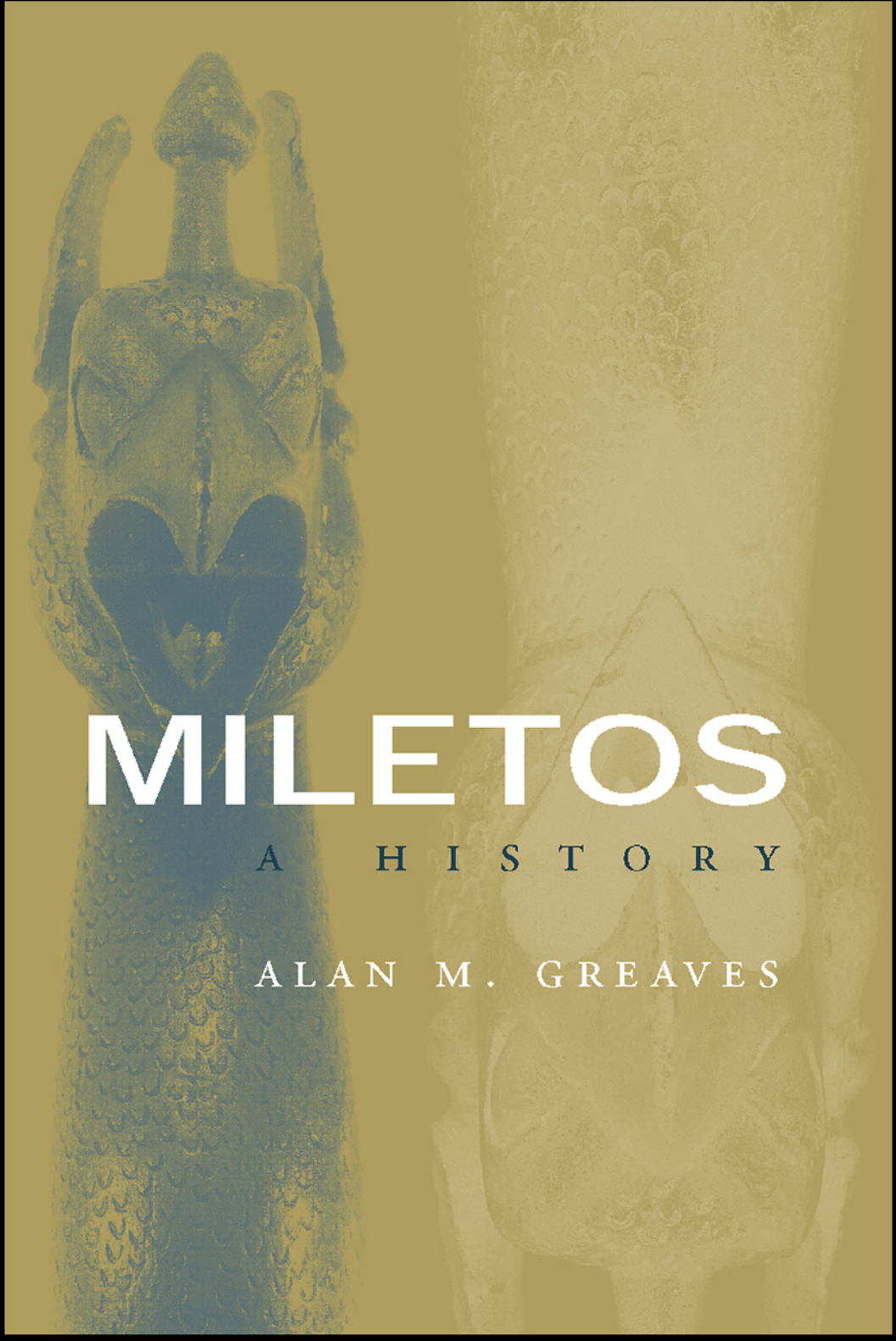

MILETOS

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A History

Alan M. Greaves

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This book is dedicated to the memory of my father

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From 1995 to 2000 I worked as site supervisor at the Temple of Athena at Miletos under the direction of Wolf-Dietrich and Barbara Niemeier and under the overall direction of Volkmar von Graeve. I am grateful to them and to other members of the Miletos team for their help and encouragement over a number of years. However, I must point out most strongly that the work presented here is wholly independent of my participation in that excavation and that the reader will find nothing here that could not be found in published works or by visiting the region. For original archaeological data the reader is directed towards the published works presented in the bibliography and to forthcoming works by Professors Niemeier, von Graeve and their teams.

Introduction

There can be no definitive history of Miletos. No one individual or group can claim to be able to write such a definitive history. The people of Turkey may currently own its stones and German scholars may currently be excavating those stones, but the story of Miletos and its people belongs to all of us as the events that took place there lie at the heart of all western civilisation. Each nation, generation and individual would interpret the history of Miletos and its importance to themselves differently. This book is a personal interpretation of the published data currently available – 'a history' – but only one of many such histories that could be written using the same material. As this is only a personal perspective, I do not expect that anyone will agree with everything that is presented here; but likewise I hope that not everyone would disagree with every word of it either.

What I have hoped to do in this book is to present the reader with a concise summary of key points in the archaeology of Miletos and in doing so to pursue two key themes. These are the relationship between the city and the land and the role that Miletos played as a contact point between East and West. I have included a detailed (although not fully complete) bibliography so that individual readers can use this to follow through their interests and connect with the very large body of published work on the subject. Much of the bibliography on Miletos is widely scattered and is published in a variety of languages, making an English language summary such as this a useful access point to the primary literature for many students.

1

MILESIA

The territory, physical environment and natural resources of Miletos

An understanding of the physical environment is not just useful but essential when one is trying to understand any ancient city. This chapter provides a description of the physical environment of the land around Miletos, its geology, soils, water, natural resources, communications and agriculture which will be the basis for the later chapters that discuss the city's historical development. Research into the *khora* (territory) of Miletos is currently being carried out (see interim reports by Lohmann, listed in the bibliography) but what is presented here is a purely casual and personal understanding of the area from one who has visited it, but not systematically studied it. My objective has been to create a backdrop to understanding the themes of this book, not to create a definitive landscape history.

It is impossible to say anything about the amount of territory controlled by the settlement of Miletos in the prehistoric period. Although evidence has been found for a large Minoan presence at the site, Minoan material does not appear to have penetrated very far inland. In the Mycenaean period, pottery is found in the interior, including Didyma, but the extent of Miletos (Millawanda)'s territory cannot be ascertained, although the northern plain on which Miletos stands would form a single, geographically distinct, zone which could be assumed to have been controlled by the settlement.

From the Archaic period, we have better evidence about the extent of the Milesian territory. The name *Milesia* is known to us from Herodotus (1.17, 18, 46, 157; 5.29, 6.9) and Thucydides (8.26.3) who use it to describe the *khora* of Miletos. The exact size of that territory cannot be determined with any certainty as we do not know its precise limits and its area appears to have changed over time. The core area of the Milesian territory, that part which is called *Milesia* in the texts, included the whole of the limestone peninsula on which the city was positioned on the northern side as far east as the settlement of Teichioussa on the modern Bay of Akbuk (Lohmann, 1997, 290; Rubinstein and Greaves forthcoming, see Figure 1.1). This is an area of approximately 400 square kilometres and research is continuing to try and ascertain the true extent of Milesian territory (Lohmann, speaking in Ankara, 29.05.01) and the results of that work are eagerly awaited. In addition to

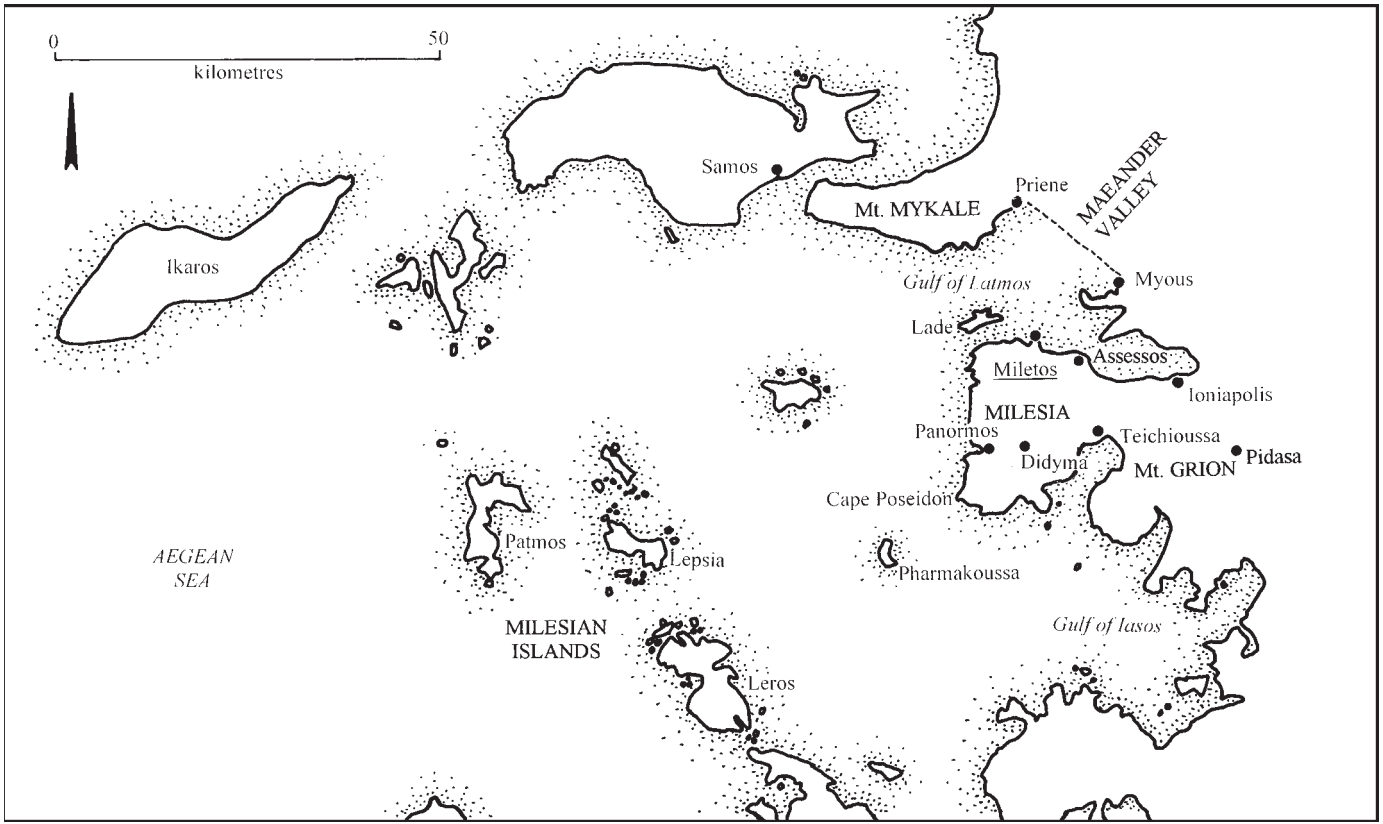


Figure 1.1 The territory of Miletos.

this core territory, Miletos probably possessed part of the Maeander valley, the Mykale peninsula and Mount Grion and also some of the surrounding islands (Figure 1.1).

When Miletos defeated Magnesia-on-the-Maeander (Hdt. 1.18) it can be assumed that they took possession of some of the Maeander valley that must previously have belonged to Magnesia. Although the site of Archaic Magnesia is not yet certain, research has been carried out in the area close to the later settlement of Magnesia in order to try and locate the Archaic settlement (Orhan Bingöl, speaking in Güzelçamlı, 29.9.99). If one calculates the extent of the valley from the site of classical (and presumably nearby, Archaic) Magnesia to where the mouth of the Maeander is estimated to have been in *c.* 500 BC (Aksu *et al*. 1987b: 230, see Figure 1.5), it is approximately 320 square kilometres.

Mount Grion, the area of uplands to the east of Milesia (modern İlbir Dağı), appears also to have been largely controlled by Miletos in the Archaic period. When the Persians conquered Miletos and divided its territory up, they gave this area of uplands to the Karians and the town of Pidasa (modern Cert Osman Kale) was settled and occupied until *c*.180 BC (Hdt. 6.20; *Milet* 1.3: 350–7, no. 149; Cook, R.M. 1961: 91–6; Radt, 1973–4). The location of this site, high in the mountains and quite far inland, away from Miletos, is an indication of the size of this area possessed by Miletos in the Archaic period. This mountainous area must have been a considerable addition to Milesian territory, covering perhaps 300 square kilometres. Miletos also had a cult site on the opposite shore of the Gulf of Latmos, at Thebai on the Mykale peninsula (Ehrhardt 1988: 14–15), although the amount of territory associated with this cannot be determined.

Several of the many small islands to the west of Miletos were also under the city's control during certain periods of its history. Although it is easier to measure the size of islands when compared to estimating the size of Miletos' land-based territories, it is harder to know when they were under Milesian control, due to a general lack of source materials. The smallest and closest of these islands was Lade (modern Batıköy, formerly Kocamahya Adası; *c*. 2.5 square kilometres). There are no archaeological remains on Lade but it had great strategic importance as it protected the western harbours of Miletos from storms and attack from the open sea (Greaves 2000a: 40–6). Lepsia (modern Lipsoi; *c*. 14 square kilometres) may also have been under Milesian control at some point in time, although exactly when is not clear (Ehrhardt 1988: 16–17).

Leros (modern Lero; *c*. 64 square kilometres) must have come under Milesian control during the Archaic period (Strabo 14.1.6, citing Anaximenes of Lampsacus; Hdt. 5.125) and remained under Milesian influence in the Classical and Hellenistic periods (Paton 1894; *Milet* 2.2: 26; Ehrhardt 1988: 16). Leros was used as a stop in this way by the Peloponnesian and Sicilian fleet, according to Thucydides (8.26), and provided Miletos with useful

anchorage. Patmos (*c.* 40 square kilometres) is known to have been a *deme* (district) of Miletos in the Hellenistic period (SIG^3 1086), but its only mention prior to this (Thucydides 3.33) makes no mention of which state controlled the island. The island's hourglass shape provides sheltered harbours on both the eastern and western sides, although the eastern bay is the focus of the modern settlement.

Ikaros (modern Nikaria) is a large island (*c.* 340 square kilometres) and was probably under Milesian control in the Archaic period when it was useful to Miletos for its harbourage (Strabo 14.1.6, citing Anaximenes of Lampsacus; Dunham 1915: 48 and note 1; Ehrhardt 1988: 18–19). Ikaros became independent in the fifth and fourth centuries BC and then came under Samian control. Although the island supported two *poleis* in the fifth century BC, it is not very fertile and it is mostly suitable only for sheep and goat herding.

The territory of Miletos changed over time, but at its fullest extent it was considerable. Much of this area may appear barren, especially the islands and mountains, but it provided ample grazing for flocks, which were an important part of the city's agriculture and economy, and supplied the city with timber (see below, p. 13). Two parts of the Milesian territory, however, were agriculturally rich – the northern plain and the Maeander Valley – and Miletos' control over these were to be vital for her economy and ability to support her population.

Geology

The geology of the region around Miletos is complex with a wide variety of different rock types and formations (see *Milet* 3.5; Brinkmann 1971; Gödecken 1984, 1988: esp. 308–9; and M.T.A. 1989). There are three main geological zones in the surrounding area, all very different in origin and nature (Figure 1.2). These three zones are: the older rocks inland and to the north of Miletos; the Milesian peninsula; and the Büyük Menderes (ancient Maeander) valley.

The first of the region's major geological groups occurs to the east of the Milesian peninsula and north and south of the Büyük Menderes valley. This area is composed of granite (or granodiorite – see Gödecken 1988: 308, n. 2), schists, marbles and gneiss. The gneiss constitutes the remains of the Menderes Massif, one of the oldest geological regions in Turkey, consisting of Pre-Cambrian (*c.* 4,500 to 600 mya) or Lower Palaeozoic (*c.* 600 to 395 mya) metamorphic augen gneisses, uplifted in the early Alpine Intra-Jurassic phase (*c.* 195 to 135 mya). This gneiss occurs at Myous and northwards from there up the Büyük Menderes valley. The granite (granodiorite) found to the east of Milesia above Herakleia, and which forms the mass of Mount Latmos and the imposing cliffs of Bafa Gölü, is a result of intrusive volcanics. Marble is found to the east and south of Milesia and is a result of Mesozoic (*c.* 225 to 65 mya) metamorphism. Topographically this geological zone is mountainous

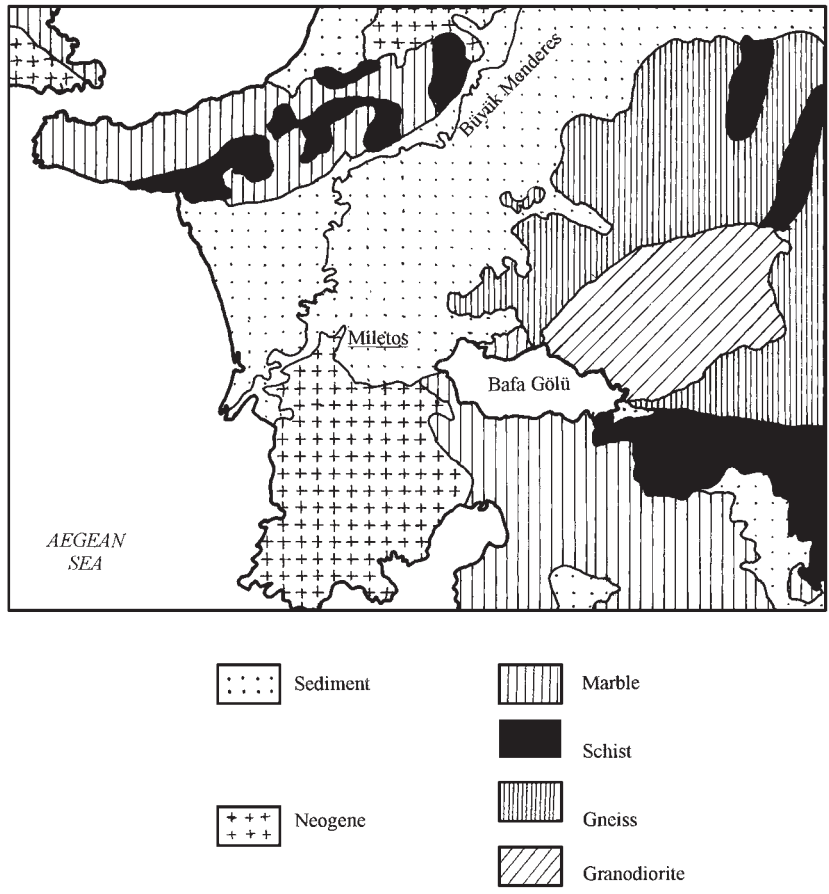


Figure 1.2 Geological map (after *Milet* 3.5).

with expanses of exposed rock. It is these rocks that contain the few natural resources to be found anywhere near Miletos.

The second geological area is the peninsula of Milesia itself which, in geological timescales, is a relatively young landmass being mostly composed of Neogene (i.e. Miocene, *c.* 26 to 7 mya, and Pliocene, *c.* 7 to 2 mya) sedimentary origin. The basic form of the Milesian peninsula is an escarpment with an exposed northern edge and gently-sloping southern side. This is composed mostly of limestone with layers of softer *poros* (Schröder and Yalçin 1992; Schröder *et al.* 1995). As the northern edge of this escarpment erodes, it deposits colluvium to create a coastal strip along the north shore thus creating very deep soils in this area, although the top of the escarpment itself is largely barren. On the north side of Milesia is the smaller peninsula on which the city of Miletos itself was built (Figure 1.3).

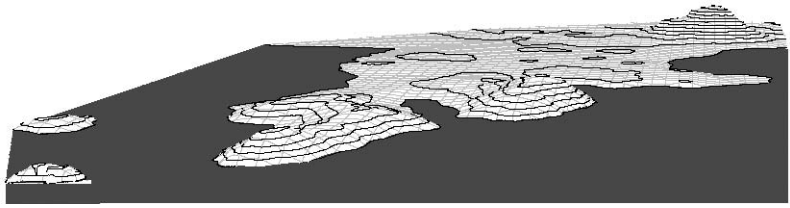


Figure 1.3 The location of the city of Miletos 3D projection seen from the north-west indicating ancient sea-level made using G.I.S. (by the author and John Dodds).

The third geological area, and perhaps the most interesting and important, is the Büyük Menderes valley which runs north-east inland from Miletos. This was created by the collapse of the Aegean sea, an important neotectonic event that created block-faults in western Anatolia, resulting in rift valleys (graben) divided by horsts (Brinkmann 1971: 189). Horsts are high ridges of land formed by faulting and subsidence on either side and tend to be high with precipitous sides, like the Mykale peninsula (modern Samsun Dağ). One of these rift valleys was the Büyük Menderes graben, which has a flat bottom and almost vertical sides, best seen in the area around Priene and its striking acropolis. Over time the bottom of this graben, which had been inundated by the sea, has been filled up by the sedimentary action of the Maeander River to create the flat and fertile modern Büyük Menderes plain (Figure 1.4; Aksu *et al*. 1987a and b). The mouth of the Büyük Menderes has

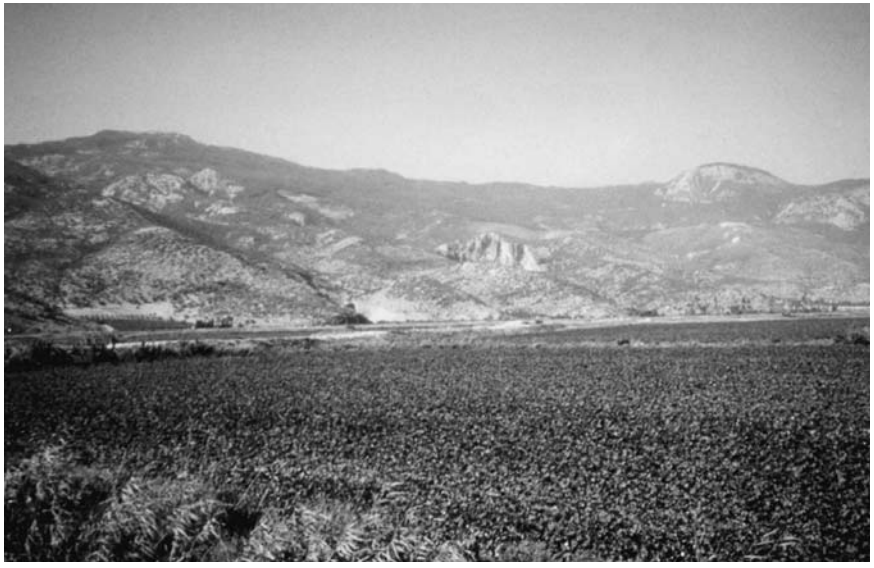


Figure 1.4 The Büyük Menderes Plain.

moved progressively southwards and eastwards towards the Aegean due to the large amount of silt being carried down from the mountains (Figure 1.5). Between 500 BC and 500 AD the delta coastline of the Maeander prograded (moved as a result of silting) rapidly within the sheltered Büyük Menderes graben, advancing by between 10 and 17 kilometres in this single millennium. This stopped in *c*.700 AD when barrier beaches formed across the mouth of the Büyük Menderes graben. Like its neighbour Ephesos, the ancient port of Miletos is now a long way from the sea, at a distance of 7 kilometres. The Büyük Menderes valley can be seen superbly with satellite photography (Peschlow-Bindokat 1996: 19, fig. 5).

Seismology

Western Anatolia is on the edge of the Mediterranean micro-plate and is subject to frequent plate-tectonic activity, such as the creation of the Büyük Menderes graben and seismic activity, particularly earthquakes. The subduction of the Mediterranean Plate is also the cause of volcanic activity in the Aegean region, including the eruption at Thera in *c* .1628 BC. This event must have affected Miletos in some way and the LMIA settlement at Miletos appears to have been destroyed by an earthquake, possibly associated with this (Niemeier in Greaves and Helwing 2001). Earthquakes were an important factor in the ancient world (Stiros and Jones 1996) and must also have been a common occurrence in the history of Miletos, although few can be securely identified by archaeology or from historical sources that relate specifically to Miletos. However, it is known that the oracle of Apollo at Didyma was destroyed by an earthquake at some time in the middle ages (Newton 1881: 48). From more recent historical records one begins to understand the frequency with which earthquakes occur in this region. Such records mention earthquakes in this region on 23 February 1653; 25 February 1702 (in Denizli but felt as far as the coast); 20 September 1899 (when in Aydın a 400 metre-long crack opened parallel to the depression); 16 July 1955 (the village of Balat, which then stood on the site of Miletos, was totally destroyed by this and was rebuilt on a new site at Yeni-Balat, meaning "New-Balat"); 23 May 1961; and 11 March 1963 (source: Ergin *et al.* 1967; Ambraseys and Finkel 1992). The terrible earthquake of 17 August 1999 and the aftershocks that followed are a powerful reminder, if one were needed, of the potent force of earthquakes in Turkey and their potential to adversely affect life in the region.

Pedology

As was noted above (p. 5), the erosion of the northern edge of the Stephania Hills escarpment has created a coastal strip with deep soils, suitable for arable agriculture. This fertile area adjacent to the ancient city of Miletos

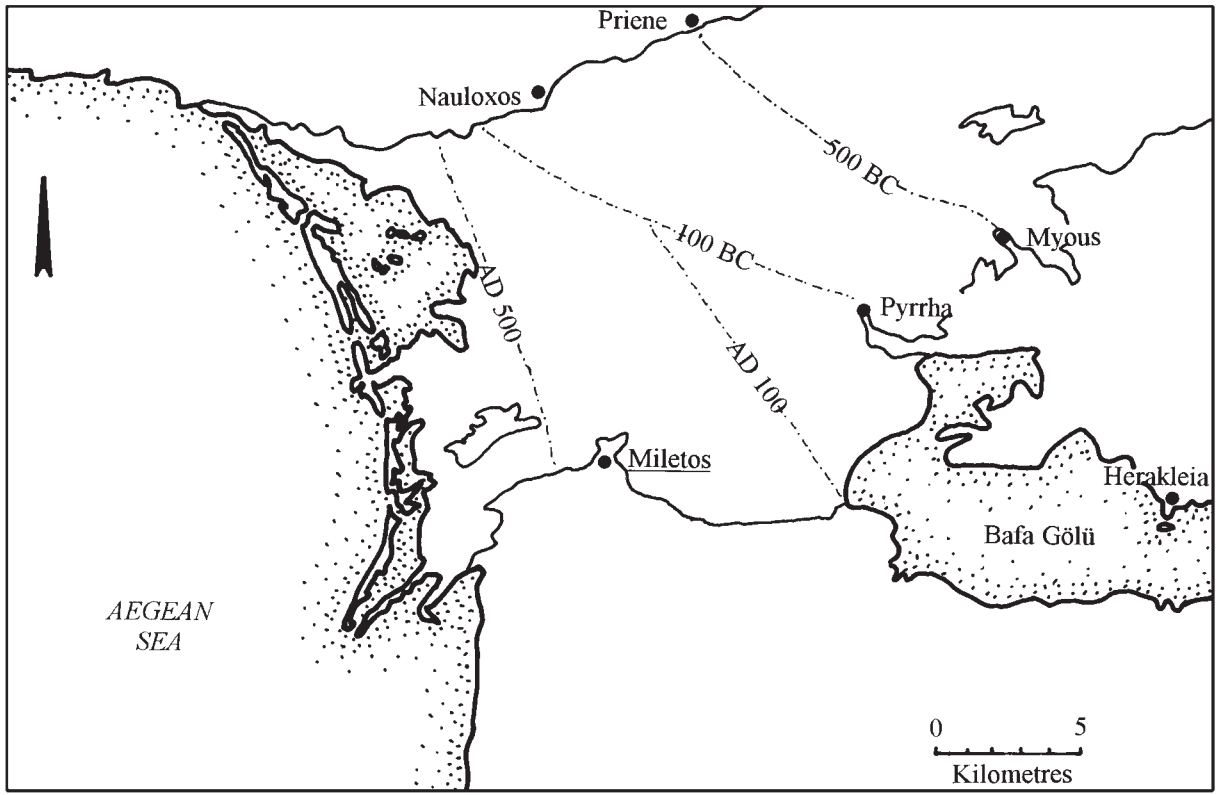


Figure 1.5 The progradation of the Büyük Menderes Graben (after Aksu *et al.* 1987b).

must have been one of its great assets in antiquity. The soils of southern Milesia, however, are generally poor and are not deep and well watered enough to be suitable for intensive agriculture. These red and grey-red podsolised soils are only capable of supporting forestry and maquis scrub (Göney 1975: 183). In southern Milesia the majority of soil deposition is limnal, around the coasts (Gödecken 1988: 309), or in the small valleys that occasionally cut into the southern and western edge of Milesia, such as at Deniz Köy. By contrast the deep, hydromorphic alluvial soil of the Maeander valley is extremely fertile and retains moisture well, making it ideal for cereal production (Braun 1995: 32–3). This diverse geology also produced a variety of soils across the region including twenty-seven sources of clay, two of which were exploited for the production of pottery (Gödecken 1988: 315), which has long been recognised as an important productive activity in ancient Miletos.

Climate

Herodotus observed that Ionia was blessed with a favourable climate, unlike the climates to the north and south, which he considered to be too cold and wet or too hot and dry (Hdt. 1.142). Hippocrates also noted that Ionia was well watered, wooded and fruitful with plentiful harvests and healthy herds (*Airs, Waters, Places* 12). In Greece, no appreciable climatic change has been proven since ancient times, either through study of the literary sources or through palaeobotanical analysis such as that which has been carried out in Boeotia (Isager and Skydsgaard 1992: 10–11). The Mediterranean continental climate of the Aegean region of Turkey is more apparent than in the Greek peninsula, with hot dry summers and warm wet winters. The region's dry summers have virtually no rain at all, but 70 per cent of total rainfall is recorded in the winter months between November and March (Aksu *et al*. 1987b: 231–2; Tuttahs 1995: fig. 74). The Ionian coast and islands receive on average more rainfall than Attika and the arid Kyklades, which are sheltered from the moist westerly winds in autumn and winter by the Pindos mountain range. The steep mountains inland from Miletos, such as Mount Grion (modern İlbir Dağı, *c*. 1,200 metres high) and Mount Latmos (Beş Parmak Dağı, 1,375 metres high), rise very steeply from sea level (Peschlow-Bindokat 1996: 12) and catch moisture-bearing clouds carried by the westerly winds that ascend their slopes, cooling them and causing precipitation. The area around Miletos therefore receives more of the rain from these winds than the eastern side of the Greek mainland and low-lying Aegean islands and this must have been a considerable advantage to the city and its agriculture. Even though Miletos is only a few kilometres from the nearest of the Aegean islands its geographical position is such that it has an appreciably different climate and should not be considered just another part of Greece in terms of climate and agriculture.

Hydrology

Other than the Maeander there are no large rivers in Miletos' territory, but there are many small dry watercourses (ephemerals) that run off the Stephania Hills during the rainy season through small gullies to the west near Akköy and Mavı Şehir. The sloping limestone geology of the Stephania plateau has resulted in a number of natural springs on the northern plain of Milesia (Schröder and Yalçin 1992) and these must have been vital to life and agriculture on the fertile and populous northern plain. One of these springs, named as Byblis by Ovid (*Met*. 9.450 ff.), may originally have taken its name from the rushes (*bubloi*) which grew around it (Dunham 1915: 34–5). Until the construction of an aqueduct in the Roman period, transporting water from these springs to the city, Miletos' water supply must have been met mostly by wells, dug down to a level where the water-bearing limestone meets an impermeable layer of clay (Niemeier, Greaves, Selesnow 1999: 376–8).

In central and southern Stephania there are few naturally occurring springs, and this may account for the seemingly magical nature of the spring which does rise at Didyma and which formed the focus of the oracle there. Occasional seasonal pools form in dips in the surface geology during the wet season and in this otherwise barren land they must be of great importance to the region's herds and wildlife. A great many wells have been dug in south-west Milesia to compensate for this lack of surface water (Schröder and Yalçin 1992: fig. 2).

Topography and communications

The east–west alignment of the geology of western Anatolia was a major influence on the organisation of its trade routes and the extent and nature of its historical contacts with the civilisations of central Anatolia and the Near East. By contrast, travel from north to south in this part of Anatolia is made difficult by the east–west arrangement of horsts and rift valleys (see above, p. 6). Although difficult, such routes were not impossible and there existed a track over the Mykale peninsula/Samsun Dağı between Priene and Ephesos and also a less mountainous route from Magnesia-on-the-Maeander to Ephesos (Marchese 1986: 142). There were only a few tortuous routes available through the mountains into south-west Karia and so the valleys such as the Maeander/Büyük Menderes valley created a natural communications corridor deep into the Anatolian interior, which was to be important from prehistoric times onwards (Marchese 1986: 39–42; Melas 1987).

The west coast of Anatolia was the most extreme western point on the exchange route known as the 'Silk Road', an enduring process of exchange by land and sea between East and West, which probably began in prehistory but which is difficult to trace archaeologically until the introduction of Roman

glass and Chinese ceramics (Mikami 1988). The 'Silk Road' followed no particular route and goods from as far away as China and India could reach the sea at any number of coastlines. One of these routes crossed Anatolia to the western coast of Asia Minor and Miletos (Walbank 1981).

Of the possible east–west communication routes across Anatolia, those that used the valleys of the Hermos (to Smyrna) and Kayster (to Ephesos) are thought to have been more used than that which passed down the Maeander to Miletos (Dunham 1915: 1–5, 11–13 and map 2; Birmingham 1961). The construction of the Royal Road from Susa to Sardis boosted the importance of these more northerly routes and when Ephesos was made the Roman provincial capital it still further concentrated trade into the northern Ionian harbours and away from Miletos. Nevertheless, the Maeander valley route was always significant and continued to be so into later history (Luther 1989). Miletos had the advantage of being the most southerly harbour on the western Anatolian coast to have such good access to the interior and by being more southerly it was also closer to the Mediterranean than Ephesos and Smyrna. After the time of Xerxes the Maeander valley became the most convenient line of communication with the East (Magie 1950: 39). From the seventh century AD onwards, Miletos was a natural anchorage for caravans heading inland (von Salis 1910: 117), it had a karavansaray and remained an important trading centre until the fifteenth century AD (Gibb *et al.* 1960: 987–8; see Chapter four). Therefore, Miletos always retained an important place as a trading centre and no single trade route existed to the absolute exclusion of others.

The Maeander valley was a major communications artery for land transport but may also have been used for river transport. However, it is difficult to speculate on exactly how this was possible as the river has changed its course frequently over time. If the river had narrow mouths at the delta and braiding in its upper courses, as it does now, it would only have been navigable by small craft or rafts (Marchese 1986: 141; see also Baran 1965: 87, plate 1).

Internal transport within Miletos' territory could be by land or sea. In addition to 'informal mountain paths and road systems' (Marchese 1986: 139), which one can assume to have existed in the most heavily populated areas of the Maeander basin, there was at least one constructed road – the Sacred Way (see Figure 3.15). This went south from Miletos through the Stephano hills via the harbour at Panormos to Didyma. This road may have been constructed as early as the Archaic period (based on *Milet* 1.3: no. 133, although see Tuchelt 1991: 39) and it continued to be used into the Roman period (French, D. 1981: 80, n. 207, 208). The Sacred Way was resurfaced four times, the latest resurfacing being in AD 100–1, under Trajan (Tuchelt 1991: 39, fig. 55, 56). The road surface was 6 to 7 metres wide and although it has not been completely traced, it would have covered a distance of 16.4 kilometres. When the temple at Didyma became disused, this processional

way must have lost much of its importance, but such a useful surfaced road could still have been used for a period of time after that.

