of weapons, gold jewelry, and locally made and imported Cycladic and Cretan vessels (Kilian-Dirlmeier 1997).

LATE HELLADIC

The transition to the Late Bronze Age (LH) happened without a sharp break at Kolonna (table 55.1). At the beginning of the LH period, the settlement extended eastward and was fortified with a massive wall of large, cyclopean-like undressed stone blocks. Building activity went on there at least until LH IIA (Wohlmayr 1989, 2000, 2007; Gauss 2007; Deger-Jalkotzy 2009). Recent excavations also indicate an extension toward the south, built in Mycenaean times (Felten 2007, 19).

The mansion of Kolonna, the Large Building Complex, was in use until LH I and presumably even until LH II. Later, in LH IIIA, a large potter’s kiln was erected inside its remains (Gauss 2007). Most other Mycenaean ruins of the Palatial and Postpalatial period were destroyed by later building activity at the Greek sanctuary in the first millennium BC, so the organization of the LH settlement is mostly unknown.

At present, it is difficult to be certain about the importance of the Kolonna site in the Mycenaean period. After a long period of extraordinary wealth and importance, it seems as if the growth of the major Mycenaean centers in the Argolid, Attica, the Korinthia, and Troizenia involved a slight decline in importance at Kolonna. Although the site certainly continued to be important, as is demonstrated by its fortifications and the rich finds in the nearby chamber tomb cemetery on Windmill Hill, it was not a palatial center.

Mycenaean figural pottery (Hiller 2006; Felten 2007, 20, figure 13), Cypriote white slip II, and southeast Aegean imports, as well as the remains of an undecorated clay sealing (Felten 2007, 18–19, figure 14; Gauss 2007), indicate that Kolonna was still connected to the main trade network until the LH IIIA2 and LH IIIB periods. A decrease in Kolonna’s importance is particularly mirrored in the development of the local pottery production.

In the MH and the Shaft Grave periods, exported Aeginetan pottery reached its widest geographical distribution, as illustrated by the large numbers of Aeginetan drinking vessels found in the fill of the LH I shaft grave at Lerna (Lindblom 2007)

and the vessels uncovered in the volcanic destruction layer at Akrotiri on Thera and at many other sites in the central Aegean (Rutter 1993, 777, figure 12; Lindblom 2001). Later, Mycenaean lustrous decorated pottery was more appreciated than the matt painted and often still handmade Aeginetan types. Only medium to large matt-painted vessels and cooking pots continued to be produced and exported (Gauss 2007, 164–65 with further references). Scientific analysis of Marine-style pottery from the site suggests that some might have been locally produced (Mountjoy, Jones, and Cherry 1978, 163, 168; Jones 1986, 447), but more detailed analysis is necessary to confirm this interpretation (Gauss and Kiriati in press).

A number of graves at the nearby Windmill Hill were excavated in the early 20th century and contained rich pottery finds that range in date from LH I to LH IIIB, most published by Hiller (1975). At Kolonna, LH IIIB2 and LH IIIC pottery is rare, and no contemporary graves were reported from the Windmill Hill cemetery (Hiller 1975, 55; Felten 2007, 19–20). Moreover, LH IIIC Late and sub-Mycenaean pottery is very rare, and the absence of finds may indicate that the site was gradually abandoned. A number of Protogeometric and Early Geometric cist graves of children and at least one adult provide evidence that habitation, maybe after a short break, continued in the early first millennium BC (Hiller 2003; Gauss 2005; Felten 2007, 20; Felten et al. 2003, 2004, 2006; Deger-Jalkotzy 2009; Jarosch-Reinholdt 2009).

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CHAPTER 56

AKROTIRI

CHRISTOS DOUMAS

FORTY years of continuous and systematic geological and archaeological investigations at Akrotiri on the island of Santorini (Thera) have yielded ample evidence for reconstructing the history of the site and filling gaps in the history of the wider Aegean region.

Deep soundings made throughout the excavated area have shown that the settlement was founded in the mid-fifth millennium BC and originally occupied the tip of a low promontory, following the general rule in the Cycladic islands (Doumas 2007, 85–88). This small, Late Neolithic coastal village, whose economy was based mainly on farming and fishing activities, was related culturally to other contemporary settlements in the Cyclades (Sotirakopoulou 1999), namely Saliagos near Antiparos (Evans and Renfrew 1968), Grotta on Naxos (Hadjianastasiou 1988), and Ftelia on Mykonos (Sampson 2002).

During the Early Bronze Age (3rd millennium BC), this village seems to have grown considerably, as one can infer from the extensive cemetery of rock-cut chambers on the gentle slopes of the promontory. Although architectural remains are still scarce, the moveable finds, such as pottery, marble vases, and figurines, place this EBA settlement in the orbit of the Early Cycladic culture (Sotirakopoulou 1998, 1999). Given that there is no source of good-quality marble on Thera, the Early Cycladic marble artifacts found so far must have either been made locally from imported raw material or, more likely, been imported ready made from other Cycladic islands, such as Paros and Naxos, where they are well attested. On the other hand, indirect evidence suggests that Theran pumice was used as an abrasive agent for polishing the surface of marble figurines and vessels made on other islands. It is safe to assume that commodities of a perishable nature, such as foodstuffs and timber, were also exchanged between Thera and other parts of the Aegean, the Greek mainland, and Crete.

The cemetery of rock-cut chambers is particularly interesting. In the Early Bronze Age Cyclades, inhumation in cist graves is the norm (Doumas 1977, 37–47), whereas rock-cut chambers are exceptions, previously known only from Melos (Edgar 1904, 234–37) and Epano Kouphonisi (Zapheirou 2008). Outside the Cyclades but closely connected with EC burial practices, they have been found at Manika in Euboea (Papavasileiou 1910, 2–20) and at Hagia Photia in Crete (Davaras and Betancourt 2004). These are all places where stone slabs for the construction of cist graves are not easily available and where the geological substrate favors the opening of chambers: soft lava deposits in Melos and Thera, soft sedimentary deposits at Manika and Hagia Photia.

Investigation of the rock-cut chambers at Akrotiri has revealed that by the end of the third millennium BC, they had been abandoned and filled with debris almost up to their ceiling. Pithos burials of children were found in some, either beneath the debris or within it. Of particular importance is the discovery of a special construction in association with the cemetery, which corroborates sporadic evidence from various Aegean sites (Branigan 1993, 129–33; Day, Wilson, and Evangelia Kyriatzi 1998, 135; Doumas 1977, 75, 103; Murphy 1998, 36; Mylonas 1959, 106 ff.; Pantelidou-Gofa 2008). Fascinating, too, is the evidence of the use of seawater as a purifying agent from the pollution of death, a belief well documented in historical antiquity (Doumas 2008a, 174–75).

The Middle Bronze Age (Middle Cycladic) city expanded over the area of the defunct cemetery. Indeed, the filling in of the chambers may well have been an intentional measure to rehabilitate and consolidate the ground in order to facilitate this expansion. The material culture suggests that the society at Akrotiri during the transition from the Early to the Middle Bronze Age was enjoying a period of considerable prosperity. The pottery from the fill of the chambers includes large quantities of transport amphorae from different parts of the Aegean, indicating that Akrotiri was already an Aegean trading center (Wilson, Day, and Dimopoulou-Rethemiotaki 2008, 269).

The abolition of the cemetery took place after the introduction to Thera of a class of pottery that, both typologically and technically, is at home in the northeast Aegean islands, where important proto-urban settlements, such as Poliochni on Lemnos, Thermi on Lesbos, Emporio on Chios, and Heraion on Samos, had developed (Doumas 2004a, 85–93). Such vases, typical of the black and brown burnished pottery from these islands, had not previously been found as far south as Thera. Known from other Cycladic islands and mainland sites, they have been classed as the Kastri or Lefkandi group and are also characteristic of the short-lived fortified Cycladic settlements, such as Kastri on Syros and Panormos on Naxos (Doumas 2004a, 94–95).

At about this time, perhaps one or two centuries before the end of the 3rd millennium BC, the aforementioned proto-urban settlements in the north Aegean were abandoned, among them Poliochni, which has been recognized as the most important center of Early Bronze Age metallurgy in the region. It is perhaps not without significance that, along with the introduction of Kastri-style pottery, an

intensification of metallurgical activities is observed in the south Aegean (Doonan, Day, and Dimopoulou-Rethemiotaki 2007, 111).

There are many reasons to believe that the development of Poliochni into the first city in Europe, as well as the earliest and most important center for the trade of metals and the practice of metallurgical technology, was due to its contacts with the Caucasus region and the Euxine Pontus (Doumas 1991). The causes of its abandonment are not known, but the loss of the possibility of transactions with the East may well have been a factor. It appears that Poliochni lost its strategic role in the trade of metals just when the demand for metals was increasing in the Aegean, particularly in Crete, where a palatial system was emerging.

Moreover, by the end of the 3rd millennium BC, Cyprus had been recognized as an inexhaustible source of copper. The strategic location of Thera on this new metal route between Crete and Cyprus is undisputable. It is, therefore, possible that the systematic practice of metallurgy at Akrotiri, documented by the presence of scoriae, crucibles, moulds, and so on, at the time of introduction of the Kastrigroup pottery, was due to the arrival of displaced northeast Aegean smiths who settled and plied their skills in Thera (Doumas 1997).

Around the turn from the 3rd to the 2nd millennium BC, developments at Akrotiri gathered momentum. In the course of the Middle Bronze Age (ca. 2000–1650 BC), the settlement evolved into an urban center, features of which are communal works such as town planning, paved streets, a drainage-sewerage system, and so on (Doumas 1999a, 157). There was also clear division of labor. Although the primary sector of the economy—agriculture, animal husbandry, and fishing—was the firm basis, there is both direct and indirect evidence of increasing involvement in the secondary sector. Standardization of vase shapes and the mass production of pottery point to the existence of large workshops that covered both the local demand and the export trade. Potters, therefore, constituted a large category of specialized artisans. Metal objects found in the Middle Cycladic context might have been imported. However, the evidence mentioned earlier implies local metallurgical activities that required specialized skills. There is indirect evidence of the existence of other specialist craftspersons, such as dyers, shipwrights, masons, carpenters, and stone carvers, who were involved either seasonally or exclusively in the secondary sector.

The fact that only parts of the Middle Cycladic buildings are exposed in the trenches opened for the pillars of the new shelter does not permit any attempt at their interpretation. However, from the strong foundations and the size of their walls, one can deduce that they were large and had at least two stories. In fact, some of the impressive Late Cycladic I buildings seem to have been founded during the Middle Cycladic period.

Study of the stratigraphy has shown that the site was susceptible to earthquakes and has shed light on the inhabitants' behavior after a seismic destruction, such as removal of victims from the ruins, rescue of still usable commodities, and separating building materials for reuse (Doumas 2000, 171; Palyvou 2005, 177–78).

The Middle Cycladic (Middle Bronze Age) finds from Akrotiri are revolutionizing our knowledge about this period not only in the Cycladic islands but also in

the entire Aegean. Among them are many pottery vessels decorated in bichrome technique with lustrous paint, linear motifs, and isolated plant—including the pomegranate—and animal motifs. Griffins seem to have been very popular among the Middle Cycladic exotica, where they turn up mainly on large pithoi, while narrative scenes also appear, as on the bathtub with a landscape in which birds and quadrupeds flee to the right, away from a male figure (hunter?) on the left (cf. Doumas 2008b, 30–36). It is possible that such representations were associated with Middle Cycladic mythology, but this remains in the realm of speculation. What they surely reveal is that the society at Akrotiri in the Middle Bronze Age was ready to adopt large-scale wall painting as soon as the technique and materials became available.

It is an irony of fate that our picture of the Late Bronze Age city is vivid due to its burial under pumice and volcanic ash. Although its limits still remain unknown, it appears that its plan was dictated mainly by the terrain on which it was founded and the modifications due to the accommodation of debris after earthquake destructions (figure 56.1a–b). Main streets with a general north-south direction—toward the sea—and intersected by cross streets were designed not only to facilitate communication but also to accommodate the sewage system and to prevent the rain-water from undermining the buildings. The entrance to the buildings always faces either a wide street or an open space or square (Doumas 1983, 50–51; 2007, 85–89; Palyvou 2005, 25–43).

Rectangular juxtaposed units seem to have been the pattern for the layout of both private and public buildings. Built of local volcanic stones and clay, they usually consisted of two or occasionally three stories. Their roofs were flat and were often supported by central wooden columns standing on stone bases (Doumas 1983, 50–55; 2007, 89–91; Palyvou 2005, 25–43). As a rule, storerooms and facilities for domestic tasks, such as platforms for milling grains or hearths for cooking, were located on the ground floor. The residential quarters were in the upper stories, and their furniture, examples of which have been recovered through casts made from their negatives left in the volcanic ash, evidently included looms (Doumas 1983, 116–17). The absence of household facilities of this kind from two major buildings, the so-called Xeste 3 and Xeste 4, in conjunction with their size, ashlar masonry, internal arrangement, and the iconography of their wall paintings, led to their qualification as public buildings. Indeed, Xeste 3 seems to have been used for rites of passage, while Xeste 4—not yet fully explored—gives the impression that it served an administrative function.

In each house excavated so far, at least one room was decorated with wall paintings—perhaps depending on the residents' affluence—while in the public buildings the mural decoration covered larger areas (Doumas 1992). The topographical distribution of wall paintings in the buildings is perhaps related to their meaning: In private houses upper-story rooms mainly in the north part were decorated with wall paintings that were visible from outside through large windows, whereas in public buildings the decorated walls were not restricted to any specific part of the building and were not visible from outside (Doumas 2005).



Figure 56.1. Plan of Akrotiri (courtesy of the Archaeological Society of Athens).

Study of the commodities stored in the houses, such as clay vases, stone and metal vessels, baskets, pieces of furniture, fishing nets, stone and bronze tools, and even foodstuffs enables us to reconstruct a rather clear picture of the Akrotiri community. These finds are evidence of farming, fishing, stone- and woodcarving, weaving, dyeing, metalworking, and so on. But the activity that seems to have created the city's wealth, as reflected in the architecture and the monumental art of wall painting, was maritime trade and shipping, which, as we have seen, was already established by the end of the 3rd millennium BC. The Miniature Frieze from Room 5 of the West House (figure 56.2) gives some idea of the kind of ships used by the LBA Therans in their overseas transactions and of the exotic lands they visited (Doumas 1992, 47–85).

However, it is the actual imports that provide insight into the commodities they traded. Imports and influences from Crete, at first sporadic, intensified gradually, and by the time of the volcanic eruption that buried the city, these were so ubiquitous that in the early years of the excavation many scholars were under the false impression that Akrotiri was a Cretan colony. Crete was by no means the only source of imports, however. Objects from various parts of the Aegean, as well as from East Mediterranean lands, are frequently encountered. Canaanite jars, Egyptian stone vases, ivory objects, and ostrich eggshells are among the exotica found at Akrotiri (Bichta 2003). Although evidence indicates that faience was manufactured locally, the technique was imported from the East. Three miniature wooden clappers in the form of human hands, perhaps musical instruments, discovered recently in Xeste 4, also bespeak Eastern/Egyptian influence (Mikrakis 2007). The gold figurine of an ibex, cast in the lost-wax technique, has no parallels in Aegean art, and it, too, may be of oriental provenance.

Beyond the actual materials or artifacts from the East Mediterranean at Akrotiri, the world illustrated in the wall paintings is a further source of information about the island's relations with lands in this region. The depiction of exotic landscapes with real and imaginary creatures, such as the monkey, the leopard, the antelope, and the griffin, bears witness to these contacts. The same applies to the use of pictorial and iconographic conventions common in both Aegean and East Mediterranean art (Doumas 1985; 1992, 27–29). It is also borne out by certain signs inscribed on pottery or other imported objects, particularly those employed diachronically in both the East Mediterranean and the Aegean. For example, the sign of a circle with crossbars occurs in the Aegean Linear A and Linear B scripts, in the Old Canaanite and the Phoenician alphabets for the letter *tet*, as well as in the earliest Greek alphabet as the letter *theta*. Similarly, another sign in the form of a trident is common to both Linear A and B and corresponds also to the Old Canaanite letter *kap* (Doumas 2004b, 498–501). Such finds reveal that the relations between the Aegean and the East Mediterranean were not restricted to the exchange of material goods but extended into the ideological sphere.

The merchants-entrepreneurs at Akrotiri used the same numerical, metrical, and ponderal systems as the palatial bureaucracy in Crete (Michailidou 2006), as well as Linear A script (Boulotis 1998). Their leading role in maritime trade is



Figure 56.2. Miniature Frieze (courtesy of the Archaeological Society of Athens).

attested by the archaeological finds. For example, the earliest type of the stirrup jar, undoubtedly a Cretan invention for the transportation of olive oil and wine, is represented at Akrotiri by at least 50% of the total number known from the entire Aegean region, including Crete (Haskel 1985, 225). Similarly, the lead disc-shaped balance weights at Akrotiri, which range in weight from a few grams to 15 kilograms, represent two-thirds of the total number from the entire Aegean region (Petruoso 1978; Michailidou 1990).

Another compelling indication of transactions between Akrotiri and Crete is the cache of clay seal impressions found in a storeroom of Building Complex Delta. Their clay is not Thera, and their iconographic subjects are all common in Crete, which perhaps points to different producers-dispatchers or different places of origin of the goods they once sealed (Doumas 1999b). The obvious mass production and standardization of pottery shapes and sizes at Akrotiri is another clue to the operation of a bureaucracy. The capacity of vases of the same shape in different sizes and with the same decoration seems to correspond to fractions or multiples of a unit of volume (Katsa-Tomara 1990).

The end of the thriving society at Akrotiri was sudden, when the city—indeed the entire island—was buried under a thick mantle of pumice and volcanic ash. A severe earthquake, of estimated magnitude 7 on the Richter scale, preceded the eruption and caused widespread destruction in the city. However, despite the damage to buildings, no victims have been uncovered in the ruins. The evidence that, after the eruption, systematic efforts to clear the ruins and to rescue various household effects were in progress indicates that, even if there were victims, these would have been removed not only for hygienic reasons but also for appropriate burial.

Combined geological, vulcanological, and oceanographic research conducted recently in Santorini has produced a lot of new information about the Bronze Age eruption confirms that a water-filled caldera with a small islet inside already existed at that time, giving the island its crescent shape. From the absence of any horizon of atmospheric erosion between the various phases of the eruption, we can deduce that the entire event, from the first eruptions to the formation of the caldera, lasted no more than a few, perhaps two to three, days. According to the excavation data, the eruption was followed by torrential rain. The waters, seeking an exit to the sea, rapidly eroded the volcanic material and opened small ravines that went as deep as the pre-eruption soil surface. It was in one of these ravines that Marinatos started the excavation.



The most recent underwater research in the wider area around Santorini has enabled a more precise estimate of the volume of volcanic magma ejected: 60 cubic kilometers (approximately 15 billion tons), considerably more than the older estimate of 39 kilometers. This means that, in terms of magnitude, the Bronze Age eruption of the Thera volcano was the greatest in the world in the last ten thousand years (Vougioukalakis 2006).

The date of the eruption is still a matter of debate. Calibrated radiocarbon dates overwhelmingly converge toward the end of the 17th century BC, whereas scholars who invoke the so-called historical chronology of Egypt in order to accommodate the synchronisms with the Aegean place the date about one hundred years later. The problem seems to be methodological since it is illogical to compare the historical chronology of Egypt, about which even Egyptologists express skepticism, with radiocarbon dating, and for the present this vexed question, so crucial to the chronology of Aegean prehistory, remains unanswered.

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CHAPTER 57

DODECANESE

TOULA MARKETOU

KOS IN THE BRONZE AGE

The elongated island of Kos, located in the narrow sea lane between the Dodecanese and Asia Minor, is one of the more fertile and better-watered islands of the Aegean. These factors determined its cultural development in prehistoric and historic times.

The earliest occupation of the island is assigned to the Final Neolithic (FN), according to some diagnostic cheese-pot fragments found in the wider area of Asklepieion, at Asklupi and Tsilimbiri, and farther west/southwest on Vouno, at Mastichari (Hope Simpson and Lazenby 1970, 57–58, 60–61, figure 7 nos. 6, 8, 9). Similar Neolithic, along with EBA III, pottery was found in the cave of Aspre Petra, near the southwest tip of the island (Levi 1925–1926, 235–312). There is evidence that during the FN and the early stages of the EBA, habitation was dispersed in the northeastern part of the island on the spur of Troulli and on the promontory of Ayios Fokas (Hope Simpson and Lazenby 1970, 55; Sampson 1987, 109, pl. 61), and farther west on the steep spur of Misonisi in the mountain village of Ziá, at Amaniú on the Kastro of Palaiopylí, and on the hill of Linopotis-Piyi (Hope Simpson and Lazenby 1970, 58–60).

The EBA II period in the Dodecanese is known mostly from Kos. Jar burials and a rounded built tomb were excavated in the wider area of Asklepieion, at Asklupi (Morricone 1972–1973, 261–71), as well as in the nearby territory of the present-day Hippokrateion Foundation (Marketou 2004, 22, figure 4). Farther west/southwest on the flat hill of Tavla, in Antimacheia (Marketou 2004, 22–23, figure 5), a repertory of jugs, amphorae, and cups assigned to EBA II was found. The most prominent burial was discovered at Mesaria (Hope Simpson and Lazenby 1970, 38; Marketou 2004). Within this jar burial, apart from the pottery, was a hoard of metal objects

with daggers, chisels, an axe, a silver incised sauceboat, and an Early Cycladic II marble bowl (Marketou 2004, 20–22, figures 2–3).

This evidence strongly suggests a dispersed settlement pattern on low hills, where the settlements controlled substantial pieces of arable land bordered by streams in the middle of the island. It is remarkable, however, that during this period, which saw the rapid development of metallurgy (Renfrew 1972, 308–38), precious metal objects—mainly daggers—accumulated in burials, a fact that definitely points to the presence of an affluent society. Mortuary behavior, on the other hand, shows close interrelations with Asia Minor, not only with coastal sites like Iasos (Pecorella 1984) but also with sites in the hinterland, such as Yortan and Karataş Semayük (Özgüç 1948; Wheeler 1974).

The rapid and outstanding changes of the third millennium led to a shift toward the establishment of a nucleated proto-urban center in the territory of the major LBA settlement at Serayia (Marketou 1990b, 101–104; Morricone 1972–1973, 136–252, 280–396). (Note that the toponym of the site is actually Serayia instead of the Italian variant, Serraglio, which has so far been used in the literature.) Deep and narrow soundings below the successive LBA levels brought to light remnants of a fortification wall and elongated buildings (Marketou 1990a, 40–41; 1997, 407; 2004, 25–27, figure 7a–b). The settlement occupies a low hill (Marketou 2004, figure 6) in the southwestern part of Serayia to the north of the supposed location of the ancient acropolis (Morricone 1950, 316) and near the island's sheltered north coast. Fragmentary slipped and burnished shallow and carinated bowls, round or trefoil-mouthed jugs, dark-faced and incised duck vases, patterned and burnished pots (Marketou 2004, 26, figure 8), and tankards (Marketou 1990a, 41, figure 2) demonstrate close similarities with the neighboring EBA III settlement at Asomatos.

The occupation of the site seems to have been continuous since the Early Bronze Age, favored mainly by the fine harbor at its north end. In the succeeding Middle Bronze period, the settlement became larger and occupied almost the whole territory of the subsequent major LBA town. Carinated cups, high-necked jugs, and several types of incurving bowls define the MBA culture of Kos in the wider cultural assemblage of Rhodes, Kalymnos, Miletus, Iasos, and Samos (Marketou 1990b, 102).

In the light of this evidence, the emergence of the major LBA town—estimated around 7.5 hectares and larger than previously considered by Morricone (1972–1973, 389)—should be seen in a new context. The settlement was revealed by means of large-scale and systematic excavations undertaken by Morricone (1950, 219–46; 1972–1973, 139–396) during the period of the Italian Mission on the island. The flourishing and uninterrupted LBA occupation at Serayia is divided into four 'towns' that match the successive periods from LBA IA to LH IIIC Middle (Vitale 2005, 87–89). The stratigraphy up to the LH IIIA2/B1 periods seem broadly similar to that of Trianda.