A Hellenistic period inscription records that Miletos constructed a road from Pidasa to Ioniapolis (*Milet* 1.3: no. 150; Cook, R.M. 1961: 96–7), but this has not yet been found and traced on the ground. Also, a milestone found at (Ak)yeniköy (French, D. 1981: 81, n. 209) may be evidence of a Roman road in that area, the course of which is also unknown, but which may have headed eastwards from Miletos. Even for local transport, the sea was also a vital means of communication for Miletos and many parts of Miletos' *khora* were best reached by sea. For example a ferry service (*porthmis*) operated between Miletos and Ioniapolis (*Milet* 1.3: no. 150, line 99 ff.). Bulky items, such as building stones for the temple at Didyma, were transported to Panormos by sea (Blackman 1973: 34–7).

Long-distance land transport was not used by many cultures in the ancient world (Finley 1985: 126–8) and developed road networks were not widespread. In terms of land communications, Miletos was effectively almost an island, as it was separated from the interior by high mountains and could not easily be approached by land. When the Hittite king Mursilis II marched against Millawanda/Miletos he encountered great difficulty in actually getting to the site with his chariots and failed at least once in his attempt to get there. The comparative ease and speed of sea transport compared to land transport in antiquity meant that in effect Miletos was closer to the Maeander valley, Mykale peninsula and nearby islands than it was to areas of the adjacent mainland. Consequently, water transport and sea power were to play a vital role in the historical development of the city (Greaves 2000a).

The site of Miletos was endowed with good natural harbours and was geographically well positioned in relation to trade routes leading to every corner of the Mediterranean basin and to the Black Sea. According to Strabo (14.16) Miletos had four harbours, one of which could be closed. The location of these is still uncertain, although the identification of the Lion Harbour (probably Strabo's 'closed' harbour), the Theatre Harbour and another harbour to the east of Humei Tepe appears to be secure (Brückner 1998: 251). All these harbours are now silted up but their original shape can be made out in a G.I.S. simulation of the city area (see Figure 1.3, Greaves 1999: 61, fig. 2).

The Lion Harbour, named after the two colossal Hellenistic lion statues erected at the harbour entrance (*Milet* 2.3: 110–14), has been the subject of a recent geological and geophysical research. Although not yet finished, this research has been aimed at learning more about its precise depth and shape, and to find traces of moles or other harbour constructions and is of enormous value (Brückner 1995, 1998; Wille, 1995; Stümpel *et al.* 1995: 252–3; 1997: 128–30). This research so far appears to suggest that it was a good depth and shape for ancient ships. The Theatre Harbour, which takes its name from the Roman theatre that still dominates its northern shore, is less

well understood than the Lion Harbour but was initially the most important harbour in Miletos and the focus of the Bronze Age and Archaic harbour-town (Kleiner 1968: 48). Although not as narrow and naturally shaped as the Lion Harbour the Theatre Harbour was protected from westerly winds by the nearby island of Lade.

To sum up, communications within Miletos' territory were effected by land and sea and many parts of its territory were accessible only from the sea. For long distance trade and communications, Miletos was very favourably located. The Maeander valley provided a route directly into the heart of Anatolia and the Near East and that combined with superb harbours giving access to the west put Miletos at an important route nexus which was to make it an important, wealthy and coveted trade centre throughout history.

Natural resources

The geological diversity of the region provided Miletos with a variety of different building stones within her immediate vicinity (Figure 1.2). The local limestone of the Milesian peninsula was used for buildings such as houses and is the most commonly used building material for domestic structures of all periods. The harder marble and gneiss stones from the north and east of Milesia were preferred for larger and more prestigious building projects. The gneiss rocks that are exposed at Myous and northwards up the Maeander valley were quarried in antiquity and used in building works at Miletos, including the construction of the Archaic Temple of Athena and the defensive walls of Kalabaktepe (Kleiner 1968: 36; Schröder and Yalçin 1991). Marble from the nearby quarries at Herakleia and Ioniapolis was used for the construction of fine buildings in Miletos and the temple of Apollo at Didyma. At Herakleia finished and unfinished column drums have been found in situ in the quarries (Peschlow-Bindokat: 1981) and at Mavı Şehir column drums were found in the bottom of the harbour where they presumably fell into the water whilst being transported to Didyma (Blackman 1973: 34–7). These marble quarries were very important in a region that is otherwise almost completely lacking in mineral resources and ownership of these quarries was hotly contested in antiquity.

Another important resource that the Milesian territory did possess was timber that grew on the uplands, especially the mountainous area around Mount Grion. Mount Grion lay in an area to the west of the modern town of Çamiçi, a Turkish place name meaning 'in the pine(s)' and this area is still heavily wooded with pine and cypress (a coniferous hardwood). Pliny the Elder (*Natural History* 5.112) says that the Karian name for Miletos itself was *Pityusa* and this name may have been given because of the abundance of pine-trees in the area. Through careful woodland management, Miletos' territory could have provided it with a good source of quality timber for use in the city. Grazing by flocks and overexploitation of the timber forests could

have been a potential hazard to this supply as deforested slopes in this region cannot easily recover and soon become denuded. This is because the Mediterranean climate has a tendency to produce downpours, which wash away soil and seedlings, interspersed with dry summers, which scorch seedling trees before they can take root (Meiggs 1982: 39). Pollen analysis of cores taken from the Lion Harbour at Miletos revealed a high percentage of pine pollen at all levels (17.3 to 24.5 per cent) except in one level, roughly equivalent to the Hellenistic period, when it shows a decline, when it was down to 9.5 per cent (Wille 1995). Overall, such evidence as there is appears to confirm that Miletos had areas of pine forest in its territory, although perhaps not enough to keep the city supplied.

Timber was essential for ancient shipbuilding, and according to Herodotus (6.8) Miletos fielded a fleet of eighty triremes at the battle of Lade, in addition to which the city probably had other smaller fishing and trading vessels. Miletos also had a reputation as a furniture producer (Athenaiaos,1.28.b, 11.486.e) and this work would also have required a supply of quality timber. Wood for house building and domestic consumption as fuel did not require specialist timbers and wood of this type could have been obtained by managing the extensive areas of maquis scrub that Miletos possessed (Forbes 1996: 79–80).

Although Miletos was well supplied with timber in comparison to its contemporaries on the Greek mainland and islands, its demand for wood, especially specialist timbers, probably outstripped local supply and western Asia Minor was supposedly deforested at a relatively early date (Thirgood 1981: 38–9, citing Theosphrastus). In the Black Sea, where Miletos had trade contacts and colonies, wood was said to be scarce in much of Skythia (Hdt. 4.19) except for the extensive woodlands of Hylaea (Hdt. 4.9, 18, 54, 76) on the opposite bank of the River Borysthenes (modern Dnieper) to Miletos' colony at Olbia. However, Bithynia and Thrace in the Black Sea were wooded and Histiaeus briefly attempted to acquire Myrcinus, a location in southern Thrace with timber suitable for making oars, for Miletos immediately prior to the Ionian Revolt (Hdt. 5.23). Some of Miletos' colonies, such as Olbia, could therefore have been in a position to supply her with additional timber, when necessary, although generally her position at home was better than that of most Aegean states.

The other natural resources of Milesia are somewhat limited and the area bears no significant deposits of important metal ores. Gold, silver, copper and tin are all absent and would have to have been imported into Miletos from areas outside Ionia. There are deposits of iron ores at Çavdar and the Koçarlı-Salhane ore field in the area around and to the north of ancient Mount Latmos, modern Beşparmak Dağ. If these deposits were exploited in antiquity, there is no literary evidence or datable archaeological material to prove it (Roebuck 1959: 20). Miletos may have had access to the lead deposits of the lower Maeander valley to the north of Myous (Marchese 1986:

plate 11) but again it would be difficult to show proof for the exploitation of this source in ancient times.

The territory of Miletos was almost totally lacking in metal ores, and this would have been true for most of Miletos' contemporaries in the Aegean. The procurement and use of metals was an important factor in the development of Greek civilisation (Osborne 1996: 113–14; Treister 1996). By contrast, Anatolia has abundant mineral resources, which were instrumental in the development of early Anatolian civilisations (M.T.A. 1987: 105). With its harbours, overland trade routes and strategic geographical position between these two regions, Miletos would have been in a good position to trade in metals, both for its own supply and for exchange. In most cases, it cannot be said with absolute certainty where Miletos secured supplies of the key metals tin, copper, gold, silver, iron and lead and more research is necessary. The case-study at the end of this chapter discusses this issue at length (p. 32).

Agriculture

Written sources, such as Hesiod's *Works and Days*, can only tell us so much about ancient agriculture, and nothing that is specific to Miletos. Through techniques such as palaeobotany (plant remains), pollen analysis and faunal studies (animal bones) we can learn more about ancient agriculture but excavated examples of agricultural implements are rare and there is still much we cannot know about agricultural practices in any given region in antiquity. Therefore, to find an additional source of information, much recent debate has focused on the importance of informed comparison between the modern land-use patterns and practices and agricultural practices in the same region in antiquity. This is a viable method of study because, as Anthony Snodgrass notes: '… the ancient rural landscape of Greece was, in many important aspects, much like that of Greece today' (Snodgrass 1987: 94–5).

It is useful to consider the ancient agricultural landscape in comparison to what we can see of the agriculture of the modern world, especially before rural depopulation, mechanisation and widespread use of fertilisers and pesticides in the later twentieth century. These developments have come slightly later in Turkey than in Greece and the rest of Europe where membership of the European Union and the effects of the Common Agricultural Policy have done much to accelerate the pace of change in agricultural methods. Generally, changes such as mechanisation, increases in farm size, use of irrigation and cash cropping have only taken place in Turkey since the 1950s (Hershlag 1988; Akşit 1993). This allows for 'ethnographic' observations on the traditional agricultural practices of Turkey to be made that may help us to hypothesise about ancient agriculture in the region. What seems clear is that Mediterranean polyculture, that is the production of the so-called Mediterranean triad of wheat, olives and wine, was central to

the ancient agriculture, economy and society of Miletos as it was in other contemporary Greek *poleis* (city-states). The three main crops of the triad are harvested at different times of the agricultural calendar, making them an ideal combination (Mattingly 1996: 221).

We have seen already that the region around Miletos has a good climate, by the standards of the Mediterranean, and the geology has produced contrasting areas of extremely fertile and extremely poor soils. How may this region have been exploited for agriculture in antiquity? To answer this question it is necessary to begin with a brief description of agricultural land-use in the region today, and what factors have affected the region in recent years which must be taken into consideration before attempting to draw parallels with ancient Miletos. There then follows a summary of the main evidence published to date from Miletos for the cultivation of wheat, olives, vines and other crops, and the practice of fishing and animal husbandry from archaeological, literary and epigraphic sources. On the basis of this one can make some informed assumptions about the nature of agriculture in ancient Miletos.

The modern agricultural economy

The modern pattern of agricultural land-use in the region that was known as *Milesia* is quite different to that of antiquity. Nevertheless a comparison between the two is still useful in order to understand how the topographical character of the region suits itself to different types of agricultural exploitation. This allows one to hypothesise how the different areas of Miletos' territory may have been used in the past. First of all it is important to understand what has changed in the landscape since antiquity, and compensate for any identifiably modern agricultural or social changes that have taken place before giving consideration to how agriculture was practised in ancient Miletos.

The biggest change affecting agriculture in the area around Miletos must be the silting up of the Gulf of Latmos by the Maeander (see above, pp. 6–7). This has created a very large, flat, fertile and well-watered alluvial plain that is now used for the intensive production of cash crops, almost exclusively cotton. Only part of this plain would have existed in antiquity and that part would have been separated from the city of Miletos by open water (Figure 1.6). This plain should be disregarded in any discussions of ancient Miletos as it is a recent addition to the landscape. This might, at first glance, make the territory of ancient Miletos appear poor in comparison to the modern situation but the ancient landscape was not completely barren and even without this fertile plain Miletos' territory would have been productive enough to have supported a sizeable community.

New crops have been introduced to the region since the Archaic period and have come to dominate the local economy. Cotton is now grown as a

Figure 1.6 The Northern Plain of Milesia. The Stephania Hills are to the right and the Büyük Menderes Plain is to the left.

cash crop on the flattest and most well-watered areas of the region. This cotton is the basis for the present-day cotton textile industry based in Söke and textiles are an important part of the economy of modern Turkey (Hershlag 1988: 59–60). Since the 1980s industrial exports have taken over from agricultural products as Turkey's main export, but it should be noted that textiles are ultimately manufactured from an agricultural product (Hershlag 1988: 74–5). The character of the modern Turkish economy is due in part to its good geographical location and proximity to markets. Turkey exports agricultural products and textiles west to Europe and the USA and industrial products east to its Islamic neighbours, with some of whom it has good relations (Hershlag 1988: 84). Cotton was known to Herodotus but his description of its cultivation does not suggest that it was grown outside India at that time. (e.g. 'the Indians wore garments of tree-wool', 7.65; 'Xerxes' army wore cotton', 3.219; and Hdt. 3.106). Cultivation of cotton (*Gossypium arboreum* and *Gossypium herbaceum*) almost certainly had not diffused as far as Miletos by the Archaic period. There are other new crops grown around Miletos today, most notably tobacco, which can tolerate the drier soils at the feet of the Stephano Hills, especially in the area around Akköy. Tobacco is the other major cash crop of the region (Figure 1.7). Cash-cropping, especially cotton, has increased markedly in Turkey only since the 1950s (Akşit 1993: 194–5) and cash-cropping on this scale and of these particular crops would not have been possible in antiquity and so the land-use character of the fertile lowlands of Milesia must have changed considerably

over time. Cash-cropping also makes use of irrigation, insecticides and chemical fertilisers which would not have been used in the past and which will have affected the productivity of the land, making comparisons between modern yields and those of antiquity difficult.

Islam has a great influence on life in Turkey. One way in which this has affected agriculture is in the production of wine. The abrogation of *al-Khamr* (specifically wine, but taken to mean any kind of alcohol) can be traced through the Qur'an in Surat al-Nahl 16.67, Surat al-Baqarah 2.43, 2.219 and most clearly in Surat al-Ma'idah 5.90 (see Yusuf 'Ali 1993). The teachings of the prophet Muhammad *s.a.s.* (*c.* 570–632) were first adopted by the Turks in the ninth to tenth centuries AD (McCarthy 1997: 5–6). By 1073–4 AD Muslim Turks had appeared at Miletos and by 1290 Miletos was part of the caliphate of Menteşe (Cahen 1968: 73, 308). Although modern Turkey is officially a secular state, 99 per cent of the population are Muslims (Allen 1994). Wine had been an important element of ancient Greek culture and was a vital element of ancient economy, society and diet. Along with oils and meat, wine is estimated to have accounted for 5 to 15 per cent of calorific intake in the ancient Greek diet (Gallant 1991: 68). Although Turkey does now produce some very good wines, viticulture is not the integrated part of agricultural life that it once was. Only a few small poorly maintained vineyards exist around Miletos today and those that do exist (one south of Akköy and one east of Akyeniköy) are small, with no more than a hundred vines each. The majority of the grapes grown in Turkey today are made into sultanas for sale or storage and in the late summer large sheets of drying

Figure 1.7 Low hills and small valleys in western Milesia, near Akköy.

grapes can be seen on balconies and field edges across Turkey. The soils and climate of the region are clearly suited to the growth of grapes and it can be assumed that there was greater production of wine in the region in antiquity in the pre-Islamic period.

One of the greatest social and economic changes that Turkey has experienced in recent years has been the development of tourism, the growth of which is particularly noticeable in the area to the south of Miletos. Tourism has provided an alternative source of income and employment for the people of the region and it is now the greatest invisible earner for Turkey's current account, forming 10 per cent of all invisibles and 3–4 per cent of all exports (Hershlag 1988: 77–8). The largest effect of this must surely be the fact that population is now concentrated in the southern half of Milesia as opposed to the northern half, around Miletos itself. In antiquity one could expect the highest population to be concentrated in the more sheltered and fertile lands to the north, with population concentrated in the city of Miletos. Now the less fertile southern area sustains the large towns of Didim (formerly Yenihisar) and Akbük which rely for a large part of their income on the tourists visiting the ruins at Didyma and the beaches at Altınkum (which means 'Golden-Sand' in Turkish). As a consequence, a smaller percentage of the region's population is engaged in agriculture than was traditionally the case and the land-use character of the whole southern half of Milesia has been radically altered by the growth of hotels and tourist villages, making interpretation of ancient land-use in this part of ancient Miletos' territory difficult.

Although tractors were introduced relatively late into rural Turkey in the 1950s (Akşit 1993: 188–9), the introduction of mechanised farming methods has led to the marginalisation of formerly important agricultural areas that are too steep or too small to be usefully farmed mechanically. It is in these marginal areas which are not given over to cash crop monoculture and where a variety of crops are still grown that one can get the best impression of patterns of land-use in antiquity (see Figure 1.7). The small valleys and gullies that cut through the Stephano Hills, especially to the west, provide a very different environment for agriculture to the intensive modern cultivation of the plains. Here small ephemeral streams provide water in the wet season only and the hills provide shelter from winds. In some of these valleys terraces have been constructed and, where possible, tobacco is grown. Terraces like these may not have been used in antiquity, when 'trenching' may have been used instead (Foxhall 1996). The area of Milesia that would have been suitable for terracing/trenching is quite limited, as the landscape varies between plains and mountains, with little in between. The hills of the western Stephania could have been more widely terraced/trenched in antiquity and the recent mania for bulldozing terraces can be seen on Değirmentepe, although it is not yet as widespread as it is in parts of Greece (Shipley and Salmon: 1996). In the bottom of the sheltered valleys, nearest

the watercourse, it is possible to cultivate vegetables such as tomatoes and aubergines. The lower slopes of the gully sides are planted with olives and the upper slopes are used as rough grazing.

When one takes these modern changes into account it is possible to make informed assumptions about the patterns of land-use in ancient Milesia. Excluding the Büyük Menderes plain, the area most intensively used for agriculture is (and would have been) the area around Miletos itself, i.e. modern Yeni-Balat, Akköy and Akyeniköy (see Figure 1.9). These are all to the north of the Stephano Hills, which provide shelter from the arid southern winds and have good soils and natural springs. The fields around Akköy and Akyeniköy are now used for tobacco cash-cropping, but in antiquity the predominant land-use would probably have been cereals. The fields below the site of ancient Assesos (to the east of Akyeniköy) are still used for cereals as they were in the Archaic period, according to Herodotus (1.17–22). This passage is an account of Alyattes' twelve-year siege of Miletos when he set fire to the cornfields of Assesos and inadvertently destroyed the temple of Athena there. That area of the Maeander Valley that existed in antiquity and was under Milesian control could also have been used for the production of cereals, for which its soils are ideal (Braun 1995: 32–3).

The Stephano Hills, being a limestone escarpment, have steeper slopes on the north than on the south. These steeply sloping northern hillsides that drop down to the plains around Miletos are planted with olives which can thrive on poor, thin soil such as this. Where the slope is too steep to allow trees to develop, a small semi-circular wall or line of stones is used to help retain the soil and prevent erosion around the tree's root bole. Olives are also inter-planted around the edges of fields in the more low-lying areas, as are fig trees. South of the Stephano Hills the land slopes gently towards the Bay of Akbük. This land is very exposed and it is only where small valleys occur and break up the scrub that terracing and olive cultivation is possible. Where the south coast has not yet been developed for tourism, large olive plantations exist but it is difficult to say with any certainty what the ancient land-use in general might have been due modern developments. This pattern of live cultivation probably has not changed much since antiquity, although stone built 'pocket' terraces were probably not used (Foxhall 1996: 46).

The tops of the Stephano Hills are covered with maquis scrub, where box, laurel and evergreen oak abound. This form of habitat is the result of deforestation that took place in mainland Greece in the Bronze Age and possibly earlier in Anatolia (Isager and Skydsgaard 1992: 13). These maquis shrubs, such as the evergreen oak (*Quercus coccifera*, or Kermes oak) that is rarely more than 1 metre high with spiky leaves like that of a holly and small acorn-like fruits, are not useful for timber unless they are trained to grow straight (Forbes, H. 1996: 79–80). This scrub provides rough grazing for sheep and goats but it should not be viewed as just degenerate forest that is prevented from full development due to overgrazing. The quick-growing

maquis prevents soil erosion, provides rough grazing, was a source of household fuel and natural dyes and other resources (Isager and Skydsgaard 1992: 14; Forbes, H. 1996).

Most farms in the area around ancient Miletos are, and would have been, based on a mixed agricultural regime of arable and pastoral farming and the main source of protein in the ancient diet would have been from animal products (Trantalidou 1990: 393–4). As with other forms of agriculture, the archaeological and literary evidence alone is not enough and it is helpful to consider how animals are kept in the region today in order to compare that with possible ancient agricultural practices. Animal husbandry in Aydın province is common as part of a mixed agricultural regime that combines it with arable farming. Sheep are the most common livestock, followed by goats and cattle, with donkeys, horses, mules, camels and water buffalo being kept in small numbers (Göney 1975: 554–9). In modern Aydın province the ratio of households engaged in arable or mixed agriculture as opposed to solely animal husbandry is 91,467:3,226 (Source: Türkiye statistik Yilliği 1995: 334) and in other regions of Turkey, such as Hakkari, herding is still the mainstay of the economy (Yalçin-Heckmann 1993). Animals produce a variety of products and, other than wool, sheep and goats produce horn, hair, milk and skin. Ewe's milk is used to make butter, cheese and yoghurt; the butter is often sold but the cheese and yoghurt are staples of the diet in many Turkish villages. Goat's milk is used to make cheese or yoghurt and once cattle have been used for milk, they could also be used for meat and leather. A good milk cow can produce a great deal of milk, which is drunk fresh, made into yoghurt for consumption later in the day or made into cheese for storage.

The landscape of Milesia can be divided into three zones: the coastal foreshore, the maquis scrub and the plains (*Milet* 2.2: 29–41). Of these three regions, all are used for grazing sheep and goats today, but cattle are generally restricted to the plains. On the tops of the Stephania and Grion uplands, the Milesian Islands and along the foreshore of Milesia rough grazing is, and would have been, the only viable agricultural use (Figure 1.8). In addition to providing extensive grazing for sheep and goat herds, these scrublands would have had other productive uses, and should be considered a considerable asset to the ancient city (for other, non-agricultural uses of such land see Forbes, H. 1996). These areas would not have been enclosed and probably, as in the Hakkari region of modern Turkey, pasture was communal (Yalçin-Heckmann 1993: 20–1). Very few fields (except graveyards) are enclosed by walls in the area around Miletos today, thus allowing for the free movement of flocks to graze on the crop-stubble and rough areas, under the supervision of a shepherd. The open scrublands are often subject to extensive bush-fires that destroy hundreds of hectares of grazing territory in a single day. During a large bush-fire that I witnessed, farmers acted quickly to protect the cultivated fields, but it was left to run on the scrublands, where they can cause little long-term damage to the agricultural economy.

Figure 1.8 The Coastal foreshore of Milesia with grazing sheep.

On the region's fertile lowlands, sheep are grazed on the stubble of crops and in between trees in order to regenerate the soil with their droppings. In antiquity this system of 'worked' fallow, where the stubble was grazed after harvest, was probably also used (Walcott 1970: 38–9). Manure was an extremely important by-product of sheep, perhaps even as important as their wool at some sites (Ryder 1993: 306–7). Sheep and goats are often run together on the scrub and the plains and it would not have been necessary for Miletos' fine-woolled sheep to be restricted just to the lowlands (*contra* Burford 1993: 152). Sheep are sheared twice a year and weaving and knitting are still a common winter activity for women in this region.

Flocks are moved frequently and can be kept in a fold overnight, if necessary. Flocks, which are of rarely more than fifty head, are closely shepherded and therefore do not stray into areas with ripening crops. Shepherds and goatherds are invariably males who would not be good farm labourers, such as the young, elderly or otherwise infirm. The shepherds' job is to ensure developing crops and trees are not eaten, to bring the animals home for milking and to defend the animals from the packs of wild dogs that roam the area. Although there are no longer natural predators, such as wolves and lions, in this part of Turkey, packs of wild dogs are still a very real threat.

Cattle may on occasion be run with a herd of sheep and goats, but more often they are grazed on lowland fields after harvesting. They are often tethered in a field by the cowherd and left to graze before being moved on.

Cattle may be herded like this in twos and threes, or in larger groups of up to fifteen. Additional fodder for cattle is gathered from the roadside and other stray areas and cattle are fed domestic food waste, although this would also have been eaten by pigs in the pre-Islamic period.

The alluviation of the Gulf of Latmos makes it difficult to say anything about ancient fishing grounds adjacent to the city of Miletos and fishing today is hampered by tourism in the area of the southern beaches. Also the modern border with Greece, which limits the range of boats sailing out of Turkish harbours, would not have existed to limit the activities of Miletos' ancient fishermen. The main fishing harbour in the area is now at Taş Burun (about 10 kilometres south-west of Miletos, on the west coast of Milesia) and some boats sail from Mavı Şehir and Altınkum (Figure 1.9). These fishing stations are quite busy and even given the considerable changes that now restrict fishing in the area, it is clear that fishing must have been a far more important element in the ancient economy of the region than it currently is.

The landscape of Milesia would have been very diverse, changing from the very fertile Maeander valley to the near barren hills and islands. This

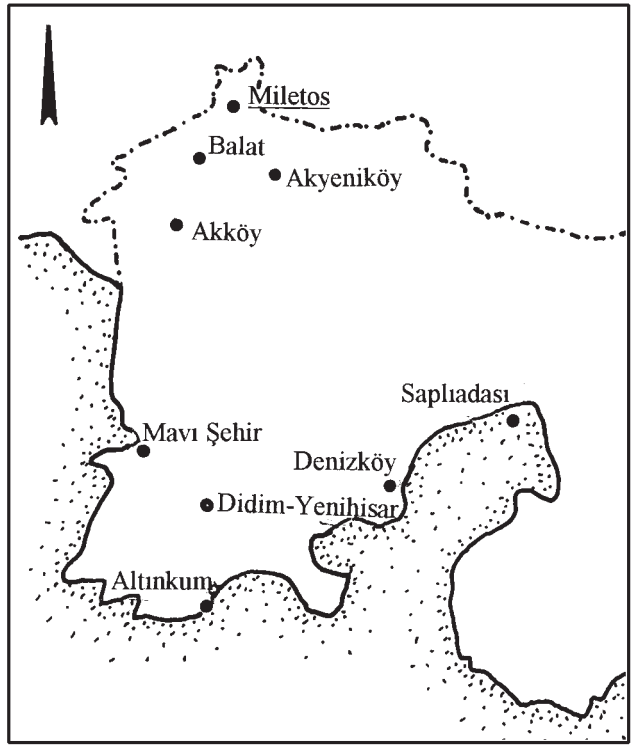


Figure 1.9 Modern place names in Milesia (broken line indicates ancient coastline).

diversity was Miletos' strength. It provided good conditions for the production of olives and cereals and, to a lesser extent, wine and other foodstuffs, supplemented by good fishing grounds. It also provided for large flocks and so textiles have traditionally been an important product for this region, in both ancient and modern times.

The ancient agricultural economy

Having considered the suitability of the landscape of Milesia for agricultural exploitation by analogy to the modern situation, let us now turn to the available archaeological, literary and epigraphic evidence for production of the key Mediterranean crops – cereals, olives and vines.

Cereals

The suitability of modern Milesia for production of grain was discussed above and it was shown that the coastal strip of northern Milesia, the small valleys of western and possibly southern Milesia and that part of the Maeander valley that was controlled by Miletos could have been used for the production of cereals. Archaeological evidence for production of cereals at Miletos includes a palaeobotanical study of the plant remains from Kalabaktepe and Zeytintepe which reveals a large number of carbonised cereal grains, 72.9 per cent of the total sample (Stika 1997). The results show that a range of cereals were being used at Miletos including (in decreasing order of importance): barley (*Hordeum vulgare*) 58; wheat (of various types including Einkorn, Emmer and Spelt) 18; and millet (*Panicum miliaceum*) 12. There were also a large number of unclassifiable cereal grains, which could not be securely identified due to their state of preservation (67 in total). It is interesting to note how much more important barley is than wheat in this study and the importance of the often-overlooked millet. In a similar study of second- to third-century AD grain from Didyma, the majority appears to have been wheat not barley, suggesting a possible change in practice since the Archaic period (Tuchelt 1973/4). Evidence for the processing of cereals at Miletos comes from a well-crafted quern of uncertain date discovered on the terrace on the summit of Kalabaktepe (*Milet* 1.8: 7–8).

In literary sources, Miletos' fields are mentioned by Herodotus three times: 1.17 (the annual ravaging of the Milesian countryside by the Lydians), 1.19 (the accidental burning of the temple of Athena at Assesos) and 5.92 (Thrasybulus' advice to Periander of Korinth). These fields were presumably for cereal crops. This suggests that the better areas of land in the Milesian *khora* were not given over to sheep husbandry, but that cereal production was a major concern of the region, even though wool production was an important activity in Miletos (see below, p. 31). The historian Hipponax (frag. 43.2) made mention of barley being ground by slaves at Miletos and Plutarch

(*Moralia* 298 c–d) mentioned threshing floors being trampled by oxen during the revolt of the Gergithes – in this case being used to crush young children to death, not for the processing of grain, but the principle remains the same. The event is dated to the Archaic period (Burford 1993: 207). There are no Archaic inscriptions from Miletos that can shed any light on the production of cereal crops. The name of one of the nearby hills, Değirmentepe (Turkish for 'Windmill Hill'), is explained by the existence of a windmill that can still be seen on its summit.

The importance of cereal production in Milesia and its relevance to the population of Miletos is discussed in Chapter three. The key points from this brief survey of the evidence is that parts of the territory were ideal for the production of cereals and the literary evidence suggests that they were used for that purpose. The archaeological evidence shows that a range of cereal crops were being grown, with barley being the single most important cereal crop.

Olives

The second element of the so-called Mediterranean triad is the cultivation of olives (*Olea europaea L. sativa).* Olive oil was an essential of ancient Greek life, yet this ubiquitous commodity was rarely mentioned in literary sources. Not only was it used for cooking and eating but it also fuelled lamps, formed the base for perfumes, preserved food and was used in place of soap. It may also have been used in the processing of textiles and wool and the by-products of pressing could also be used as fuel, animal feed or fertiliser (Mattingly 1996: 225). It was a versatile and necessary item, produced and processed by small farmers or specialised producers alike and easily stored or transported in amphorae. Olives and olive oil have a high calorific value and may have accounted for a significant percentage of the calorific energy value of the ancient diet. David Mattingly (1996: 222–3) suggests as much as 25–40 per cent of calorific intake came from olives whereas Gallant (1991: 68) suggests 5–15 per cent. Olives are also rich in calcium, minerals, vitamins A and E, fats and lipids.

Before being eaten olives must be prepared by pricking or cutting and treating them in saltwater for about two weeks until all the bitterness has been removed. In Balat (the modern village nearest ancient Miletos), an early autumn delicacy is *asıt zeytin* (literally 'sour-olives') – quickly crushed green olives, salt-treated for only three days. By preserving them in brine, oil or honey or by storage in the form of oil, olives could be eaten all year round.

As shown above, the territory of Milesia is well suited to the growth of olives which are the region's most important fruit (Göney 1975: 508–26). Olive trees are still grown around the edges of fields, on marginal slopes and sometimes in groves, especially on the south coast where arable cultivation is not practised. The Milesian peninsula has always been appropriate for the

cultivation of the olive, which can survive the slightly dry and hostile conditions that the rocky terrain offers, making it an ideal choice of crop for marginal farmland (Mattingly 1996: 215). Although 'pocket' terraces are now used for olive trees on marginal slopes, this would not have been the case in antiquity, where 'trenching', which involves digging a circle around the base of the tree to help moisture retention around the roots, was probably used (Foxhall 1996). This is still practised in the area north of Akköy, particularly on trees that have recently been replanted and need additional water in their first few years. The use of 'trenching' or similar methods of olive cultivation on marginal land leaves no archaeological trace and it cannot be proven that this method was used at Miletos in antiquity. Even so, Miletos must have been better positioned to meet the enormous demand for oil in her domestic market than other Ionian states with smaller or rockier territories.

The archaeological evidence for olive cultivation at Miletos includes a large number of fragments of olive stones recovered from modern excavations, using palaeobotanical sampling systems, on Kalabaktepe, Zeytintepe and the Temple of Athena area (Stika 1997). Pollen samples from the Lion Harbour show a significant amount of Olive (*Olea*) at every level, from 7.7 to 2.6 per cent (Wille 1995). Evidence for processing olives into oil comes from a marble oil press of uncertain date found on the summit terrace of Kalabaktepe (*Milet* 1.8: 7–8). An oil press was also found in a trench section south-west of the oracle at Didyma, which is certainly post-Archaic in date (Naumann and Tuchelt 1963/4: 21, fig. 2a).

We have two literary sources that tell us about olive growing and oil production at Miletos. Herodotus (1.17) describes how the Lydian king Alyattes annually destroyed the Milesian orchards; these were almost certainly olive groves (Dunham 1915: 6–7). This was an act of economic vandalism from which it would have taken Miletos years to recover because olives are very slow to mature. Finley (1985: 31) suggested a period of only ten to twelve years for the olive to reach productive maturity but Mattingly (1996) puts it at five to eight years for trees grown from cuttings or grafts and twenty years for completely new trees. Depending on the severity of the fire and the amount of damage to the trunk and root-bowl, many trees may have recovered from such a burning after a few years, or branches could be re-grafted if the trunk was not too badly affected.

Our second literary source is Aristotle (*Politics*, 1.4.5), who relates a tale that the Milesian philosopher Thales cornered the market by leasing all the oil presses in Miletos and Khios prior to an olive glut and made a small fortune from hiring his presses out. This would appear to be evidence for the existence of commercial production and trading in olive oil at Miletos in the Archaic period. However, I would not use this as evidence to suggest that Miletos was a prodigious producer of olives on an 'industrial' scale at such an early date (unlike Dunham 1915: 6–7 and Roebuck 1959: 41, n. 69). This source is of a late date and should not be used as hard evidence for the early

commercialisation of olive oil production in Archaic Miletos. There is no firm evidence for extensive olive presses from Archaic Miletos and in writing about Thales, Aristotle is not presenting accurate historical information but an anecdote about his cunning. Although recent excavations at Klazomenai have uncovered a large oil pressing installation which may be hard evidence of oil production on a considerable scale in Archaic Ionia, such production cannot yet be proven at Miletos. It is my impression that Miletos was capable of producing a large amount of olives, probably based on household production and processing and that the Thales passage, although interesting, should not be used as firm evidence of commercialisation of oil production in Miletos in the Archaic period. There is no epigraphic evidence for olive production at Miletos, although the name Zeytintepe means 'The Hill of Olives' in Turkish and it is still covered in olive trees today.

In the Black Sea, only a thin coastal strip in the south of the region is suitable for the cultivation of the olive and Milesian colonies here would have had to import oil. Cultivation was limited to only the area around the mouth of the Bosphoros and the south coast between Sinope and Trapesus (Mattingly 1996: fig. 9.3). Distinctive Athenian 'SOS' style amphora have been found at Olbia, a Milesian colony in the northern Black Sea, a small indication of the extensive trade in oil that probably took place (e.g. Hind 1984: 79, fig. 10). The Black Sea colonies would not have been in a position to supply Miletos with additional oil, as they may have done with grain on occasion (see Chapter three, Case Study Four).