The LBA IA town, beneath Morricone's first city, is divided into an early and a mature phase, both severely damaged by earthquakes. The ruins of the mature phase were covered by the distinctive tephra layer (Marketou 1990b, 103–104, figures 4–5). The

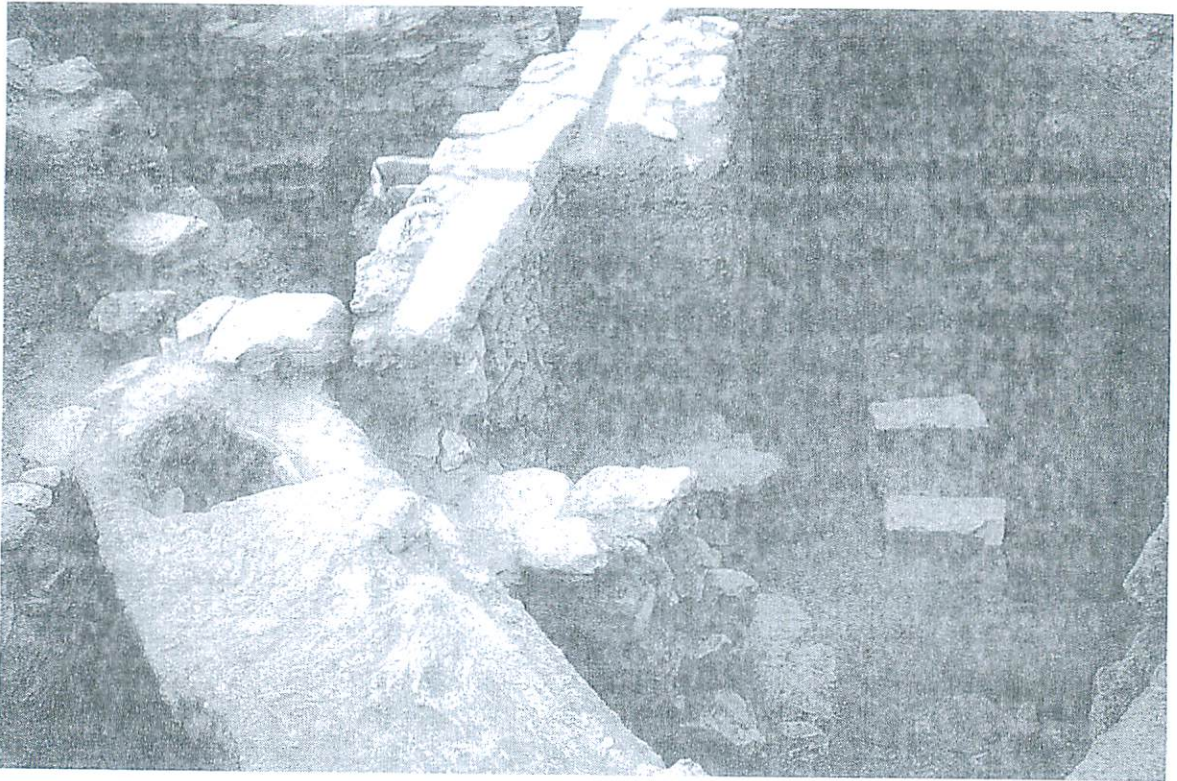


Figure 57.1. Serayia on Kos. Polythyron in the lower levels of the settlement. View from the west (photograph courtesy of the author).

presence of a *polythyron* with four doors (figure 57.1) and a north-south paved street that most probably leads from the harbor to the hill of the acropolis of Morricone point to a well-organized town under the usual Minoan influence (Marketou 1987b; 1990b, 103, figure 8; 1990c, figure 5; Marthari, Marketou, and Jones 1990, 178).

The Late Bronze I A pottery, however, follows the earlier local tradition. During this period, some LM IA imports arrived on Kos, but the bulk appears with light-on-dark and dark-on-light decoration. This kind of rather coarse pottery was previously described as Middle Minoan of a provincial Kamares style (Davis 1982; Marketou 1990b, 113; Momigliano 2005, 221–24; 2007; Papagiannopoulou 1985). However, according to chemical analysis by atomic absorption spectrometry, it proved to be local (Marthari, Marketou, and Jones 1990, 178–82) and is now safely dated to LBA IA/IB (Marthari, Marketou, and Jones 1990, 176–78). Close vessels of this broad Koan category were exported mainly as containers to Trianda, Akrotiri on Thera, and other sites such as Ayia Irini on Keos (Marthari, Marketou, and Jones 1990).

According to the excavator and the most recent reassessment of the stratigraphy (Marketou 1990b; Morricone 1973–1974, figure 158; Vitale 2005, 2006), Morricone's 'first city' is assigned to the end of LM IA and most probably to LBA IB/LH IIA (cf. table 58.1, this volume), which corresponds to Furumark's Trianda IIA (Furumark 1950, 179). During this period, Marine style pottery was imported at Serayia (Marketou 1987a; Morricone 1972–1973, 328–30), while the massive production of light-on-dark and dark-on-light pottery continued.

The subsequent 'second city' correlates with Furumark's Trianda IIB (cf. table 58.1, this volume); a *terminus ante quem* for this city is provided by a piriform jar (Morricone 1972–1973, 171, figure 49) assigned to LH IIB/IIIA₁ (Mountjoy 1999, 1075; Vitale 2005, 83, figure 12). The period coincides with the appearance of the chamber tombs in the cemeteries of Eleona and Langada, to the southwest of Serayia (Morricone 1965–1966; Mountjoy 1999, 1077, 1084–85).

The well-organized 'third city' of Serayia is divided into two subphases; the earliest coincides with the last occupation of Trianda (LH IIIA₂/IIIB₁), according to pottery found on the floor of the House of the Figs (Morricone 1972–1973, 227–32, figures 155–58; Vitale 2005, 83–87; 2006, 43–44). However, the wealth of this period is displayed mainly in seventeen tombs in the cemeteries of Eleona and Langada (Mee 1982, 87; Mountjoy 1999, 1085–92). Along with imports from the Argolid (Morricone 1965–1966, 68, figures 40–41), there is an Anatolian jug—although basket vases and other products of the Rhodo-Mycenaean style are nearly unknown.

However, the apparent Mycenaean IIIB₁ presence is shown in the second phase of the 'third city.' By this time, a fortification wall similarly to that at Miletus (Voigtländer 1975) has already been erected at Serayia, most recently found at the west area of the prehistoric settlement (*ArchDelt Chronica* 2000 forthcoming), while the graves in the cemeteries of Eleona and Langada represent an obvious increase in population.

The earliest European-type bronzes in the Dodecanese, a northern spearhead, a Naue II sword, and a northern spearhead (Morricone 1965–1966, 137, figures 122–25; Macdonald 1986, 145) found in warrior tomb 21 at Langada are assigned to this phase. Of great importance is also a violin-bow bronze fibula from tomb 10 (Morricone 1965–1966, 102–103, figure 84), as well as an Italian knife of the Scoglio del Tonno type from Serayia (Morricone 1972–1973, figure 239, left).

However, the Mycenaean expansion on the island has become more obvious with the discovery of architectural remains in the lower levels of the Geometric/Archaic sanctuary at the site of Heracles, near Psalidi (Skerlou 1996, 690), to the east of Serayia. Two LH IIIA₂–IIIB₁ chamber tombs indicate Mycenaean presence in the area (Papachristodoulou 1979; Papazoglou 1981; Skerlou 1993). Another LH IIIB₁ chamber tomb was found at Mesaria (Papachristodoulou 1979; Hope Simpson 2003, 227n170). The presence of another LH IIIA₂–IIIB chamber tomb found near the chapel of Ayia Paraskevi at Pyli (Benzi 2006) reinforces the argument for a considerable Mycenaean expansion on the island.

In the following LH IIIC period, Kos participated in the Aegean *koine* with close affinities with Perati and Attica. Representative of the period are several stirrup jars, kalathoi, kraters, and pottery decorated in Pictorial style, as well as the distinctive octopus pictorial stirrup jars of the Kalymnos-Pitane-Kos group (Macdonald 1986, 143–45; Mountjoy 1999, 1079–81). In the middle phase of LH IIIC, pictorial amphoroid craters decorated with bearded goats and various water birds (Macdonald 1986, 144; Morricone 1972–1973, 188, figure 73), as well as some characteristic fragments with warrior scenes (Morricone 1972–1973, 356–60, figures 356–58; Karantzali 2005, 521, figure 21), appear in the settlement at Serayia.

Nevertheless, the unpredicted discovery of two tholos tombs reinforces the assumption of the island's distinctive role in LH III. The first tomb, found at a distance of ca. 3 km west/southwest of Serayia, is dated to LH IIIA2 and was reused in LH IIIC Middle (Gregoriadou 1996). Of great importance is also the second LH IIIB tholos tomb, which was found in the western part of the modern town of Kos and is most probably associated with the settlement of Serayia (Skerlou 1997, 1110–11). The occurrence of another Mycenaean tholos at Kolophon in Asia Minor (Bridges 1974) provides important evidence of the nature of the interrelations of the eastern peripheries of the Mycenaean world.

Mycenaean Kos played an important role in the process of the Mycenaean expansion in the Dodecanese and Asia Minor, from Knidos and Ephesos to Kolophon and Klazomenai-Liman Tepe. Its location in the narrow sea lane of Asia Minor leading to Iasos and Miletus and farther north to the area of the Troad shows that it might have been one of the most significant islands, perhaps one of those mentioned in the Hittite texts as being an active trade center for the operations of Ahhiyawa in Anatolia (Hope Simpson 2003, 217–24, 227–28, 237; Mountjoy 1998).

THE SMALL ISLANDS OF THE DODECANESE AND THE CASE OF THE SOUTH DODECANESE: KARPATOS AND KASOS IN THE BRONZE AGE

The Neolithic Background and the EBA

In the 4th and early 3rd millennium BC, several—mainly coastal—sites were occupied on the north and south islands of the Dodecanese beyond Rhodes and Kos. Final Neolithic sites appear at Panormitis on Syme and on the nearby islet of Seskli, as well as in the cave of Charkadio and at the open-air site of Lakkes, near Megalo Chorio on Telos (Sampson 1987, 115). However, rather nucleated EBA sites appear on several hills, such as at Kastro on Syme and at Castello, above the coastal plain of Livadhia on Telos (Hope Simpson and Lazenby 1970, 67–68). The same settlement pattern is also observed on the bare island of Astypalaia, the Dodecanese island closest to the Cyclades. However, the most coherent picture of the nature of the LN/FN culture and its continuity with the Bronze Age is given by the Italian excavations in the caves of Ayia Varvara, Choiromandres, and Daskalio on Kalymnos (Benzi 1993, 1997, 2008; Furness 1956; Maiuri 1928).

Excavations at Partheni and other surface finds on the island of Leros (Hope Simpson 1970, 52–53; Sampson 1987, 87–95, 109–13) have revealed an expanded FN occupation pattern indicative of the role of the prosperous island, which was in articulation with the neighboring islands of Kalymnos, Patmos, and Leipsoi. The group

of islands north of Kalymnos, together with Samos, Ikaria, and the opposite mainland, make up a single cultural assemblage that provides a habitation pattern of some coastal LN/FN and EBA I sites. However, the island of Karpathos shows a dispersed pattern of LN and FN sites on promontories and mostly on hills (Melas 1985, 155–56; Zervaki 2006, 14–15), mainly in the southern part of the island, such as Leftoporos and Paliokastro in the area of Arkasa (Melas 1985, 36–38, 155–59), as well as Skopi (Sampson 1987, 108) and Lothico at Pigadhia (Melas 1985, 27), along with some evidence at Poli and other sites in the central part of Kasos (Melas 1985, 48–50, 170).

The emergence and spread of FN/EBA occupation on the islands of the Dodecanese may be the result of complex transformations and dangerous voyages to procure prestige objects and obsidian from the neighboring island of Yiali (Torrence and Cherry 1976; Buchholz and Althaus 1982, 21–30), as well as from Melos and Anatolia. The widespread circulation of cheese pots, which appear on the islets of Alimnia and Yiali (Sampson 1987, 30–31, 81, figure 102.24–32; 1988, 96–102), in the Daskalio and Choiromandres caves on Kalymnos (Benzi 2008, 96, figures 37–38), and on Astypalaia (Hope Simpson and Lazenby 1970, 164–65, figure 44.b1; 1973, 163, figure 9.5, pl. 44a.3; Zervoudaki 1971, 552) and Kasos (Hope Simpson and Lazenby 1970, 69), points to a Final Neolithic Dodecanesian *koine*.

On the other hand, the Final Neolithic curvilinear buildings revealed at Kastro on Alimnia (Sampson 1987, 79–80, pl. 37b, figure 97; 1988, 45–54, figures 33–37, plan 16a), on Yiali (Sampson 1988, 45–54, figures 33–37, plan 16a), and at Leftoporos in the area of Arkasa (Melas 1985, 37, figure 14) show close similarities with the northeast Aegean, such as Emporio VIII on Chios (Hood 1981, 100–104, figure 53, pl. 17). Moreover, the presence of crucibles for melting bronze on the island of Yiali (Sampson 1988, 108, figure 38) and the bronze needles in the Koumelo and Aghios Georghios caves on Rhodes indicate the appearance of metallurgy during the final stages of the Neolithic and the smooth transition to the EBA.

Scanty EB II evidence from Nisyros, Kalymnos, and Karpathos shows close similarities with the relevant culture of Kos, which correlates with the Keros-Syros culture in the Cyclades (Renfrew 1972, 170–85). To this culture is assigned a Cycladic idol of the Dokathismata variety in the Berlin Museum, said to have come from Nisyros (Bean and Cook 1957, 119; Hope Simpson and Lazenby 1962, 169; Kekule 1891, 220n575; Herbst 1936, 770). The marble idol is associated with three Early Bronze Age II vases typical of the area, which were found as well on Nisyros (Konstantinopoulos 1965, 602, pl. 768 b–c).

To the same category is also assigned a group of pottery from Chorio on Kalymnos, as well as a small amphora from Lefkos in central Karpathos (Melas 1985, 41, 75, no. 1047, pl. 104), which, according to the relevant typology of EBA II Kos, could be assigned to EB II rather than to Final Neolithic. Quite strange, however, is another, most probably cult limestone statuette, which was found at Pegadia on Karpathos (Bent 1885, 235; Melas 1985, 27, 147–48, figure 62A–B; Zervaki 2006, 15–16) and is dated to the earlier stages of EBA.