Miletos may have had a surplus of oil for trade, especially in 'good' years when olive production was high. Although the dealings of Thales may not be a historic document about the nature of commercial oil production in the Archaic period, it does reflect an understanding that olives are subject to glut years (Mattingly 1996: 219–20). The wily Thales is alleged to have taken advantage of one such glut. A papyrus records that ships carried over 25,000 litres of oil from Miletos and Samos to Alexandria in 259/8 BC (Casson 1995: 162–3, n. 36). This shows the capacity of the region to produce a surplus. The city of Miletos and the ancient economy in general changed greatly over time and the fact that it was capable of producing such a surplus in the Hellenistic period should not be taken as a basis for production in the Archaic period, or earlier. However, the slow growth of olive trees, discussed above, should be borne in mind and it is very significant that production of surplus on this scale was possible in the period before the increase in olive production under Rome in *c.* 200 BC to AD 200 (Mattingly 1996: 218). Archaic Milesian amphorae, which were distributed widely, probably carried olive oil for export and their distinctive thickened rim may have been designed to prevent the oil dribbling (Cook and Dupont 1998: 175ff.).

The largest consumer of this surplus produce would undoubtedly be the internal market of Miletos itself, as it was in Athens – a much larger producer (Finley 1985: 133). Excess oil and olives could be preserved and

stored for domestic consumption and olive oil probably had a 'shelf-life' of about one year, after which it would be prone to go rancid (Mattingly 1996: 225).

Imported transport amphorae from Khios and Cyprus, which could have been used for oil, have been found at Miletos, alongside local Milesian-Samian types (Kerschner 1999: 216; Niemeier *et al.* 1999: 384–92). Even if Miletos was importing oil from these places, Athens or elsewhere, it does not necessarily imply that Miletos had outgrown its local supply of this basic commodity. Even large oil-producers would have had to import oil, given the erratic cycle of olive production (Mattingly 1996: 225–6). Quantification of the amounts of oil imported or exported from Miletos is not possible and small quantities of fine oil may have been imported as a luxury commodity from regions with a reputation for quality.

To sum up, many parts of Miletos' territory are suitable for the cultivation of olives and there is literary and archaeological evidence to show that they were grown. There is nothing to suggest that Milesian olives had a particular reputation for quality and quantification of ancient production is difficult, especially as there is such large annual fluctuation in crop productivity with olives. The Thales passage, which is often cited as evidence for early commercialisation of production at Miletos and Khios cannot be securely used, because of its late date, but it does reflect the variability of olive productivity. The distribution of Archaic amphora (presumably used for oil) and a Hellenistic period papyrus suggest that Miletos was capable of exporting large quantities of oil. However, it cannot be shown whether Miletos was a net exporter of oil every year or just in glut seasons. Certainly, some importation of oil appears to have taken place, judging by the presence of imported amphorae probably to supplement local production but possibly also as a luxury good.

Vines

Viticulture was known in Krete and mainland Greece from the Early Bronze Age (*c* .2500 BC, Palmer 1996: 271–3). There are carbonised grape pips and stalks from 600 BC Tille Höyük in south-eastern Turkey, which have the characteristic slender shape and long stalks of domesticated grapes (Gorry 1996: 163, fig. 11.6). Consumption of wine became an important feature of ancient Greek culture and wine may have made a significant contribution to the average daily calorific intake, perhaps as much as 5–15 per cent (Gallant 1991: 68). As noted above, p. 18, consumption and production of wine in the region today is limited (Göney 1975: 539–45) but the landscape does lend itself well to the growth of vines and the territory of Miletos clearly had the capacity to produce more wine than it currently does.

Archaeological evidence for the growth and production of wine at Miletos includes a large number of carbonised grape seeds recovered by palaeo-

botanical sampling during excavations at Kalabaktepe (Stika 1997). Several complete amphorae (three Milesian-Samian, one Khian and one Cyprian 'basket-handle' amphora) were found in a well near the temple of Athena, which appears to have been filled as a part of the Persian sack of the city in 494 BC (Niemeier *et al.* 1999: 384–92). In the same area, near the Theatre Harbour, a trapezoidal storeroom/warehouse was discovered, containing almost thirty intact amphorae also dating from around the time of the destruction of 494 BC (*Milet* 1.8: 79–81, figs 43 and 45).

There are very few literary sources that refer to wine at Miletos and the city does not appear to have had a reputation for producing any wines of note. However, Athenaeus (10.442.e) observes that the Milesians act like hooligans when they get drunk, so clearly they were not 'unused to drink' and probably participated in the drinking of wine as much (if not more) than their Greek contemporaries. There are no inscriptions that refer to Milesian wine.

Direct evidence for production of wine at Miletos is limited and it would appear that Miletos imported a considerable amount of wine. However, as with olives, it could be that local consumption of wine was largely met by local production and that wines were imported only when necessary or as a luxury commodity. The palaeobotanical evidence shows that grapes were found in the city (the territory is suited to their growth) and vines would have complemented the production of cereals and olives as part of Mediterranean polyculture. The production of *vin ordinaire* for domestic consumption would not appear in the archaeological record because such wine could be made and transported in wineskins or barrels. Much of Miletos' production would therefore have been archaeologically 'invisible' and with no literary, epigraphic or even ethnographic evidence it is impossible to in any way quantify ancient production or say anything about methods of production or the character of the wine produced. It does seem likely though that wine was produced and consumed in quantity, as part of standard Mediterranean agriculture and diet at the time. The existence of imported wine vessels at Miletos shows only that these may have been brought in for luxury or occasional necessity.

The source of Miletos' imported wines will have included the important Aegean producers Khios, Rhodes and Lesbos, who had a reputation for quality wines. These producers also exported to the Black Sea (see Boardman 1999, for Khios and Clinkenbeard 1982, for Lesbos). Although olives cannot be grown in much of the Black Sea area, vines can be cultivated here and are still grown in every country in the region. The colonies of Miletos in the Black Sea would have produced their own wine and excavated pollen from the *kleroi* (allotments) of the colonists of the Black Sea colony of Khersonesus shows that within a couple of centuries of foundation nearly every *kleros* practised viticulture, with the majority containing considerable quantities of vine pollen (Yanuchevitch *et al.* 1985: 122; Carter 1994: 67). The Persian

invasion of Ionia severed links between the Black Sea colonies and their traditional suppliers, acting as a catalyst for trade and production within the region and Heraklea Pontica and Sinope developed into important regional wine producers.

There are two points worth noting before drawing any conclusions on Miletos' production of wine and involvement in wine trading. Firstly, that the contents of transport amphorae cannot always be known with certainty and, secondly, that grapes can also be used to produce dried fruits and other products and not just wine. It is often very difficult to distinguish between wine amphorae and those used for other goods such as olive oil, walnuts or hazelnuts (Hind 1993: 111). Also, it should not be forgotten that there is more that can be done with grapes than just produce wine. Hittite tablets show that raisins (Hittite: $^{GIS(H)}$ GES(H)TIN.HAD.DU.A) were an important part of Anatolian viticulture, as they are in modern Turkey. Raisins were stored and used as food, drink, military iron rations and as part of rituals and funerals (Gorry 1996: 158–9; Neve 1992: 93, fig. 253 – an eighteenth century BC rhyton in the shape of a bunch of grapes). Hesiod's *Works and Days* (611–14) also describes the process of preparing raisins. There was a long tradition of raisin wine in Anatolia, which was noted by Pliny (*Natural History* 14). In modern Turkey grapes are also used to make *pekmez*, a heavy grape-molasses, which is used to flavour winter drinks or eaten with bread. Raisins, sultanas, currants and apricots are important agricultural products and exports for modern Turkey and although the cultural change brought about by the coming of Islam reduced the number of vines in the area, the vines that were there in antiquity may not all have been used to make wine.

Other crops

The ancient agriculture of Miletos would not have revolved solely around the three crops mentioned above, but archaeology can add little to our knowledge of these other crops. Other than cereals, vines and olives, large numbers of carbonised fig and lentil remains have been found by palaeobotanical research (Stika 1997). Fig trees are found growing along roadside and field margins in the area around ancient Miletos. When they are in their season, which is short, figs are eaten as a snack by workers in the fields and at almost every meal. Remaining figs are dried and hung on strings for sale or later consumption. Figs are the second most important fruit after olives in the Büyük Menderes valley and have always been important to the region (Göney 1975: 526–39). Figs have a food-energy value per hectare of several times that of wheat and may have made a considerable contribution to the ancient diet (Foxhall 1993: 141). Lentils, however, are not much grown in the region in modern times (Göney 1975: 502).

Animal husbandry and herding

There are very few literary sources or inscriptions that can tell us anything about animal herding at Miletos, so we must rely on archaeological evidence. Particularly useful is faunal evidence – the examination and statistical analysis of animal bones recovered from sites during excavation. Preliminary analysis of the faunal remains from Minoan-period Miletos suggests that there were more goats than sheep. This is a reversal of the trend for most contemporary sites, which have more sheep than goats. This may be a result of Kretan animal husbandry and farming techniques being adopted in Miletos (Niemeier 1998b).

It is unlikely that the famous Milesian wool came from goats as Angora goats whose mohair coats gave Ankara its wealth and name were not in evidence in central Anatolia before the fourteenth century AD, so fine-woolled goats were probably a later development in the region (Leister 1993/4).

In all periods there are both sheep and goat remains at Miletos and the two may have been run together, as they are today, and used for meat and milk (Zimmermann 1993: 70). Another feature of animal husbandry at Miletos was probably the rearing of wethers, male sheep that are castrated and as a result grow larger, producing better meat and wool. Faunal evidence from ovicaprids (sheep/goats) at Minoan Akrotiri suggests a mixed regime with sheep being kept for meat and milk, and the retention of small wether flocks for wool (Gamble, 1978, 749–50). Although this practice has yet to be proven for Miletos, rearing of wethers in Mycenaean Krete was also widespread (Killen 1964). In the Archaic period, castration is mentioned in Hesiod's *Works and Days* (786) and faunal evidence from Zeytintepe and Kalabaktepe suggests that some of the sheep were wethers, presumably being kept for wool (Peters and von den Driesch 1992; Zimmermann 1993: 13–29).

Attempting to calculate the number of sheep in Miletos' herds would be very difficult because, when one is talking about the carrying capacity of these marginal areas, it is not possible to talk about the number of sheep per hectare but rather the number of hectares per sheep! Whatever the precise number of sheep, Miletos had a large area of otherwise marginal land which would have been suited to herding and these herds would have been one of the region's major economic resources. Miletos had a reputation for its woollens products, but the sources (mostly Athenaios) that mention these refer only to its high quality and make no mention of how common Milesian wool was or how much of it was produced.

Faunal evidence from Kalabaktepe suggests that cattle were used for their meat, horn and leather. No evidence has been found for tanning vats, but leather can be assumed to have been produced at Miletos and their age at slaughter suggests that they also produced milk and labour as secondary products (Peters and von den Driesch 1992; Zimmermann 1993: 30–7).

Although not as many pig bones have been found as those of sheep/goats and cattle, significant numbers of were found and the age of death shows that they were kept for meat and slaughtered young (Peters and von den Driesch 1992; Zimmermann 1993: 37–44). Pigs will have been fed domestic food waste, which is now fed to cows (as the keeping of pigs is forbidden by Islamic tradition). Wild pigs are quite a common sight in the Milli Park national park on Samsun Dağı (ancient Mykale) and are still occasionally reported on Değirmentepe and Zeytintepe and are sometimes hunted for sport. However, the published research into the faunal evidence suggests that wild animals did not form a significant element in the Milesian diet in antiquity with less than 1 per cent of animal bones being from non-domesticated species.

Miletos' physical environment: conclusions

The precise limits of Miletos' territory are hard to define, as it does not provide us with a single clearly defined area, such as an island state might do, and it seems to have had possessions in a number of adjacent areas, control over which varied over time. Nevertheless, two conclusions can safely be drawn. At its fullest extent, the *khora* of Miletos was extremely large, larger than that of most contemporary Greek *poleis*. Secondly, that this territory was very varied in nature, with both extremely fertile and extremely poor areas. The only natural resources available in this territory were stone and timber and the area is almost completely lacking in mineral resources. The agriculture of the area was based on cereals, olives and vines and although more vines were probably grown in antiquity than there are today, olives would still have been the more important of these two crops. With the addition of other food crops, herding and fishing Miletos had considerable agricultural and economic potential.

Case study one: Miletos and metals

The preceding description of Miletos' geological and geographical setting shows that the city's hinterland lacked virtually all natural resources, especially metals, but was ideally situated to become a focus of trade in those materials. Miletos had an ideal natural harbour located on the edge of the Aegean, and was situated at the mouth of the Maeander valley, that led deep into the interior of Anatolia – an area rich in metals that played an important role in its history (M.T.A. 1987).

Tin was the most sought-after metal in the ancient world, being an essential element of the dominant technology of the period, bronze. Bronze was not only essential to the technology of Bronze Age cultures, but was also extensively used in the Iron Age for the production of armour, tools and high-status ornaments, such as statues. The bronze used was most often an alloy of copper mixed with varying proportions of tin (usually around 10–15

per cent). In the absence of tin, arsenic can be used for making bronze, as it was in the Aegean pre-palatial period (Dickinson 1994: 98), although the source of this arsenic is not yet known. Arsenic was traded in the Late Bronze Age although it has other uses, apart from being alloyed with copper to make bronze (Bass 1997: 154–9).

There are few sources of tin in the Aegean or Mesopotamia that are known to have been exploited, or exploitable, in antiquity and the question of ancient sources of tin in Anatolia has been much discussed. The Kestel underground workings and Göltepe processing, smelting and habitation site South of Niğde, appear to have been producing tin on a considerable scale in the third millennium BC (Craddock 1995: 36, 162; Kaptan 1995). Here, Stannic Dioxide (SnO_2 or cassiterite), a native tin dioxide and the form of tin that was most easily recoverable to ancient prospectors, was being mined and processed.

Even production on this scale (an estimated 1,000 tons of ore were extracted from the mines and 861 pulverising hollows for processing the ore were found at Göltepe) may not have been enough to satisfy the need of ancient Anatolia for tin. The Ulu Burun and Cape Gelidonya shipwrecks prove conclusively that tin was being transported along the south coast of Turkey in the Late Bronze Age (see below) and Miletos may well have received its tin by means of sea-trading rather than overland from Anatolia. Prentiss de Jesus (1978: 58) wrote: 'It is interesting to note that tin-bronzes occur first at coastal sites (in Anatolia), suggesting that maritime trade led to the spread of bronze technology.' However, this statement does not show that tin was being traded by means of the sea, only the technology of tin-bronze making.

If Anatolia was not the main source of Miletos' tin, then there are two general regions from which it may have come in antiquity: the West and the East. The earlier of these two sources for Miletos was probably the East. I use the term 'the East' in a very broad sense. Afghanistan was the most likely source although Iran, Egypt and even Malaysia and Thailand have also been given serious consideration. The high central mountains and foothills of Afghanistan have rich mineral reserves (Allchin and Hammond 1978: 18–23). The exploitation and wide distribution of Lapiz Lazuli from the Badakhshan mines of Afghanistan to Mesopotamia and Egypt as early as 3500 BC, gives us some insight into how far ancient commodities from this region could be traded. Cuneiform tablets record that tin was being imported from Assyria into Anatolia from as early as the seventeenth century BC (Belli 1991: 1–3). Although there were considerable sources of cassiterite in the eastern desert of Egypt, they do not appear to have been exploited in antiquity (MacQueen 1986: 42).

Tin from the east was traded along the southern Turkish coast towards Miletos and the shipwrecks at Cape Gelidonya and Ulu Burun, which both contained ingots of pure tin, are an insight into this trade (Pulak 1988; Bass

1961, 1986 and 1996). Seventeen fragments of ox-hide tin ingots and 4 'bun' ingots were found, with a tin content of 99.5 per cent (Pulak 1988: 8–9). Rectangular and anchor-shaped ingots were also found and, in total, the Ulu Burun ship was carrying one ton of tin and nine tons of copper (Bass 1997: 154–9). These wrecks date to approximately the thirteenth and fourteenth centuries BC, respectively, by which time Miletos was already a well-established harbour settlement. There are also texts from Mari recording possibly Kretan and Karian tin merchants at Ugarit (Yakar 1976: 122–3) whose tin probably came from the East. Ugarit received its tin from Mari, which in turn received it from further east in Eshunna and Susa (Bass 1986: 294, n. 155, 1997: 157; Niemeier 1998b: 36–8) – its ultimate point of origin was probably Afghanistan. Although it cannot be shown in which direction the two wrecked ships were travelling when they sank, the currents and trade circuits on this stretch of coast would take them from east to west in the direction of Miletos (Myres 1930: 220–1; Greaves 2000a: 48–9).

A large amount of tin for classical Ionia is thought to have come from the West (Roebuck 1959: 94–101). Herodotus (1.163–5) tells us that the Phokaians were the first Greeks to trade in the far West and this passage has been used as a basis for assuming that they brought with them high-tin-content bronzes from Tartessos (southern Spain). There are several other potential sources of tin from the West including Cornwall, Brittany and the 'Tin Islands' (Penhallurick 1986: 115–243). Phokaia may have founded her colony at Massalia to tap into a tin route from England and Brittany via the Seine–Rhône–Saône corridor (Treister 1996: 152). Trade routes for the same tin along the Atlantic coast had been established by the Late Bronze Age and a seventh-century BC cargo of scrap bronzes from Huelva in Spain included both British swords and east-Mediterranean fibulae (Bass 1966: 85–6). Italy, Sardinia, Portugal and Brittany also had sources of tin which were known in antiquity (Yakar 1976: 123) and it is possible that tin was brought from Nigeria, which has one of the world's largest deposits of cassiterite tin ore, to Carthage (Taylor 1982). In the seventh century AD there is a reference to tin from Cornwall being brought to Egypt (Muhly 1973: 264). Using literary sources ranging from early cuneiform tablets to Ottoman archives, Belli (1991) showed that from the second millennium BC to the eleventh century AD Anatolia imported most of its tin from the east, but thereafter, from the eleventh century AD to the mid-nineteenth century AD, it came from Britain. In Ottoman historical records British tin was imported into Turkey by Genoese merchants via the port at Palatia (the Medieval Greek name for Miletos) during the fourteenth century AD (Belli 1991: 4). Exploitation and trade of the tin sources of the West began at a very early date, but it is not certain when the Aegean region first tapped into that trade, although it was most likely when Phokaian trade and colonisation in the western Mediterranean began in the seventh century BC. The importance of the western tin trade appears to have grown until, in the period prior to the

discovery of the New World, Britain was the region's main supplier of tin. For tin, therefore, the source of the metal appears to have changed over time, from the East to the West, although tin could have come from both directions at the same time in order to reach Miletos.

Although Miletos had no local sources of copper it does not appear to have been in short supply. Bronze artefacts are frequently found during excavations at the site and a solid bronze *astragalos* (knuckle-bone), presumed to have come from the temple at Didyma and weighing 93.7 kilograms, was found at Susa to where it appears to have been carried by the Persian forces that sacked the temple of Apollo (see pages 109–29). An inscription on this artefact suggests that it was once one of a pair which, if true, would imply that the complete artefact originally contained nearly 200 kilograms of bronze.

Other than a few limited sources in the Troad and Propontis, Cyprus seems to have been the major supplier of copper to Ionia, although Syria may also have been an important source (Bass 1997). The cargo of the Cape Gelidonya shipwreck was probably Cyprian copper (Bass 1961). Numerous ancient dumps of slag have been found on the island and estimates suggest up to 500,000 tonnes of metal were extracted there in antiquity (Bear 1963: 190–2). As noted above, the Phokaians may also have been carrying high quality bronze from Spain. Miletos could also have received copper from the north Anatolian copper belt which stretches along the southern shores of the Black Sea, (de Jesus, 1978: 99, map 1), a region where Miletos went on to found colonies in the Archaic period. Inland from the Milesian colony at Apollonia Pontica (modern Sozopol) are the Meden Rid hills (meaning 'copper ridge' in Bulgarian) and copper from the Strandzha mines may have been an incentive for Miletos to colonise there (Treister 1996: 31). Despite this region of Bulgaria having its own copper, two Late Bronze Age ox-hide ingots have been found: one from Cernovo and a small one from Cape Kaliakra (Bouzek 1985: 21, plate 4.2; 1990: 13). Many Bronze Age ox-hide ingots have been found on Sardinia, which also has copper and tin deposits of its own suggesting that, initially at least, interest in Sardinia was not for its copper but for some other trade item, possibly lead or more probably iron (Osborne 1996: 113). It has been suggested that these ingots came from Cyprus, although this cannot be proven by analysis (Budd *et al*. 1995: 27). The existence of copper ores in a region cannot therefore be taken as evidence for exploitation of that copper or as the basis for Greek interest in that area. Miletos' most likely source of copper was Cyprus, but this cannot be proven or taken for granted and, as with tin, a number of sources were probably supplying or trading through the city's port at any given time in its history.

Ionia has no significant deposits of gold although from the seventh century BC gold was being exploited on a large scale in Lydia. This Lydian gold was imported by Ionia and the other regions of ancient Greece (Roebuck 1959: 20, 88–93). Lydian gold appears to have been handled mostly in the form of

electrum (white gold), an alloy of silver and gold in varying proportions, which can also occur naturally. This electrum was used to make the earliest Milesian coins. Other possible sources of gold for Miletos may have included Thrace; the Caucasus (Roebuck 1959: 91–2, 117), and Egypt (Bass 1997). It has often been suggested that the *Argonautika* cycle of myths may have its origins in the tales of early Greek traders penetrating into the Black Sea in search of gold (Tsetskhladze 1994: 114). Strabo (5.215) rationalises the myth by explaining that Jason's golden fleece was a reference to a fleece being laid on a stream bed to trap alluvial gold, but there are other theories explaining the myth, that do not involve gold (Smith and Smith 1992: 119). In truth, the importance of gold from Kolchis has probably been overplayed (Ghambashidze 1919: 49–50; Braund 1994: 61–2) and Lydia was a much more important source of gold for ancient Greece, even for Miletos with its extensive Black Sea connections.

In many respects silver appears to have been in more limited supply than gold, which was readily available to Miletos from Lydia. Silver was available from some of the same sources as gold, such as Thrace, which was famed for its supply of silver (Roebuck 1959: 91) and is also often found with lead. A significant number of silver deposits do exist in Anatolia, some of which are thought to have been exploited in antiquity. For example, close to the Aegean coast at Seferhisar, a deposit south-west of İzmir, at Gümüşlü and the remains of old mines near Bodrum (Yakar 1976: 121). How much these sources produced and how important they would have been is not clear. The Phokaians may also have brought silver back to Ionia from Tartessos (Hdt. 1.163–5) but as already mentioned this trade was probably more important for the tin that it could supply than for silver, of which there were deposits closer to home (Roebuck 1959: 96–9). Although many of Miletos' pre-Ionian Revolt coins were in electrum, some silver coins were issued and this may have increased the demand for silver. This may account for Histiaeos' shrewd attempt to acquire a colony for Miletos at Myrcinus in the land of the Edoni (Hdt. 5.11), which was rich in silver and timber (Hdt. 5.24).

Even if one assumes that the iron deposits on Mount Latmos were being exploited as early as the Archaic period, for which there is no evidence, it is probable that Miletos would still have needed to import some iron in order to supply her domestic requirements. The ultimate source of imported iron was probably the Black Sea. Northern Asia Minor was traditionally considered to be an important source of iron from the Chalybes, (Strabo 549, 551; Hopper 1979: 39; Boardman 1999: 245, 255). This region was accessible to Miletos via her colonies such as Sinope (see Drews 1976: fig. 1). The date at which this trade began is not certain. Roebuck dates the beginning of use of Chalybian iron to *c.* 550 BC, but Drews suggested an earlier date (Drews 1976: n. 71 citing Aeschylus, *Septem*. 728 ff.). Chemical composition and trace element analysis of samples of metalworking slag and iron artefacts from Miletos has shown that iron was being worked on the site in the

Archaic period and that the metal itself was probably imported from the Chalybes (Yalçin 1993). This iron would have been transported in the form of semi-products (partially worked bars or wrought iron) because iron could not yet be cast into ingots. Ionian cities other than Miletos may have received their iron in this period from different sources outside the Black Sea (Roebuck 1959: 101–3).

As noted above there are deposits of lead near Myous, but the discovery of an Archaic inscribed lead ingot from Lydia suggests that, even if Miletos did have access to local supplies of the metal, they did not meet her needs and importation of lead was necessary (Adiego 1997: 157). Lead had many domestic uses, such as fishing weights (Niemeier *et al*. 1999: 408, fig. 26, 413). Lead was also used for votives for the sanctuary of Aphrodite on Zeytintepe (Heinz and Senff 1995: 223–4, fig. 25, lead statuette of a pigeon) and the city's demand for this useful metal must have been considerable. Lead was exploited from the Laureon mines near Athens from an early date and this may have been an alternative source of the metal for Miletos (Bass 1997: 158–9).

In conclusion, Miletos was well placed to trade in metals, despite not having any ore resources of its own. Gold, silver and lead came from within Anatolia, almost certainly brought down the Maeander valley. Tin probably came by sea, at first from the East and increasingly also from the West, but may also have come via the Maeander valley from within Anatolia. Iron came from the Black Sea. The geographical location of Miletos as a port at a crossroads made it an ideal centre for trade, even though it had little to offer in terms of its own resources.

Chapter one: annotated bibliography

Published works on the territory of Miletos include *Milet* 1.1 (a map of the area), *Milet* 2.2 (the landscape) and *Milet* 3.5 (the geology), although these are now largely out-dated. An exhaustive regional survey has also recently been undertaken by Dr Hans Lohmann, from which publications have begun appearing (Lohmann 1995, 1997). The final publication of this work can be expected to greatly enhance our understanding of the history of Miletos' territory and the relationship between city and territory. Ehrhardt (1988: 13–24) discusses territory in detail as it relates to Archaic colonisation and Tuttahs (1998) covers the whole issue of water in great detail. On the climate and vegetation see Zohary (1973). Regional studies of the Maeander valley include Marchese 1986, historical/archaeological and Göney 1975, modern/economic (in Turkish, but with a brief summary in English, pp. 601–3).

The importance of timber as a natural resource, particularly for ship-building is discussed by Thirgood (1981) and Meiggs (1982). On quarrying see Peschlow-Bindokat (1981). Articles which discuss the 'tin problem'

include: Mellaart 1968; Muhley 1973; Yakar 1976; de Jesus 1978; MacQueen 1986: 41–3; Belli 1991; Hall and Steadman 1991; Pernicka *et al*. 1992; and Kaptan 1995.

Recent important works on ancient agriculture include Sallares (1991), Isager and Skydsgaard (1992) and Shipley and Salmon (1996). Garnsey (1988) and Gallant (1991) also discuss agriculture in detail and its relevance to the ancient population. Specific works relevant to studying Miletos' agriculture include: Wille (1995, pollen); Stika (1997, and forthcoming palaeobotanics); Peters and von den Driesch (1992, animal bones). On metal resources and metallurgy in Anatolia see de Jesus 1978: 51–62.

2

PREHISTORIC AND PROTOHISTORIC MILETOS

A note on dating terminology and stratigraphy

There were traditionally thought to be three building phases at Bronze Age Miletos (Weickert 1959/60a, 1959/60b). However, recent excavations at the site have made it clear that there were three earlier phases to the site: the previously unsuspected Late Chalcolithic and the Early and Middle Bronze Age settlements of Miletos I, II, III (numbered according to the system recently put forward by W.-D. Niemeier, in Greaves and Helwing 2001: 505–6). Following this system, what was formerly known as the First Building Period becomes Miletos IV; the Second Building Period is Miletos V; and the Third Building Period Miletos VI. Some of these periods of the settlement appear to have sub-phases to them (e.g. Miletos IV, discussed below, pp. 48–55). In 1997 excavations at the Temple of Athena site found that the Late Chalcolithic (Miletos I) layers sat directly on top of bedrock, so it is unlikely that any earlier periods of settlement will be found at this site (Niemeier *et al*., forthcoming).

Although it is an important period in Anatolia, the Chalcolithic (or 'copper age') has not been defined as a separate chronological period in the Aegean. Here, the term 'Aegean Final Neolithic' would be applied to the type of pottery found at Late Chalcolithic Miletos. The two periods are broadly contemporary and the distinction in terminology is largely one of labelling. In the Late Bronze Age, precise concurrence between the Minoan and Mycenaean pottery typologies (LM I–III and LH I–III, respectively) and the contemporary pottery sequences of western Anatolia, represented by Beycesultan (Lloyd and Mellaart 1965; Mellaart and Murray 1995), which is the main type-site for pottery in the region, has not yet been closely defined. In general, therefore, I shall refer to the appropriate Aegean typology (e.g. LMIA) as these are more closely defined and understood at this point in time.

With regards to the absolute chronology of the Aegean Late Bronze Age, this has been a subject of much recent debate and there are currently two schools of thought, based on interpretation of the available evidence: the so-called 'low-chronology' and 'high chronology' approaches. The main point of contention is the date of the Thera eruption. This event is dated by the supporters of the 'low-chronology' approach to *c*. 1500 BC. S.W. Manning,

one of the chief proponents of the 'high-chronology' theory suggests a date of 1628 BC for the Thera eruption, based on laborious consideration of the radiocarbon evidence (see Manning 1995: esp. 200–17). The 'high-chronology' theory is favoured by the current excavator, W.-D. Niemeier. Where absolute dates are given, they are in parenthesis and are approximate. When possible I have referred to the appropriate pottery phase (LMIA, LMIB, etc.) in preference to absolute dates.

The prehistoric landscape and the settlement of Miletos

The landscape of Milesia is such that the northern coastal plain is the area that would be most attractive for ancient settlement, and this is where Miletos stood. This narrow plain lies to the north of the Stephano hills. As the exposed northern scarpe of these hills is eroded, or slips as the result of seismic activity, deep colluvium and alluvial fans from the ephemeral streams that feed the plain are deposited over the plain, burying the earliest settlements (compare Snodgrass 1987: 108–9, on Boeotia). Therefore, field survey cannot be expected to recover surface finds of pottery or other surface artefacts from the very earliest periods of human occupation in this part of Milesia. The most important early sites so far identified have been located either on hilltops or the coast. Early hilltop sites in the area include Assessos, a high promontory overlooking the eastern end of the northern plain (Niemeier *et al*. forthcoming) and Killiktepe, a high and relatively inaccessible hill 2.5 kilometres to the south of and overlooking Miletos (Wiegand 1911; Voigtländer 1983). Coastal locations include Kümüradası, a small peninsula (Voigtländer 1986, 1988a and 1988b); Tavflanadası, a small island (Tül 1986); and Altınkum Plajı, a beach (Gebel 1984).

The earliest pottery from the plains around Miletos was recovered during deep excavations being carried out for well construction (Niemeier *et al*., forthcoming). It is only with occasional finds from deep excavations such as this, from disturbed contexts at excavations within the city or from the deep excavations at the Temple of Athena that use vacuum-pump technology (Niemeier and Niemeier 1997: 210–11) that early material from nearer Miletos itself has been found. As noted above, excavations have now found stratified material dating from the Late Chalcolithic period in the area of the Temple of Athena site and although it is unlikely that earlier levels will be found here, there are indications of earlier activity in the surrounding area.

At the Temple of Athena site, which appears to be the focus of the prehistoric and protohistoric settlement, excavations are hampered by a great depth of overlying stratigraphy, not least the temple of Athena itself, Hellenistic- and Roman-period ruins and the remains of the Ottoman-period village, Eski Balat. There is also a problem in that the water table at the site has become raised. The first excavators to work in this area at the start of the

twentieth century (Wiegand *et al*.) were severely limited in the depth to which they could excavate because of the raised water table. In the mid-twentieth century, pumps enabled the excavators at that time (Wieckert *et al*.) to go deeper than had previously been possible and to uncover earlier periods of the settlement. By the end of the twentieth century, the excavators (Niemeier *et al*.) were able to use vacuum-pump technology and a system of well-points and electric dalgage pumps to reach much earlier levels than had previously been possible and in places to reach bedrock for the first time. In these excavations the earliest material that has been found dates to the Chalcolithic period. Some 'Neolithic' material was reported from earlier excavations at this site, for example a 'Neolithic' stone axe (Hommel 1959/60) and an 'Obsidianmesserchen' (i.e. a small obsidian knife, Wieckert 1940: 330). Similar artefacts have now been found from the Late Chalcolithic levels and it may be that these 'Neolithic' artefacts were also of Late Chalcolithic or Early Bronze Age date, but this cannot now be proven.

Neolithic period (*c*. 7000 BC–5000 BC)

It had been thought that the coastal strip between the Amanus range of mountains and the Mediterranean and the western coast of Anatolia was not densely occupied in early prehistory (Yakar 1991). Until recently, the nearest possible Neolithic settlement site to Miletos was Aphrodisias, 120 kilometres inland up the Maeander valley to the east (Kadish 1971; Marchese 1986; Joukowsky 1986; Yakar 1991). It was thought that because the region did not provide early agricultural communities with their preferred type of environmental niche it was not occupied. Although it has ample rainfall towards the west and the mountains, its soils are generally gravelly and infertile and the alluviation of the Büyük Menderes graben was not very far advanced, so the region lacked any significant areas of plain.

There is now an increasing amount of evidence for Neolithic activity in this area. A fascinating series of cave-paintings from Mount Latmos, which appears to have had cult significance from a very early date, are evidence of prehistoric activity in the area. Although the paintings cannot be precisely dated, they are presumed to date from somewhere between the epipalaeolithic and the Chalcolithic period (Peschlow-Bindokat 1996: 17–21).

Nearer to Miletos itself, excavations at the site of Killiktepe, uncovered a wall, some pottery and stone tools which were dated to the Neolithic period by the excavator (Wiegand 1911: 4–5). The lithics included several stone axes, an arrowhead and many flakes of obsidian that suggest this material was being worked at the site. The pottery from these excavations (which is described as having a zig-zag pattern) may also have been from the Late Chalcolithic period. Pot scatters found at Killiktepe during more recent surface surveys range in date from the Neolithic to the Early Bronze Age (Voigtländer 1983). Given this limited amount of evidence it is impossible to

say anything about the settlement at Killiktepe, if indeed there even was a settlement there.

Field survey has now identified seven sites from the Late Neolithic/Chalcolithic period within the territory of Miletos (Lohmann 1995). However, the deep soil deposited from the Stephano Hills escarpment has obscured any other early evidence from the northern plain of Milesia and in the lower Büyük Menderes valley deep alluvium can be expected to have covered any low-lying sites in that area. Coastal sites may have been destroyed or covered by the increasing sea level and excavation of early sites is made difficult. The geological character of this region may account for the apparent low density of Neolithic sites and as techniques of investigation advance, so will our understanding of this very important period. Nevertheless, there is evidence that may suggest that the region of Milesia had been settled in the Neolithic period, although evidence from the site of Miletos itself is as yet lacking.

Chalcolithic (Aegean Final Neolithic) period (*c.* 5000 BC–4000 BC)
Miletos I – second half of fourth millennium BC

The Chalcolithic period, or the 'Copper Age', presents a problem of terminology. Although the Chalcolithic is defined as a chronological period across Anatolia, it is not defined in the Aegean, where the chronology goes directly from the Neolithic to Early Bronze Age, without the intervening Chalcolithic period. The pottery found at Miletos, which is known in Anatolia as Late Chalcolithic, is known in the Aegean as Final Neolithic and is common to both regions (see p. 39, above).