In comparison to the relatively rich EBA III evidence from Rhodes and Kos, this period is weakly represented on the other islands of the Dodecanese. The most

coherent evidence for the period, however, is provided by the Daskalio cave on Kalymnos, where there is a rich repertory of dark-faced and incised duck vases, as well as red-burnished and pattern-painted EB III pottery of the known categories from Asomatos and Serayia (Benzi 1997, 384–92; Marketou 1990a, 1997), which confirms the continuous occupation of the cave from LN to LH IIIC. A distinguishing ‘Trojan’ IV/V amphora is indicative of the affinities with the northeast Aegean (Benzi 1997, 386–88, figure 2c).

Astypalaia, the remote island of the Dodecanese (Broodbank 2000, 131–33, figure 36), located between Kos and Ios, demonstrates close affinities with the Cyclades mainly during the EBA (Doumas 2005, 23–26; Hope Simpson and Lazenby 1973, 159–69, 171; Hope Simpson and Dickinson 1979, 374). The Cycladic character of the island is most prominent in the case of the EB II fortified site at Vathy (Hope Simpson and Lazenby 1973, 166), where a marble EC idol was found, and primitive drawings were identified on a rock (Doumas 2005, 23, figures 3–6). Several other sites on the island provided FN and undiagnostic EBA pottery and obsidian (Doumas 2005, 23–26; Hope Simpson and Lazenby 1973, 159–69; Hope Simpson and Dickinson 1979, 374).

The Middle Bronze Age

Middle and Late Bronze Age Kalymnos shows close cultural affinities with Serayia on Kos and the wider area of Ialysos on Rhodes. A carinated cup, an imported MM IB/II lamp, and a Middle Cycladic fragmentary vase found in the Daskalio cave on Kalymnos (Benzi 1993, 279, 281, pls 36c1, 37a–b) are indicative of the framework within which Rhodes and the northern islands were interrelated before the great Minoan expansion in the Aegean. The appearance of a broad category of MBA/early LM IA pottery with a heavy black slip at Kastelli, Aspre, Kallikatsou, Aetofolia, Kampos, and Lefkes on Patmos has shown an expanded occupation pattern on the island. Similar pottery is also found on the neighboring islands of Leipsoi and Arkioi: a large carinated bowl from Leipsoi (Hope Simpson and Lazenby 1970, 52) and a hole-mouthed jar from Arkioi.

The LBA I/IB and the Mycenaean Periods

Imported LM IA conical rhyta (Benzi 1993, 277–79, pl. 34a–b) and the bronze statuette of a Minoan adorant (Marketou 1998b, 63–64, figure 21) provide strong evidence of the use of the Daskalio cave on Kalymnos as a cult place. During this period, visitors to the cave used the typical conical cups, light-on-dark and dark-on-light vases imported from Kos, and four large storage jars (Benzi 1993, 277–79, figure 1f, pls 35, 36a). The use of the cave as a cult place seems continuous until LH IIIC. In the meantime, Mycenaeans were also expanding on other parts of the island, as indicated by LH IIIB–C pottery found in Ayia Varvara cave near Pothia (Benzi 1993, 281–86, pls. 37 3d, figures 3e–f, 4, pls. 37–38, figure 5; Hope Simpson and Dickinson

1979, 366) and at the main Mycenaean center, most probably an acropolis or a settlement located on the fortified medieval hill of Perakastro or Chrysocheria, some 400 meters to the southwest of the Ayia Varvara cave (Hope Simpson and Lazenby 1962, 172). This site is closely associated with the nearby chamber tombs, which yielded around thirty vases that were sent to the British Museum (Paton 1887, 456, pl. 83; Walters 1897, 75–77; Walters and Forsdyke 1930, 9–10, pl. 8.22–28, pl. 9).

Similarly to Kos, Kalymnos yielded typical examples of LH IIIC pictorial pottery (Benzi 1993, 286, pl. 38d; Walters and Forsdyke 1930, 9, no. 27, pl. 8: 27). One of the best-known LH IIIC Middle octopus stirrup jars of the Kalymnos-Pitane-Kos group, decorated with goats, birds, scorpions, hedgehogs, crabs, and other decorative elements, which are illustrated crowded in among the octopus tentacles, was found in the early British excavations on behalf of the British Museum at Perakastro (Furumark 1972, 304, figure 49:28, 613 note 176:1; Macdonald 1986, 143; Mountjoy 1999, 1134, no. 19, fig. 464: 19, 465: 19; Paton 1887, 76, figure 13; Walters and Forsdyke 1930, 9 nos 7a–7b, pl. 9:7a–b). Similar stirrup jars from Kalymnos are also kept in the Amsterdam and Oxford museums (Crouwel 1972, 16–24, figures 3–11; 1984).

Evidence for conical cups from the site of Garipa on Telos (Sampson 1980) indicates the LBA I occupation on this island, which is located between Kos and Rhodes. Scanty LBA surface evidence has also appeared at Ayioi Anarghiroï, in the bay of Pontamos on Chalki (Melas 1988, 307, figure 14). Moreover, a Mycenaean stirrup jar is reported from the area between Dali and Ayia Triadha, above Mandraki on Nisyros (Doumas 1972–1974). A group of locally made Minoanizing LBA I pottery has been found quite unexpectedly on an undiagnostic ellipsoid mound of stones at Drakounda on Syme (Farmakidou 2003, 294–96). Further scanty evidence for Mycenaean occupation on Syme is indicated by an LH IIIA or IIIB fragmentary stemmed bowl rim from Kastro (Hope Simpson and Lazenby 1970, 63, figure 18d3).

However, Astypalaia has provided stronger evidence for a Mycenaean occupation of the island. Late Helladic IIIA2–B pottery indicates later human activities, long after the previous EBA occupation, on the steep cliffs of Kastro at Ayios Ioannes on Astypalaia, above the homonymous bay (Zervoudaki 1971, 551; Hope Simpson and Lazenby 1973, 162). A double chamber tomb with two dromoi was also investigated at Armenochori (Zervoudaki 1971, 550–51; Konstantinopoulos 1973, 120, 124; Hope Simpson and Lazenby 1973, 161). The tomb yielded 116 pots dated to LH IIIA2 and LH IIIC, along with a group of glass ornaments (Triantafyllidis 2002–2005).

Moreover, a pair of chamber tombs was excavated at Synkairos (Doumas 1975, 272), on the north coast of the island. Among the LH IIIA2 Mycenaean pottery and the other offerings, a substantial number of lead weights for nets and a fishhook were also found within one of the tombs, along with Rhodo-Mycenaean pottery, some Minoan imports, and an Anatolian stemmed krater (Doumas 1975, 272, pl. 252, top right). Similar to one example from Troy and another from Beycesultan, the shape recalls the stemmed crater from Trianda (Monaco 1941, 131n27, figure 83, illustrated upside down). Anatolian elements also appear on another painted, stemmed crater from Armenochori on Astypalaia (Konstantinopoulos 1973, 14, figure 14) and similarly on a crater from Apollakia on Rhodes (Mountjoy 1999, 1009n70, figure 412).

Karpathos and Kasos, the Dodecanese islands closest to Crete, were under strong Minoan influence not only in MMIII/LM IA but also during the Late Helladic III (Melas 1979, 1981, 1985, 159–62; Zervaki 2006, 18–31). Many sites were occupied in the southern and most fertile area of Afiartis in south Karpathos. The excavation of an LM I farmhouse at Kontokefalo in the area of Afiartis (Melas and Karantzali 2000; Platon and Karantzali 2003, 80) has yielded—among the locally produced Minoanizing pottery—a talismanic Minoan seal (Pini 2004; Zervaki 2006, 19–20). The Minoan expansion during the LBA I is also indicated by a settlement in the natural harbor at Pegadia (Hope Simpson and Lazenby 1962, 160–61; Melas 1985, 27–30; Zervaki 2006, 20–21). Farther north, in the area of the safe Vrontis Bay (Platon and Karantzali 2003, 201–202), the discovery of LM IB Palatial pottery associated with a settlement will elucidate the earlier stages of the Mycenaean presence in the south Aegean.

However, the Minoan character remained pronounced on Karpathos from the late 15th to the early 13th century BC. The Late Bronze Age III period is represented by the important settlement in the area of Xenonas at Pegadia (Hope Simpson and Lazenby 1970, 68; Melas 1985, 28; Platon and Karantzali 2003, 200–201; Zervaki 2003) and by the well-known chamber tombs in the neighboring cemetery at Makeli/Anemolyloi (Charitonides 1961–1962; Hope Simpson and Lazenby 1962, 159–63, 173), which are likely associated with the acropolis to the southwest of Pegadia (Hope Simpson and Lazenby 1962, 160; Melas 1985, 30), as well as the tombs at Sisamos in the same area (Hope Simpson and Lazenby 1962, 159; Melas 1985, 30).

The rich LH IIIA2–IIIB1 Mycenaean tomb found at Vonies in the area of Arkasa (Melas 1985, 37–40; Zachariadou 1978) has provided evidence for the Minoan mortuary tradition of placing the deceased in larnakes, as well as early cremation practices. To Mycenaean times is also assigned the area of the fortified acropolis of Arkasa (Hope Simpson and Lazenby 1962, 162–163), associated as well with the cemetery at Vonies.

A few Mycenaean cemeteries have been located in the northern part of the island—at Avlona (Platon and Karantzali 2003) and in the safe anchorage area of Diafani and the fertile land of Kambi (Hope Simpson and Lazenby 1962, 161; Melas 1979, 168–72; 1981, 119–20; 1983, 53; Walters and Forsdyke 1930, pl. 10: 8–14).

The small Dodecanesian island of Kasos is the first steppingstone from the eastern part of Crete to the Aegean islands. Kasos developed a dense MM/LM IA settlement pattern around the safe bay of Chelatros (Melas 1983, 55; 1985, 46–47), while in the Mycenaean period occupation is concentrated at Polin and Ellinokamara, both in the central part of the island (Hope Simpson and Lazenby 1962, 168; 1970, 69–71; Melas 1985, 48–50).

Overall, both the small and the large islands in the Dodecanese and the Aegean participated in the development and decline that took place in the area from the 4th to the end of the 2nd millennium, when their inhabitants interrelated with the neighboring sites and adopted Cretan, Anatolian, Greek mainland, and Eastern Mediterranean traits in different degrees. Each one maintained its individual rate of development and decline and its own cultural identity.

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CHAPTER 58

RHODES

TOULA MARKETOU

THE cultural development of the elongated and fertile island of Rhodes is favored by its geographical diversity, its size (1,400 sq km), and its location at the crossroads of the Eastern Mediterranean, the Aegean, and Asia Minor. The spread of settlement on Rhodes was a long process that lasted from the beginning of the Late Neolithic (LN) to the synoecism of the city of Rhodes in 408/407 BC.

EARLY BRONZE AGE (EBA)

The first scanty evidence for the EBA period in Rhodes came to light during the Danish archaeological expedition on the island, which took place between 1902 and 1914. Apart from a group of Late/Final Neolithic stone tools, a jug and an incised lid dated to EB II/III were found in the process of the wider excavations at the acropolis of Lindos (Blinkenberg 1931, 23–26, 61–68, pl. 3.24 and 26).

Three EBA pots of nearly uncertain provenance were also purchased by dealers during this period. This pottery, kept in the National Museum of Copenhagen, consists of two EBA III duck vases, one said to be from Vati, in south Rhodes, and the second from Lakki, between Kretenia and Monolithos, while a burnished, white-painted jug assigned to EBA II was most probably found at Kalathos (Blinkenberg and Johansen 1926, 30, pl. 36. 1, 2; Dietz 1974). However, due to the uncertain provenance of these finds, the settlement pattern on the island during the EBA is still obscure. Our knowledge of the period has been enlightened only by the systematic excavation at Asomatos (Marketou 1990a, 1997) in the wider area of Ialysos.

THE EBA AT IALYSOS

The settlement at Asomatos is located closest to the side of the island facing Asia Minor. About one hectare in size, it lies west of the modern village of Kremasti. The very existence of large buildings, almost unsuspected a few years ago, has filled the gap in our knowledge of the EBA in Rhodes and the southeastern Aegean. The last phase of occupation, dated to the mature phase of the EBA (EBA IIIB), is represented by oblong, freestanding buildings that are delimited by streets and alleys made of beaten earth and pebbles.

Only one of the oblong buildings revealed so far has been uncovered in its entirety. The building is subdivided along its length into two uneven sectors that give the impression of a double megaron. The three long side walls are projected beyond the narrow sides of the structure so that they form three antae, which are longer on the east side, similar to the megara of the second city of Troy. The wider, south part of the building is occupied by a single, spacious room. Nearly in the middle of this room is a hearth, and two ovens are built in the corners of its south wall. The rather narrow north part of the building is arranged into two small rooms for storage. In the later phase of the building, the long porches of the east side seem to have functioned as sheltered outdoor spaces.