The earliest evidence for settlement at the site of Miletos itself comes from the area around the later Temple of Athena that stood near the Theatre Harbour. There is evidence for settlement in the Athena Temple area from the Chalcolithic period onwards (Niemeier *et al*. forthcoming). There is as yet only limited architectural evidence for settlement at Miletos in this period, but the Temple of Athena/Theatre Harbour area already appears to have been the favoured location for early settlement at the site. Settlement at other parts of the site cannot be ruled out as Chalcolithic pottery is known at Miletos from excavations west of the Bouleuterion, to the east of Kaletepe and under Heröon III. However, these were not from stratified contexts and cannot be used to say where else in the area might have been settled.

Pottery of the Chalcolithic period had previously been found in disturbed contexts during excavations in the Roman city of Miletos. It was found during excavations west of the Bouleuterion (Müller-Wiener 1980: 46–7) and below Heröon III (Weber 1985; Pfrommer 1985; Pülz 1985, 1987). Also, a single sherd was found in the 1994 season of excavations at the Temple of Athena (Niemeier and Niemeier 1997: 241, fig. 81a).

It was not until 1997 that excavations in the area to the south of the classical Temple of Athena found secure evidence for Chalcolithic occupation and settlement at the site of Miletos. Finds included: numerous potsherds of characteristic Late Chalcolithic pottery; chipped obsidian and flint tools; and several spindle whorls of Late Chalcolithic/Early Bronze Age type, similar to those known from Aphrodisias and Beycesultan (Lloyd and Mellaart 1955: 268, n. 15; Kadish 1971: 125). These artefacts suggest a settled life in the area south of the Temple of Athena during the Chalcolithic period. The earliest known structure from Miletos has now been found: a circular cut in the bedrock bisected by a line of stones (Niemeier *et al*. forthcoming). As yet nothing can be said about the house forms or architecture of the site, although it is clear that the site was used for settled occupation.

Although Beycesultan is the main type-site for Late Chalcolithic pottery, there are a number of important Late Chalcolithic settlements closer to Miletos on the west coast of Anatolia, including Iasos to the South of Miletos and Liman Tepe to the North (Yakar 1985: 157). Miletos can be seen as part of a group of early sites located on coastal peninsulas or headlands in a period when the coast was beginning to be more densely occupied and extensive cultural links were emerging. Closer to Miletos, chipped obsidian and flint was found at Altınkum Plajı and Mersim Dere (Gebel, 1984b) and a stone axe, the precise chronology of which is uncertain but which must be prehistoric, was found at Didyma (Gebel 1984a). Chalcolithic pottery was found near Akyeniköy (Niemeier *et al*. forthcoming); pottery and chipped stone tools were found on Killiktepe (Voigtländer 1983); and at Mengevertepe (ancient Assessos) there were chipped stone tools and a curved wall, possibly part of a house (Niemeier *et al*. forthcoming).

Although there is some slight evidence of occupation from the Neolithic period in this region, it was in the Chalcolithic period, a time of settlement expansion throughout southern Greece and the Aegean, that the site that was later to become the classical city of Miletos was first settled. The site at that time was probably an island, and not the peninsula that it was later to become (Brückner 1998; Greaves 1999). The nature of the settlement here, its architecture, plan and water supply cannot be discerned, given current evidence but the great antiquity of this settlement shows what an ideal situation this place really was. The nature of the relationship between this city and the land cannot be understood given current evidence, but it can be assumed to have been an agrarian economy and therefore some relationship between this small island location and the nearby plains must have been maintained. In terms of the regional contacts that this settlement may have had, its material culture is common to a wide region and extensive trade and cultural contacts cannot be demonstrated as yet.

Detailed analysis of the obsidian used to make tools at the Chalcolithic site of Miletos will have important outcomes for understanding its regional connections and role as a focus for exchange. This obsidian cannot have been

exploited locally, as there is no source in the vicinity. Obsidian is a volcanic glass which is ideal for making chipped blades and tools and is one of the earliest traded goods found on prehistoric sites (Renfrew *et al*. 1966: 30). Each obsidian source is unique and can be identified by its distinctive colour and chemical composition. Obsidian sources supplied large areas and regional distribution patterns for obsidian from known sources have been identified in the central and western Mediterranean (Tykot 1996), the Near East (Renfrew *et al*. 1966; Nishiaki 1993) and the Aegean (Renfrew *et al*. 1966). In Anatolia, obsidian sources at Lake Van, Kars and the Hakkari region obsidian sources were exploited from an early date (Nishiaki, 1993).

Prehistoric obsidian-blade industries have been identified at Altınkum Plajı and Mersim Dere, both of which are in southern Milesia, near Didyma, and compositional analysis here has shown that the source of this obsidian was the Aegean island of Melos (Gebel 1984a: 26–8). Inland from Miletos, at Aphrodiasias, 50 per cent of the Late Chalcolithic chipped stone assemblage is made of Melian obsidian (Joukowsky 1986: 279–85). Initially, Miletos' obsidian also appears to have come from Melos, and the site appears to have been a fulcrum of a very early east–west trade route between the Aegean and Anatolia via the Maeander valley (Niemeier in Greaves and Helwing 2001: 505–6). This is a very early example of a pattern that was to be a key feature of the development of the settlement throughout its history.

Early Bronze Age (Miletos II – *c*. 3100 BC–2000 BC)

The Early Bronze Age in eastern and central Anatolia is known to have been an important period with many known sites. However, in western Anatolia until recently, very few sites had been identified and excavated, with the exception of the main type-site for the region, Beycesultan. Mellink (1986: 139–40) noted a decrease in the number of large mounds ('tells') from east to west across Anatolia. The reason for this is not yet clear. It may be due to a predominance of timber buildings over mud-brick in this region at that time or the increase in sea levels and alluviation in the large river valleys that has smothered low-lying Early Bronze Age settlements here. On the western Anatolian coast, excavated Early Bronze Age sites are rare, but include Iasos, Liman Tepe, Bakla Tepe and Ulucak-İzmir (Gates 1997: 266–7, Greaves and Helwing 2001). Liman Tepe is the site with the best evidence for settlement in the Early Bronze Age, with a substantial corridor house of a type known from Troy II. Of these, the closest to Miletos is Iasos, where inhumation burials of Kykladic type and possible evidence for settlers from the islands coming to the Anatolian mainland were found. Also, close to Miletos, Early Bronze Age pottery and Kykladic-style marble vases were found at Heraion on Samos).

At Miletos, evidence for Early Bronze Age settlement has started to appear in the last few seasons of excavations at the Temple of Athena site. In

addition to pottery and highly decorated spindle whorls, a number of figurines have been found. Field survey of the Milesian *khora* identified only two sites with pottery dating from the Early Bronze Age (Lohmann 1995). In 1994, a schematic marble figure-of-eight figurine of Anatolian type was found in an unstratified context at the Temple of Athena site (Niemeier and Niemeier 1997: 241, fig 82). Evidence for Early Bronze Age settlement at Miletos was also suggested by a single EBA spindle whorl of a type known from Troy III and IV (Niemeier and Niemeier, 1997, 241, fig. 81b). Since then, continuing excavations have found sealed archaeological deposits dating to the Early Bronze Age, with the most important discovery being the head of a Kykladic marble figurine of the EC II Keros-Syros Culture (Dokathismata variety), found in a closed archaeological context (Niemeier in Greaves and Helwing 2001: 505–6 and forthcoming). This is the first Kykladic figurine ever to be found in a secure context during excavation on a mainland site and is an indicator of cross-cultural contacts between the vibrant Early Bronze Age culture of the Kykladic islands and the Anatolian mainland.

There could be no more clear evidence for the unique position that Miletos held between the Aegean and Anatolian worlds in early prehistory. Mellink (1986: 140) suggested that western Anatolia was culturally distinct from central and eastern Anatolia as it lacked natural resources and was distanced from the intense caravan trade of the East. Instead the West made natural connections with its Aegean neighbours through navigation (Greaves 2000a). The Aegean, which is generally lacking in metals, may have been drawn to Anatolia by its relatively abundant supply of a variety of metals, with Miletos being an ideal staging point on such lines of trade. As Melas (1987) noted, in prehistory Karia looked towards the Dodecanese and the Aegean, due to difficulties in communications with the interior, and Miletos was the only direct route to the interior, via the Maeander valley. At the moment, therefore, the Early Bronze Age is the earliest period in which we can see Miletos adopting its role as a gateway between the Aegean and Anatolian worlds.

Middle Bronze Age (Miletos III – *c.* 2000 BC–*c.* 1650 BC)

As with the Early Bronze Age, the Middle Bronze Age was, until recently, thought to be a period of little activity in this region and there was an apparent break in the occupation of Milesia during the MBA period (Mee 1978; Papagiannopoulo 1985; Lohmann 1995). An important site on the western coast of Anatolia in the period is Panaztepe, to the north of Miletos, a multi-period site with a strongly represented Middle Bronze Age occupation. Inland from Miletos, further up the Maeander valley, at Beycesultan there was a major Middle Bronze Age palace and this is the type-site for the Anatolian pottery found at Miletos.

Meanwhile, in Krete in the Middle Bronze Age this was the period of the so-called 'Old Palaces', the first palaces on Krete, which were large complex

administrative and religious centres that were to be a central feature of Minoan culture. These Middle Bronze Age ('proto-palatial') palaces were destroyed in the MMIIB period and new palaces were built over them in the MMIII ('neopalatial') period. It was after the construction of the first palaces (*c.* 2000 BC) that Krete started intensive overseas trade and Minoan expansion into the south-east Aegean. At this time, a number of sites, including Kasos Karpathos, Rhodes, Telos, Samos and Iasos, appear to have been settled by Minoans or to have come into close contact with their culture (Niemeier 1998b: 29). The most distinctive pottery of Middle Minoan culture are the so-called light-on-dark wares, especially Kamares ware, which has a buff fabric covered with a black slip and then white-painted decoration, often with a floral motif.

On the western coast of Anatolia, MMIII material was identified during excavations at the nearby coastal site of Iasos, to the south of Miletos. To the north of Miletos on the coast, there are no known sites with Middle Minoan pottery. At the site of Miletos itself, some sherds published from the old excavations led to a discussion about whether there had been a Middle Bronze Age settlement here (Weickert 1940; Schiering 1984), with a possible start date in MM III being suggested. An unstratified sherd of light-on-dark ware found west of the Bouleuterion also appeared to be of Middle Bronze Age date (Müller-Wiener 1980: 46–7; Gödecken 1988: 313; Warren 1989: 79; Papagiannopoulo 1985: 89). It was not until 1997, during excavations at the Temple of Athena site, that the first closed archaeological levels were found (Niemeier and Niemeier 1999: 546).

The earliest imported Minoan pottery found at Miletos so far is a handmade cylindrical cup of MMIA date, very early in the Middle Bronze Age, at or just before the date of the foundation of the Old Palaces on Krete. A fragment of proto-palatial MMIIB Kamares ware cylindrical cup (dated to nineteenth/eighteenth century BC) was found on bedrock in 1996 (Niemeier and Niemeier 1999). Since 1997, more Kamares ware of MMIB to MMII date has been found and undecorated coarseware pottery of Minoan type, including conical cups and tripod cooking pots. Also, the discoid loom-weights, pierced at the top, which are a type known to have been used in Minoan Krete (and elsewhere) have been found.

Other evidence of Minoan involvement at Middle Bronze Age Miletos includes two seals and one seal-impression of Minoan type. The first seal is a bone stamp-seal with a very finely engraved *agrimi* (wild Kretan goat) of MMIA to MMIB date; the second is a hemicylinder seal of green serpentine stone with two inscribed circles of MMIB to MMII date; and the seal-impression is a 'two-hole hanging nodule', found in Krete from MMII (Niemeier and Niemeier 1999: 553). The existence of a seal-impression confirms that the seals found were intended for administrative purposes at Miletos and not kept for their inherent beauty and value, or as amulets.

Miletos had therefore adopted elements of Minoan administration from an early date in the Middle Bronze Age.

The Middle Bronze Age is an important period in the history of Miletos, but it is one that is not yet fully understood. It is in this period that the transition from a predominantly Anatolian to a predominantly Aegean material culture appears to have been made and the cause of this transition appears to be the Minoan 'colonisation' of the site. The importance of Miletos to the Minoans appears to have lain in its location and its potential as a focus for trade, particularly in metals (Niemeier 1998b; Niemeier in Greaves and Helwing 2001). The site appears to have been first settled as a Minoan colony in the MMIA period, around the time of the foundation of the Old Palaces on Krete, which is very early when compared to other sites in the Aegean. It was destroyed in the MMIIB period, at the same time as the Old Palaces of Krete suffered a similar catastrophe (Niemeier and Niemeier 1999).

Late Bronze Age (*c.* 1650 BC to *c.* 1100 BC)

A brief history of research and general comments:

Late Bronze Age levels were first found at Miletos in 1907 during excavations by Theodor Wiegand (*Milet* 1.8). Excavations began again in 1938 (Wieckert 1940), and were renewed following World War II in 1955 and 1957 (Wieckert 1957; Wieckert *et al*. 1959/60b). These excavations identified three distinct periods at the Late Bronze Age settlement, the so-called First, Second and Third Building Periods (now called Milet IV, V and VI by the current excavator). The First and Second Building Periods were also defined as having two sub-phases within them. This basic stratigraphic observation, that there were three phases to the Late Bronze Age at Miletos, was re-confirmed during excavations to the south of the temple of Athena for the construction of a well (Parzinger 1989). The current programme of excavations begun by W.-D. Niemeier and his team has also largely confirmed the three main phases and the sub-phases of the First Building Period first identified in 1938, 1955 and 1957.

All three of the Late Bronze Age building phases were still focused in the Temple of Athena/Theatre Harbour area which had been a site for settlement since the Late Chalcolithic period. Other than in this area, Late Bronze Age material was reported during excavations near the southern cross-wall (Kleine 1979). Reports of a large Late Bronze Age megaron on the Stadium Hill at Miletos led to speculation that there may have been a Mycenaean palace here (see p. 56 below), but new excavations have since disproved this. Late Bronze Age tombs were found on Değirmentepe, although these were certainly not an integral part of the ancient city, being 1.5 kilometres to the south-west (see p. 64 below).

Much of what we know about Late Bronze Age Miletos comes from a relatively small area around the Temple of Athena/Theatre Harbour site. It is difficult to say anything about the size and form of the settlement in general (Niemeier and Niemeier 1999: 551). An area of 1,200 square metres had been excavated up to 1997, of an estimated total site area of 50,000 square metres (Mee 1978, see p. 60 below). What we do know about the site as a whole is that the first two of the Late Bronze Age building periods (Milet IV and V, see pp. 48–59 below) were probably undefended, but in the third building period (Milet VI, pp. 59–65 below) a large defensive wall was constructed. Also, the Late Bronze Age settlement appears to have been located on an island or small peninsula, not the large peninsula on which the later city was founded (Bruckner 1998; Greaves 1999). A location like this, surrounded on all sides by the sea, would have had the advantage of good defence and communications as well as good access to a water supply, by means of wells, many of which were sunk in this area (Niemeier *et al*. 1999). Only the necropolis of the third Late Bronze Age building period was located inland, on Değirmentepe.

Of the three Late Bronze Age levels that have been identified at Miletos, the first was so heavily influenced by the Minoan culture of Krete that it was almost certainly a Minoan colony of some description (discussed in the second case-study, pp. 65–9 below); the second period displayed strong Mycenaean influences and this was probably the site known from Hittite texts as 'Millawanda' (discussed in the fourth case-study, pp. 69–71 below); and the third level also shows Mycenaean influence but with a defensive wall of an apparently Hittite type. Political control and influences on material culture at the settlement of Late Bronze Age Miletos shifted between Minoan Krete, Mycenaean Greece and Hittite central Anatolia, but the main type-site for locally produced south-west Anatolia pottery remains Beycesultan throughout this whole period.

'First Late Bronze Age Building Period' (Miletos IV – MMIII to LMIB/II – 1700–1490/50 BC)

Wiegand's excavations at the Temple of Athena site in 1907 did not bring to light any secure evidence for Minoan settlement at the site. Nevertheless, it was not long before speculation began that there might have been Minoan involvement at the site due to the large number of Milesian foundation myths that link Miletos with Krete (e.g. Dunham 1915: 38–9; von Gerkan 1940; see second case-study, pp. 65–9 below). The first imported Minoan pottery to be published from the site was found during excavations by Wieckert and others around the Temple of Athena in 1938, 1955 and 1957 with Minoan sherds from MMIII to LMIA/B (Schiering 1984: 187). Since 1994 the new excavations directed by W.-D. Niemeier have uncovered a huge amount of evidence for Minoan involvement at the site and its interpretation as a

Minoan settlement of some importance seems assured (for Niemeier's many articles on the subject see the annotated bibliography, below, pp. 72–3).

Other than Miletos, there are no sites of any size on the west coast of Asia Minor that have so far provided secure evidence for Minoan settlement. In the immediate vicinity of Miletos there are several sites known to have some Minoan material, including Kümüradası and Tavşanadası. Kümüradası is a small peninsula on the southern coast of the Milesian Peninsula (Figure 2.1) and finds here date from LMI period, but there is so far nothing later than this (Voigtländer 1986, 1988a, 1988b). Tavşanadası is a small island off the western coast of Milesia (Figure 2.2). Finds here included typical Minoan pottery forms such as conical cups and a kebab stand (Tül. 1986: 722–4). Further to the south is Iasos, where excavations produced Minoan pottery from the MMIII period onwards (Mee 1978). No Minoan pottery has so far been published from sites north of Miletos on the western coast of Anatolia.

Hampered by the raised water table and the large number of later walls overlying the remains of the first period settlement at Miletos, earlier excavators were unable to securely identify an overall plan for the site. It was suggested that there was an apsidal building in here (Schiering 1959/60: 7–8) but this interpretation has since been brought into question (Mee 1978: 134). The complexity of the fragmentary remains of the first Late Bronze Age building period found in the old excavations was probably the result of there being the remains of two phases, one overlying the

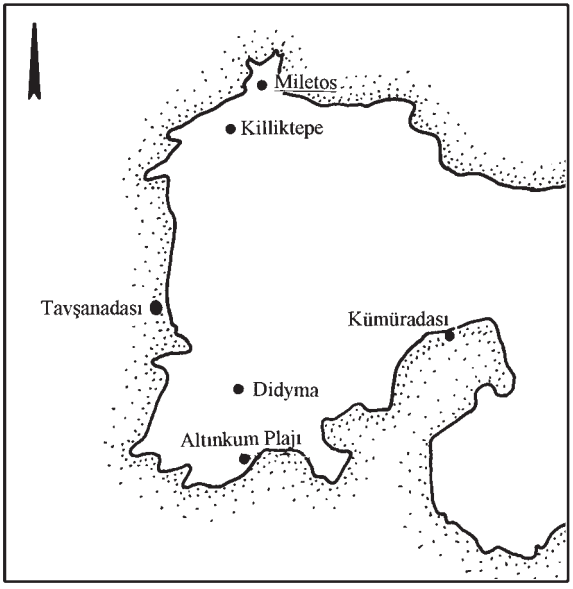


Figure 2.1 Prehistoric sites in Milesia.

Figure 2.2 Tavşanadası.

other (Schiering 1959/60: 5; Mee 1978: 134). The first phase of the first building period appeared to have been destroyed in an earthquake (Schiering 1959/60: 5). It is hoped that the current excavations will be able to distinguish these layers and recover something of the plan of the building or buildings on this site. So far these excavations have uncovered a façade wall of fine masonry on the eastern side (Niemeier and Niemeier 1997: 229, fig. 55). A great number of very fine Minoan-style frescoes have also been found from this period of the site (Niemeier and Niemeier 1997: 239, figs 77–8) and so this would indeed appear to be a very high-status building, probably associated with cult activity.

Late Minoan decorated pottery found so far at Miletos includes LMIA (ripple pattern and spiral decorated), palatial LMIB (marine style), and some LMIB standard tradition, which is derived from LMIA and which is rarely found outside Krete (see Niemeier and Niemeier 1999: 547, plates 118a, b and c respectively). There is also some of the distinctive white painted, dark pink fabric light-on-dark ware, which is known from Krete and other sites in the east Aegean (Weickert 1940: 329, 1957: plate 28.3).

Based on material from the old excavations (e.g. Weickert 1957: 117–18, plares 28–30), Schiering identified three groups of pottery from Miletos (Schiering, 1984):

- Group one: imported Minoan wares. The dominant decorative form is the spiral and has been provisionally attributed by Schiering to the Knossos area of production.

- Group two: local decorated pots that imitate Minoan designs. These clearly have Kretan prototypes but it is not yet certain which type of Kretan pottery they stem from.
- Group three: locally produced undecorated wares in Minoan forms.

The relative ratios of Schiering's three pottery groups will be very helpful when determining the extent and nature of Minoan influence on the site. That is, whether Minoan style decorated and undecorated wares were locally produced and found in quantity, or whether the Minoan pottery found was only ever imported and formed a minority of the pottery assemblage. Some Minoan pottery was published from the old excavations (LMIB marine style decorated wares and undecorated conical cups, etc.) but because the ratio of these wares to local forms was not recorded this has hampered any attempts to assess and define the nature of the Minoan presence.

More important than decorated pottery as an indicator of a Minoan presence at Miletos is the quantity of locally produced domestic wares in Minoan types. The 'superabundance' of conical cups is an especially important indicator of any Minoan society and at Miletos 300 complete examples and fragments of hundreds of others have been found (Weickert 1940: 328–9; 1957: plate 30.1; Niemeier and Niemeier 1999: 547). Other frequently found items of Minoan kitchenware include tripod cooking pots and kebab stands. At present it has been calculated that 95 per cent of the pottery assemblage for this period is of Minoan type (Niemeier in Greaves and Helwing 2001). The pottery evidence would seem to suggest a culture existed at Miletos which, although heavily influenced by Minoan pottery styles, produced much of its own pottery and maintained significant contact with the regional style of south-west Anatolia.

All of the loomweights found so far in Middle and Late Bronze Age Miletos are of the so-called 'discoid' form (Hommel 1959/60: 64; Niemeier 1999: 548) that is commonly found in Minoan culture (e.g. Warren 1972: 243). These are large (up to 15 centimetres in diameter) lenticular lumps of fired clay with double suspension holes in the top and often with transverse and/or longitudinal slots across the top. These slots were probably made to accommodate a heddle bar, to make moving the warp threads forwards or backwards in unison during weaving easier (Barber 1991: 104–5). In contemporary Anatolia, frequently found crescent-shaped objects have been interpreted by some scholars as loomweights, although their precise function is not really clear and they may in fact have had an administrative function (Mellaart and Murray 1995: 118). None of these crescent-shaped artefacts have yet been found at Miletos. This would appear to suggest that the presence of only 'discoid' loomweights is evidence of further Minoanisation of the material culture and economy of Miletos but it has not yet been shown that discoid loomweights are an exclusively Minoan phenomenon and further research is needed to confirm this.

One of the most significant discoveries from the new excavations has been a number of fragments of clearly Minoan-style frescoes. Although two fragments of white, black and red painted fresco were found in 1955 and subsequently published (Weickert 1957: 109–11, fig. 4) there were no recognisable motifs on these fragments. Dozens of fragments of frescoes executed in Minoan technique and style have been found at the Temple of Athena site since excavations were renewed in 1994. Although research and conservation of these fragments is not yet complete and will take a long time because they are mostly burnt and very fragmentary, several important motifs have already been identified. From one archaeological context came an example of the so-called 'notched plume' motif which is almost certainly from a griffin's wing executed in miniature style, similar to that from the famous river-scene frescoes at Akrotiri, Thera (Miletos: Niemeier and Niemeier 1997: 239, fig. 77, right. Akrotiri: Morgan 1988: 49–54). Although the griffin was more common in later Mycenaean art than Minoan (Negbi 1978: 650), Mycenaean elements are present in the Akrotiri ship fresco (Niemeier 1990) and griffins are known to have had religious significance in Minoan iconography (Niemeier and Niemeier 1999: 548, n. 54). From the same context came blue papyrus umbles (Niemeier and Niemeier 1997: 239, fig. 77, left), which in association with the griffin suggests a 'sacred landscape', a scene that is found repeatedly in Minoan iconography (Niemeier and Niemeier 1999: 548 and plate 119a). Another fresco with white lilies on a deep red background was probably part of a 'sacred garden' scene (Gates 1996: 303, fig. 17; Niemeier and Niemeier 1997: 239, fig. 78, 1999: plate 119b). Lilies were a theme for frescoes in both Knossos and Thera, but the lilies from Miletos find their closest parallel in a fresco from a Minoan mansion at Amnisos, the eastern harbour town of Knossos (Evans 1935: plate 67; Higgins 1967: 96, fig. 105). Hundreds of other fragments have been found but are decorated only in a single colour or as yet unrecognised geometric patterns. The frescoes so far published from Miletos show close cultural and artistic links to Minoan Krete and their existence in such numbers and of such high quality is indicative of the high status of the building in which they were found.

A round, plastered, offering table found at Miletos is the first firm evidence for cult practice of Minoan type at the site. Further evidence comes from fragments of two stone vessels: a serpentine flat-based rhyton with a pierced base and a white alabaster chalice (Niemeier and Niemeier 1999: plates 119c, 119d and 120a). Vessels like these are known to have played a part in Minoan rituals. In 1999, a sanctuary and altar was found (Niemeier in Greaves and Helwing 2001).

In 1995 came the identification of the as yet untranslated Linear A script at Miletos, one of only thirty or so inscriptions in this Kretan script to be found outside of the island itself and the first ever on the Anatolian mainland ([MIL Ƶb1] Niemeier 1996; Niemeier and Niemeier 1997: 240). Analysis of the three characters that form the inscription shows that they had

been inscribed on a locally produced pot before firing, rather than being imported from Krete complete with inscription. One of these characters (AB 47 DWI) is found in only eight examples from Krete and its rarity suggests to Niemeier that whoever inscribed it at Miletos had a very good understanding of the Linear A script. In 1998 two more fragments of Linear A script, also incised on locally produced highly micacous clay prior to firing, were found (Niemeier and Niemeier 1999). As these inscriptions are short and do not include any tablets, that would indicate the use of full Minoan style palatial administration Gareth Owens (1999) concluded: 'The Minoan presence and/or influence at Miletos is commercial/administrative and/or personal/religious'. This is a very open conclusion and clearly more inscriptions need to be found in order to define exactly how Linear A was used at Miletos and what significance it had for the inhabitants of the settlement. The current excavator favours the idea that the Linear A at Miletos was 'for commercial purposes' (Niemeier and Niemeier 1999: 548–9). However, it is interesting to note that in Owens' survey of Linear A at the twelve sites where it has found outside Krete, in eight of the twelve cases it was found in a religious context, i.e. Kythera, Olympia, Thera, Melos, Kea, Samothraki, Miletos and Tel Haror (Owens, 1999). Given the very recent discovery of a sanctuary at Miletos (Niemeier in Greaves and Helwing 2001: 505) and the possibility this raises that the whole area so far uncovered may have had a cult function of some description, added to the role that the Minoan script played in cult (Owens 1999: 586), it seems likely to me that these inscriptions had a religious significance at Miletos. Such inscriptions may have been used for votives, particularly as they are inscribed on pots and not on tablets.

Despite the lack of inscribed tablets, there is an increasing amount of evidence to suggest that aspects of Minoan administration were adopted and in use at Miletos. Seal stones also played a vital part in Minoan administration, although the discovery of these seals and their impressions in closed archaeological contexts is rare. At Miletos, however, a considerable number of seals have now been found. In 1998, two seals and a seal-impression of Middle Bronze Age date were found (Niemeier and Niemeier 1999: 553, discussed above, pp. 46–7). Since then three more Minoan seals have been found, one of which is of LMIA date, bringing the total number of seals from that period to three (Niemeier in Greaves and Helwing 2001). Further evidence for the use of a Minoan system of administration at Late Bronze Age Miletos comes from a marble disc balance weight incised with six circles which appears to conform to the Minoan system of standard weights. The disc weighs 378 grams which, when divided by 6, is 63 grams, within the normal range for a Minoan unit of weight, which was between 60 and 64 grams (Niemeier and Niemeier 1999: 553, n. 120).

Following its destruction in the MMIIB period, the Minoan settlement at Miletos appears to have flourished into the LMIA period, when it was

destroyed, and then rebuilt and occupied until a further destruction in the LMII/LHIIB period. Across much of the area to the south of the temple of Athena a destruction horizon has been found which includes huge quantities of complete conical cups and other ceramics and artefacts. The cause of the LMIA period destruction was probably an earthquake (Mee 1978: 134–5; Mountjoy 1993: 170). This earthquake was probably associated with the eruption of the Santorini (Thera) volcano at the end of LMIA, *c.* 1640–1626 BC (Niemeier in Greaves and Helwing 2001). This was a hugely destructive event that affected many contemporary Minoan sites and had terrible consequences for Minoan civilisation on Krete in general. As Miletos was so closely associated with Minoan Krete at the time and was relatively close to the epicentre of the Thera eruption, it too must have suffered as a result of the same explosion, whether directly or indirectly.

Thorarinsson defined the effects of different types of explosive volcanic eruption into 'short-reaching' (<25 kilometres), 'far-reaching' (25–1,000 kilometres) and 'global' (1,000+ kilometres) effects (Thorarinsson 1978). Miletos is 200 kilometres from Thera, to the north-east and would not have experienced any of the 'short-reaching' effects. The greatest threat to Miletos would have been from 'far-reaching' effects, in particular tephra-falls and tsunamis. Tephra is a type of fine volcanic ash, like powdered glass, that is known to have fallen across a wide area following the eruption, and tsunamis are gigantic tidal waves created by eruptions that can have a range of hundreds of kilometres from this epicentre. Lesser associated threats may have included poisonous gases (mainly fluorine), tephra flows, and earthquakes (Thorarinsson 1978).

Although the tsunamis created by this eruption could have had a great range it is hard to be certain about their precise size. It has been suggested that they were three times the size of the Krakatoa tsunamis that inundated huge areas of adjacent landmass in 1883 (Page 1970: 16–23; Thorarinsson 1978: 272; Mészáros 1978; Yokoyama 1978). The sheer size and destructive force of such a wave is hard to comprehend. The original height of the Thera tsunami may have been as much as 63 metres, reaching the shores of the island of Anaphi 10 minutes later whilst still at a height of 50 metres. It would have reached Krete 25 minutes after the collapse of the caldera at an approximate height of 11 metres, and may even have reached the Jaffa–Tel Aviv area after 105 minutes while still at a considerable height (Yokoyama 1978). Given the extremely low-lying position of the Late Bronze Age settlement at Miletos, tsunamis would appear to have posed the greatest threat following the Thera eruption. However, Miletos is located on the northern side of the Milesia peninsula and this would have protected it from tsunami damage, as only the secondary effects of a tsunami can travel round corners, as appears to have happened at Zakros on Krete (Nixon 1985: 19). The island of Lade would also have acted to protect it from direct impact damage caused by a tsunami, but the low-lying settlement may still have

suffered significant secondary inundation. The nearby Minoan sites of Kümüradası and Tavşanadası, however, would have suffered much more than Miletos itself, as they are located on the south side of Milesia and were also low-lying (Mellink 1989: 117; see above, Figures 2.1 and 2.2). There is as yet no archaeological evidence for any massive inundation in the LMIA destruction deposits at Miletos. Kümüradası and Tavşanadası have no pottery that is clearly later than LMIA and may never have recovered from their destruction, although when dealing with undecorated surface sherds from these small sites, precise dating is not possible.

Study of deep-sea cores has shown that the distribution of ash from the eruption spread to the south-east of Thera, and Miletos is usually assumed to have been outside of the area of fire and ash damage (e.g. Page 1970: 36, fig. 19; Nixon 1985; Warren 1989: 112). However, these deep-sea cores only show the dispersal of the ash by sea currents; the atmospheric dispersal of the ash appears to have been much wider. Theran tephra has been found in the Gölcük and Köyce İz lakes in western Turkey, both of which are about 80 kilometres inland, and this suggests that this whole region, including Miletos, had been affected by the dispersal of ash from the eruption (Sullivan 1990: esp. 115–16, figs 1 and 3). The eruption of Mount St. Helens in 1980 serves as an example of how damaging to human health and the environment the effects of such an ash fall can be (e.g. Findley 1981: 50–65). Since 1997, due to careful excavation, many patches of ash have been found at the Temple of Athena site, some of which have been confirmed as volcanic ash, almost certainly from Thera (Niemeier in Greaves and Helwing 2001). Such small quantities of tephra are unlikely to have caused much damage to the site but the fact that the site appears to have been destroyed by an earthquake in this particular period of time suggests that it was associated the the Theran eruption (Schiering 1959/60: 5). The precise reason for the destruction of Miletos was probably aftershocks, earthquakes which often follow large tectonic events such as an eruption. As noted in Chapter one (p. 7), this region had always been prone to earthquakes, but the coincidence of date and severity of this particular event point to it being part of the seismic events associated with the Thera eruption.

Following its destruction in the LMIA period, the settlement at Miletos appears to have been rebuilt. Exactly how soon after the LMIA destruction this rebuilding took place is not yet clear, although the latest Minoan style pottery from the first prehistoric period at Miletos is LMII/LHIIB. In the LMII period (*c.* fifteenth century BC), Miletos is just one of a number of sites across Krete, the eastern Mediterranean and Asia Minor to have experienced destruction (Warren and Hankey 1989). The precise cause of these war-like destructions is not known, whether it was the result of internal conflicts or attacks by the Mycenaeans, but by the first half of the fourteenth century BC Mycenaean culture came to dominate the entire Aegean, including Miletos (Niemeier 1998b: 38; Niemeier in Greaves and Helwing 2001).

Second LBA period (Miletos V – LHIIIA:1 to LHIIIA:2, *c.* 1450/30 to *c.* 1300 BC)

As already noted, Mycenaean material was first found at the Temple of Athena site in 1907, but it was not until the excavations of 1938, 1955 and 1957, that the full importance of the Mycenaean settlement at Miletos began to be recognised. The finds from this excavation were taken to Berlin and were believed to have been lost during World War II. However, since the fall of the Berlin Wall they have come to light in the stores of the Antikenmuseum and the Pergamon Museum and will soon be published. During excavations in 1973, under the direction of Peter Hommel, the remains of what appeared to be a Mycenaean 'megaron' were uncovered (Kleiner 1972, 1975). This 'residential complex centring on a courtyard' was interpreted by some as a possible palace and presumed to have formed the focus of the Mycenaean settlement (Hommel 1975; Mee 1978: 136). Re-excavation of this building in 1994 showed it to be of post-Archaic date, probably part of the rebuilding that took place after the Persian sack in 494 BC (Niemeier and Niemeier 1997: 206–8). Since 1994, there have been renewed excavations at the Temple of Athena site and although the Mycenaean contexts were more heavily disturbed by later activities than the Minoan layers, considerable advances in our understanding of this important period of Miletos' history have been made (Niemeier in Greaves and Helwing 2001: 505–6). However, the question of the precise date and nature of the two sub-periods identified in the second building period by the old excavations (Schiering 1959/60: 8–13), has yet to be resolved.

There are several sites on the west coast of Anatolia that have produced considerable amounts of Mycenaean material. To the north of Miletos, Ephesos has produced a burial with Mycenaean artefacts and Mycenaean material is known from Ayasoluk hill (Metzger 1969), although no evidence exists as yet for extensive settlement. Also, Mycenaean material, including LHIIIA pottery, has been reported from Panaztepe (Erkanal and Erkanal 1986). To the south of Miletos, there is the important Mycenaean cemetery site at Müskebi (Ortakent) on the Halikarnassos peninsula (Boysal 1967: 31–9; Mee 1978: 137–42) with forty-eight graves. There are also a number of sites in western Anatolia that have produced finds of Mycenaean pottery (Mee 1998; Greaves and Helwing 2001: 466). Closer to Miletos, within the territory of the classical city itself, there are also a number of find-spots for Mycenaean pottery. A single sherd of LHIIIA2 pottery has been found at Didyma (Schattner 1992), although there is no suggestion yet of any buildings at that site or any indication that it had already developed as a cult location. In contrast with the Minoan period, where finds of Minoan pottery are restricted to the Aegean coast, Mycenaean pottery in this period starts to appear in the hinterland. Miletos, with its extensive settlement and

Mycenaean-style pottery production centre and Mycenaean-style tombs is, without doubt, the most important site of Mycenaean contact in Anatolia.

In this period, Mycenaean culture came to dominate the Minoan at Miletos. Whether that transition was gradual, as it appears to have been at Rhodes, or sudden is not yet clear, although the final Minoan settlement does appear to have ended in total destruction by fire (Niemeier 1998a: 28). This clear destruction layer was referred to in earlier excavation reports as 'die grosse Katastrope', ('the great disaster'), and there can be little doubt that this fire was part of a deliberate human destruction of the site. Whatever the nature of this changeover from Minoan to Mycenaean was, by LHIIIA1 all imports of pottery to Miletos were Mycenaean (Mountjoy 1993: 170). It is difficult to determine the exact nature of this change from a 'Minoan' to 'Mycenaean' culture at Miletos, but it seems certain that this change took place in the LHIIB/LMII period. Although it is hoped that the new excavations will shed new light on this question, the exact nature of the changeover at Miletos is not yet known, although the current excavator writes that it was probably caused by 'conquering Mycenaeans' (Niemeier in Greaves and Helwing 2001: 505).

In the second Late Bronze Age building period at Miletos, the plans of two individual rectilinear houses, House A and House B, have been identified. Although the overall plan of this period of the settlement is not yet known, it is clear that there has been a considerable change from the preceding period, when there had been only a single large building. This had now been replaced by individual free-standing buildings. In terms of settlement function and zoning, the area of the Temple of Athena site excavated so far appears to have been a potters' quarter, probably incorporating domestic dwellings. This is also a considerable change from the preceding Miletos V period, when this area appears to have functioned as a cult centre. House A was of the type of building defined as 'Antenhaus' and House B is of the 'Oikos Type 2' (originally interpreted as a megaron, Schiering 1979: 77; but reappraised following further excavations, Niemeier and Niemeier 1997: 194–9). Although both the 'Antenhaus' and 'Oikos Type 2' house styles are found in the Mycenaean world, there are also examples from western Anatolia, including Troy, Aphrodisias and Beycesultan. To the south of House B was found a hearth of a type known from Mycenae, Tiryns and Beycesultan (Niemeier and Niemeier 1997: 219, fig. 35, 1997: 219–20, fig. 34 and see Niemeier's lengthy note 74; Niemeier 1998a: 31 and plate 2). The architectural form of these buildings does not, therefore, tell us anything definite about the cultural influences on the settlement in this period.

Although the earlier excavations at the Temple of Athena site published many examples of decorated Mycenaean pottery, the ratio of recognisable Mycenaean forms, both decorated and undecorated, to undecorated Anatolian

forms, was not recorded. Therefore the true importance of the Mycenaean sherds published and the degree of Mycenaean influence on the material culture of Late Bronze Age Miletos could not be assessed. Opinions varied greatly on exactly how important the Mycenaean component was at Miletos. Desborough (1952: 220) described the site as purely Mycenaean whereas others speculated that the Mycenaean influence on the settlement was minimal and Ahmet Ünal estimated that the ratio of Mycenaean to Anatolian pottery was in the ratio of 5 per cent Mycenaean to 95 per cent Anatolian (Ünal 1991: 23–5). The fact remains that until a relative quantified study has been completed, whereby the number of Mycenaean and Anatolian sherds of all types are compared, the full extent of Mycenaean influence and/or presence at the site cannot be proven.

Miletos in the second Late Bronze Age building period appears to have been an important centre for the production of pottery (Weickert 1957: 112–13, fig. 5, plate 24.2, 25.1–2; Niemeier and Niemeier 1997: 222–3, fig. 41; Niemeier 1997, 1998a). To date, seven pottery kilns have been found, more than at any other Aegean Bronze Age site, with the exception of Gouves, which has nine (Niemeier 1997: 351, n. 58). The kilns are all built of mud-brick and can be divided into three distinct types. Miletos Type 1 are round or oval with a central pillar or bench (four examples known); Miletos Type 2 is also round but with two walls instead of a pillar or bench (one example); and Miletos Type 3 are sub-rectangular in plan with a series of parallel flues on the inside (two examples). Kilns of Miletos Type 1 are known from the Greek mainland from the Middle Bronze Age onwards, with one possible example from western Anatolia (at Liman Tepe) and were probably used to fire a single pithos (Niemeier 1997: 348). Miletos Type 2 is known from Krete and Type Three is an exclusively Minoan type. The local pottery production of second period Late Bronze Age Miletos therefore appears to have been in the Mycenaean and Minoan tradition. Although the majority of the decorated pottery from this period is Mycenaean, there are still a number of Kretan decorated sherds (Niemeier 1998a: 32–3), and the majority of the undecorated pottery too, appears to be in Mycenaean forms, such as kylixes.

The Anatolian pottery of this period is undecorated, often with a red wash, and comes in a variety of forms, including cups and jugs, but especially bowls. The pottery from Miletos is very similar, although not identical, to that from Beycesultan, which remains the main type-site for the Late Bronze Age south-west Anatolian regional style (Mellaart and Murray 1995). Undecorated pottery was generally not kept during earlier excavations at Miletos, as its importance was not recognised at the time. An initial estimate of the ratio of Mycenaean to non-Mycenaean pottery from the second building period contexts found so far in the new excavations suggested 98 per cent of the pottery was Mycenaean in character (Niemeier 1997: 347). Since then the estimate has been changed to 95 per cent Mycenaean to 5 per

cent with identifiable Anatolian shape or decoration (Niemeier 1998a: 33), which is a total reversal of the figure suggested by Ünal. Whatever the final results of the relative quantification of the pottery it seems clear already that Mycenaean pottery forms will dominate it. Finally, a single Mycenaean phi-figurine found at the site, but apparently imported from the Argolid on mainland Greece, is evidence for Mycenaean ritual activity at the site (Schiering 1959/60: 25, 30, plate 18.1; French 1971: 181,128–9).

The Mycenaean presence at Miletos in this period is therefore not as clearly proven as that of the Minoans in the preceding period, although there is a large and growing body of evidence to suggest that Mycenaean material culture was dominant at the site. The undefended 'second building-period' (Miletos V) settlement at Miletos was destroyed in the LHIIIA:2 period (Mountjoy 1993: 172) or on the transition from LHIIIA:2 to LHIIIB:1 (Niemeier 1998a: 32–3). The destruction level associated with this 'great disaster' is a thick layer of burnt mud-brick, containing pottery. This destruction appears to have been man-made, rather than natural, in origin and is probably to be associated with the destruction of Millawanda by the Hittite king Mursilis II, see below (p. 70).

Third LBA period (Miletos VI – LHIIIB to LHIIIC – *c.* 1300 to 1100 BC)

Excavations at the Temple of Athena site in 1938, 1955 and 1957 uncovered the most striking feature of this period – a wide defensive wall running east to west under the Temple of Athena. Excavations in 1968 attempted to define the course of the wall further to the east but, despite its size, it appears to have not completely survived in this area although important new information about its structure was gained (Schiering 1979: 94–5). Excavations 500 metres to the south of the temple of Athena in 1963 and 1966 to 1973, close to the Hellenistic southern wall of the city, uncovered a further stretch of the defensive wall and two pottery kilns also belonging to the third Late Bronze Age period. In 1901–3 and 1906–17 a late Mycenaean (LHIIIB/C) cemetery was found and excavated on Değirmentepe. (Original publication by Weickert 1940: 325. The finds from these excavations were believed to have been lost during World War II (Mee 1978: 133), but have recently been rediscovered in Berlin (Niemeier and Niemeier 1997: 203) and a selection of the material is now on public display in the Altes Museum, Berlin.

The settlement by the Theatre Harbour at Miletos was rebuilt in the early LHIIIB (*c.* thirteenth century BC) but this time with the addition of a 4.25 to 4.4 metre-wide defensive wall of unknown height that incorporated a series of square external bastions at 15 metre intervals (Weickert 1957: 106–7; Mallwitz 1959/60; Kleiner 1966: 12; Schiering 1975, 1979: 80–2; Voigtländer 1975; Niemeier and Niemeier 1997: 196; Niemeier 1998a: 38).

The construction method used for the city wall itself, with its square towers at regular intervals and internal cross walls, would appear to have more in common with the contemporary Hittite 'Kastenmauer' (casemate) method of construction than the so-called 'Cyclopean' style that is typical of Mycenaean mainland Greece (Figure 2.3). This method of construction is identical to that used in the Hittite capital Boğazköy (Figure 2.4). A further section of the wall was found 500 metres to the south of the Temple of Athena site, in the so-called 'Sudschnitt' (Kleine 1979).

The construction of a city wall in the third Late Bronze Age period defined and limited the size of the settlement. Although the full circuit of the prehistoric defences has not yet been traced and its course between the Temple of Athena site and the Sudschnitt is not proven, it has been calculated that the wall may have been as much as 1,100 metres long. Christopher Mee estimated the size of the prehistoric settlement at Miletos to be 5 hectares (50,000 square metres), making Miletos one of the largest sites in the prehistoric Aegean (Mee 1978: 135–6). However, this figure has been questioned by the current excavators, who plan further excavations here (Niemeier and Niemeier 1997: 196, 1998a: 38, n. 31) and sites such as Troy are now thought to have been larger than at the time Mee wrote his article.

So far the architectural plan of the third building period at the Temple of Athena site is limited and only one full house plan has been identified. This appears to be of the 'Korridorhaus' type which has a central corridor with rooms on either side and is known to be a late Mycenaean form (Niemeier and Niemeier 1997: 197–8, fig. 1). The houses of this period were free-standing individual buildings which must have been built after the defensive wall, as they appear to respect it (Mee 1978: 135). Similar buildings were constructed within the new walls of Troy VI (*c.* 1400 BC) and aligned towards the centre, suggesting a degree of communal planning. The same situation may have existed at Miletos at this time, although no central building has yet been identified. Evidence for a road was found and this was interpreted as a harbour road that ran through the settlement towards a presumed 'harbour gate', which is as yet unlocated (Kleiner 1972: 51). The ceramic production of the potters' quarter of the second building period was positioned outside of the city walls, in the Sudschnitt area to the south, presumably to limit the risk of fire within the newly walled town. Beyond this, it is difficult to say anything about the plan of the settlement. The existence of the 'palace' that might once have been thought to have formed its focus has now been disproved (see above, p. 56) and so far no gate in the wall that might similarly be expected to have formed a focus of the settlement has been found.

The Mycenaean pottery of the third building period at Miletos includes a considerable amount of LHIII B to LHIIIC (see Niemeier 1998a: 34, for full bibliography; Mountjoy 1993: 174). There are Mycenaean pottery imports from the Argolid in Miletos and in return Miletos exported its own pottery

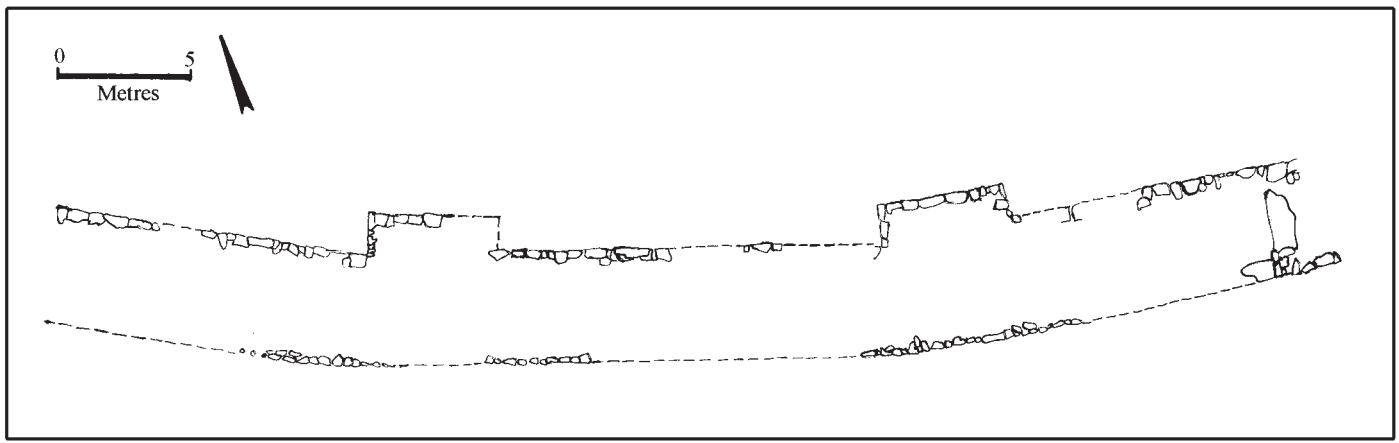


Figure 2.3 The city walls of Miletos VI (after Niemeier 1988a).

Figure 2.4 A section of Kastenmauer defensive wall at Boğazköy.

to Tiryns (Voigtländer 1986: 19–23). Miletos was still producing pottery in this period and two kilns were found in excavations 500 metres south of the Temple of Athena (Kleine 1979: 111–15, figs 1–2, plates 27.1–4). These kilns were sub-rectilinear in plan with 'canals' separated by walls of mud-brick of Miletos Type 3 (see Niemeier 1998a: 33). In this period, pottery from Miletos was exported to other sites in Asia Minor (i.e. LHIIIA:2 – IIIC vases at Müsgebi on the Bodrum peninsula, Gödecken 1988: 311–12), mainland Greece (LHIIIB-C pottery at Tiryns, Voigtländer 1986: 21–3) and the Levant (LHIIIB-C pottery from the South Palace at Ugarit/Ras Shamra). Even LHIIIC pottery, which is generally very rare in Asia Minor, was produced at Miletos (Mountjoy 1993: 175), demonstrating what a remarkable ceramics production centre it was.

Karin Gödecken carried out neutron activation analysis of pottery from Miletos and concluded that much of the 'Mycenaean' pottery found at Miletos was not imported, but locally produced (Gödecken 1988). If this were true, it would have important implications for our understanding of the Mycenaean presence at Miletos, but until the full results of this study are published these preliminary results must be dealt with caution (Niemeier 1998a: 34). It may indeed be that most of the Mycenaean pottery at Miletos was locally made, especially given the kilns found at the site, and pottery production like this could be cited as strong evidence for actual Mycenaean settlement, but we must await new analysis before such conclusions are drawn.

It is not possible to give any assessment of the ratio of Anatolian to Mycenaean pottery in the third building period since the undecorated Anatolian pottery from the old excavations has not been published. Excavations during the construction of a well to the south of the Temple of Athena found a lenticular flask of a form known from central Anatolia and dated to *c.*1400 BC, Boğazköy/Hattusa: Büyükkale IVb/Lower Town 2 (Parzinger 1989: 429–31, fig. 5). Although of a central Anatolia type, such pottery is not evidence of direct Hittite contact and no truly Hittite pottery has yet been found at Miletos (Parzinger 1989: 429, n. 60). A fragment of locally made LHIIIB2 – IIIC krater from Miletos carries a rare pictorial representation of a Hittite Horned-Crown, a symbol of kingship and god-hood in Hittite iconography (Niemeier and Niemeier 1997: 203–5, esp. figs 3 and 4). This small but important fragment does suggest some kind of exposure to Hittite culture or artistic influences.

Two sherds of locally made *pithoi* (storage jars) found at Miletos were inscribed before firing with letters from a script that may be Linear B (Schiering 1979: 79, plate 22.3). Unfortunately, both inscriptions were fragmentary and the symbols used were ambiguous and could equally be Linear B or Hittite script (Niemeier 1998a: 37, 13–14). If Linear B and the language of Linear B (i.e. Greek) was known at Miletos in this period it would have enormous implications about the nature of Miletos' position in

the Late Bronze Age Aegean and the later 'colonisation' of the site by the Greek-speaking Ionians. However, other than these tantalising fragments, no securely identified Linear B script has been found at Miletos and there is certainly no evidence for inscribed tablets, that would suggest the adoption and use of Mycenaean administrative systems.

Some of the clearest evidence for Mycenaean culture being adopted at Miletos comes from the little religious and burial evidence that exists. The religious evidence includes Mycenaean terracotta animal figurines, including a hollow wheel-made bull, and a Psi-type figurine (French 1971: 181,128–9; Gödecken 1988: plate 19; Niemeier and Niemeier 1997: 244). The eleven tombs found on Değirmentepe appear to have been of characteristic Mycenaean rock-cut type with *dromos* and *stomion* (Mee 1978: 133; Niemeier 1998a: 36–7). Değirmentepe is a hill 1.5 kilometres south-west from the Temple of Athena site, to the west of Kalabaktepe. Since their excavation, the Değirmentepe tombs have been largely destroyed by terrace building on the slopes of the hill and it is likely that there had been more but these were already destroyed before archaeological research began.

The tomb contents are mostly of Mycenaean type and include the following bronze artefacts: a sword, two socketed spearheads and two horse-bits (it has been suggested that these display a Mesopotamian influence but they are probably also of Aegean type (Mee 197 8: 133; Niemeier and Niemeier 1997: 203–5). The pottery, which includes typical Mycenaean forms such as kylixes and a krater, all dates from the LHIIIB to LHIIIC period (Niemeier 1998a: 36). In addition to the one sword already mentioned, three other swords were found, which were of non-Aegean type; two with Near Eastern-style rod-tanged handles and one with Hittite-style hilt (Niemeier and Niemeier 1997, 203–5, esp. fig. 2; Niemeier 1998a: 39–40).

Miletos was destroyed, along with many other sites across the Mycenaean world, in the LHIIIC period. The latest Mycenaean pottery at Miletos is LHIIIB1 to LHIIIC (*c.* 1320/1300 to 110/1090 BC). The reason for its destruction is not clear. The existence of a Mycenaean cemetery and religious paraphernalia at Miletos in the third Late Bronze Age period does appear to suggest that Mycenaeans had actually settled at Miletos (Mountjoy 1993: 172; Dickinson 1994: 230). However, as is so often the case at Miletos, a simple answer is rarely sufficient. Therefore it must be pointed out that although the pottery at Miletos is predominantly Mycenaean in form, it is being produced locally in Aegean-style kilns, and the ratio of Mycenaean forms to Anatolian pottery is not yet known. The building style of houses in the third building period at Miletos may be identifiably Mycenaean, but the design of its city walls appears to owe more to Hittite traditions than to those of the Aegean. In matters of cult, the figurines are strong evidence for Mycenaean cult but Hittite iconography also makes an appearance on one fragment of pottery and the Mycenaean-style tombs contain Hittite-style

swords as grave goods. As yet, no Linear B inscriptions or tablets have been found at Miletos to prove that Greek was spoken here and it must be concluded that although its general character is largely Mycenaean, it also displays strong Anatolian characteristics.

Second case-study: The Minoan colonisation of Miletos

The standing and importance of Miletos within the Minoan world has been much debated in the past and interpretations of it have varied from a 'Minoan settlement' (Huxley 1966: 15) to 'another area of vestigial contact' (Warren 1989: 103). The recent discoveries made by W.-D. Niemeier, B. Niemeier and their team at the Temple of Athena site, have reopened the question of Miletos' position in the Minoan world and will fuel this debate for years to come (Niemeier and Niemeier 1999: 545–6). I present here a summary of recent discussion of this subject, mostly by W.-D. Niemeier, as an example of how the archaeological data is being analysed in a systematised manner, with defined objectives and criteria, clearly laid out from the start of the project.

Early in their campaign of excavations at Miletos, Niemeier and Niemeier defined the criteria that could be used to systematically define the extent of 'Minoanisation' at any given site (Niemeier and Niemeier 1997; summarised and updated in English in Niemeier and Niemeier 1999: 544–5). These criteria are: evidence for Minoan burial customs; settlement and architecture; pottery (especially the presence of Minoan-type kitchen wares); weaving equipment; wall paintings and use of Minoan iconography; evidence for ritual activities of Minoan type; use of Minoan script (i.e. Linear A); and evidence for the adoption of methods of economic subsistence normally associated with Minoan Krete.

To analyse the evidence for these criteria so far found at Miletos: no Middle or early Late Bronze Age burials have yet been found and neither is there enough architectural evidence to make comparisons within Minoan house plans (Niemeier and Niemeier 1999: 547). However, the remains uncovered appear to be from a single large building, demonstrating elements of architectural techniques used on Krete, such as the eastern façade wall.

Late Minoan decorated pottery found at Miletos includes LMIA, palatial LMIB, and some LMIB standard tradition (Niemeier and Niemeier 1999: 547, plates 118a, b and c). More important though is the very high ratio of locally produced domestic wares in Minoan types and the 'superabundance' of conical cups that is so typical of Minoan culture (Niemeier and Niemeier 1999: 547).

Weaving equipment is also cited by Niemeier as one of the criteria of Minoanisation and numerous examples of presumed Minoan-style 'discoid' loomweights, with one or two holes, have been found at Miletos in Middle and Late Bronze Age contexts (Niemeier and Niemeier 1999: 548). None of

the presumed Anatolian-style crescent-shaped loomweights have been found, but it cannot yet be proven that Miletos' production of textiles in this period was wholly Minoan in character and a great deal more study of the weaving equipment from Miletos and western Anatolia is required.

Many fragments of frescoes executed in Minoan technique and style have been found at Miletos including a presumed 'sacred landscape scene' and white lilies on a red background that may have been part of a 'sacred garden' scene (see above, p. 52). Minoan style frescoes have now been found at several sites in the Near East, including Alalakh in southern Turkey, Tel Kabri in Israel and Tel el-Dab'a on the eastern Nile delta in Egypt (Negbi 1994), and these appear to be the result of the élite exchange of artisans and their work as a part of diplomatic gift exchange. However, at Miletos, which was closer to Krete both geographically and culturally, these show much closer contact and may have had not only artistic but also religious significance. Other evidence for Minoan ritual activities at Miletos comes from a round, plastered, offering table, fragments of stone vessels that are known to have played a part in Minoan rituals (Niemeier and Niemeier 1999: plates 119c, 119d and 120a) and the sanctuary (Niemeier in Greaves and Helwing 2001: 505).

The Linear A inscriptions found at Miletos show a clear knowledge of the main script of palatial Krete at the site, although no inscribed tablets have been found as yet. However, other aspects of Minoan administration were adopted, including the use of seals and a Minoan system of weights. The Linear A inscriptions found so far may have had a commercial or religious purpose (see above, pp. 52–3).

Evidence for the basis of subsistence at Late Bronze Age Miletos, based on faunal (animal bone) and palaeobotanic (carbonised seed) evidence, has yet to be completed. However, initial results from the analysis of faunal remains shows that goats outnumbered sheep in the livestock population of early Late Bronze Age Miletos in a ratio of 1:2 or 1:3. This is very unusual given that in western Asia Minor sheep generally outnumber goats by approximately 3:1. Niemeier suggests that this reversal of the sheep/goat ratios at Miletos, in comparison to other sites in Asia Minor, may be the translocation of a Minoan agricultural regime from Krete to the Anatolian mainland (Niemeier and Niemeier 1999: 549), although there are other reasons that may account for this difference.

This summary shows that in respect of every criterion set out by the excavators, with the exception of burials, considerable evidence exists for the presence of Minoans at Miletos. Contact appears to have begun in the Middle Bronze Age and to have strengthened into the Late Bronze Age, until the pottery and other artefact assemblages are almost totally dominated by Minoan forms (95 per cent as quoted by Niemeier in Greaves and Helwing 2001: 505).

The word 'colony' is an extremely loaded term and to attempt to describe Miletos as a Minoan colony requires some qualification of what is meant by a

'colony' in the context of the Minoan presence overseas. Keith Branigan (1981) examined a variety of types of Minoan-influenced settlements that existed in the Aegean and defined three types of 'colony'. These were:

1 'Governed colonies: where a foreign territory has an administration imposed on it by a 'governor' and a garrison for strategic or commercial purposes.
2 'Settlement colonies': where a group of settlers establish a community on previously unoccupied land overseas, often as a result of population pressure. Links are maintained with the homeland, but intermarriage with the native population eventually leads to cultural change away from that of the founding culture.
3 'Community colonies': where a community is established within an existing foreign settlement for the purpose of trade and commerce and may be the result of oppression in the homeland. The religions and burial traditions of the homeland are often maintained by immigrant communities. Although Branigan (1981: 26) rejects the use of the word 'enclave' to describe these community colonies, the mention of this word may help to evoke a clearer image of the type of settlement envisaged here.

When dealing with limited evidence from Minoan sites outside Krete it is not always possible to define a colony precisely. Branigan suggests that the Minoan-influenced community of Kythera is closest to his model of a settlement colony; while those at Ayia Irini on Keos, Phylakopi on Melos and Akrotiri on Thera, although they demonstrate some of the features of governed colonies, are perhaps closer to community colonies. It is too early to say which model best describes the Minoan settlement at Miletos because until a larger area has been excavated it cannot be shown whether the material found so far does not represents a community ('enclave') colony or the governor's palace of a governed colony. However, so far an area of over 1,200 square metres has been excavated and there is no sign yet of a change in the nature of the material culture spatially across the site. As excavations continue and more evidence comes to light it becomes more likely that we are dealing here with a settlement colony, as defined by Branigan (Niemeier and Niemeier 1997: 242–3; 1999: 549–51). However, this was one that was not founded on completely virgin soil, as there had been earlier occupation here.

There are four mythical traditions that connect the foundation of Miletos with Kretans (Dunham 1915: 38–9): Ephorus (ap. Strabo, 14.1.6), Apollodorus (3.2), Pausanias (7.2.1–3) and Ovid (9.450 ff.). They all make connections with a mythical character called Miletos or the city of Milatos in Krete mentioned by Homer (*Iliad* 2.647). It would be easy to make a positivist connection between such literary sources and the archaeological evidence for a Minoan colony at the site. In the light of recent discoveries it

is hard to ignore so many sources that have as a common theme an early connection between Miletos and Krete, however late in date they may be. The colonisation of Miletos by Minoans may have formed the factual 'kernal' of these foundation stories, as Finley proposed for the Trojan War mythic cycle (Finley *et al*. 1964). However, the time span between the Minoan period and the writing of these myths is longer than that between the presumed date of the Trojan War and Homer's epics. A fairer comparison in terms of time elapsed between past events and written legends might be the presumed connections between the Minoan period of Knossos and the myth of the Minotaur or between the Theran eruption and Plato's Atlantis. Compared to the Trojan War and the *Iliad*, the foundation myths of Miletos are short and preserve reasonably accurately the core historical fact – that Miletos was a Kretan foundation. The near-continuous occupation of the site of Miletos and its later strong historical traditions (Miletos was home to the earliest Greek historians, Hekateus and his predecessor Kadmos, who wrote a prose history about the foundation of Miletos, now lost) may have helped to preserve this kernel of information about the Minoan foundation of the settlement.

In conclusion, the first Late Bronze Age period of Miletos was heavily Minoanised and had very clear and strong connections to Krete and that connection began earlier than was previously thought, in the Middle Bronze Age. Miletos' importance in this period, as in all its history, lay in its position as a seaport on the edge of the Minoan world, at an access point to the Anatolian interior and north Aegean. As the amount of evidence for Minoan involvement at Miletos increases, the stronger becomes the argument that foundation traditions claiming Kretan origins for Miletos do in fact accurately recall its settlement as a Minoan colony.

Minoan interest in Miletos appears to have begun in the Middle Bronze Age in the period of the Old Palaces, when Krete appears to have started intensive overseas trade. Even at this early date, Miletos had adopted Minoan administration and although there was a higher proportion of Anatolian pottery than in the Late Bronze Age, the number of Minoan-style pots, both imported and locally produced is already considerable. The precise nature of the foundation of Miletos as a Minoan 'colony' in the Middle Bronze Age is not yet clear. What is clear is that by the early Late Bronze Age, the so-called First Building Period at Miletos (Miletos IV), the site was very heavily Minoanised and can be considered to be a true Minoan 'colony' of some description, although precisely what type is not yet clear.

The Minoan settlement at Miletos, founded in the MMIA period, was destroyed in MMIIB, in the same period as the catastrophe that destroyed the Old Palaces of Krete; it was destroyed again in the LMIA period, probably as a result of the Thera eruption; and then again for a third and final time in the LMII/LHIIB period, after which it was dominated by Mycenaean culture. In this way, in its founding, destruction and re-founding,

Miletos could be said to have shared the same life-experiences as a settlement that many other Minoan communities did. Miletos does not appear to have been peripheral to Minoan interests in the eastern Aegean, indeed it is one of the most important sites known in the whole region. It was the trade with the interior of Anatolia that its advantageous location made possible that must have been the main motivation for Minoan interest in the site.

Third case-study: Miletos and Millawanda

Another main focus of scholarly interest in Late Bronze Age Miletos has been the question of whether or not the site mentioned in several Hittite texts as 'Millawanda' (or 'Milawata') can be equated with the site of Miletos. These texts, which formed part of the state archives of the second millennium BC Hittite kingdom of central Anatolia, included annals and letters, a number of which mention Millawanda. An enormous amount of debate has focused on where Millawanda was located. Today, the majority of scholars would appear to agree that it was at Miletos. However, it should be noted that a significant number of eminent scholars have suggested alternative locations (e.g. Ünal 1991. For a summary of proposed locations see Niemeier 1998a: fig. 5). Several recent discoveries at Miletos and elsewhere have now moved this debate on and it is becoming increasingly clear that Miletos can be securely identified with the place known as Millawanda in the Hittite texts, although debate looks set to continue for some time yet. It should also be noted that the current excavator of the site (W.-D. Niemeier) and the author of this book accept the identification of Miletos with Millawanda (Niemeier 1998a).

There are a number of reasons for identifying the name 'Millawanda' with the site known in classical times as Miletos. One of the strongest arguments in favour of this identification is that –nda–/–nta– or –wandi–/–wanta– is a typical Hittite–Luwian place name suffix. Added to the stem 'Milla', this would form Millawanda in Hittite and Milatos in Greek (Niemeier 1998a: 23). The geographical location of Millawanda is not made clear in the Hittite texts, although it is certain that it was to the west of the Hittite Kingdom and that it was a considerable distance away. Millawanda appears to have been bordered by the Lukka Lands and the Seha River Lands, although the location of these was also not made explicitly clear. It is generally accepted that the Lukka Lands can be identified with Lykia, to the south and east of Miletos (Bryce 1986: 1–10; Keen 1998: 26, 219) and the Seha River Lands are now to be located to the north of Miletos, following a new translation of the Karabel inscription (Hawkins 1998), thereby identifying the region around Miletos as the location of Millawanda.

If we accept that Miletos was Millawanda, what does that mean for our understanding of Miletos in the Late Bronze Age? Miletos/Millawanda was an important site in the political history of the period. The brother of the

Great King of the independent state of Ahhiyawa was stationed at Millawanda (Lloyd 1989: 54) and the Great King of the Hittite Empire paid close enough attention to developments in the place to send an army to destroy it.

If one accepts the identification of Miletos with Millawanda it suggests that the fire that ended the Miletos V settlement was a man-made destruction, at the hands of a Hittite army and carried out at the order of Mursilis II, who reigned 1321–1295 BC. The current excavator of Bronze Age Miletos, W.-D. Niemeier, has already argued that the Miletos V 'great destruction' was contemporary with the destruction of Millawanda by Mursilis II and can be identified with it (Niemeier and Niemeier 1997: 200–5 and 246–8). There can be little doubting that this destruction was a violent episode in the history of Miletos but the identification with the destruction of Millawanda by the Hittites helps us to contextualise that terrible act of destruction.

The description of the Hittite attack on Millawanda shows that the site was in an advantaged defensible location. The Hittite army and chariots on their way to attack Millawanda were unable to cross the mountain called Arinnanda and had to take an alternative route, demonstrating what a good location Miletos had. This is something which could be surmised from studying the topography of the site, but which is made clear by this passage.

The so-called 'Milawata Letter' (KUB 19.55, 58.90; Bryce 1998: 339–42) was written by a Hittite king, presumed to be Tudhaliya IV, who reigned from 1227–1209 BC. The addressee of the letter, who resided in and commanded Milawata at the time, is not explicitly named but was referred to by the king as 'my son', and may indeed have been his son, an adopted son or another senior member of Hittite royalty. This shows that Miletos/Millawanda was of such importance to the Hittites that the king's own son (or a similar high-ranking individual) was stationed there.

Millawanda appears to have been part of the western Anatolian kingdom of Arzawa, as the annals of Mursili II mention a certain Uhha-ziti, 'king of Arzawa and Millawanda' (Unal 1991: 18). Arzawa was a western coastal region with its capital at Aspasa/Apasa, which is probably to be identified with the classical site of Ephesos, and caused the Hittite kings much trouble. There appears to have been a close relationship between Arzawa, Miletos/Millawanda and a kingdom called Ahhiyawa.

Miletos/Millawanda played a crucial role in relations between these two great contemporary kingdoms – the Hittites and Ahhiyawa. Ahhiyawa has not yet been securely located, but a number of scholars have tried to identify it with all or part of Mycenaean Greece (see especially Niemeier 1998a; Mountjoy 1998). The identification of Ahhiyawa with Mycenaean Greece cannot, to my mind, be as securely proven as for that of Miletos with Millawanda and perhaps too much energy has been expended on attempting to make this connection (Ünal 1991). Regardless of whether this identifi-

cation can be securely made or not, Mycenaean Greece was a major culture in the Aegean region, based on archaeological evidence alone. Every year more and more Mycenaean material is found in Anatolia (Greaves and Helwing 2001: 466) yet Miletos is still the only site of any size where any quantity of Mycenaean cultural material has been found. Miletos must have been the main contact point between the Mycenaean culture and the Late Bronze Age cultures of Anatolia but the exact nature of this contact and whether or not it is attested in the Mycenaean and Hittite documents is a separate issue.

Conclusions

The archaeology of Bronze Age Miletos has shown the unique position that it held as a contact point between the cultures of the Aegean and Anatolia. The degree of Minoan and Mycenaean presence at the site is not found anywhere else in Anatolia. The political history of Miletos/Millawanda, as it can be reconstructed from limited sources, shows that despite having a material culture dominated by Aegean influences it was more often associated with Anatolian powers such as Arzawa and the Hittites than it was with the presumed Aegean power of Ahhijawa.