Narrow-necked jars and several jugs for liquids were stocked in the adjacent small room to the west. It is obvious that everyday activities seem to have taken place around the hearth in the spacious main hall. This picture is perfectly represented by a broken cooking pot that was found next to the hearth and the fine tableware, such as large or smaller red-burnished and red-crossed painted bowls. Among the rest of the material culture found on the floor were also cattle bones, in some cases still in articulation (Marketou 1997, 402 figure 3; Trantalidou 1996–98), which complete the picture of the building's last living moments before the sudden abandonment of the settlement.

The use of the building's internal space, quite conceivable from its design and the orientation, has become more obvious from the distribution of the material culture, including the elegant handmade pottery, left in situ. Dark-faced, incised pyxides and duck vases, painted jugs, large teapots, and an elaborate, wide-necked jar (Efe 1997, 601, pl. I, nos. 15–17) of Anatolian influence bearing facial features in relief (Marketou 1997, 401, figure 5) were kept in the northwestern room.

The distribution of smashed objects and animal bones found indoors, as well as the presence of scattered material culture in the open-air areas, streets, and alleys between the houses, clearly shows a serious natural destruction, most probably a flood. On the other hand, the bulk of material culture consisting of narrow-necked amphorae, in some cases bearing potter's marks, large and smaller storage jars with refined decoration, dark-faced spindle whorls, numerous seashells, the broken cooking pot, and the deep bowls next to the hearth in the large room bespeak the settlement's self-sufficiency before its abrupt end.

According to this evidence, Asomatos was the earliest proto-urban center on Rhodes. The material culture is similar to that of the settlement at Serayia on Kos, Daskalio cave on Kalymnos (Benzi 1997), Heraion III–IV on Samos (Milojčić 1961, 65–67; Renfrew 1972, 127), the Yellow period of Poliochni on Lemnos (Bernabò-Brea 1976, 249–314), and other settlements in the hinterland of Asia Minor, such as Beycesultan X–IX and VII–VI (Lloyd 1962, 207–63) and EBA 3–4 Aphrodisias (Joukowsky 1986a, 387–407; 1986b, 582–610). The site of Asomatos demonstrates that, as early as the mid-3rd millennium BC, Rhodes was in communication not only with the east Aegean and Asia Minor but also with the Cyclades, Euboea, and Lerna in the Argolid, preparing for the remarkable development in the ensuing centuries.

However, the site was not built on virgin land. Immediately below the walls and the floors of the last phase of occupation lies a rectangular structure made of *pisé* on strong stone foundations assigned to EBA II (Marketou 1997, 396, figures 1–2). Moreover, between these phases, a middle phase—seriously damaged and leveled by the building activities of the last phase—has been revealed and assigned to EBA IIIA (Marketou 1997, 396).

THE AREA OF IALYSOS AND THE SETTLEMENT OF TRIANDA IN THE MBA

After the final abandonment of the EBA III settlement at Asomatos, habitation shifted farther east toward Phileremos and spread in the northern part of the island. The first evidence for the MBA period was uncovered during the Italian excavations in the deeper levels of the sanctuary of Athena on Phileremos (Benzi 1984; Coldstream 1969, 1n6; Marketou 2009, 73–76). Another location has been identified on the north slope of the mountain, near the chapel of Prophetes Elias (Marketou 1988, 28, figures 2–3; 1998a, 42, figure 2a). In parallel, a few plain MBA pots have been found at the settlement at Trianda as well (Monaco 1941, 84, figure 5.1–2; Papazoglou-Manioudaki 1982, 149–50, figure 5b, pl. 62a–63a).

Whereas the MBA in the Dodecanese used to be considered a “dark age” (Davis 1982; Papagiannopoulou 1985; Raymond 2007, 221), its existence and importance are now being ascertained continuously in excavations. A habitation level dated to the Middle Bronze Age, with pottery and loomweights, was revealed in the north end of the island, near the harbor of Akandia (Dreliosi-Herakleidou 1999, 24–25, pl. 1b, 2a–b). Architectural remains of houses are also located in the deepest levels of the prehistoric settlement at Trianda, while building complexes have been found farther south, outside the limits of the LBA city. Dispersed MBA installations also extend to the east, where an isolated jar burial was discovered (Marketou 1998a, 45, pl. 1b).

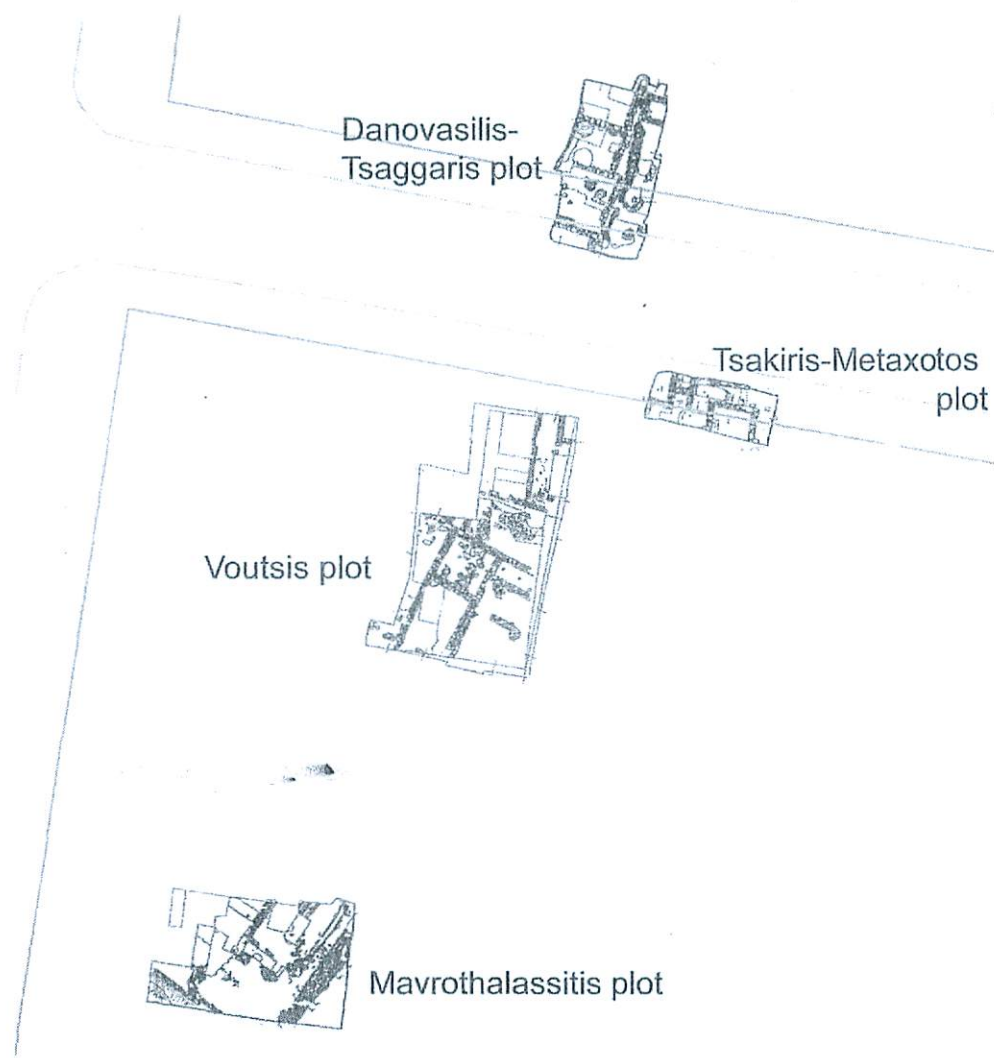


Figure 58.1. Trianda. Plan of the MBA excavations to the south of the LBA settlement (courtesy of the author).

The recently recovered architectural remains belong to large oblong buildings with a spacious room similar to Asomatos and a number of smaller spaces. The town layout is crowded and rather complex (figure 58.1). It comprises houses separated by streets and alleys made of beaten earth and pebbles. The buildings are mainly built of layers of mud, rubble and mud bricks reinforced with wooden beams on low stone foundations, according to the earlier tradition of Asomatos. However, there is evidence of fine white and red plaster that covered the interior face of the walls and in some cases the floors of the houses (Marketou 1998a, 42, 43, pl. 1a; 2009, 78–81).

In the southernmost part of the MBA occupation, located to the south of the main LBA settlement (figure 58.1, Mavrothalassitis plot), a large room with red polished plaster on the interior face of the *pisé* walls and the floor has been uncovered (Marketou 1999, 946–947, figure 20; 2009, 79–80, figure 8). A pinkish plastered bench is built on the west side of the room, in front of which are the remnants of a large plastered feature set in the floor. The west side of this room is attached to the

foundation of a wide structure (1.20 m), most probably an enclosure or a fortification wall made of large pebbles aligned along two parallel rows.

The local pottery found on floor deposits in most cases is made according to the local EBA tradition. It is, however, wheel made and decorated with less careful ornamentation. Particularly popular among the numerous vase shapes are high-necked jugs and carinated cups (Marketou 1998a, 43–44, figures 1–2, pls. 4a–c; Raymond 2007, 223–25). However, the presence of some Minoan imports among the local material has so far suggested a correlation with the Cretan Middle Minoan IB-II phases (Coldstream 1969, 116; Benzi 1984, 98). Thus, it seems that the culture of this period developed in continuity with the EBA III, a fact that has been so far demonstrated by the stratigraphy of Serayia on Kos (Marketou 1990b, 101–102, figures 4, 6).

THE LBA SETTLEMENT AT IALYSOS (TRIANDA)

Trianda, the major prehistoric settlement of the Dodecanese, is situated in the wider area of Ialysos and approximately 4.5 km to the east of Asomatos. The settlement is located at a depth of around 3–4 m, underneath a typical flood plain made of alluvial deposits. The site was originally near the coastline but has now shifted up, at a distance of around 500 m on the inland side, bordered by streams, to the north of Mount Phileremos (267 m). The branch of the main modern stream of Trianda descends from the mountain to the sea, forming a delta in the area of ancient Schedia (Inglieri 1936, 24–25n10; Papachristodoulou 1989, 87n404). It seems, however, that in the Bronze Age, ships sailing across Asia Minor from the Eastern Mediterranean and Crete would have found a similar delta formation to be navigable.

The main scope of the first excavations, conducted by the Italian Mission in 1935 and 1936, was to discover the settlement associated with the rich Mycenaean cemeteries revealed on the nearby hills of Moschou and Makria Vounara. The careful Italian excavator Giorgio Monaco (1941) investigated an area of 1,300 sq m and revealed three successive layers of the prehistoric settlement. The settlement was represented by two houses on either side of a north-south road, while part of another house was uncovered at the northeast area of the excavation (Monaco 1941, 49, pl. I, plan I).

Although the proposed chronology of the site was beyond the real synchronisms with other known Aegean sites, the detailed publication and the accurate data provided by the excavator have been of great value for further study of the site. The successive phases of the settlement were particularly discussed in the fundamental article by Arne Furumark (1950). According to his dating, based on the chronology accepted at that time, the three strata of the Italian excavation span the LM IA to the LH IIIA₁ period, ca. 1550–1410 BC (Furumark 1950, 179).

Rescue excavations carried out by the Greek Archaeological Service on the site (Driessen and Macdonald 1997, 248–51; Marketou 1988, 1998a, 1998b, 1999, 2004b,

, 2009; Marketou et al. 2006; Papazoglou-Manioudaki 1982) have revealed small pieces of the large settlement in different locations. The excavated parts, which cover in total 5,280 sq m, have gradually defined the limits of the LBA IA town, which occupies a territory of around 18 hectares, and revealed the succeeding phases from the MBA until the last phase of the occupation, assigned to LBA IIIA2/IIIB1 (table 58.1).

It has been demonstrated that the prehistoric town suffered two severe earthquakes (Marketou 1990b, 104–11), the first in the early phase of Late Bronze IA and

Table 58.1. The Different Phases of Occupation at Trianda according to Previous and Recent Evidence

Monaco 1941	Furumark 1950	Papazoglou-Manioudaki 1982	Recent Excavations in Years BC
			MBA 2000/1900–1700
		Trianda I MM III	MBA/MM III B–LBA IA early 1700–1650
		Trianda II LM IA (tephra)	Earthquake A/seismic destruction of Akrotiri ± 1650
	Trianda I LM IA 1550–1500 BC		LBA IA mature 1650–1630/1610
			Earthquake B ±1630/1610
			Repairing phase ±1630/1610
		Trianda IIIA–B	Tephra fall ±1630/1610
	Trianda IIA LM IA end– LM IB 1500–1450 BC	LM I–II– LH IIB/LH IIIA1	New smaller settlement
Strato inferiore	Trianda IIB		LBA/LM IB/LH IIA 1630/1610–1550
Strato medio	LM IB end– LM II–LM IIIA1 early 1450–1410 BC		LM II–LH IIB 1550–1490/1450
Strato superiore			LH IIIA:1 1490/1450–1430
			LH IIIA: 2/ LH III B:1 1430–1410/1365

Source: Courtesy of the author.

the second in the mature phase of the same period, shortly before the eruption of the Thera volcano (Doumas 1978; Marthari 1984, 1990; Palyvou 1984) in 1630/1610 BC, according to the high chronology (Manning 1999, 7–45, table 2; Manning et al. 2002; Marketou 1990b, 104, table 1; Marketou, Fakorellis, and Maniatis 2001).

The large town was built on the MBA remains in the beginning of the LBA IA, a phase that also correlates with the Middle Minoan IIIB/early Late Minoan IA period. With the immense growth of the Cretan palaces and the Minoan expansion in the Aegean and particularly in Asia Minor, the prosperous town of Trianda adopted many elements of the Minoan style. However, the extremely complex process of 'minoanization,' also apparent in Miletus and other Aegean sites and regarded as either the 'Versailles effect' (Wiener 1990, 140) or a result of Minoan thalassocracy, deserves further consideration (Marketou 1998a, 63–65; 2009). At Trianda, as at Serayia on Kos and at Akrotiri on Thera, the Cretan style is rather noticeable during the mature LBA IA (Marketou 1988, 29–32). The Minoan influence, apparent in the presence of large quantities of conical cups, fireboxes, and clay and stone lamps, is obvious even in architecture. However, the adoption of the Minoan style seems in some cases rather eclectic.

Although the fragmentary rescue excavations give an incomplete picture, it seems that Trianda in the LBA IA was one of the great urban centers in the Aegean. The layout of the town shows at least four wide, stone-paved streets across large ashlar buildings (Marketou 1998a, 47–49; 1998b, 56–57; Marketou et al. 2006, 7–8). Three rooms with pier-and-door partitions have been recovered. A fragment of a medium-size pair of horns of consecration was found near one of the corners of the northwestern *polythyron* (Marketou 1988, 30; 1998b, 48). In the southwest sector of the settlement, two buildings situated on either side of a paved street have been excavated. Each building has at least one *polythyron* with the pier and door partitions opened to the east.

The wide distribution of fresco fragments in nearly all of the excavated areas—unfortunately not found in situ due to the clearing of the ruins after the earthquake—strongly suggests that the interiors of almost all of the houses were decorated with wall paintings. They depict floral designs, such as red on white or white on red lilies (Marketou 1998a, 60, 67; 1998b, 58; Monaco 1941, 68–72, figure 18, pl. 7), reeds and other plants, elaborate rosettes, and fragments depicting clothing of female figures. The zones flanking the upper part of each synthesis are decorated with elegant red on white or black on blue stripes or fine running spirals on a polished white background, and the lower zones of the dadoes are embellished with fine representations of veined stone or wood.

It has been shown that the wall paintings of Trianda were made by skillful painters—comparable to those at Akrotiri—who were likely traveling across the Aegean. In some cases, there are also stucco floors, either monochrome or decorated with polychrome spots that imitate pebbles. The fragmentary wall painting depicting an emblematic double axe with a sacral knot or a pendant vegetal motif (Marketou 1998a, 60; Boulotis 2005, 33) points to the cultic character of the *polythyron* at the northwest sector of Trianda (figure 58.2a).



Figure 58.2. Trianda. LBA IA. Northwest sector, area of polythyron.

The curved side of a tripod table of offerings with two acrobats exercising on either side of a three-branched papyrus (courtesy of the author).

The votive bronze statuettes of worshippers (Marketou 1998b) and the clay rhyta, often in the form of a bull, revealed in several houses, as well as the skulls of sacrificed animals found near the cemetery to the north of the settlement (Marketou 1998a, 60–69), hint at some aspects of domestic cult under Minoan influence. Also associated with domestic cult were several tripod offering tables of lime plaster, either monochrome or with pictorial decoration, such as the exceptional tripod table of offerings made of plaster and with the representation of two male acrobats in a performance of a reverse-vertical exercise on either side of a three-branched papyrus (figure 58.2).

The athletic exercise alludes to Egyptian iconography, as well as to Minoan images of bull leapers. Similarly, two tumblers are symmetrically designed in a flowery field on a flat cylinder from Knossos and on a lentoid gem on either side of a three-branched papyrus from Mycenae (Evans 1964, 501–508, figures 443, 444; Sakellariou 1966, 65, pl. 4e). A single tumbler is engraved on the gold-covered pommel of a sword from Malia (Chapouthier 1938, 19–62). The sophisticated use of colors and the cautiously drawn details combine to make this a masterpiece of the Aegean art of miniature painting. Tables of offerings with pictorial compositions are known from Phylakopi (Morgan 2007, 389–95), Akrotiri (Televantou 2007), Tiryns (Televantou 2007, 62n19), Miletus (Niemeier 2005, 6, color pl. 12), and Palaikastro (MacGillivray et al. 1991, 137, figure 15, pl. 14c–d).

Within the rich repertory of pottery are several fireboxes and fire stands, amphorae, jars, clay lamps, jugs and juglets, Vapheio cups, and quantities of conical cups, as well as bridge-spouted jars and conical or ovoid rhyta (Marketou

1990b, figure 18; 1998a, 49–58). Either locally made or imported from Crete, mainly from the Mesara area (Marketou et al. 2006, 8–9, 20–28), the vases are decorated with ripple patterns, running spirals, festoons, scrolls, foliate bands, reeds and trickle patterns, according to the Minoan style. Among them is also an elaborate, bronze, one-handled bowl (Matthäus 1980, 208, no. 316, pl. 38: 316; Monaco 1941, 73, figure 19).

The corpus of bronze tools, the crucibles, a bronze bun ingot, and the molds for melting tools and decorative ornaments, some of which continued to appear in the next phases of the settlement, strongly suggests the presence of workshops in the northwest area of the settlement, recalling the tradition of the mythological *Telchines* on Rhodes (Marketou 1998b, 62).

The eruption of the Thera volcano marked the end of the Late Bronze IA period. The earthquake that destroyed the buildings at Akrotiri destroyed Trianda as well. During the short interval between the earthquake and the eruption, the inhabitants cleared the ruins and began intensive reconstruction works. This picture is revealed in the excavations at Trianda, under the layer of volcanic ash that covered the ruined buildings and streets of the prehistoric city (Marketou 1990b; 1998a, 47–49). The airborne volcanic ash was dispersed to the Dodecanese, Asia Minor, Crete, and the Eastern Mediterranean. Apart from the ruined city at Trianda, tephra also covered the countryside, as ascertained in the area of Kremasti (Driessen and Macdonald 1997, 251), at the airport at Paradeisi (Doumas 1988), and Kolymbia (Marketou 1998a, 63). In addition, sporadic evidence of Late Minoan IA pottery below the tephra layers and the most recent discovery of incomplete walls at Kremasti (Marketou 2000; 2009, 90, figure 22) point to periodic habitation in the surrounding areas. Volcanic ash was also found in the interior of the Koumelo cave at Archangelos (Sampson 1987, 69–70) and farther south at Apolakkia.

The devastating preruption earthquake, which was followed by the ash fall, had adverse effects on life on the island, especially on agriculture and stock raising, and furthermore caused a large change in the environmental conditions of the island, such as overwhelming floods. Evidence for a serious flooding in the prehistoric town at Trianda is attested by the remnants of flood-prevention works that were constructed on top of the volcanic ash layer in the posteruption phase at Trianda (Marketou 2007).

THE LBA IA CEMETERY

Excavations at the northernmost end of the LB settlement at Trianda, in a sandy strip of land about 500 meters from the present coastline, have revealed a rather poor cemetery (Marketou 1998a, 60–61). The deceased were buried in a crouched pose, either directly in sand or in jars, while there were also two instances of built cist graves (Marketou 1998a, pl. IV).

Almost unexpected was the presence of a horse skeleton amid a cluster of direct human burials (Marketou 1998a, pl. IIIc). The animal was found in a contracted pose and in direct association with one of the humans. This horse burial at Trianda is possibly the earliest of the known examples from the Aegean islands. The animal's small size verifies the view that the transportation of this particular kind of horse by sea was easier than horses of normal size. Indicative in this respect is the iconography of transporting a horse on a ship, found on a seal impression from the Little Palace at Knossos (Evans 1964, 827, figure 805).

The absence of grave goods and the general picture of the cemetery, along with the stratigraphical evidence, indicate that the burials were made hurriedly and simultaneously in the mature phase of LBA IA. Concurrently, the jar burials continued earlier traditions in the region, in both the Dodecanese and the hinterlands of Asia Minor, and go back to the EBA II period in Kos (Marketou 2004a, 20–23), as well as to the MBA (cf. the burial from Ialysos mentioned earlier).

THE SETTLEMENT AT TRIANDA BEFORE AND AFTER THE ERUPTION OF THE THERA VOLCANO: CONTINUITY OF LIFE IN THE LBA IB PERIOD

During the LBA IA, the maritime settlements of the Aegean and mainly Crete evidently participated, each to a different degree, in the network of exchanges and contacts between the Eastern Mediterranean, the Aegean, and Crete. However, Cretan products were predominant, and the strong influence of Minoan culture radiated to the Aegean settlements, as well as to Rhodes and Kos. The development of metallurgy, the empirical knowledge of astronomy, the spread of the Linear A script, and the use of a common ponderal system for weighing products, represented in Rhodes by marble and lead balance weights, facilitated voyages by sea and exchanges.

Ships traveled to the west and central Aegean for supplies of silver and copper from the sources at Laurion in Attica and on the island of Siphnos. They also journeyed to the eastern Aegean to obtain obsidian from Yiali, as well as for supplies of metals, timber, and even livestock, from Asia Minor. By the end of this period, the distinguishing light-on-dark and dark-on-light Koan vases had reached Rhodes (Marthari, Marketou, and Jones 1990).

In this active period, the eruption of the Thera volcano took place, which caused the dramatic end of Akrotiri. Nevertheless, the vigorous exchange pattern of the Aegean does not seem to have come to an end. In the succeeding LBA IB period, the new settlement of Trianda was limited to a smaller area at the northern part of the previous larger LBA I town. In the southern part of this area, strong flood-control systems were erected on the tephra layer (Marketou 1998a, 61, pl. II), as

mentioned. This fact indicates that flooding was one of the serious problems caused by the earthquake and generally the eruption of the volcano. However, the architectural remains are not preserved in their entirety, as they were badly damaged by the following LH IIIA1-LH IIIA2/IIIB1 building activities (Marketou 2007).

Among these ruins, fragmentary pottery of the elegant marine, floral, or alternative styles has been found, imported from Crete or the Argolid, along with white slip I and base ring I pots and spindle bottles in red lustrous wheel-made ware that came mainly from Cyprus. In parallel, the production of local pottery and active metalworking continued at the new settlement of Trianda. A particular local category of pottery that imitates Cypriot milk bowls and spindle bottles also appears in this period (Karageorghis and Marketou 2006).

THE MYCENAEAN SETTLEMENT AT TRIANDA

Built on the LBA IB ruins, the new settlement in the southern part of the previous large town (Benzi 1988a; Hope Simpson and Lazenby 1973, 155–57; Karantzali 2005, 142–48; Marketou 1998a, 61–63; 2004a; 2007; Papazoglou-Manioudaki 1982, 145–49, 184–85) was once again at the epicenter of the new developments. Rhodes was the perfect station for the Mycenaeans, who wanted to enlarge their regime in the east Aegean and Asia Minor.

Mycenaean infiltration at Trianda expanded first at Ialysos in LH IIB, as attested mainly by the dissemination of pottery, imported or in local variations, as well as by the presence of rock-cut chamber tombs. The earliest tombs appeared at Ialysos in the cemeteries on the hills of Moschou and Makria Vounara, located to the southwest of the settlement (Benzi 1988b, 59–62; 1992, 209–12; Hope Simpson and Lazenby 1973, figure 2; Karantzali 2005; Mee 1982, 8–11; Mountjoy 1999, 983).

Outstanding among the architectural remains uncovered are the flood-prevention works, which remain in more or less the same position as those of the preceding period (Marketou 1998a, 62–63; 2007). However, it seems that these were unable to avert the final abandonment of the city. The results of this unavoidable destruction is evident today in the picture of the deserted city presented by recent excavations that reveal various objects of daily life that were buried beneath the alluvial deposits (Marketou 2004b, 2007). The pottery kiln found on the southeast outskirts of the Mycenaean settlement, where it was discovered in direct association with the remains of a vertical loom, provides a good example of the community's last living moments. The kiln, of the well-known horseshoe-shape type and with almost all of its main parts exceptionally well preserved, was found with fired pottery still in situ, forever covered by a layer of river pebbles and sandy earth (Marketou 2004b, figure 6). Similarly, the loomweights from the loom installation, in proximity to the kiln, are found fallen from the warp threads (Marketou 1999, 945; Marketou 2004b, figure 8).