Evidence for cultural exchange between the civilisations of east and west at Bronze Age Miletos is clear, but the exchange of material goods and 'trade' as such is harder to demonstrate. The thesis that trade in metals was a crucial factor in the settlement of Bronze Age Miletos (Yakar 1976; Niemeier 1998b: 552–3; above, pp. 32–7) appears to be unproven because of the lack of tangible material evidence for that trade in the form of ingots or extensive metal-working sites. The bronze items that have been found so far at Miletos are finished objects from the Değirmentepe tombs and at the settlement site itself there have been only very few finds of metal objects or evidence of metalworking (e.g. *Milet* 1.8: 76). The problem appears to be one of evidence. The thesis could be proven by finds of *in situ* ingots, which are exceptionally rare, or by excavation of metal-working or smelting installations, but even these are not a necessary feature of a site which is only trading in metals and not actually working or modifying those metals on-site. An *ex silentio* argument for which no material evidence can be cited or expected may appear to be a weak one, but it must suffice. There were extensive ancient caravan routes in central and eastern Anatolia, but their existence is only known because of the kind of evidence provided by the Kültepe tablets. The vast majority of this trade could not have been guessed at because it dealt in perishable commodities and valuable metals neither of which survive in the archaeological record. In western Anatolia, where there are no written records, similar trade may have occurred but we have no evidence of it. Miletos may well have been an entrepôt, similar to Troy. Its location and harbours made it ideal for the movement of commodities such as metals but there are inherent problems in identifying this kind of trade

due to the limitations of the existing source materials, making it difficult to demonstrate this trade existed and especially difficult to quantify it.

It is hard to assess the relationship between the Bronze Age settlement at Miletos and its territory in this period because much of the evidence so far uncovered appears to be related to cult, not domestic buildings. Also, the results of a detailed on-going programme of palaeobotanical analysis at the site are not yet available. However, the preliminary results of the faunal analysis, mentioned above (p. 66), may indicate that a Kretan agricultural regime was introduced when the site was colonised by Minoans. The site was probably an island and this must have affected the day-to-day relationship between land and settlement and demonstrates that sea and water navigation were an integral part of life in Miletos from its very earliest occupation, something which was to continue throughout its later history. Minoan involvement in Anatolia appears to have been exclusively restricted to the coast and at Miletos no pottery has been found in the hinterland. Small quantities Mycenaean pottery, however, did start to appear further inland in Anatolia and has been found in the hinterland of Miletos at sites such as Didyma (Marchese 1986; Gödecken 1988; Schattner 1992 and above, pp. 36–7). Key themes in the historical development of Miletos, such as its relationship with the land, the cultures of Anatolia and the Aegean, can be seen to manifest themselves for the first time in the Bronze Age and will be shown to continue throughout the later history of the city.

Chapter two: annotated bibliography

For a clear summary of regional chronology see Bennet and Galaty (1997). Dickinson (1994) provides a summary of relative chronology (pp. 12–17) and absolute chronology (pp. 17–21). Warren and Hankey (1989) is an in-depth consideration of chronology based on scientific methods of dating, a theme recently and extensively covered by Manning (1995). The main Anatolian type-site is Beycesultan published by Lloyd and Mellaart (1955, 1962, 1965 and Mellaart and Murray 1995). Useful works on the Aegean Bronze Age include: Warren (1989) Castleden (1990), and Dickinson (1994). On the Hittites see: Gurney (1953) MacQueen, (1986), Akurgal (1997) and Bryce (1998). On Mycenaean pottery in Anatolia see Mee (1978) and the same theme but updated, is presented in Mee (1998).

The results of the early excavations at the temple of Athena are published in *Milet* 1.8 (73–7), Weickert (1957; 1959/60), Voigtländer (1972) and Schiering (1975, 1979). There is, as yet, only one preliminary report of results from the current programme of excavations, for the 1994 and 1995 seasons (Niemeier and Niemeier 1997) but preparation of a second report, covering the 1996 to 2000 seasons, is underway. Brief summaries of these results have also been presented in English in Gates (1996) and Greaves and Helwing (2001). Mee (1978) provided a summary of the old excavations in

English, and although some of Mee's discussion has been superseded by new discoveries and occasionally criticised (e.g. Schiering 1984: 187, n. 1) it remains extremely useful, especially for its bibliography. A series of themed discursive works in English by the current excavator, based around his work at Miletos and incorporating original results, have now started to appear. These include discussions of the Mycenaeans in western Anatolia, the Minoans at Miletos, and the potters' quarter at Miletos (Niemeier 1998a; Niemeier and Niemeier 1999; and Niemeier 1997 respectively).

3

THE ARCHAIC PERIOD

A history of research and sources

The excavation of Archaic Miletos began in 1900, under Theodor Wiegand, at the temple of Athena. In 1904–9 there were excavations at the most important part of Archaic Miletos, the hill of Kalabaktepe. In 1906, the Lion Grave on Kazartepe was found and opened. Other than limited excavations of the Archaic levels at the Temple of Athena, there were no more major excavations of Archaic material from Miletos until a major new programme of excavations on Kalabaktepe and Zeytintepe was carried out in the 1980s and 1990s, under the direction of Volkmar von Graeve.

For the Archaic period, inscriptions and historical sources can be used to augment the archaeological sources that exist, although generally the inscriptions from Archaic Miletos tell us little. Very few of the civic inscriptions, that are presumed to have been stored in the Delphinion (*Milet* 1.3) and Didymeion (*Didyma* 2), survived the Persian Sack, and of those that did survive, most tend to be either brief or fragmentary. Occasionally, post-Archaic inscriptions appear to record Archaic practices, such as the famous *Molpoi* inscription, but often these cannot be accepted at face value, as with the foundation of Apollonia on the Rhyndacus (*Milet* 1.3: nos. 133 and 155, respectively, discussed below pp. 117 and 127–8).

Even for a city as important as Miletos was, there are few sources that explicitly describe life and events within the city in the Archaic period. The most important ancient writer to discuss Archaic Miletos was Herodotus (abbreviated to Hdt. hereafter), although he appears to have disliked Miletos, which he saw as responsible for instigating the Ionian Revolt that led to the destruction of his beloved Athens. The relationship between the accounts of Herodotus and the archaeology of Archaic Miletos is an interesting one. The results of archaeological excavations at Miletos have often been claimed to prove certain aspects of Herodotus' account. For example Kleiner (1966: 14 ff.) claimed that the oval and rectilinear buildings of geometric Miletos confirmed Herodotus' account of the foundation of the city, in which Ionian colonists murdered the Karian men who lived there and married their

womenfolk (Hdt. 1.146). This particular story is a very pervasive one and is referred to frequently by modern scholars and the ancient sources alike (Greaves 1998). However, this mixed building tradition has now been identified at a number of other sites and appears to be the standard regional tradition in this period so that it should not be linked to Karian settlement at the site.

More recently, the Temple of Athena at Assessos, mentioned by Herodotus, now appears to have been discovered during excavations at the site of Mengerevtepe, seven kilometres to the south-east of Miletos and dating to *c.* 500 BC (Hdt. 1.17–22; Lohmann 1995; Senff 1995b; Weber 1995). This would appear to be a case where archaeology clearly confirms an historical source.

There is a danger in placing too much emphasis on the ancient historians, which can lead to misinterpretation of the archaeological data, especially when there are so few reliable sources. However, they can give us an insight into events and aspects of Milesian life that cannot otherwise be understood from the archaeological data alone. For example, the discovery of a thick destruction layer across the whole of the site in the late Archaic period would almost certainly have led to the conclusion that the site was destroyed in that period. However, Herodotus' very detailed account of the Ionian Revolt (led by Miletos against the Persians), its precise date (499–4 BC) and its outcome (the Battle of Lade), provides much more information than archaeology ever could on the events leading up to that destruction. When studying the history of Archaic Miletos, therefore, archaeological, epigraphic and literary sources must be combined carefully in order to reconstruct events. (A book on the history of Miletos, as opposed to its archaeology, has recently appeared: Gorman 2001).

Origins of the Archaic city

From the Bronze Age to the Archaic period (c. 1100 BC–700 BC)

There is no evidence for sub-Mycenaean buildings at Miletos and there is an apparent break in its architectural history in this period (Snodgrass 1971: 66–8), although sub-Mycenaean pottery was found at the Temple of Athena site (Weickert 1959/60: 32; Hommel, P. 1959/60: plates 52.1 and 52.2; below, p. 90). The original excavation report on the 1955 campaign at the Temple of Athena site described the stratigraphic context in which this pottery was found, showing clear continuity between the Late Bronze Age and Geometric levels: 'Der Übergang zur nächsten Schicht ist fließend da, auch Scherben der sogenannten submykenischen Gattung gefunden wurden' (Weickert 1959/60: 32). That is to say, 'the transition to the next layer is continuous [i.e. from Late Bronze Age to Geometric levels], here too sherds of the so-called sub-Mycenaean type were found'. However, no architecture

was found and the most recent excavations at the site have not found *in situ* sub-Mycenaean material.

Sub-Mycenaean pottery is very rare in Asia Minor at the best of times (Mountjoy 1993: 176) and so the discovery of any pottery of this type at Miletos, even a few examples, is significant. The majority of our evidence for the sub-Mycenaean period comes from Attika, since typological comparisons are difficult to make because of the lack of evidence. Indeed, sub-Mycenaean may yet prove to be a purely Attic regional style (Styrenius 1967). The sub-Mycenaean period is thought to represent only a short period of about fifty years, from *c*. 1075/1065 to *c*. 1025/1015 BC (Warren and Hankey 1989).

The Geometric period houses of Miletos seem to have been stone-built and reasonably well-constructed rectilinear buildings, with one particular house to the east of the Temple of Athena being supplied with a drain of laid stone slabs (Hommel, P. 1959/60: 38–9; Snodgrass 1971: 429, fig. 139; Coldstream 1977: 260). Also from the Geometric period came a number of stone-built oval structures, one of which overlay the Late Bronze Age defensive wall and underlay the Archaic Temple of Athena, thereby stratigraphically dating it to the early Iron Age with an absolute date in the ninth century BC (Mallwitz 1959/60: 76 ff.; Kleiner 1966: 14). These oval structures were interpreted as Karian shrines by the excavators (Kleiner 1966: 14 ff.) but are more likely to be domestic houses similar to those found at Old Smyrna (Cook 1958–9: 14 ff.). This combination of Geometric period building styles at Miletos, that is mixed rectilinear and oval houses, is that of a typical settlement and craft-working quarter of this region in the Geometric period (Heilmeyer 1986: 107).

The akropolis of Kalabaktepe was occupied for the first time in the Geometric period. Geometric houses were found here in the earlier excavations (*Milet* 1.8: 27–32) and since then there has been much more detailed stratigraphic work on Kalabaktepe that has uncovered more evidence for this key period. The Late Geometric settlement on Kalabaktepe began in the eighth century BC and appears to have had two phases (Mellink 1991: 144). Although it was claimed that Kalabaktepe was fortified with a wall by the eighth century BC (*Milet* 1.8: 9–10; Coldstream 1977: 260–1; Boardman 1999: 28) it is not clear that this wall was indeed a fortification wall or that it enclosed the whole hill. In the light of this new suggestion we may have to rethink our assumptions about the Geometric settlement of Kalabaktepe (Reinhard Senff *pers. comm.,* contra Greaves 1999). A kiln from this earliest level proves that Miletos did continue to produce pottery. The Geometric period was an important one for Miletos as it extended to two sites, Kalabaktepe and the Theatre Harbour, and saw the first phase of major temple building at Didyma (below, pp. 111–14). The settlement grew and its material culture reflected increasing contacts from east and west.

The Ionian colonisation of Miletos

The subject of the Ionian Migration and the founding of Miletos has been much discussed and written about (e.g. Wissowa 1932; Laumonier 1958; Sakellariou 1958; Cook, J.M. 1962, 23–35). There are five foundation myths which claim that Miletos was founded by the Ionians and in particular the Athenians. These include three references in Herodotus (1.146, 9.97, and 9.106), one in Ephorus (*ap*. Strabo 14.1.6), and one in Pausanias (7.2.1–3).

The most famous of these passages is Herodotus 1.146, which inspired Pausanias' own account of the foundation of Miletos (7.2.1–3), which is clearly derived from it, and is also imitated in Dionysius of Halikarnassus' account of the foundation of Rome (Greaves 1998). This passage describes how Ionian colonists, who considered themselves to be of the purest blood, left the government house at Athens and founded Miletos after killing the Karian men of the area and taking their widows, sisters and daughters as their wives. Herodotus says it was in remembrance of this past atrocity that the women of Miletos swore an oath, that passed down through the generations, forbidding them to dine with their husbands or call them by name. Many scholars (e.g. Pomeroy 1972: 34) have taken this at face value, but others question Herodotus' motives in including such a story at this point in his history. For example, Coldstream (1993: 96–9) interpreted it as a jibe at Milesian pretensions to racial purity. Later in Herodotus' *Histories* (9.106), the Athenians appear to claim Ionia as theirs, referring to the Ionians as their colonists, and 1.146 might be an attempt to reconcile Athens' claim with the historical fact that Miletos was a city of mixed Karian and Greek population. Neileus, one of the descendants of Kodrus, is named in several of these traditions as being the leader of the Milesian colonists.

Whatever the truth, or otherwise, behind these accounts of the foundation of Miletos, they cannot be proven by archaeological research. Although it is highly likely that there was a mixed Greek and Karian population at Miletos from very earliest times, no distinctively Karian material cultural assemblage has yet been identified and their presence at the site cannot be proven. A determination to prove historical sources such as Herodotus right can lead to a distortion or misinterpretation of the archaeological evidence, as in the case of the oval 'Karian' houses of Geometric Miletos, mentioned above (p. 74). The archaeological evidence does appear to show some links with Attika, based on the pottery evidence, but this does not prove the full truth of what Herodotus tell us about the Ionian migration.

From a purely archaeological point of view, the Ionian migration, that is the settlement of cities on the Ionian coast, is thought to have taken place in around 1050 to 1000 BC, the end of the sub-Mycenaean and the start of the Protogeometric pottery phases. Pottery of these phases does exist at Miletos (p. 91 below).

The archaeology and architecture of the Archaic period (700 BC–494 BC)

The evidence for the Archaic settlement at Miletos includes the settlement and defences on the akropolis of Kalabaktepe, the temple of Athena and other remains near the Theatre Harbour, several other temples that were probably enclosed by an extensive outer wall (Dionysos, Demeter and Kore) and the peri-urban sanctuary of Aphrodite on Zeytintepe outside the circuit walls (Figures 3.1, 3.2 and 3.5). The most important part of Archaic Miletos appears to have been Kalabaktepe, where new excavations were carried out between 1985 and 1994, under the direction of Wolfgang Müller-Wiener, Volkmar von Graeve and Reinhard Senff (see the end bibliography for their many publications on the subject; for English summaries see publications by Mellink and Gates). This hill, which is 57.2 metres high, was in a good defensible situation and overlooked the harbours and peninsula on which the lower town was built (Figure 3.2). The flat summit and east terrace of Kalabaktepe are not natural, but were created by terracing in the Archaic period (Figures 3.1 and 3.4). In the second half of the seventh century BC, a defensive wall was built around Kalabaktepe (pp. 86–7) and occupation material began to accumulate behind it, preserving complex stratified remains from the Archaic settlement.

The results so far published show that on the south slope of Kalabaktepe the well-preserved remains of several densely settled Archaic courtyard

Figure 3.1 Zeytinetepe. Note the flat summit of the hill in the centre of the picture and the flat West Terrace slightly below and to the right. Değirmentepe is behind and to the left.

houses of sixth century date were found (Figure 3.3), each with several building phases, which respected the line of the city wall. The earliest Archaic buildings date to *c*. 700–650 BC and they lie partly under the defensive wall built in *c*. 650–600 BC. The building method used was stone sockel (foundation course) topped with mud-brick or pisé (puddled mud or trampled earth). The stone sockels could be re-used many times as the houses were re-built. These houses had flat roofs and courtyards. In addition to domestic occupation there is also evidence of industrial activity on Kalabaktepe, including kilns and associated wasters, misfired terracottas, debris from bone carving and iron and steel slag. Wells supplied the settlement on Kalabaktepe with its water.

The lower town continued to be focused in the area around the Theatre Harbour and Temple of Athena area (*Milet* 1.8; Weickert 1957, 1959/60; Mallwitz and Schiering 1968). Here the most remarkable Archaic discovery was a storeroom filled with wine amphorae, suggesting a commercial use for this part of the city. The new excavations at the Temple of Athena have so far uncovered one Archaic well, filled with fine Archaic pottery and amphorae (Niemeier *et al*. 1999).

Town planning at Archaic Miletos

Historically, Hippodamos of Miletus was credited with being the first man to develop the concept of town planning, based on a simple orthogonal grid

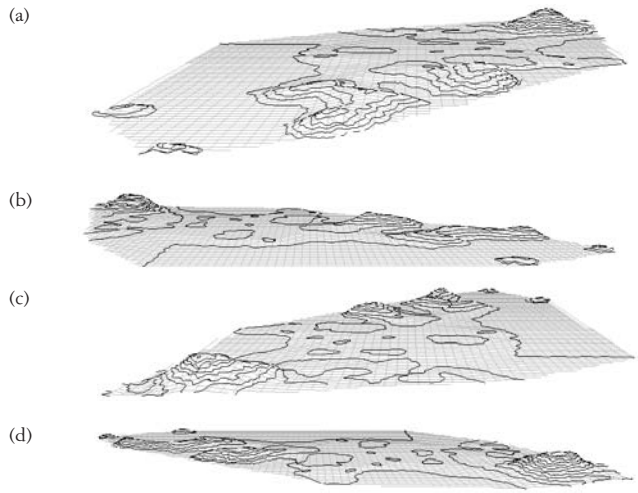


Figure 3.2 3D projection of the peninsula of Miletos made using G.I.S. (by the author and John Dodds) – (a) View from the north; (b) View from the east; (c) View from the south; (d) View from the west.

Figure 3.3 Excavations on Kalabaktepe (© Copyright Milet Archive, Bochum).

Figure 3.4 East terrace of Kalabaktepe (© Copyright Milet Archive, Bochum).

system (Aristotle *Politics* 2.8). The recent excavations on the southern slopes of Kalabaktepe tell us a great deal about the urban life in Archaic Miletos, but there is no indication that this part of the city was planned along the lines proposed by Hippodamus (Heinrich and Senff 1992). Even on the flatter east terrace of Kalabaktepe, there does not appear to have been any adherence to a grid plan (*Milet* 1.8: 8–16, Beilage 1, Tafel 1). One would not expect this as the settled area on Kalabaktepe because it has steep topography and is restricted by the defensive walls that enclose it and buildings are generally aligned in respect of this wall, rather than being aligned on a grid.

The lower part of the town, which is not as steep or heavily defended as Kalabaktepe, may be expected to display elements of Hippodamian planning, but does not. The excavations in the temple of Athena/Theatre Harbour area did not show any signs of strict planning (*Milet* 1.8: 77–82 and abb. 43) and the new excavations have revealed little about the Archaic plan of this part of the town so far. Again one would not expect evidence of planning here, not because it was steep or defended like Kalabaktepe, but because it was the traditional core of the settlement on this site (Greaves 1999) and, like any established settlement, it could not have a grid imposed on it once it had been built.

It has been argued, on the basis of a misalignment of 1° between the grid in the northern and southern halves of the classical city, that the northern area must have been re-built on pre-existing lines and the southern half was newly planned in the classical period (Ward-Perkins 1974: 14). It is tempting to see an Archaic plan as the precursor to the later city, and thereby attribute it to Hippodamos, but the evidence for this at the moment is very slim and it is hard to accept that a misalignment of just one degree can have such broad implications. Little or no evidence of Archaic domestic structures has been found in the northern part of the city-peninsula and the only secure Archaic structures here are temples (of Demeter and Kore, Dionysos and probably Apollo Delphinios). These may originally have been peri-urban and do not necessarily tell us anything about the extent or character of the Archaic settlement in this area. Also, these temples are widely scattered across the northern half of the city which suggests that the Archaic city was not zoned into distinct areas for civic and private buildings as it was in other planned Greek cities, such as Metapontum (Owens 1991: 42–3).

Urban planning and zoning is not possible on a large scale unless the city is being founded or re-founded from the ground up, as a new settlement or the result of some catastrophe. Such a catastrophe happened with the Persian sack of 494 BC and so the degree of urban planning in Archaic Miletos prior to this was probably limited. The work of Hippodamus of Miletos does not appear to be reflected in the planning of his home city, so what was the source of his inspiration?

It has been suggested that the Urartian settlement Kernaki Tepe was laid out on a Hippodamian grid (Burney 1957: 49–50; Nylander 1965/6:

141–54, esp. 151–2; Kleis 1968: 13–17; Lampl 1968: 113). This might lead one to see a Near Eastern source for another one of Miletos' important Archaic intellectual advances, as could be argued for the developments made in philosophy and astronomy in Miletos in the same period. However, Kernaki Tepe has now been shown to date from a much later period (Sevin 1997) and Miletos' contact with the East does not appear to have affected this particular development.

More probably it was Miletos' experience of colonisation in the Black Sea that began the formation of ideas about town planning that led ultimately to the work of Hippodamos. As noted above, it is only when a town is being established from new that town planning of the kind proposed by Hippodamos can be carried out and the foundation of Miletos' ninety colonies in the Black Sea would have provided ample inspiration for his work. At the early Milesian colony of Olbia, the beginnings of a grid plan can be seen (Vinogradov 1981: 13; Owens 1991) and town planning reached full development in such colonies.

The temples of Archaic Miletos

The Persian sack of Miletos in 494 BC was so total that there are no standing ruins prior to that date anywhere on the site. The beautiful temples that must once have adorned the city were looted and levelled to a point where reconstruction of the original architectural design, even on paper, is difficult, if not impossible. In the last ten years excavations have been carried out at three of these temples, those of Artemis on Kalabaktepe, Athena *Assessia* at Mengerevtepe and Aphrodite *Oikus* at Zeytintepe, and new discoveries have greatly advanced our knowledge of the Archaic temple of Athena near the Theatre Harbour in Miletos (Figure 3.5).

The sanctuary of Aphrodite *Oikus* on Zeytintepe was found and excavated in 1990 to 1991 (Gans 1991: 137–40; Senff 1992: 105–8; Heinz and Senff 1995: 220–4; Senff and Heinz 1997: 114–18). This was a peri-urban sanctuary (that is, it was outside the Archaic city walls of Miletos), and dated from the first half of the seventh century BC. This temple, along with many others, was probably razed in 494 BC as part of the Persian sack of the city and an ash layer has been found across the site, associated with imported Attic pottery dating to *c.* 500 BC. Votive terracottas and pottery dedicated to Aphrodite soon identified this as being a temple to that goddess and an inscribed statue base showed that her epithet was *Oikus* (Herrmann 1995: 282–6). The letterforms of the inscription date it to about the third quarter of the sixth century BC, *c.* 550–25. *Oikus* was apparently a placename, near Miletos, and was associated with Aphrodite (Apollodorus 3.1.2). The exact location of Oikus, whether it is Zeytintepe or another location, is not certain, but the use of a local toponym as the epithet for this important Milesian goddess suggests a local, possibly Karian, aspect to her character in Miletos.

Aphrodite also appears to have been worshipped widely in Miletos' colonies (Ehrhardt 1988: 164–6), where her epithets often suggest a connection with her identity as a sea-goddess (Greaves 2000a, forthcoming).

The building on Zeytintepe appears to have been systematically destroyed as part of the Persian sack of 494 BC, and at the moment a reconstruction of its architecture is not possible. It must have been of fine marble construction with volute–palmette akroteria and terracotta antefixes in the form of gorgons' heads (Gans 1991: 139, plate 24.3). It is very difficult to date this building, as there are few architectural remains by which it could be dated stylistically, but the foundations of the building appear to date to the late sixth century BC (Heinz and Senff 1995: 220–3).

At Zeytintepe rich votive deposits were found in *bothroi* (sacred pits) cut into the bedrock on the western side of the *temenos* (sacred enclosure around the temple) and dumped on the eastern terrace. These had survived the Persian sack and more recent illegal excavations. Finds from these *bothroi* are very rich and indicate the level of wealth and status of pre-494 Miletos,

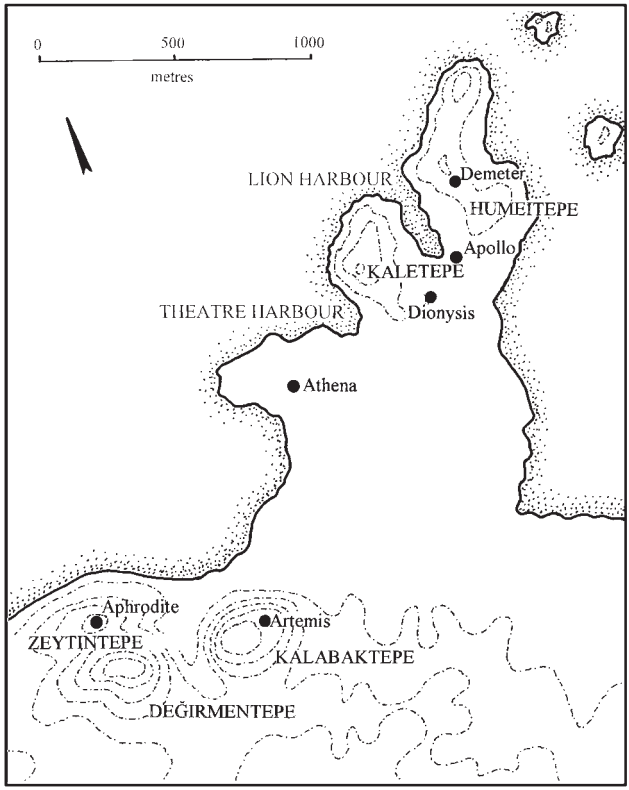


Figure 3.5 Archaic sanctuaries and temples of Miletos.

which is otherwise missing as a result of the Persian looting. Dedications to Aphrodite included many bronzes, such as a late seventh/early sixth-century BC bronze horse votive (Gates 1995: 237; see below, p. 94). There are also fragments of stone sculpture and many hundreds of terra-cotta figurines (von Graeve 1999b). In addition to locally produced Ionian finewares, there were great numbers of imported finewares from Korinth and Attika (see below, under 'Milesian Pottery'). Metal and bone artefacts found here apparently belonged to furniture, the wooden parts of which have now decayed. Luxury furniture was a very important status item in antiquity, but archaeological evidence of it rarely survives.

An analysis of the faunal remains from Zeytintepe revealed that, when compared to those found at the Archaic settlement levels on Kalabaktepe, the animals from Zeytintepe were generally killed at a younger age than those from Kalabaktepe and included no pigs (Peters and von den Driesch 1992). This reflects the sacrificial practices of the time, in which the best young animals were sacrificed to the gods and pigs were never sacrificed to Aphrodite (Pausanias 2.10.4).

The sanctuary of Aphrodite at Miletos on Zeytintepe has one of the most important assemblages of Archaic Egyptian material in the Mediterranean (Hölbl 1999). The assemblage is typical for the seventh century BC and includes a bronze falcon head that was possibly part of an incense-burner, a female basalt figure and numerous faience pieces. About one hundred scarabs were found in contexts dating from the seventh to sixth centuries BC. About twelve of these were Egyptian originals, the rest being Aegean-made versions. Few of the scarabs appear to have been made in Naukratis, although there is one clearly Naukratite faience falcon figurine (Hölbl 1999: 357–61). Naukratis was a Greek trading colony on the Nile delta, in which Miletos had an important interest and where there was also an early cult of Aphrodite (Greaves 2000b, fig. 2; forthcoming).

Prior to the discovery of the sanctuary of Aphrodite on Zeytintepe, the best known Archaic temple of Miletos was the Temple of Athena near the Theatre Harbour (*Milet* 1.8; Weickert 1957, 1959/60; Mallwitz and Schiering 1968; Held 1994). This temple had two phases to it, the 'older' and 'younger' periods. The 'older' temple of Athena is clearly Archaic, and was dated from the eighth to sixth centuries BC, while the 'younger' temple was originally dated to the classical period, following the destruction of Miletos in 494 BC (see Niemeier *et al*. 1999: 373–6). However, architectural fragments from the 'younger' temple were recently discovered in a well which was filled with late Archaic pottery and probably associated with the destruction of 494 BC. This shows that the 'younger' phase of the temple of Athena was also built in the Archaic period, probably the late sixth century BC, and was destroyed as part of the Persian sack of 494 BC (Niemeier *et al*. 1999; Weber 1999). A number of important bronzes found in earlier excavations at the temple of Athena show strong Near Eastern influences

(Held 1994, fig. 14) and a number of Egyptian pieces were also found here (Hölbl 1999: 345).

There was a temple, probably sacred to Artemis *Kithone*, on the east terrace of Kalabaktepe (*Milet* 1.8: 8–16; Kerschner 1999: 218 ff.; Kerschner and

Figure 3.6 Archaic *kore* holding a hare from Miletos (© Copyright Bildarchiv Presussischer Kulturbesitz, Berlin).

Senff 1997: 120–2). Again, there are very few standing ruins of this temple, but a statue of a female holding a hare may come from this temple (Figure 3.6). This building probably dates to the late sixth century BC, although there may have been a sanctuary here from the eighth century onwards.

To the east of Kaletepe there was an Archaic temple of Dionysos (Real 1977/78; Pfrommer 1989). There was probably also a temple of Demeter and Kore on Humeitepe (Müller-Wiener 1979: 206–7; 1980: 30–8; 1981: 200; 1985: 15). Shrines or temples of other Greek Olympian gods, known from epigraphic evidence to have existed at Miletos but not yet located by archaeologists, include: Zeus (*Milet* 1.3: 153; Koenigs 1996) and Herakles (*Milet* 1.3: no. 132). An inscription also mentions a number of shrines along the sacred way from Miletos to Didyma, including Hermes and the Nymphs (*Milet* 1.3: no. 133). This inscription also mentions Dynamis, the personification of power, and the Karian goddess Hekate, whose cult is mentioned here for the first time in the Greek world. On the west slope of Kalabaktepe, a single-roomed structure with a bench partly cut into the rock was found and interpreted as a possible shrine (Brinkmann 1990). This interesting structure may have links to contemporary Phrygian cult structures, which often consist of a simple stone bench, but were generally open-air and not incorporated into buildings. The cults and temples of Miletos can therefore be seen to include many of the usual Greek deities, but also some Anatolian or local elements.

There are also several temples outside the city of Miletos itself. These include the temple of Athena *Assessia* (above, p. 75), a *temenos* (sacred enclosure) on the Sacred Way (*Didyma* 3) and a monumental altar to Poseidon near Panormos (*Milet* 1.4). The oracle of Apollo at Didyma was the largest cult centre in Archaic Miletos' territory and its *temenos* enclosed a number of other sanctuaries, including one to Apollo's sister Artemis. Didyma is discussed in detail below (pp. 109–29).

The defences of Archaic Miletos

On Kalabaktepe, a defensive wall founded on blocks of gneiss was constructed in *c.* 650–600 BC (see Figure 3.7). The first phase of the settlement here does not appear to have been defended as the wall overlies some of the earliest buildings here (Mellink 1991: 95). Their construction may have been in response to the threat posed by the Lydians, although they do not appear to have been constructed in a hurry. The walls have so far been traced along the south side of Kalabaktepe and down onto the plain, in the direction of the so-called Sacred Gate. The connection has yet to be made between the Kalabaktepe defences and the Sacred Gate because excavation is made difficult by the great depth of overlying alluvium in this area (Cobet 1997). A further inner defensive wall, built of polygonal blocks and 1.2 metres thick, was built on the summit of the hill in the mid-sixth century

Figure 3.7 Defensive wall on Kalabaktepe (© Copyright Milet Archive, Bochum).

BC (Senff, Hürmüzlü and Sorgu 1997b). These resemble the fortification walls of Old Smyrna, which had a stone sockel with a mud-brick upper section (Cook 1958/59).

The Archaic necropolis

For a long time it was not known where the Archaic *necropolis* (graveyard) of Miletos lay, but a chance discovery during pipe-laying in the village of Yeni-Balat uncovered a number of graves of Archaic and Roman date (Müller-Wiener 1988). Four of the burials were dated to the Archaic period, and there are probably others in this area that cannot now be reached by archaeologists because they are under the modern town. Three of the skeletons were adult males and the fourth was a child (Schultz and Schmidt-Schultz 1991).

A monumental tomb, the so-called Lion Grave (also known as the Lion Tomb) dating to the sixth century BC, was dug into the nearby hillside of Kazartepe (see Figure 3.8). This was approached by a *c.* 25 metre-long, narrow *dromos* (entrance passage) and through the triangular entrance there was a fore chamber and a larger burial chamber, which was undisturbed when it was excavated in 1906. A small number of *in situ* burial goods were found, including silver vessels and pottery, but the most remarkable find was a pair of beautifully carved life-size stone lions that were found near the entrance (Figure 3.9). These are some of the most pleasing pieces of sculpture from

Figure 3.8 The entrance to the Lion Grave.

Figure 3.9 Lion statue from the Lion Grave, Miletos (© Copyright Bildarchiv Preussischer Kulturbesitz, Berlin).

Miletos and are shown in resting pose that reflects Egyptian influences (Boardman 1999: 146–7). A single Archaic grave stele, decorated on top with volutes and a palmette, was found in the village of Akköy a few kilometres further south from Miletos. This may also have been an elaborate grave marker that adorned the Sacred Way, which passed nearby.

The Lion Grave and the Archaic graveyard, like many ancient *necropoleis* would have flanked the main road, in this case the Sacred Way, as it approached the city. The Archaic graves would also have been close to what was then the shoreline, a location similar to that of the necropolis of the Milesian colony of Apollonia Pontica. A location like this, close to a beach, would probably have been marginal land of little agricultural value and so could be readily used for standard non-élite burials.

The material culture of Archaic Miletos

Milesian pottery

The pottery of Miletos was poorly understood until recently, and this has hindered detailed study of the city's overseas trade and activities (Boardman 1999: 28). In particular the very limited numbers of decorated sherds which had been recovered from stratigraphically secure Archaic levels made the construction of pottery typologies difficult. However, the recent detailed stratigraphic excavations at Kalabaktepe produced large numbers of richly decorated

seventh- and sixth-century BC sherds, mostly in the local Wild Goat (Animal Frieze) and Fikellura styles. Following initial interim catalogues of finds (Heinz 1990), a series of detailed typological studies of the various forms and decorative techniques have now started to appear. The excavations at the sanctuary of Aphrodite on Zeytintepe also produced a large quantity of pottery, including imported Lakonian, Attic and East Greek material, which have been more widely studied and therefore allow chronological and typological comparisons to be made with the local Milesian wares. Miletos is now starting to be recognised as the most important seventh-century BC centre of production for Wild-Goat style pottery, a style which it developed and which was then adopted by other east Greek states including Khios and Klazomenai (Cook, R.M. 1992). In the sixth century BC Miletos was also an important producer of Fikellura ware and again was the inspiration for production in nearby centres such as Karian Mylasa (Cook, R.M. 1993). The discovery of pottery kilns on Kalabaktepe will further our understanding of Archaic Milesian pottery production (Seifert 1991; Senff 1995a: 210–11, plate 13).

Mycenaean-style pottery continues to be found at Miletos up to the LHIIIC Middle period. Gödecken (1988) claimed to have shown by means of neutron activation analysis that Milesian potters continued to use the same clay sources and blend of fabrics from the Late Bronze Age to the Archaic period, suggesting a continuity of potting tradition throughout this period. However, the results of this work have never been fully published and until they are it should be disregarded.

There are at least two sherds of pottery published from the old excavations on the east of the Temple of Athena, which may be sub-Mycenaean. The sherds in question are vessels with (1) a broad horizontal band on the shoulder with semi-circles, painted freehand above and below the shoulder band (Hommel 1959/60: plate 52.1) and (2) a narrow horizontal band around the neck with suspended radiate lines (Hommel 1959/60: plate 52.2). The context of these sherds is discussed above (pp. 75–6).

The earliest Protogeometric pottery from Miletos is very early, although only a few sherds were originally published from the site (Desborough 1952: 221; Snodgrass 1971: 66–8). The Protogeometric style appears to have originated in Attika in 1025 to 900 BC, and then diffused from Attika to outlying areas from 950 to 875 BC, or earlier in Boeotia. Milesian Protogeometric pottery, although independent in style, showed some influence since it appeared to have Attic-style rims (Desborough 1952: 291–5, 221; Snodgrass 1971: 66–8; Niemeier and Niemeier 1997: 205–6). This Attic connection has been linked by some scholars to the foundation of Miletos by Athens during the Ionian Migration (Hdt. 1.146). However, the basis for claiming an Attic origin for the Milesian style is questionable, although quite likely, and such thin evidence alone should not be taken as proof of the Ionian foundation myth.

The Geometric pottery of Miletos includes an interesting local style influenced by Rhodes (Coldstream 1977: 260–1). Middle Geometric pottery was found in the burnt layer of a Geometric house and appears to be of east Greek Middle Geometric style (Hommel 1959/60: fig. 1, plate 58.1, 58.2; Coldstream 1968: 267–74). Late Geometric pottery is generally rarer on the coast of Asia Minor than in the islands, but in this period Greek pottery started to penetrate the Karian hinterland for the first time (Coldstream 1968: 274, 296). Miletos is the most important source of Late Geometric pottery in southern Ionia, yet it is hard to distinguish a true 'Milesian Style' for the period. There are a number of imitations of Rhodian bird-*kotylai* from Miletos, decorated with outline drawings of water-birds (Hommel 1959/60: plate 62.1, 62.2; Coldstream 1968: 279, 296) and decorated with scribbles, dots, circles and the 'ladder pattern' (Weickert 1957: plates 37.2b, 37.2f, 39.3d, 39.4c, 39.4e; Hommel 1959/60: plates 57.2, 59.1a–b, 59.4; Kleiner 1959/60: plate 79.2d–e).

The Sub-Geometric pottery of Miletos is typified by rows of horizontal S's, and plain or double St. Andrew's crosses (Hommel 1959/60: plates 85.2, and 85.3; Coldstream 1968: 296). Pictorial representations include crude scenes of swimming birds (Hommel 1959/60: pl.60.1), dancers with padded stomachs (Hommel 1959/60: plate 60.2; Coldstream 1968: plate 63d) and more advanced animal-style scenes which show early orientalising influence (Kleiner 1959/60: plate 80.2, a grazing deer), a style that was to find its full expression in the Archaic Wild Goat (Animal Frieze) style. A Milesian orientalising style started in *c.* 700 BC, with elements of sub-Geometric decoration continuing (Coldstream 1977: 261).

Two main styles of local decorated pottery in Archaic Miletos were Wild Goat style and Fikellura style. The so-called Wild Goat style, which would be better described as 'Animal Frieze' style because its decorative themes are not restricted simply to goats, features decorated bands of animals and filling motifs painted in black paint on a light background and is very distinctive. This is an orientalising style, showing increased influence from Near Eastern art, and Miletos appears to have been a major producer and exporter (Cook and Dupont 1998: 32–70). Fikellura is a later style, similar to the Attic black figure style, but with very rare use of incision to enhance the outline figures and limited use of colour. Fikellura ware takes its name from the site on Rhodes where it was first found in any quantity although, like Wild Goat style, it too has since been recognised as originating in Miletos (Cook and Dupont 1998: 77– 91). On Kalabaktepe a kiln dating to the seventh century BC was found, built over by sixth century BC houses.

The relationship between these two styles, chronologically, stylistically and in place of origin, was for a long time unclear. Now stratigraphic excavations at Kalabaktepe have shown that the transition from Middle Wild Goat II style to the Fikellura style was smooth; that one developed out of the other (Cook, R.M. 1992). Recent study of the Fikellura pottery from

Miletos by Udo Schlotzhauer (1999) has shown that it was produced only in Miletos, where it has been found in domestic contexts and in the pottery production area and not just in sanctuaries, whereas on Samos it was found only in the sanctuary. Fikellura dates to the mid- and late sixth century BC.

The excavations at Zeytintepe produced thousands of sherds of imported pottery from Korinth, Khios, Lakonia and Etruria, which have been used to date the archaeological contexts and destruction deposit at the site. Attic Black Figure pottery is also found in quantity at Miletos, but very little of the later Red Figure style has been found in archaeological contexts prior to the destruction of 494 BC.

Milesian transport amphorae were also not clearly recognised until recently, as a result of petrological analysis on the clay (Cook and Dupont 1998: 170–7). Their shape is ovoid with a distinctive high convex lip and low ring-foot. Their form is indistinguishable from that of Samian amphorae, and it is only through petrographic analysis of the clay that they can be securely identified as Samian or Milesian. These amphorae are found widely distributed across the Mediterranean and the Black Sea and probably carried olive oil.

Metalworking

This discussion will be mostly centred on bronzes from Miletos as they are better studied than the iron artefacts, of which a great many were found during the excavations at Kalabaktepe but which are often less well-preserved than bronze. The best examples of preserved metalwork usually come from votive or burial contexts and this is also the case at Miletos. These are mostly bronzes but included about thirty iron items and some of lead. Miletos was an important and influential centre for metalworking, although the philosophising of the Milesian 'natural scientists' added nothing to the world's understanding of metals (Healy 1978: 15). The bronzes of Sybaris in southern Italy were heavily influenced by those of Miletos, as one might expect given the friendliness of these two states (Hdt: 6.21; Treister 1996: 72–3). A stone mould with casting runners dating from the sixth century BC found at Kalabaktepe near a kiln shows that this part of the site was an artisan area where metalwork was being carried out (Senff 1995a: 213, fig. 15).

Until recently, the most important group of bronzes to be found at Miletos was that from the temple of Athena (Figure 3.10). Many bronzes can be assumed to have been carried away during the sack of Miletos and its temples by the Persians in 494 BC (Held, forthcoming). The sack of the oracle of Apollo at Didyma removed many of the small votive objects that would have been so informative had they survived (Morgan, C. 1989b). As a result, few bronze artefacts have been found at Didyma, although a monumental bronze knucklebone found at Susa may have been carried there from Didyma as part of the Persian sack (see p. 35 above).

Near Eastern influence on the metalwork of Miletos is well attested, not surprisingly since this is Greece's 'orientalising' period. Several of the bronzes from the temple of Athena show Near Eastern influence in their design, in

Figure 3.10 Archaic bronzes from the Temple of Athena – (a) Griffin protome (© Copyright Bildarchiv Preussischer Kulturbesitz, Berlin); (b) Lion flanked by sphinxes (© Copyright Bildarchiv Preussischer Kulturbesitz, Berlin); (c) Plaque decorated with three lions (© Copyright Bildarchiv Preussischer Kulturbesitz, Berlin).

particular a seventh century BC disc, currently on display in the Milet Museum, which has bulls and lions around a central 'tree-of-life' motif (Kleiner, 1966: 18 and fig. 16). This is a design that parallels that on a bronze helmet with a dedicatory inscription of King Argishti I from the Urartian capital of Karmir Blur, Urartian 'Teisheba' (Piotrovsky 1970: figs 44 and 45). The very high quality of Urartian metalwork is well known and evidence of Urartian, or similar Near Eastern, influence might also be seen in the architecture of the oracle at Didyma (pp. 111–14). A deep bronze bowl of sixth century date from Miletos is also of eastern type (Pfrommer 1986).

Analysis of an early seventh-century BC bronze-cast griffin protome and a late sixth/early fifth-century casting mould for jewellery, both from Miletos, suggest the work of a resident toreut (a specialist in the engraving and embossing of metalwork) or jeweller from Asia Minor or Syria (Treister 1996: 70). Also found at Miletos were a casting mould for producing semi-finished casts of a medallion with a central gorgoneion, boat-shaped earrings, heads of pins and fibulae of Phrygian types, dating from the first quarter of the sixth century BC (Treister 1996: 162; Reinholdt 1992, esp. 228, n. 60). About sixty of these locally manufactured Phrygian fibulae were found at Zeytintepe. Phrygian fibulae were the inspiration for the 'Ionian Bronze Belt' form that is found at Emporia and Phanai on Khios, Old Smyrna, Samos, Ephesos, Gordion and Ankara (Boardman 1961/62). So far about forty fragments of Ionian bronze belts have been identified in the Zeytintepe deposits. The metalworkers of Archaic Miletos were clearly inspired by the techniques and forms of Anatolia and the East, including Phrygia and Urartu.

The recent excavations at the Temple of Aphrodite on Zeytintepe recovered a total of over 500 bronze votives from *bothros* pits around the sanctuary. Detailed study of this important group of artefacts is currently being undertaken by Helga Donder and her colleagues, and the results of this study will greatly improve our knowledge of Archaic Miletos when it is published (forthcoming, in the *Milet* series. I am grateful to Dr Donder for her advice on this section). Examples of published bronzes from Zeytintepe include a late seventh or early sixth-century BC bronze horse votive (Heinz and Senff 1995, 223; see also Gates 1995: 237 for illustration); three metal vessels (Heinz and Senff 1995: 223–4, fig. 24); an *omphalos* bowl inscribed with the name of Aphrodite (Senff and Heinz 1997: 116–17, fig. 2); bronze votive plaques decorated with Pegasus (Heinz and Senff 1995: 223) and an engraved lion (Senff and Heinz 1997, fig. 3).

Sculpture

A number of Archaic stone sculptures have been found at Miletos (e.g. von Graeve 1975, 1985) and some new fragments of sculpture have been found during the recent excavations on Zeytintepe (see above, p. 83). However, by far the most important group of statues from this area are those from the

Sacred Way at Didyma. Common poses include seated male and female figures and *Korai* (robed, standing female statues) holding birds. The style of Milesian statues tends to be quite severe and solid-looking, making the 'Milesian school' of Archaic sculpture identifiable.

The minor sculptural arts at Miletos are represented by terracottas. Previously, only a few terracottas in the Archaic 'daedalic' style were known from Miletos (Schwarz 1989) but since the excavation of the sanctuary of Aphrodite on Zeytintepe, hundreds more have been found and development in the techniques and style of terracotta production can now be traced (von Graeve 1999b). These small statuettes appear to have been left as votives in shrines, such as that on Zeytintepe.

Social history of Archaic Miletos

The political history of Archaic Miletos

The following events are attested by historical sources only, some of which are not very reliable, and the events and their dates cannot generally be proven by archaeology. Nicolas of Damascus (Fr. 54), an Augustan period writer who drew on the works of the mid-fourth-century historian Ephoros, records that Miletos was originally ruled by a hereditary monarchy called the Neileids. Their name suggests that they were probably believed to have been descendants of Neileus, the legendary Ionian founder of Miletos. Nicolas of Damascus also writes that the last of the Neileids, Leodamas, was murdered. Following this, a chief magistracy, the *prytanis*, appears to have been created and is thought to have held great power (Aristotle *Politics* 5.5.4). Miletos was ruled by a tyrant, Thrasyboulos (Hdt. 1.20), whose reign appears to have been a successful one, as it was at this time that Miletos resisted a twelve-year siege by the Lydians. Two other tyrants, Thoas and Damasenor, are said to have ruled at Miletos, before being driven out (Plutarch *Quaest. Grec*. 32). Herodotus (5.28) records a long period of civil strife at Miletos, between two rival groups in the city, the *aeinautai* (the 'forever sailors') and the *cheiromachei* (the 'manual workers', Plutarch *Quaest. Grec.* 32). During this period of strife, which lasted two generations, many of the city's country estates fell into neglect until the Parians were invited in to arbitrate and resolve the situation. The Parians were possibly responsible for establishing a college of magistrates, the *epimenioi*, whose name indicates that they held power for only one month at a time, possibly in an attempt to curb further tyrannies. In 540 BC Miletos, along with the rest of Ionia, came under the control of Persia and a new Tyrant was installed, ruling on behalf of Persia. The first of these tyrants was Histiaios, who probably came to power in *c*. 513 BC, following the Persian campaign in Skythia. He was succeeded by Aristagoras, but how and when he came to power is not clear. In 499 BC Miletos instigated the Ionian Revolt against Persia and this system was

overturned. During the period of the revolt, from 499 to 494 BC, an elected *strategos* (general) probably ruled Miletos.

Few of these events can be linked securely to the archaeological evidence. It has been suggested that the decline in exports of Milesian pottery in about 600 or 590 BC was associated with the period of civil strife between the *aeinautai* and the *cheiromachei* in Miletos (Niemeier *et al*. 1999: 404). The connection between a civil struggle that affected the agricultural economy of Miletos and the export of pottery may not be an immediately obvious one, but ancient pottery appears to have been traded alongside bulk agricultural commodities (Gill 1991), and so a decline in one may indeed indicate a decline in the other.

There appears to have been a spate of new building works in Miletos and the areas that it controlled in the last quarter of the sixth century BC. This included works at the Temple of Apollo at Didyma, the Temple of Artemis at Didyma, the *temenos* on the Sacred Way, the Temple of Artemis *Kithone* on the east terrace of Kalabaktepe, the sanctuary of Aphrodite *Oikus* on Zeytintepe, the Temple of Athena *Assessia* at Mengerevtepe, and the altar of Poseidon on Tekağaç Burun. This flourishing period of Miletos' history is probably to be associated with Histiaios and Aristagoras in the time immediately prior to the Ionian Revolt (Niemeier *et al*. 1999: 406).

The economy of Archaic Miletos

Archaic Miletos had a reputation in antiquity for being a wealthy state. The archaeological evidence shows that the city was large, with extensive defensive walls, numerous temples and, where the evidence survived the Persian sack, rich dedications in those temples. In ancient literature too Miletos was shown as being one of the most important city-states in Archaic Greece, with extensive contacts to Greek and non-Greek states alike. Earlier commentators on the history of Miletos, most notably Dunham (1915) assumed that the basis of this great wealth was the production of, and trade in, manufactured goods such as fine woollen cloth and decorated pottery. However, Dunham's interpretation of Milesian history was heavily influenced by concepts of society, economy and empire that were in existence at the time, and in the society, in which he was writing.

Exported manufactured products from Miletos are rarely found in archaeological contexts. In the case of wool, this is hardly surprising as it does not survive in normal soil conditions and preserved examples are rare (Wild 1977). In one near-contemporary reference to Milesian wool, in Aristophanes' *Lysistrata* (line 729), it is raw Milesian fleeces and not finished cloth that is referred to as being imported into Athens. Undoubtedly, cloth was produced in Miletos and some of this may have been sold for a high price, but the archaeological evidence suggests that it was produced on a domestic scale in houses like those found on Kalabaktepe, not large 'sweat shops' or similar places of intensive manufacture.

The other manufactured product with which Miletos is credited by archaeologists and art historians is painted pottery. As noted above (pp. 89–92), a great deal of research has been carried out to clarify the typologies of the various painted wares being produced in Miletos. This pottery has a wide distribution, from Egypt to the Black Sea, but as yet no attempt has been made to quantify the scale of exports. Thousands of sherds of Archaic Milesian pottery have been found at Miletos itself, but detailed figures are not yet available for areas beyond the city itself. Although typological studies of painted pottery are essential if we are to understand the dating and cultural influences of archaeological sites, the importance of painted pottery as a trade commodity has perhaps been overplayed. Pottery is a trace element which allows us to identify patterns of exchange but which does not represent the main body of the material being transported (p. 96).

The wide distribution of Milesian amphorae, which were probably filled with olive oil, suggests a lively trade in that commodity. Although quantification of olive oil exports from Miletos based on the amphorae alone is not possible, there are later sources that clearly show that Miletos was capable of producing and exporting large quantities of oil (see above, pp. 25–8)). Although some processing was necessary and amphorae had to be made to transport it in, olive oil is essentially an agricultural commodity and not a manufactured good. Herodotus, who is our major historical source for Archaic Miletos, never once mentions Milesian wool or pottery, but does mention the city's fields on three occasions (1.17, 1.19 and 5.92) perhaps reflecting the importance of these fields over wool and pottery.

In Chapter one of this book I described how Miletos' territory was almost completely lacking in metals and how the community was forced to look beyond its own borders for these. It also appears to have been acting as a conduit through which commodities, such as metals and slaves, passed from east to west and vice versa, but which the state itself was not capable of producing. My overall impression therefore of Miletos' economic activities in the Archaic period is that of an agricultural producer and port of trade, rather than of a centre for manufacturing industries. Although Miletos did produce woollen products and decorated pottery, these do not appear to me to have been the mainstay of the economy, which was principally based on primary agriculture.

Coinage at Miletos

Herodotus tells us that the Lydians were the first people to mint coins, probably at Sardis (Hdt. 1.94) and Miletos appears to have begun minting coins at almost the same time and was certainly one of the first Greek cities to mint coins (Head 1911: 584). Our understanding of coinage has recently undergone considerable change, and the introduction of coinage was only a stage in the development of a money-economy that had begun with the use

of pre-coinage silver bullion. This, combined with the social, political and economic institutions created by the formation of Greek *polis* communities, such as taxes, religious liturgies, political pay, spending on public works and centralised legal bodies, resulted in the rapid and successful spread of coinage in the Archaic Greek world (Kim 2001).

Electrum coinage was introduced in the middle of the seventh century to the beginnings of the sixth century BC, but the widespread adoption of lower denomination silver coinage only occurred in the second half of the sixth century BC (Kim 2001). The Central Basis deposit at the Artemision of Ephesos has shown that the earliest Ionian electrum coins were already circulated quite widely (Kraay 1976: 20). The Egyptian Assyut hoard shows that by the early fifth century BC coinage was circulated beyond the borders of the producer states and that by *c.* 475 BC Miletos was producing and circulating silver coinage as were many of its contemporary Greek neighbours (Holloway 1984: 13). Miletos probably began minting silver coins in the second half of the sixth century BC and their small size suggests that these coins were designed for commercial use (Deppert-Lippitz 1984: 14). It may have been Miletos' close relations to Lydia, as a tribute payer and supplier of mercenaries, that caused it to be one of the earliest states to produce its own coins. Also, Miletos' large capital building projects such as temples, defences, and ships for the fleet would have encouraged this early use of coin.

The Archaic coins of Miletos featured lions' heads on the obverse side (a symbol shared with Phokaia and Mytilene) and square punch on the reverse side, often featuring a rosette, which was also common to a number of Ionian states (Holloway 1984: 6) (Figure 3.11). Hoards of Milesian coins from this period can be identified by the lion's-head obverse and rosette incuse, for example in a hoard of fifteen coins found near İzmir in 1982 (Moucharte 1984).

Figure 3.11 Milesian electrum coin (*c.* mid-sixth century BC). The obverse side shows a recumbant lion with head reverted; the reverse shows three incuse punches (© Copyright Ashmolean Museum, Oxford, courtesy Henry Kim).

Miletos as a bridge between East and West

Near Eastern influences on the material culture of Miletos can be identified in the Archaic period. Egyptian artefacts have been found at the sanctuary of Aphrodite on Zeytintepe (see above, p. 84) and Didyma displays Egyptian influences (see below, p. 127). Also from Zeytintepe came a limestone statuette of a throned man in a chiton with a ram's head, which finds parallels in other east Greek and Cypriot sanctuaries, and may be a representation of Zeus Ammon (Senff 1992: 108, plate 17.1). Orientalising influences and trade were assumed to have come overland via Phrygia (Birmingham 1961), but seaborne trade and communications are now generally emphasised over land routes (Metzger 1969: 58–9; Greaves 2000a). Either way, Miletos was ideally located. Miletos' contacts within the Greek world were also extensive, evidenced by the Lakonian, Attic and east Greek pottery from Zeytintepe. In fact, it would be hard to think of any contemporary city with wider regional status. When, in 494 BC, Persian sappers undermined the city walls and sacked and razed Archaic Miletos they were destroying one of the most important states of the ancient Mediterranean (Hdt. 6.18).

Fifth case-study: The population of Archaic Miletos

Attempting to calculate, or even guess, the population of ancient cities is full of problems and pitfalls, yet having some idea of the size of Miletos' population would help us better understand economic, ecological, social, political and military issues, such as the motivation for the city's prodigious Archaic colonisation movement. Previously, guesses at the population of Miletos varied from 20,000 to 100,000 (Dunham 1915: 142–3) but there are now many different methods of calculating the population of an ancient city, using a variety of approaches and source materials. The basic source materials on which methods of calculating ancient populations can be based are literary evidence, estimates of the carrying capacity of the land belonging to an ancient settlement, and 'density of habitation' coefficients. Given the variety of methods available with which to calculate ancient populations and the drawbacks and limitations inherent in all of these, it has been suggested that by using and comparing two independent methods of calculation and considering the outcomes in view of the natural resources available, a reasonable population estimate can be achieved (Zorn 1994).

Not enough is known about the settlement plan of Archaic Miletos to use size density of habitation coefficients, where the density of housing and the total settlement area are the basis for calculating the population of the city as a whole. The Archaic walls of Miletos may have enclosed an area of up to 110 hectares (Müller-Wiener 1986a: 98), but not all of this area can have been densely inhabited, and housing patterns and non-inhabited public areas have yet to be identified for the whole city area.

Using literary sources, the closest that we have to a census of Archaic Miletos is the description of the Battle of Lade in 494 BC, where Herodotus lists the number of ships sent by Miletos and its allies in the Ionian Revolt (Hdt. 6.8). Carl Roebuck (1959: 21–3) took the figure of 80 ships, given by Herodotus, and multiplied it by 200, which is generally thought to have been the number of crew on a trireme warship, to give the number of available able-bodied males in Miletos. These males are assumed to have represented 25 per cent of the total population. Multiplying their number by four reveals the total free population of the city to be 64,000.

In a more detailed study of the Athenian citizen body and population, Mogens Hansen (1988) noted that given high infant mortality in antiquity, a large proportion of the population at any given time would be below fighting age. Based on a citizen body for Athens of 30,000 to 40,000, Hansen arrived at an approximate total population of 100,000 to 140,000 Athenians (excluding metics and slaves). If the same reasoning were applied to Miletos, an active male citizen body of 16,000 (i.e. 80 ships with 200 crew each) would yield a total population of about 54,000 to 56,000 Milesians (excluding metics and slaves, on which see below, pp. 102–3). It is interesting that Miletos, the total walled area of which was about half that of Athens (Müller-Wiener 1986a: 98), is estimated by this method to have had about half the population of that city.

There are several problems associated with using the Battle of Lade as a source. The Milesians had just suffered losses in battle in Karia (Hdt. 5.120); the city of Miletos itself was being defended (Hdt. 6.6); and part of the Milesian fleet may have been manned by refugees from captured Ionian cities and smaller allied states which had no fleet of their own (Roebuck 1959: 22). The figures based on the Battle of Lade, as with all population estimates, should therefore be used with caution.

Methods of population calculation based on carrying capacity are mostly based on a settlement's ability to supply itself with grain produced by its *khora*. Two such models have been proposed for the classical world by Osborne (1987) and de Angelis (1994). The two parts of the Milesian territory which were suitable for the growth of grain would have been the northern plain (approximately 52 square kilometres), and an area of the Maeander valley, (estimated at 321.5 square kilometres in Chapter one of this book, pp. 1–3).

When one applies the complicated methodology proposed by de Angelis, which takes into account factors such as fallow, biological subsistence, seed and waste, to the territory of Miletos one arrives at an estimated population of 34,453. A less complex model is that proposed by Osborne (1987: 46; see also Gallant 1991: 82; de Angelis 1994: 96), who observes that an average household required three to four hectares each and housed an average family of five. Using this method the total number of hectares available for agriculture, divided by three (and then four) and multiplying the results by five gives an approximation of the total carrying capacity of the land of 23,344 to 31,125.

There is clearly a difference between the figures given by the literary sources and those given by the carrying capacity calculations which needs to be accounted for. It could be assumed that Miletos imported some (perhaps almost half) of its grain in order to explain the apparent disparity between the higher figure attested by the literary sources and the carrying capacity of the land. Miletos could easily have imported grain from Egypt or the Black Sea, where it had established contacts, or from less obvious sources such as southern Italy, where Miletos had an ally in Sybaris. The Black Sea grain trade, especially that of Athens (e.g. de Ste Croix 1972; Garnsey 1988; Sallares 1991; Gallant 1991; Keen 2000) and Delos (Reger 1994: 83–126) has been extensively studied, but there is little evidence that any of this trade took place on a major scale in the Archaic period.

Miletos had ready access to grain through her colonies in the Black Sea and her trade interests in Egypt. In Egypt, Miletos appears to have been more of a grain carrier than consumer, according to Carl Roebuck (1950: 33), and may have been carrying Egyptian grain to smaller islands and cities in its vicinity and had little need for imported grain due to developed agriculture in its own territory. It would seem that Miletos only had to resort to importing grain itself at times of crisis or as the result of a bad harvest, such as the famine of AD 93 (Mitchell 1993: 145–6). As Garnsey writes (1988: 72): 'they [the Black sea colonies] may be supposed to have supplied in return [for imported items] basic foodstuffs, sent at times when supplies were short for reasons of weather or war, and offered at favourable rates'. In Herodotus' description of the siege of Miletos by Alyattes, the Milesians could not be taken because they had power over the sea (Hdt. 1.17), and this is taken to mean that they could not be starved out behind their secure city walls because they could import food by sea. However, when Alyattes' herald entered Miletos to sue for peace, Thrasyboulos had to bring food from every corner of the city to the market place in order to give the impression that they had ample food to survive. The lengths that he went to in order to give the impression that they did have enough food shows that in truth they did not have ample food to survive, but did not want to show Alyattes their weakness (Hdt. 1.21). Clearly, even a city with such sea power as Miletos and strong contacts with the major grain producing regions of the ancient world could not survive on imported food alone.

However, in my opinion, both carrying capacity models cited above underestimate the population of Miletos because they assume two-field rotation and dependence on cereal production alone. An important element of de Angelis' method is the proportion of land given over to fallow (i.e. 50 per cent). Fallow fields are alluded to in Hesiod (*Works and Days* 383 ff.) and Homer (Iliad 18. 541) and were probably an important feature of Greek agricultural practices (Isager and Skydsgaard 1992). However, there are very few direct references to fallow fields, or to how often a field should be left fallow, and a two-field system was not necessarily rigidly adhered to. Walcott

(1970: 38–9) suggested that the 'worked' fallow system was used in antiquity (citing Hesiod *Works and Days* 462–4, 448–51; Homer *Odyssey* 18.366–75). Under this system, crop stubble is grazed by animals and their droppings regenerate the fields which are left fallow during the autumn and winter rains, and then ploughed and planted with crops again in the spring as happens today (p. 22). Also, in the case of the Maeander valley, the unusual geology of the area has created a situation that was very rare in the ancient Greek world: ample, very flat, fertile and well-watered ground. Annual flooding by the Maeander may also have helped to replenish the soil of the valley, as the flooding of the Nile did in Egypt (Hassan 1997). Also, grain consumption may be overestimated: de Angelis cites 240 kilograms per year, which is perhaps a little high, whereas Zorn (1994: 43) suggests 200 kilograms. Miletos was also capable of producing a substantial amount of olives, which have a high calorific value, and had productive non-arable areas that were intensively grazed. de Angelis' method is based entirely on production of wheat, which did form the staple of the Greek diet (Gallant 1991: 68). However, the palaebotanical evidence from Archaic Miletos showed that the most common cereal was not wheat but barley, which has less calorific value per kilogram but a much greater yield per hectare (pp. 24–5).

In my view the apparent disparity between the population estimates based on Herodotus and those based on agricultural productivity can be explained without having to assume that Miletos was a net importer of grain on a large scale. The ability of Miletos to import large quantities of grain from Egypt and her Black Sea colonies did not allow her to maintain a population much greater than that which her territory could viably support. Rather it cushioned her from the worst vagaries of the Aegean climate and crops, and the lean years to which the region is prone. Once that cushion had been removed following the destruction of Miletos in 494 BC and the subsequent reduction in its wealth, status and influence, its situation was much more perilous and it may never again have been able to support such a large population without resorting to grain imports.

A total population of 50,000 to 60,000 or more (excluding slaves) is quite possible for Archaic Miletos and could be supported by the local natural resources. The population of Samos at this time is estimated to have been about 50,000 (Shipley 1987: 12–15) and is therefore comparable with that of Miletos. Modern census statistics are not very helpful, as a great deal has changed in the last few decades (GNSİB 1985, 1990). However, Dunham, writing in the early twentieth century, estimated the population of the region to be about 100,000 (Dunham 1915: 142) and Ottoman census information demonstrates that this region in general is capable of supporting, and historically always has supported, large population centres.

Whatever the total population of Miletos was, a proportion of its inhabitants can be assumed to have been slaves. Ancient sources that mention numbers of slaves are notoriously unreliable (e.g. Aristotle frag. 472, Rose).

Nevertheless, Mogens Hansen (1988: 11–12) has pointed out that in all cases the number of slaves mentioned is always greater than the number of citizens. For Miletos, if one were to take as an example the citizen body as 16,000, based on the number of ships at the Battle of Lade, that would mean a slave population of 16,000 plus. Although we can never know the true number of citizens in Miletos, or the true number of slaves, this rough rule of thumb gives us an indication of the sheer number of slaves that may have existed in Miletos. These slaves probably came from Phrygia and the Black Sea (Finley 1962; Braund and Tsetskhladze 1989). Miletos may have been directly involved in the slave trade, but more likely slaves were bought through intermediaries, such as Khios (Hdt. 8.105).

When discussing ancient populations we cannot simply assume that there was an even male-female ratio because of the presumed incidence of female infanticide (Engels 1980; Eybin 1980/81; Harris 1982; Dasen, 1997). The skeletal evidence from the Archaic necropolis of Miletos is not enough to be statistically relevant; of the four Archaic burials found three were men and one child (aged *c.* 4 to 6 years), who could not be sexed (Schultz and Schmidt-Schultz 1991: 165–82; see pp. 87–9). Where we have better burial evidence, from Geometric Attika, there is an even male–female ratio in the burials, suggesting that female infanticide was not a widespread practice in that region (Morris 1987: 57). Plutarch (*Lykurgus* 16) suggests that male infanticide was commonly practised in Sparta, but makes no explicit reference to females. External parallels such as these are not really applicable as this was a practice that varied from one region to another. Although there is no real evidence from Miletos itself, we should not assume parity between the sexes when considering the composition of the population. Female infanticide is not the only factor to take into consideration because the male–female ratio would also have been affected by wars and waves of colonisation which would have removed significant numbers of males from the population for a generation afterwards. Female infanticide has been suggested at Miletos in the Hellenistic period (Tarn 1952: 100) but this suggestion should be dismissed.

As noted above, it is difficult to gauge the full extent and nature of the domestic quarters at Miletos and therefore to assess the size of the urban population and relate this to the rural one. Starr (1977: 105) estimated the understanding of the urban population of Miletos to have been 10,000 or more, but there have been many developments in population calculation methodologies and the urban archaeology of Miletos since that figure was proposed. If the settlement contained 4,000 houses (Gates 1995: 238), with an average of 5 members per household (Osborne 1987: 46), that would suggest a larger urban population of 20,000. Neither of these figures can be proven, they are just very rough estimates, but they are both less than half of the total estimated population. The larger part of the population would therefore have been rural and must have lived in houses on the land (Hdt. 1.17, 5.29) or in smaller settlements in the Milesian *khora*.

Sixth case-study: colonisation

One of the most interesting and important aspects of the history of ancient Miletos is its prodigious activity as a coloniser in the Archaic period. According to Pliny the Elder, Miletos founded ninety colonies (N.H. 5.122) and although this figure may be a slight exaggeration (Morgan, C. 1989b: 26), if one were to include the daughter colonies of the colonies themselves the figure may have been over a hundred (Parke 1985: 10).

Colonies of Miletos were founded in the Black Sea, North Aegean, Propontis and the Hellespont. Miletos also had an important interest in the panhellenic *emporion* (trading post) at Naukratis. The most important of these regions was the Black Sea and included the major colonies of Olbia, Istria, Sinope, Odessos and Apollonia Pontica. The question of when contact with this region began is one that has been much discussed.

It was thought that passage through the Bosphorus by ancient ships would be an insurmountable obstacle, but Carpenter (1948) showed that sailing up the Bosphoros was possible by use of counter-currents. More recently, Tim Severin's Jason Voyage (1985a, 1985b) has been a graphic illustration that navigation of this difficult strait is not impossible, at the same time capturing the popular imagination and that of some scholars too (Tsetskhladze 1994: 128, n. 8). However, there is virtually no early Greek pottery from the Black Sea coast. This may be due to a rise in sea level since antiquity and the fact that modern towns now obscure many of the most important colony sites.

Mycenaean pottery is completely lacking from the Black Sea region (Bouzek 1990: 13) yet Mycenaean pottery is known from all the other regions that Miletos went on to colonise including Egypt, Aegean Thrace and the Troad. Other than pottery, there have been several finds of Mycenaean swords from the Carpathians and the Istro-Pontic region of Romania, suggesting some type of contact with the Aegean towards the end of the Bronze Age (Alexandrescu 1966: 119–21, fig. 1; Hartuche and Sirbu 1982). This is very limited evidence for Mycenaean contact with the region and whether or not this could be described as trade will depend on the interpretation of the individual reader, although French (1982) suggests various models for contact which do not necessarily involve trade as such.

Other than specifically Mycenaean material, there is other evidence for Bronze Age contacts between the Black Sea and the eastern Mediterranean trade network. This includes the famous 'ox-hide' copper ingot found at Cernovo in Bulgaria, on display in Bourgas Museum (Bouzek 1985: plate 4.2) and a smaller piece of similar shape from Cape Kaliakra (Bouzek 1985: 20–1, fig. 2). These ingots appear to be of the early type, having less pronounced handles than later forms and are dated by Bouzek to *c.*1500 BC. Also at Cape Kaliakra, stone anchors were recovered (Porozanov 1989: 7). A great many such anchors have been found along the Bulgarian coast; typo-

logically dated to the second half of the second millennium BC, they are a testimony to flourishing coastal traffic in the Bronze Age (e.g. Porogeanov 1988: 197). Although no stone anchors have yet been found on the Black Sea coast other than in Bulgaria, this may be due to large sedimentary cones deposited by large rivers in Romania, Russia and the Ukraine (Meisner *et al*. 1995). These anchors were an essential part of prehistoric navigation and many were needed by each ship (Frost 1985) and in the Black Sea they appear to be associated with transport and possible trade in copper. The Ulu Burun shipwreck included ox-hide ingots, twenty-four stone anchors, and a ceremonial stone mace, thought to have come from Romania (Bass 1986: 68). The Black Sea therefore appears to have been on the periphery of a wider Bronze Age trade network.

This question of early contact between the Black Sea and the prehistoric Aegean has been much discussed. That discussion has been a long, complex and eventually unsatisfactory one because of the lack of concrete evidence for contact on any scale prior to the foundation of the first colonies. Although there is a large body of circumstantial evidence to suggest that the two regions were in contact, it is of such limited nature that to describe it as 'trade' let alone 'colonisation' would be over-stretching the evidence (French 1982).

If it is the case then that we cannot prove any significant early contact between these regions and their cultures, what can be said about pre-colonisation in the Black Sea? The term 'pre-colonisation' may be interpreted in several ways (Morel 1966: 380–3; de Angelis 1994; Tsetskhladze 1994). For now, I shall discuss whether or not people from Miletos (sailors, explorers, travellers, colonists, traders, mapmakers, etc.) had any prior contact with or settlement at the sites that they went on to colonise. Although it is an attractive and romantic idea that the ancient Greeks of popular imagination simply said 'go west!' (or in this case 'go north!') and went west (or north), inspired by nothing more than a sense of adventure, it appears more likely that colonising states had contact with, and prior knowledge of, the regions that they chose to colonise.