Another catastrophe layer has been found in the southwest sector of the settlement, with a substantial group of LH IIIA₂/LH IIIB₁ pottery that shows the last dramatic moments of the Mycenaean settlement at Trianda before the great flood and the final desertion of the site. There is not yet evidence for the location of the Mycenaean settlement after the flooding, but a probable site might be at the southwest slope of Phileremos, below the Doric fountain of the 4th century BC.

THE MYCENAEAN CEMETERIES

The Mycenaean period in Rhodes is better known from the extended cemeteries on the island. Between 1868 and 1871 excavations undertaken by Sir Alfred Biliotti (then HBM vice consul in Rhodes) on behalf of the British Museum on Moschou Vounara at Ialysos (Forsdyke 1925, 139–77; Furtwängler and Löschke 1886, 5–7, pls. 1–11; Stubbings 1951, 5–6, 8–20) yielded the first known Mycenaean collection in the world before the outstanding discoveries of Schliemann at Mycenae in 1876 (Schliemann 1878). The following Italian excavations at Ialysos revealed a total of 170 tombs on the hills of Moschou and Makria Vounara (Maiuri 1923–1924, 83–341; Jacopi 1930–1931, 253–45) and presented the largest cemeteries of the island.

The typical cemeteries consist of clusters of chamber tombs with long and steep dromoi deeply cut into the soft rock and arranged in rows. In some cases, platforms or benches are also cut into almost rectangular or trapezoidal chambers (Benzi 1992, 227–30). In a few other cases, they include pit graves. Some pits of a late Mycenaean date also appear in Soroni (Laurenzi 1938, 51). A particular feature of the cemetery is the presence of incised, porous stone blocks (*cippi*) found in six tombs at Makria Vounara (Benzi 1992, 229, pl. 123a–b; Maiuri 1923–1924, 201, 207, 221, 228, figure 131; Mee 1982, 11), interpreted as tombs markers by Andronikos (1961–1962, 168, pls. 85 b–e; 1968, 117–18; Vermeule 1972, 302, figure 47b). In the 12th century BC, some cremations took place among the standard inhumations at Ialysos (Benzi 1992, 230–31; Mee 1982, 27–29; 1998, 139). The phenomenon appears at the same time at Müskebi in Halicarnassus (Mee 1998, 139), on Kos (Morricone 1965–1966, 30, 202–203), Karpathos (Melas 1985, 39), Astypalaia (Doumas 1975, 372), and farther northwest on Naxos and at Perati (Mee 1982, 28).

The earliest use of the cemetery at Ialysos is associated with the historical appearance of the first Mycenaean settlement at Trianda in LH IIB (Benzi 1988a, 1988b, 59; Furumark 1950, 181). At the same time, Mycenaean tombs appear as well at other sites on the northwestern part of the island, namely in the area of Paradeisi (Laurenzi 1938, 49, pl. 40) and at Tholos (Jacopi 1932–1933, 44, figure 46). Stippled cups, small piriform jars, and other pots corresponding to the LH IIIA₁ material from Trianda (Monaco 1941, 89–90, figure 79–80, 136, figure 86, 155, figure 117) were also found in the cemeteries (Benzi 1992, 268, pl. 31e–g; 269, pl. 32.f; 318–19, pl. 67a–1). Among the bulk of Mycenaean pottery, mostly imported from the Argolid, the percentages of Minoan imports are low, such as a piriform jar with

birds and lilies, similar to one found at Makelli on Karpathos (Benzi 1992, pl. 32a; Charitonides 1961–1962, pl. 26a–b).

Other miscellaneous objects include fine pieces of jewelry and items from Cyprus and the Eastern Mediterranean, including Cypro-Syrian cylinder seals, Sandars-type Ci and Cii horned swords, a cruciform Dii sword, an Eii-type dagger (Benzi 1988b, 61, figure 4; 1992, 171–72, pl. 177; Sandars 1963, 116, 144–46), and a Cypriot-type dagger with rat tail and blade of four wing bayonet type (Benzi 1988b, 61; Catling 1964, 118), as well as a number of exotica from the Levant. Indicative of the connections with Egypt is the faience scarab of Amenhotep III from Tomb 9 of Billiotti's excavations, found along with two more scarabs of the 18th Dynasty (Cline 1994, 147–48, nos. 130–32; Forsdyke 1911, 114–15). The two Cypriot tombs, 76 and 86, at Ialysos seem to belong to this period (Benzi 1992, 384–85, 395–95; Jacopi 1930–1931, 304, 326–29; Mee 1982, 22).

During the LH IIIA2 period, the number of tombs at Ialysos increases significantly (Benzi 1988b, 63). On the other hand, the Mycenaean expansion is obvious all over the island (Benzi 1988b, 62–64, table 1; 1992, 212–14, table I; Mee 1982, 83–97). The large corpus of miscellaneous offerings derived from the tombs reflects the intensive Mycenaean trade in the Aegean during the 14th century BC, the most eloquent picture of which is given by the late 14th-century-BC shipwreck off Uluburun (Bass 1984; Bass et al. 1989; Kilian 1990; Pulak 2005).

A range of complex vases and, more often, the typical tripod basket vases, beaked jugs, and piriform jars belong to the local Rhodo-Mycenaean pottery (Mountjoy 1999, 984, figure 412). Apparent Anatolian elements that are also obvious in some products recall Trojan and mainly Beycesultan prototypes, which are more evident in an Anatolian stemmed krater found at the settlement of Trianda (Monaco 1941, 131n27, figure 83, illustrated upside down). Stirrup jars, jugs, piriform jars, and kylikes appear most frequently. Exceptional among the recent finds from the cemetery of Aspropelia at Pylona is the pictorial conical rhyton with modeled bucranium attached on the rim (Karantzali 1998; 2001, 35, color pl. 1), found in the central chamber of the triple tomb 2.

The general level of prosperity is demonstrated by the presence of gold finger rings and leaf rosettes, several beads of glass or semiprecious stones, ornaments of silver, amber, and glass, scarabs, and bronze objects, including Sandars-type B swords, razors, and cleavers, as well as a Cypriot dagger from Tholos (Benzi 1988b, 62–64; 1992, 212–14; Cline 1994, 226n831; Mee 1982, 11–22), Sandars-type IA knives, and cleavers (Benzi 1998b, 64).

The majority of the Mycenaean weapons appearing in a wide range during both the LH IIIA1 and the IIIA2 period show the Mycenaean 'militaris aura,' according to Benzi (1989b, 61–62). This is shown by swords of Dii and Ci types, Ei daggers (Sandars 1963, 131, 141), the Siana spear and knives (Sandars 1963, 140–41, pls. 27, 53–55), early spearheads of Cypriot type (Catling 1964, 118), knives, and razors. Other items include bronze vases, Syro-Palestinian mortars, and a duck-headed ivory pyxis (Furtwängler and Löschke 1886, 14, figure 3; Sakellarakis 1971, 222–23, pls. 48–49), a small ostrich rhyton, and objects made of faience.

The collapse of the Mycenaean palace system, compared with the most recent clear evidence for the overwhelming flooding that caused the final abandonment of the settlement at Trianda, provides a rather plausible explanation for the decrease in the number of tombs at Ialysos in LH IIIB. However, the scarcity of relevant material in the northwestern part of the island, apart from a few sherds at Maritsa (Hope Simpson and Lazenby 1973, 139–40; Mee 1982, 88), does not indicate a definitive abandonment of the area (Benzi 1988b, 65). Occupation appears denser in the rest of the island, mainly in the southeast, as witnessed by the abundant evidence from Vati, Lachania, Apsaktiras, and Passia (Dietz 1984), as well as at Apollakia and Ambelia at Pylona (Hope Simpson 1973, 147, 151; Mee 1982, 63–64, 73, 88).

Although many minor sites were abandoned at the beginning of the 12th century, the obvious increase in the number of burials at Ialysos cemetery demonstrates a period of prosperity in the area (Benzi 1988c). However, Rhodes is an important member of the Aegean *koine* (Desborough 1964, 115, 150, 155; Mee 1982, 90–91), correlating with the subphases of the LH IIIC known from the most recent stratigraphy at Tiryns, Mycenae, and Lefkandi. The octopus stirrup jar, represented by about forty examples, is the hallmark of the period.

Influences from the mainland are shown by the increase in the number of Mycenaean figurines (French 1971, 134). By this time, Naue II-type swords appear in Rhodes, along with other metal objects, such as five Cypriot bronze tanged mirrors (Catling 1964, 227), an Italian ring-handled knife from Tomb 15 at Ialysos (Benzi 1992, 180, 254, pl. 179h; Cline 1994, 227n844; Macdonald 1986, 141), and a large, bronze, arched fibula from tomb 4 at Pylona (Karantzali 2001, 70–71, figure 42, pl. 47a). Indicative of the connections with Egypt are also the glass vases (Benzi 1992, 201; Cline 1994, 197n558, 204n627).

However, the increase in the number of LH IIIC burials at Ialysos could also be seen as part of a process of synoecism (Macdonald 1986, 149–50) and as ‘an internal migration from the peripheral areas to the main center... [rather] than an influx of settlers from the mainland and/or elsewhere in the Aegean’ (Benzi 1988b, 70), as previously maintained by Mee (1982, 89–90). After this new period of affluence and trade contacts with Cyprus and the Near East, a new crisis affected the eastern Aegean and Rhodes in the early phase of the 11th century BC. By the middle of the century, the Mycenaean civilization on the island seems to have essentially come to an end.

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Wider Mediterranean

CHAPTER 59

CAPE GELIDONYA SHIPWRECK

GEORGE F. BASS

CAPE Gelidonya, the Chelidonian Promontory of Pliny (*Natural History* 5.27.97), also known as Taşlıkburun, Kırlangıçburun, Kilidonya Burnu, and Anadolu Burun, lies at the western side of the mouth of the Bay of Antalya in southern Turkey. Five small islands, today called Beşadalar but known in antiquity as the Chelidoniae, extend the line of the cape southward.

The current between these islands, especially when a calm allows water backed up in the Eastern Mediterranean by the summer's prevailing northwest wind (*meltem*) to flow back westward, is as strong as any in the Mediterranean. Whether this current caused its sinking is unknown, but around 1200 BC a vessel of unknown size seems to have ripped open its bottom on a pinnacle of rock on the northeast side of the third island from land (Devecitaşı Adası).

As it sank, artifacts were strewn from the opening in its hull until it settled around 50 meters away. Its stern first rested on a large boulder. Later, perhaps as its hull disintegrated, it slipped down into a gully formed by the boulder and the base of the island. The main concentration of cargo lay at a depth of 26 to 28 meters (figure 59.1).

Over the years, the ship's wood was almost entirely devoured by marine borers, and its cargo was covered by a thick, hard layer of calcium carbonate, commonly called concretion. Almost invisible, its metal cargo was nevertheless seen by Bodrum sponge diver Kemal Aras in 1954. In 1958 he described it to American photojournalist Peter Throckmorton, who was living on Captain Kemal's sponge-diving boat while both writing about the sponge divers of Turkey and cataloging ancient shipwrecks they showed him.

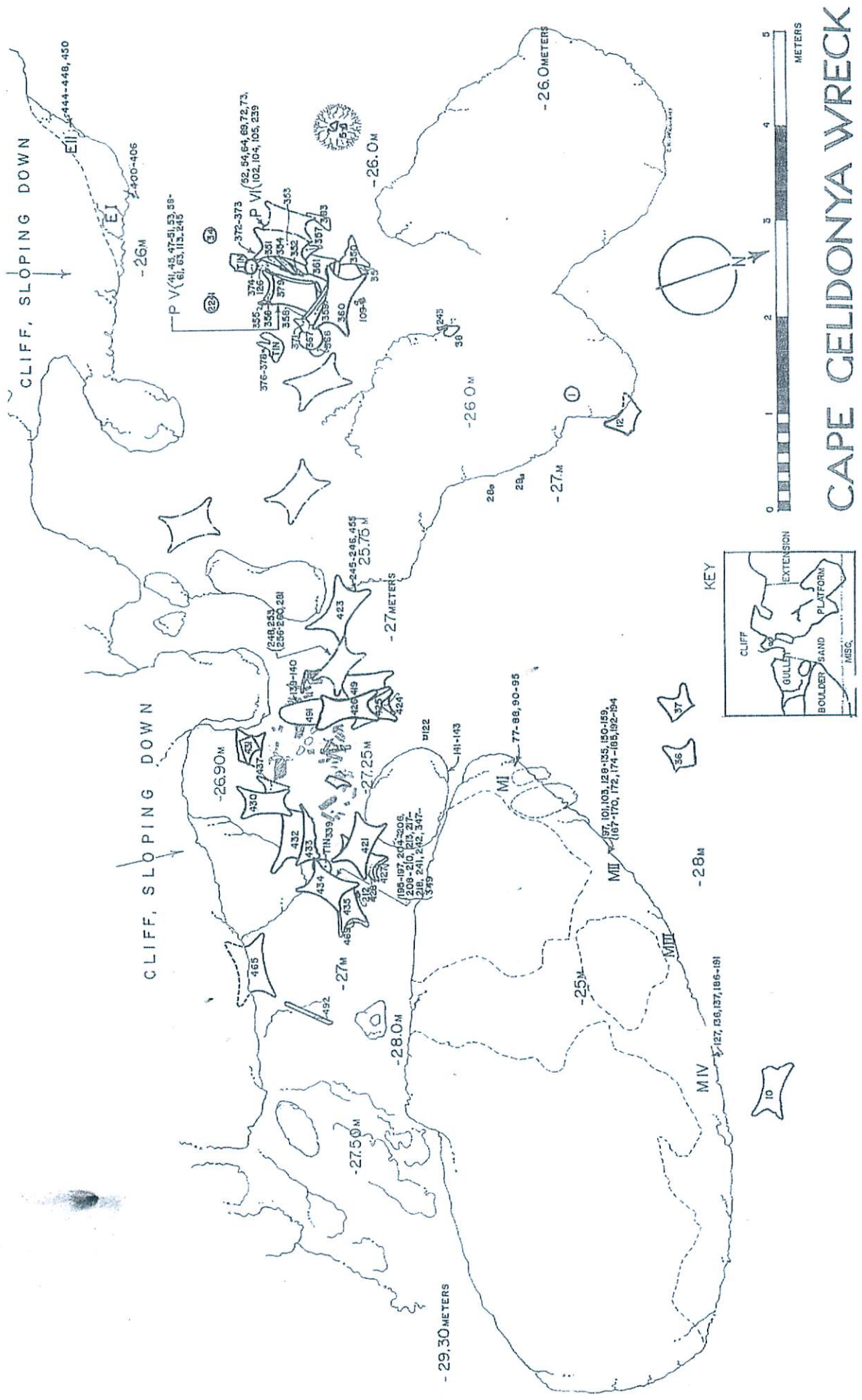


Figure 59.1. The Cape Gelidonya site (courtesy of Charles K. Williams and George F. Bass, University of Pennsylvania Museum).

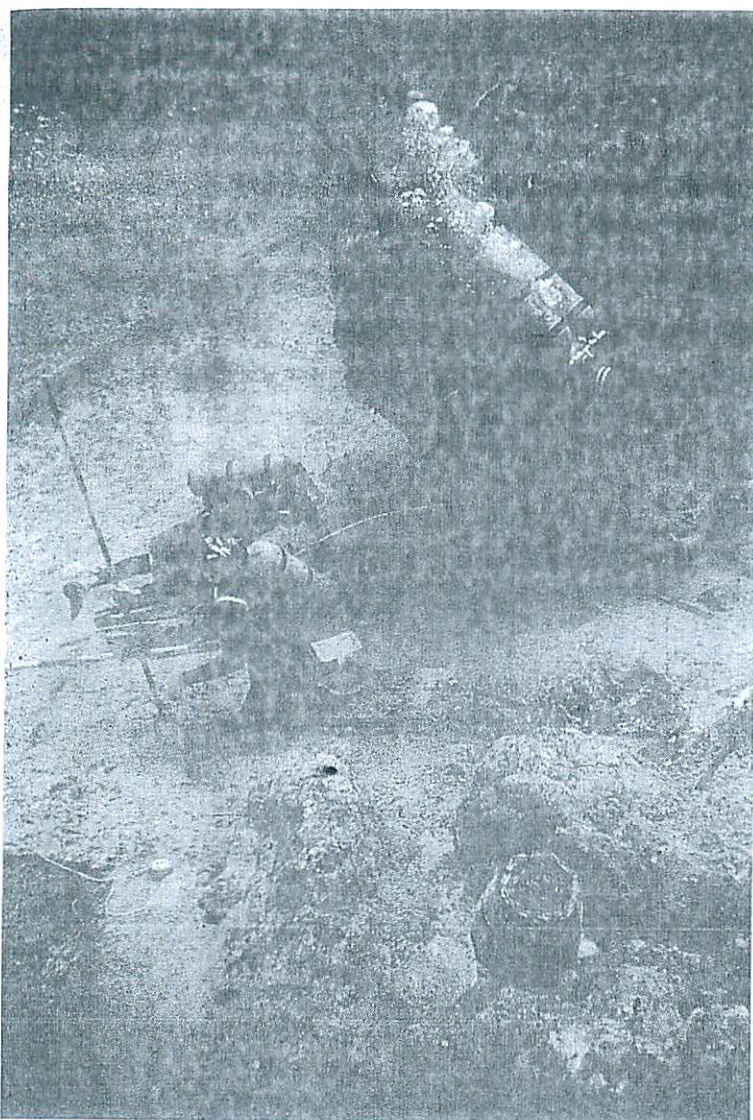


Figure 59.2. Mapping the Cape Gelidonya site. Brushwood lies in the gully below the upper diver, with the boulder behind him (by Peter Throckmorton, courtesy of the INA archives).

Throckmorton had no means of going to the cape that year but noted in his log that the site seemed to be the most interesting of all those described to him. The following year he was able to reach the site and date the cargo to the Late Bronze Age on the basis of the four-handled copper ingots he saw (Throckmorton 1960). Knowing of the University of Pennsylvania Museum's involvement in archaeology in Turkey, at Gordion, he wrote to the museum and asked whether it would sponsor an expedition to demonstrate that it was possible to excavate as carefully and accurately under water as on land. I was asked by the museum to learn to dive and serve as the archaeological director (Throckmorton 1964, 176–81).

The expedition, conducted between the middle of June and the middle of September 1960 was the first to excavate an ancient shipwreck in its entirety on the seabed (figure 59.2; Throckmorton 1964, 182–253; Bass 1967, 21–43; 1975, 11–47). Results of the excavation were published in Bass (1967), and later articles responded to some of the early criticisms of that publication (Bass 1973, 1991).

In those early days of nautical archaeology, we did not recognize the small fragments of the ship's hull as being the remnants of pegged mortise-and-tenon joints

(Bass 1999) like those that held the planking of ships together from at least a century earlier (Pulak 2002) until the Late Roman period. Lying directly on the hull was a layer of brushwood dunnage, which explained for the first time the brushwood (ὄλη) Odysseus spread out in the hull of the vessel he built to leave Calypso's island (*Odyssey* 5.257). Radiocarbon dating of the brushwood points to 1200 BC \pm 50 years, a date that planned new dating with advanced techniques should be able to refine.

Preserved cargo included approximately a ton of metal, mostly in the form of thirty-four flat, four-handled ingots of nearly pure copper, averaging 25 kilograms in weight, and fragments of more. These ingots have been shown by lead-isotope analyses to have come from the Solea region of Cyprus (Stos 2001). When found at other sites, such ingots had erroneously been called "oxhide" ingots in the mistaken belief that they were cast to imitate dried ox skins, each ingot equal in value to a cow in a kind of premonetary currency.

In addition to the four-handled ingots were about twenty smaller discoid "bun ingots," weighing about three kilograms apiece, also from Cyprus and again with additional fragments. On the other hand, seventeen of eighteen smaller, flat slabs with rounded ends, all intact, whose weights were multiples of 500 grams, were made of copper from Lavrion in Greece.

With the copper ingots was a white material that was the consistency of toothpaste when discovered. Laboratory analysis subsequently showed it to be tin oxide. Concretion suggests that the tin had originally been cast as rectangular bars, similar to white bars in Egyptian tomb paintings.

The remainder of the metal cargo consisted of broken bronze tools from Cyprus, scrap that was clearly intended to be melted down and recast. Included were plowshares (incorrectly identified as picks and hoes in Bass 1967), axes, adzes, an ax-adze, chisels, pruning hooks, a spade, knives, and casting waste. Some and perhaps all of the scrap was carried in wicker baskets; the bottom of one basket was perfectly preserved between two copper ingots.

Although there is no proof for it, it is possible that a tinker accompanied this scrap bronze and the two ingredients, copper and tin, needed for making new bronze. Two stone hammerheads are similar to metalworking hammers; a bronze swage was found; a large, close-grained stone reminds us of anvils used before the introduction of iron; and there were many stone polishers and a whetstone.

At the time of the site's excavation, it was generally believed that Mycenaeans held a monopoly on maritime commerce in the Eastern Mediterranean. Thus, it was a surprise that the weights of sixty-odd stone pan-balance weights were based on Near Eastern standards such as the *qedet*, *neseḫ*, and *shekel*. Anthropologists have shown that merchants typically travel with their own sets of weights, with which they are familiar, and later convert into the weight system of the land in which they deal. This led to a closer examination of the personal items, found mostly at the end of the site that was considered to mark a living area of the ship. Without exception they, too, proved to be Near Eastern in origin: two stone mortars, a terracotta oil lamp, a razor, the stone hammers, several Syro-Palestinian imitations of Egyptian

scarabs, and a merchant's cylinder seal, probably an heirloom, carved centuries earlier in north Syria.

These discoveries led to the conclusion that the ship was Near Eastern in origin (Bass 1967, 164–67), probably Syrian or Canaanite or Syro-Canaanite or proto-Phoenician (although the exact term is not important) (Bass 1973, 34n42), or perhaps Cypriot (Bass 1973, 36–37; 1991, 69). That conclusion led to a reevaluation of published evidence from both Egyptian tomb paintings and the well-known Amarna tablets found in Egypt that depict and describe shipments of tribute from Near Eastern rulers to the pharaoh in Egypt. The tomb paintings show that, with a single exception, contemporary Egyptians associated copper and tin ingots with Syrians and in no case with Mycenaeans; further, the only contemporary paintings of foreign ships arriving in Egypt, one showing four-handled copper ingots as cargo, depict Syrian ships. More recently, the only mold for casting four-handled copper ingots was found in a palace at Ras ibn Hani, the port of Ras Shamra/Ugarit on the Syrian coast.

In other words, the single ship that sank at Cape Gelidonya did not revolutionize our picture of Bronze Age maritime commerce in the Eastern Mediterranean, but its excavation was the catalyst that led to the reevaluation of existing evidence (Bass 1998). The occurrence of Near Eastern mariners in the Late Bronze Age bears on Homeric studies: The major reason for the typical dating of the *Odyssey* to the eighth century BC has been Homer's frequent mention of Phoenician mariners and metalworkers, for it was believed that these famed Semitic seafarers did not become active until the later Iron Age (Bass 1997a).

The belief in a Mycenaean monopoly on sea trade was based on the wide spread of Mycenaean pottery throughout the Near East, including Cyprus. The Cape Gelidonya shipwreck, however, suggested the existence of a large return trade in raw materials such as copper and tin, which left few traces in the archaeological record unless lost at sea, for if they reached port, they were quickly manufactured into goods typical of the importing culture. The excavation between 1984 and 1994 of the ship that sank a century earlier at the cape to the west of Cape Gelidonya, at Uluburun, provided proof of the extensive trade in raw materials from the East to the Aegean (Bass 1987, 1997b; Pulak 1998, 2008).

The excavation of terrestrial sites often lasts decades, sometimes more than a century, whereas one might think that the excavation of a shipwreck is more like the excavation of a tomb, a project undertaken and finished in a relatively brief period of time. Nearly half a century after the excavation at Cape Gelidonya, however, research continues at the site.

As excavators of the Uluburun shipwreck, we made brief visits to nearby Cape Gelidonya in the 1980s and 1990s with more advanced equipment than that available in 1960. A metal detector found not only the trail of artifacts leading to the rock that almost certainly sank the ship, as well as metal artifacts invisible under concretion, but also a large pithos in the gully we thought had been thoroughly excavated in 1960.

Battery-operated scooters allowed divers to search far and wide, leading to the discovery on this trail of the best-preserved ceramic vessels from the ship, two coarse-ware stirrup jars of Late Bronze IIIB type, about 55 meters from the gully. At nearly twice that distance, divers using the scooters found a stone anchor typical of the many examples found on the eastern littoral of the Mediterranean and on Cyprus (Bass 1999, 2005). In addition, by simply reexamining the original excavation site with care, more stone pan-balance weights were found, as was the ship's first large weapon, a bronze sword.

In addition, laboratory analyses are leading to new conclusions. Lead-isotope analyses, besides showing the Cypriot origin of the four-handled and discoid copper ingots, demonstrate that other artifacts were made of metals that came from Lavrion in Greece, the Taurus Mountains of Anatolia, the copper mines of Timna in Israel, and even Sardinia.

Similarly, petrographic analysis indicates that the ship's lamp is Cypriot, as is a pithos. The stone of the anchor suggests that it, too, is from Cyprus. Although Cyprus at this time in history was part of the Near Eastern cultural realm, a conclusion that the ship was Cypriot would still be of interest.

The new discoveries have led to the decision to undertake both a new excavation at Cape Gelidonya and a new publication that will take into account much new information.

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