An example of pre-colonisation is Kyrene, where the colonists stayed for a while on the island of Platea (modern Geziret el Marakeb) and six years at Aziris (modern Wadi Chalig) before moving west to settle at Kyrene itself. Archaic pottery from a number of sites around Kyrene predates the traditional foundation date of 631 BC by about four decades (Stucchi 1989: 73). In the Black Sea, it appears that at the colony of Bizone near Istria, pottery was exchanged between the Greeks and the natives from the end of the seventh century, with the probable existence of a temporary trading post at the site prior to the formal foundation of the colony (Salkin 1986). When that colony was founded it was of mixed Greek–native character, following 'a long process of commercial reconnaissance' (Salkin 1986: 252). However, other than two Euboean Late Geometric sherds at Istria (Hind 1993: 89)

evidence for pre-colonisation at any of the major Milesian colonial sites is largely absent.

The question of pre-colonial contact is an important one and faced with the frustrating lack of archaeological evidence from the Black Sea, other sources have been resorted to by scholars. One source, which is thought to house important nuggets of information about the first Greek contacts with the Black Sea, is the *Argonautica*. The basic story line of the *Argonautica* appears to predate, or be contemporary with, the *Iliad* (Il. 7.468–9) and *Odyssey* (Od. 12.69–72) and even though the most famous form of the myth is Hellenistic, some scholars still believe the myth to be an important source of information about the Black Sea prior to colonisation (Tsetskhladze 1994: 114, n. 8).

Apollonius Rhodius' version of the myth consists of many legends knotted together. Details of early contacts may be preserved in the kernel of this mythic cycle but it is difficult to tell what is truth and what is invention in tales like these (compare Finley *et al*. 1964, on Troy). Boardman (1999: 240) writes: 'The story of the voyage of the Argonauts, in particular, implies some knowledge of these parts, although the geographical detail of this region may well have been added to the story at quite a late date'. However, Ivancik (citing Strabo 1.2.10) claims that the Black Sea, or at least its northern and eastern littorals, was unknown to Greece before the foundation of Beresan opened the region up (Ivancik 1991). Even though it is sometimes possible to match geographical descriptions in the *Argonautica* to actual locations (e.g. Kyzicus, Ertüzün 1991: 20–4; cf. Ap. Rhod. Arg. ll.935–1150), this is not proof of detailed early knowledge of the region because, as Boardman noted, this could have been added at a later date. The kernel of the *Argonautica* may preserve in some form evidence of early contact with the Black Sea, but when or with what purpose that contact was established cannot be proven from the version of the myth preserved by Apollonius Rhodius.

An important aspect of early Greek contact with the Black Sea might have been fishing, and Miletos' colonies might have started life as temporary fishing stations since fish was always an important product in the region, even since the earliest colonies (Hind 1995/96: 122, n. 25). An example of a Mycenaean settlement that appears to have been used for fishing is Scoglio del Tonno near Taras, later founded as a colony by Sparta in 706 BC (Taylour 1958). Scoglio del Tonno was a promontory with an excellent harbour and the Mycenaeans may have been interested by the possibility of trade with the fertile interior. Scoglio del Tonno has Mycenaean LHIIIA – C pottery; possibly sub-Mycenaean pottery; Geometric; and Protokorinthian pottery, which suggest a long history of contact with the Aegean. The modern name of the site (which is Italian for 'Tunny Reef') and the shape and location of the site suggest that fishing may have been a major attraction to early visitors. There may also have been fishing for murex here on the shore of the

Mar Piccolo (Evans 1935: 111, n. 5). It is perhaps no accident that two of Miletos' earliest colonies, Kyzicus and Sinope, founded in the mid-eighth century BC, were famous for their fish (especially the migratory tunny) and that other Milesian colony sites such as Apollonia Pontica and Beresan (Boardman 1999: 250) are ideal fisheries. If Miletos' colonies had existed as pre-colonial fishing stations one would not expect any material evidence of that period in the site's history to survive, but that should not be used to argue for pre-colonial contact *ex silentio*.

Whenever and however Miletos first had contact with the Black Sea, the motivation for the large-scale colonisation of the region in the Archaic period has to be considered. There are several main reasons put forward for why Greek colonisation began when it did and these include population pressure, the desire for trade and the search for metals and other raw materials. According to the relevant Greek sources and many modern commentators, the most commonly cited reason for leaving the metropolis to settle abroad was *stenokhoria* (land-hunger) and the sites chosen for many Greek colonies had a fertile territory. Graham (1964: 5) asserts population over trade as the main motivation and notes that most colonies were founded as independent *poleis* with enough land to feed their population, while the division of the land into *kleroi* (allotments) at some colonies can be seen (e.g. at Metapontum, see Carter 1990). Snodgrass (1980: 10) suggested demography as the main contributing factor in Archaic Greek colonisation, but the idea of a population 'explosion' alone as a cause of Greek colonisation has since been criticised (Cawkwell 1992: 289–90). However, *stenokhoria* is not simply generated by overpopulation, but also a shortage of land for the existing population of a region, perhaps as a result of environmental change such as drought (Hdt. 4.150 ff.), or gavelkind inheritance systems, or anything else that creates population stress (too many people for available resources).

In chapter one and earlier in this chapter (pp. 99–103), I examined the geography and agricultural potential of the Milesian territory and discussed the potential population of Archaic Miletos. One of my conclusions was that parts of the Milesian territory were potentially very fertile and capable of supporting a large population, without resorting to the importation of food on a large scale. Whatever the actual population of Miletos was, the balance between population and agricultural production can be assumed to have been a fine one, even for a wealthy city, and anything that affected the productive capability of the land would have had a drastic impact. As a result of the Lydian, and then Persian, incursions into the coast, Miletos must have lost some of its most fertile territory and following the sack of Miletos the Persians took the city's most fertile land for themselves (Hdt. 6.18). As Gocha Tsetskhladze (1994) observed, there are chronological 'waves' of colonisation in the Black Sea that correspond to these upheavals in Ionia, especially Miletos. I agree almost entirely with his analysis of the material

from the Black Sea, but I think we need to go beyond thinking of the effects of the Lydian and Persian invasions as purely 'political'. In fact, their main consequence was considerable loss of territory, which meant that the city's population could no longer be supported by its reduced *khora* (especially the kind of fertile land specified in Hdt. 6.18) and mass colonisation resulted.

The alternative motivation for Greek colonisation that is often cited is trade. When choosing colonial sites, access to a good harbour appears to have been a very important consideration (see Porozanov 1994 on *Odyssey*: 6.261–5, 9.135–50, 10.87–94 and 13.96–101) and nearly every Milesian colony had a good harbour. Although this may appear to point towards trade as a motivating factor in the choice of colonial sites, ancient harbours were much more than a base for commerce. Nearly every colony site that I have visited in the Black Sea and elsewhere has had a good harbour and peninsula locations are particularly favoured as they often combine the virtues of a good harbour with a good defensive location. Early harbours were a zone of contact and they were later used to regulate and promote trade and the exchange of ideas (Porozanov 1994). Harbours are also important for fishing, which has already been noted as an important part of early colonial activity in this area. A harbour was therefore an essential part of any early settlement and does not indicate that these colonies existed purely for trade. Nevertheless, on a reading of the literary evidence John Hind (1995/96) argues that traders were an important element in the life of the region from the earliest periods of Greek colonisation of the Black Sea, skirting the coasts for trade.

Population pressure and trade are not mutually exclusive motivations for the foundation of colonies and new work at Pithekoussai, the archetypal Greek emporium site, has revealed that the island of Ischia beyond the town of Pithekoussai itself was probably highly developed and exploited by farmsteads. Equally, Kyrene, the colonial foundation best attested in the literary sources and often cited as an example of population pressure being the cause of colonisation (Hdt. 4.150–8), is now thought to have been the product of decades of joint operations by Kretan, Samian, Lindian and Spartan *emporoi* (traders) (Stucchi 1989: 73–4). Trade may have been the way by which initial contact with the colonial regions was established, but population pressure, whatever its cause, must have played a part in the decision to establish settlements. To my mind, it was population pressure, resulting from the Lydian and Persian incursions, which probably boosted the size and number of Milesian colonies more than any other single factor.

The nature of continuing relations between Miletos and its colonies have been discussed in detail by John Graham (1964) and Norbert Ehrhardt (1988). Cult and religion is one of the most important links that can be identified between a metropolis and its colonies. Norbert Ehrhardt's book *Milet und seine Kolonien* explored the relationship between the phyles, calendars and cults of Miletos and her colonies in great detail and included many areas

of cult which were common to both the mother-city and her many colonies in the Black Sea. Recent excavations at Miletos itself have uncovered a previously unsuspected Archaic temple of Aphrodite (pp. 82–4), which confirms Ehrhardt's suspicion, based on the study of the cults of the Milesian colonies, that her cult was an important one in the city, as it was in the colonies (Greaves 2000b, forthcoming). Beyond cultural links such as these and ties of kinship and identity, there were generally no firm political links between the colony and mother-city, although Olbia did later make a mutual citizenship agreement with Miletos (Graham 1964).

Another important question that arises is why were there so many Milesian colonies? Unless the Milesian people were somehow endowed with superhuman fecundity, to have needed to found so many colonies simply on the basis of population expansion alone is unlikely. The large number of 'Milesian' colonies may have involved people from other states, mention of whom does not survive in our literary sources. Miletos is known to have shared the colonisation of Parion and Kardia with Paros, Erythrai and Klazomenai, so why not with other states? As in the case of the alleged foundation of Apollonia on the Rhyndacus (see below, pp. 127–8) it may be that some of our sources name sites as Milesian colonies which were founded by other states, but which for reasons of their own, wanted to claim themselves to be Milesian foundations after the event.

Seventh case-study: the Oracle of Apollo at Didyma

Origins of the Oracle

The Oracle-complex and associated sanctuaries and settlement at Didyma is, without doubt, the most important site in Milesia other than the city of Miletos itself. One cannot consider Didyma without considering its relationship with Miletos, which was a major influencing factor on the development of the Oracle, and vice versa. The Oracle of Didyma is situated 16.4 kilometres (10 miles) south of Miletos, to the north of the modern town of Didim. This town was known as Ieronda ('Holy Place') by the Greeks of the region, until 1923 when it became known by the Turkish name of Yenihisar ('New Fortress'), it has only been renamed Didim within the past few years. The terrain in this part of Milesia is generally quite flat, although the oracle complex itself is located in a hollow. This is not the most inspiring location for such a major temple of Apollo and is in clear contrast to the temples at Delphi and Delos (Parke 1985a: 1 *contra* Fontenrose 1988: 1). The temple could have been seen from a considerable distance, due to the great height of its columns (Tuchelt 1991: 43, plate 66) but even being nearly 20 metres high, the surviving columns of the Hellenistic Oracle do not dominate the landscape in the way the Samian Heraion commands southern Samos. The position of the Oracle at Didyma in the bottom of a hollow is comparable to

the uninspiring location of Temple of Artemis at Ephesos and was chosen because of the existence of a sacred spring at this point. The spring occurs where limestone meets less permeable marls, in an otherwise dry landscape (Schröder and Yalçin 1992; Higgins and Higgins 1996: 150) a seemingly magical occurrence. This spring provided the Oracle, sanctuaries and associated houses with water (Parke 1985a: 2). As at Delphi, this spring became vital to the operation of the Oracle (Tomlinson 1976: 66). Although unimpressive, Didyma's location was dictated by the religious importance of this spring and not by aesthetic considerations and its relative isolation, over 16 kilometres from Miletos, maintained its marginality in Milesian culture (Morgan, C. 1989b).

The precise date and origin of the cult at Didyma is unclear. Pausanias states that the Oracle at Didyma pre-dated the Ionian colonisation, and this tradition appears to be backed up by several myths which give Didyma an early date and pre-Hellenic origin. These include the mention of Karians from Branchos' glens at Troy (Quint. Smyrn. 1.283), Erginos from the country of Branchos joining the Argonauts (Orph. Arg. 152–3), Neileus consulting Didyma before settling at Miletos (Tzetzes), and other minor myths (Fontenrose 1988: 5–8, 229–30). These myths are clearly later inventions and should not be considered as historical fact, but the weight of literary tradition does suggest a very early date for the Oracle and authors such as Herbert Parke (1985a: 2) believe that Pausanias is correct in saying Didyma pre-dated the Ionian colonisation. Fontenrose dismisses the mythological evidence as later invention but also, wrongly I feel, dismisses Pausanias with them, in stating that there can have been no Oracle, sanctuary or settlement at Didyma before 900 BC, a century after the presumed Ionian foundation of Miletos. The earliest known pottery from Didyma is LHIIIA2 (*c*. Fourteenth century , Schattner 1992) and there are a few sherds of Protogeometric pottery (Parke 1985a: 23) but isolated pottery such as this does not conclusively show the existence of cult activity at the site in these early periods.

The origins of the cult are also unclear. The name 'Didyma' might derive from the neuter plural of the Greek Didymos (meaning 'twin') but there is nothing at the site, such as pairs of hills or temples, which can be cited as being the origin of such a name. It has been suggested that the site was originally sacred to two gods such as Apollo and Zeus Soter or Apollo and Artemis, but although the *temenos* at Didyma is large and housed many subsidiary cults, they were all subordinate to the worship of Apollo in every period. A better explanation of the name is that it is Karian and it bears close relation to Karian names such as Idyma, Kibyma, Loryma and Sidyma (Fontenrose 1988: 3–5). Further evidence for a Karian origin for the site comes from the name of Branchos, the mythical prophet and founder of the Oracle at Didyma. Branchos is an indivisible part of the history of Didyma, which was known in antiquity as Branchidai (e.g. in Herodotus). Traditional Greek accounts of the origins of Branchos, the individual who is supposed to

have founded the Oracle, date from the Hellenistic period and connect the name with the Greek word Branchus meaning 'sore-throat' (Newton 1881: 27–31; Fontenrose 1988). Branchos was not, understandably, used as a personal name in the Greek world, and a more likely explanation of the name is that it is a Karian name which the later Greek authors have tried to rationalise with stories connected with a sore-throat or hoarseness. The names 'Didyma' and 'Branchos' are almost certainly Karian in origin but there is, as yet, no archaeological evidence to demonstrate a pre-Ionian Karian sanctuary or settlement (Parke 1985a: 23).

Karian connections to the Oracle at Didyma in the Archaic period are suggested by a passage of Zenobios, where the Karians consulted Didyma about making war on the Persians, although Zenobios is a later source (Fontenrose 1988: 214–15). Karian towns that did not consult the Oracle at Klaros, consulted Didyma (Robert and Robert 1954: 328–9). From the early sixth century BC (Fontenrose 1988: 179–80, citing *Milet* 1.3: 178), the cult at Didyma was sacred to that most Greek of Greek gods, Apollo, is claimed to have had originated in Anatolian origins (e.g. Bayladı 1996: 137–42), as well as other places. I disagree with Fontenrose's suggestion that the rape of the Karian women at Miletos (Hdt. 1.146) accounts for Didyma's name.

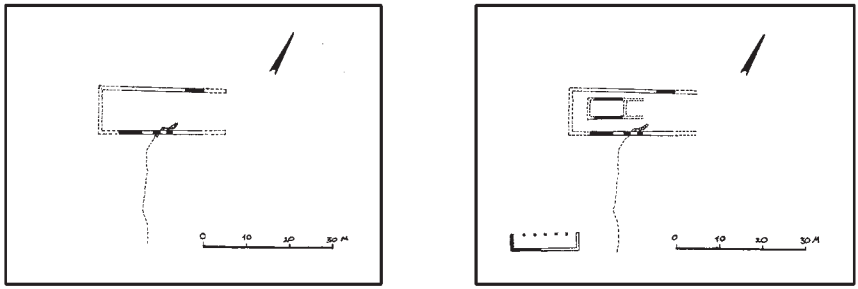
Development of the Oracle

As mentioned above, the earliest known pottery from Didyma is an LHIIIA2 Mycenaean banded *kylix* stem dating to approximately the fourteenth century BC, which was discovered in the south-western corner of the temple (Schattner 1992). It has been suggested that Didyma may have been a site of some importance in the Minoan period (Mee 1978: 126; Niemeier 1984: 207, fig. 1). As with the sherds of Protogeometric pottery found to the east of the temple (Parke 1985a: 23) no architecture has yet been found dating from this period and cult activity cannot be proven to have taken place at such an early date.

The earliest building from the site that may have housed an Oracle was a *sekos* (enclosure), dated to the late eighth or early seventh century BC (Tuchelt 1973: 116; Schneider 1996). Three walls of this mud-brick structure were traced and measured 10.2 metres by 9.3 metres. Such an area would be too large to be easily roofed (Figure 3.12a, Phase 1). The thick bases of these walls suggest that they would have been very high and may have surrounded the sacred spring, bay trees and altars (Parke 1985a: 23). Already by this period the sacred spring and gutters were an important feature of the construction (Schneider 1996: 152). This building is contemporary with the traditional dates given for the founding of the early Milesian colonies, such as Kyzicus.

The inspiration for the architectural form of the Phase 1 temple at Didyma may have come from Mesopotamia, where sanctuaries took the form of rectangular mud-brick enclosures with buttresses (Parke 1985a: 30). The

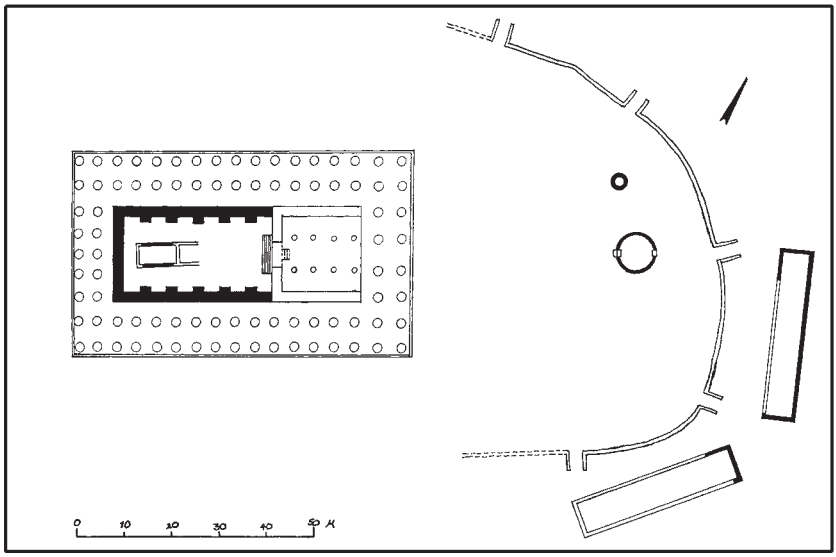
closest parallel to this phase of the temple are the square temples of Urartu, the best excavated example of which is at Altıntepe near Erzincan in north-eastern Turkey which had a courtyard measuring 27 metres by 27 metres with 2 metre-thick buttressed mud-brick walls on stone foundations, and a square tower-like *cella* (central part of a temple), slightly off-set from the



PHASE I
(Late Eighth or Early Seventh Century BC)

PHASE Ia
(Late Seventh and Early Sixth Century BC)

Figure 3.12 Development of the temple building at Didyma. *(a)* Phase I: late eighth or early seventh century BC. Phase Ia: late seventh and early sixth century BC (after Tuchelt 1973).



PHASE II
(Late sixth cenury BC)

Figure 3.12 (b) Phase II: late sixth century BC (after Tuchelt 1973).

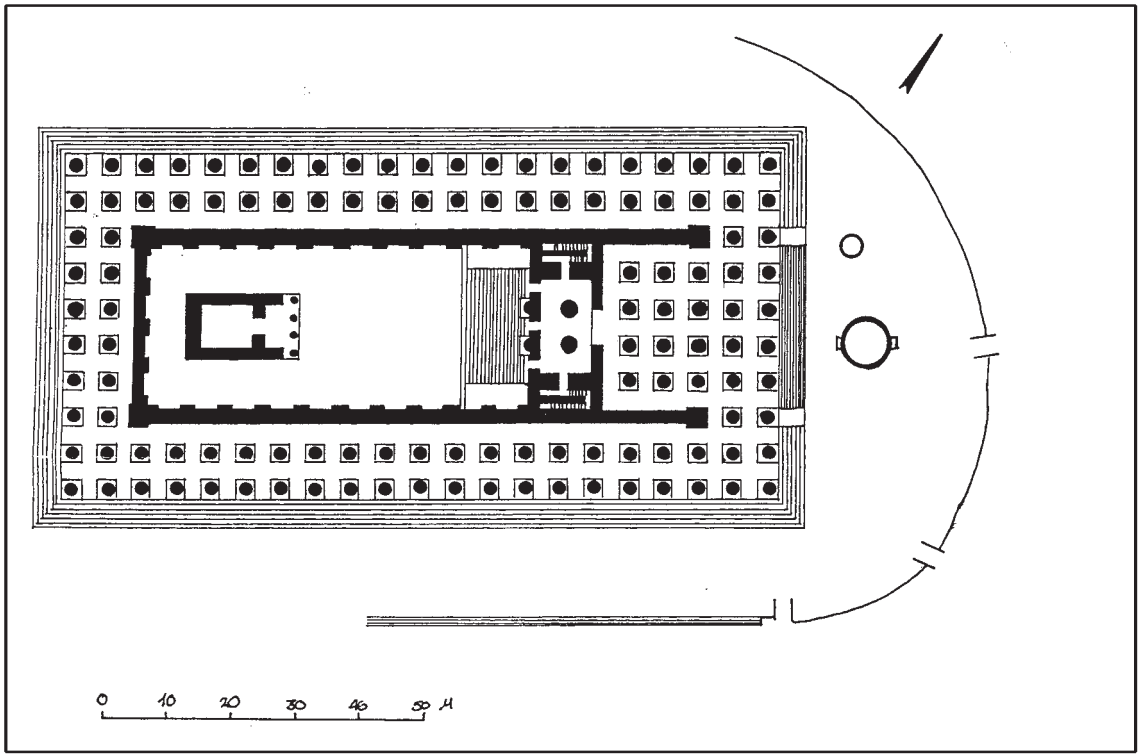


Figure 3.12 (c) Phase III: late fourth century BC (after Fontenrose 1988).

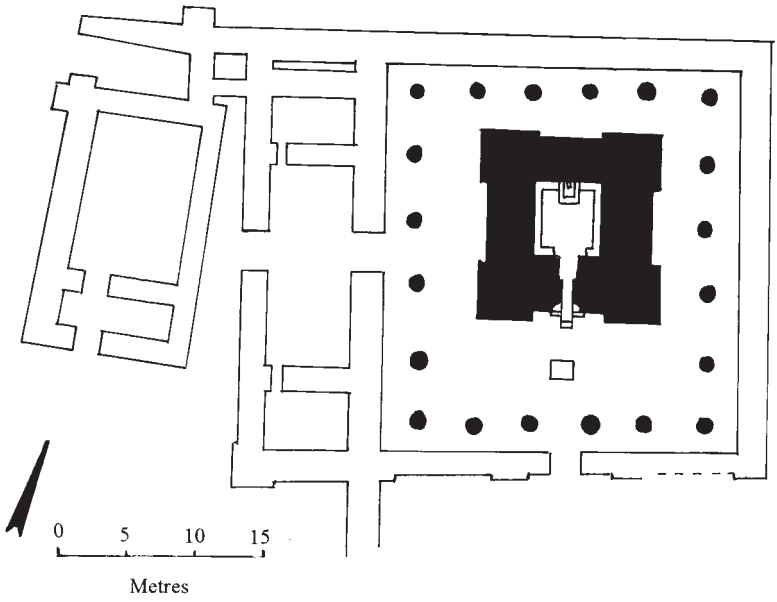


Figure 3.13 The Urartian temple of Altıntepe (after Forbes 1983).

centre of the courtyard and dated to the eighth–seventh centuries BC (Figure 3.13; Özgüç 1966: 39, plates 4 and 6; Forbes 1985; Temizsoy 1988: 133–48). Also, a conical shield with animal-head boss, dating from the same period, which bears similarities to Assyrian and Urartian types shows that even in this early period Didyma was already an important site with wide-ranging contacts (Boardman 1980: 58–60).

In the Early Archaic period (late seventh century BC) a portico building was erected to the south of the existing sacred enclosure (Figure 3.12a, Phase Ia; Naumann and Tuchelt 1963/64: 39, fig. 11). This roofed structure was open on one side and may have been built to house the increasing numbers of visitors and dedications being made at Didyma during this period, such as the robe of Necho (Hdt. 2.159). This portico may also have been inspired by the open-fronted courtyard buildings that surrounded Urartian temples. Soon afterwards (early sixth century BC) a *naiskos* (small building) was built within the walls of the existing *sekos* and the temple started to take on the distinctive form which it was to maintain through all the major stages of its history (Tuchelt 1973: 116).

In the second half of the sixth century BC building work began on a colossal scale. The remains of this temple are fragmentary as it was sacked by the Persians and was built over by the larger Hellenistic temple. The evidence upon which attempts have been made to make a reconstruction of the original design includes the excavated remains of the north, south and

west walls of the *adyton* (inner sanctum), which was 33 metres east–west and 19 metres north–south. This phase of the temple was constructed 3.5° out of line with the earlier *sekos* that had preceded it (Schneider 1996: 148). There is also structural evidence from marble tiles, column drums, column capitals and architrave blocks that give further indications of the look of the building. A number of reconstructions can be made based on this evidence and comparison with the architectural plan of the later Hellenistic temple, which appears to have much in common with its predecessor (for summaries of these reconstructions see Fontenrose 1988: 31–4). In my opinion, the most likely design is that proposed by Klaus Tuchelt (Tuchelt, 1970, 203–4; Figure 3.14, Phase 2, based on Tuchelt 1973: fig. 3).

In Tuchelt's reconstruction, the Archaic temple at Didyma was built on a two-step *krepidoma* (platform) that measured 72 metres by 19 metres and had a total of 86 columns and a *pronaos* (forehall) with 8 columns. The Archaic temple was a colossal Ionic hypaethral (open-air) structure with a dipteral colonnade (a double peristyle). The interior of the *adyton* was at ground level, i.e. below the level of the *stylobate* (the surface of the *krepidoma* platform). This feature of the design of the temple seems to have been important to the temple builders and probably ensured level access to the sacred spring (Parke 1985a: 25–6). In addition to the sacred spring the *adyton* would have contained the *naiskos* and a grove of sacred trees, which were probably bay trees, rather than laurel (*Didyma 2*: 1958: n. 493; Fontenrose 1988: 18). The columns, were 15.45 metres high, had 36 flutes and were sculpted around the base on the eastern façade (Tuchelt 1970: 100–1, cat. 75–6; Naumann 1987. Figure 3.14). The architrave was also richly sculpted with gorgons on the corners, flanked by lions (Schattner 1996a).

The date of the destruction of the temple is not entirely clear because several sources tell us that that the statue of Apollo by Kanachos was taken from Didyma in 479 BC in the reign of Xerxes (Strabo 14.1.5, 11.2.4 and 17.1.43; Kallisthenes FGrH 124 F14; and Pausanias 8.46), implying that it had not been sacked along with Miletos under Dareios in 494 BC (Hdt. 6.19). However, Xerxes was generally a respecter of Greek temples and it is more likely that Dareios was responsible for the sack of Apollo's Oracle at Didyma (Tuchelt 1988: 427–30). Whenever it was sacked, the destruction of Didyma does not appear to have been total and even if the building itself was in ruins it continued to act as a cult centre (Tuchelt 1988: 433–8).

It is not certain what the divination procedures used at Didyma in the Archaic period were because of a general lack of literary and epigraphic material and the secrecy that surrounded ancient divination. Herodotus (1.159) describes how the Oracle at Didyma spoke directly to Aristodikos, to chastise him for removing sparrow's nests from the temple building but this is clearly an exceptional case and the voice of Apollo may be an invention or elaboration of the story (Parke 1985a: 15–17). Epigraphic evidence is similarly limited for this period of the Oracle's existence, as there are very

Figure 3.14 Fragment of a sculpted column from the Archaic temple at Didyma (© Copyright Bildarchiv Preussischer Kulturbesitz, Berlin).

few surviving inscriptions from the period prior to the Persian destruction. The general form of inscriptions from Didyma suggests that ecstatic prophecy was used here, but how the ecstatic trance was induced cannot be ascertained (Parke 1985a: 30–2).

Archaeology may provide more of a clue and the archaeological remains of the Archaic-period temple show that the building was clearly too large to be roofed and it must have been a hypaethral structure. The open-air design of the Didyma temple in all of its phases may indicate that the air or sky was important to the operation of the Oracle, as may have been the sacred spring to which the temple designers were concerned to provide access (Parke 1985a: 30). Artefacts found during the excavation of the temple may indicate the use of knucklebones in the divination process but whatever the method of divination used, the details of it are lost to us now and cannot be recovered. It is also possible that a number of different methods of divination were in use simultaneously.

The Oracle and Miletos

The physical embodiment of the relationship between Miletos and its chief sanctuary was the Sacred Way which ran from Miletos to Didyma through the Stephano Hills and Panormos, a total distance of 16.4 kilometres (see Figure 3.15; *Didyma* 3). From personal experience, walking the journey between Miletos and Didyma would take about four to five hours. It would also be possible to sail to Panormos and join the Sacred Way there, which is less than an hour's walk from Didyma. However, when the procession of the *Molpoi* (a college of Milesian priests) made the journey they were required to walk the full distance and to make stops at various places along the route to sing and pray (*Milet* 1.3: 133.25–3).

The Sacred Way was adorned with sculptures and shrines at various points along its length where the *Molpoi* were required to stop and sing paeans (hymns). The first stop for the *Molpoi* was at the image of Hekate at the Sacred Gate of Miletos; the second stop was to sing to Dynamis between the city and the summit (*to akron*) of the Stephano Hills; at the summit paeans were sung to the nymphs in a meadow which may be identified with an Archaic well and terrace on the southern slopes (Schneider 1987: 110–14); the next three stops were at shrines or images of Hermes, Enkelados, Phylios (a hero) and a place called Keraiites none of which can currently be identified. The last stop of the *Molpoi* was at the statue of Chares, part of a group of statues that lined the final stretches of the Sacred Way on the approach to the sanctuary gate. The famous seated figure of Chares is now in the British Museum (Figure 3.16) and was part of a series of such statues erected along the final approaches of the Sacred Way between about 570 and 530 BC (Boardman 1978: 70). The statue of Chares itself was dedicated in about 550 BC and carries the inscription 'I am Chares, son of Kleisis, ruler of

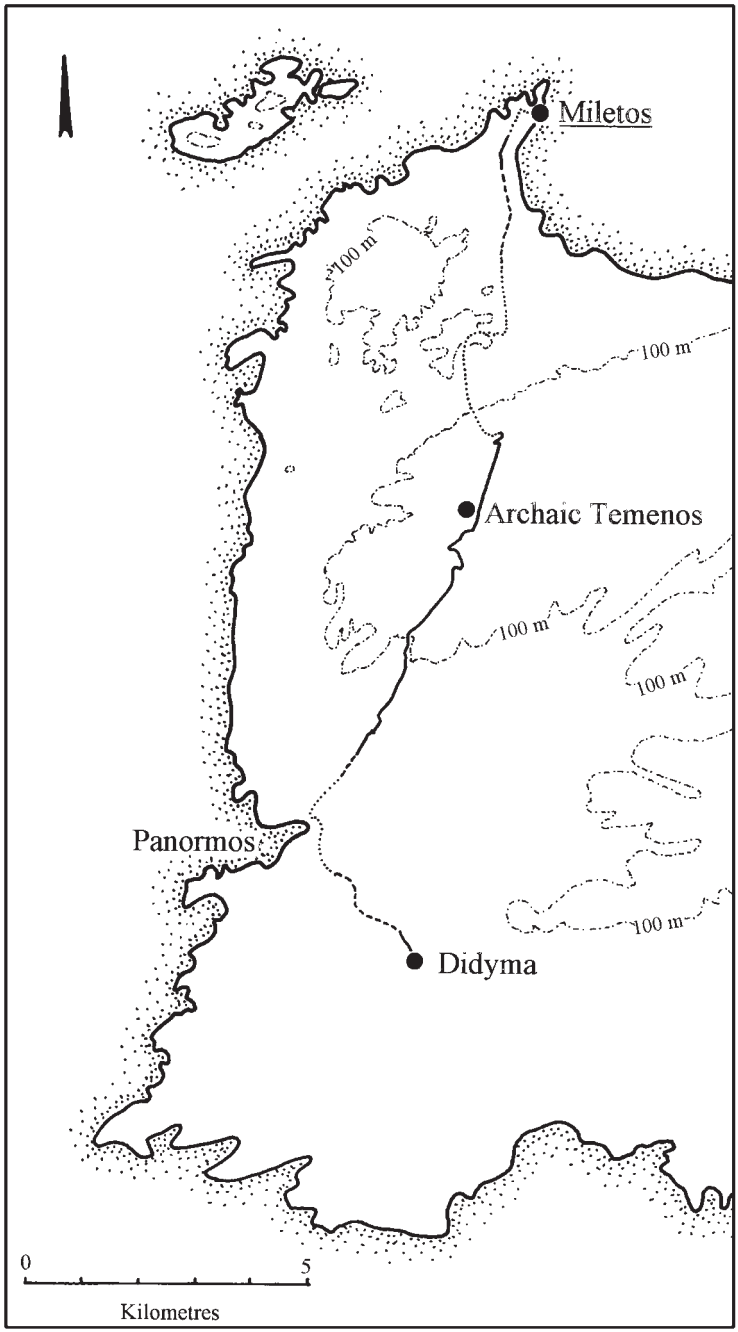


Figure 3.15 The Sacred Way from Miletos to Didyma (after Schneider 1987).

Figure 3.16 Statue of Chares from the Sacred Way at Didyma with an inscription on the front leg of the throne (© Copyright British Museum).

Teichioussa. The statue is for Apollo'. (*Didyma* 2: 5–6; trans. Boardman 1978: 96, fig. 95). Other statues in the group included figures of other seated men, seated women (Figure 3.17) and Lions (Figure 3.18).

Figure 3.17 Seated female statue from the Sacred Way at Didyma (© Copyright British Museum).

Figure 3.18 Statue of a lion from the Sacred Way at Didyma (© Copyright British Museum).

An Archaic *temenos* has recently been excavated on the western side of the Sacred Way at the summit of the Stephano Hills (Schneider 1987: 105–9 and fig. 3; Tuchelt *et al*. 1989; *Didyma* 3). This sacred enclosure housed a small shrine and a semi-circular base on which stood statues of seated figures, similar to the Chares group (Tuchelt 1992: 40–4). The front of this *temenos* was adorned with a row of fine Archaic sphinxes overlooking the Sacred Way (Tuchelt 1992: 44–9; von Woyski 1996). This *temenos* has not yet been identified with any of the stages of the *Molpoi* and is probably a shrine belonging to an aristocratic Milesian family.

Oracles were an important part of the political life of Archaic Greece; the relationship between Sparta and the Delphic Oracle being a well-known if somewhat extreme example of this relationship (e.g. Plutarch *Lykurgus* 6, *Agis* 11), but many other states, including Miletos, also referred important decisions to an Oracle. As Catherine Morgan notes 'Oracles are regulatory mechanisms which enable community authorities to use divine sanction to achieve a consensus of opinion over difficult, often unprecedented, and potentially divisive decisions' (Morgan, C. 1989b: 17). This would be especially important in a society where there was division between political groups, political instability or *stasis*, many of which affected Miletos in the Archaic period (Dunham 1915: 121–31; Morgan, C. 1989b: 19, the civil strife mentioned above). In this way Oracles are important to unstable *poleis* (city-states) and the size of the Oracle at Didyma may be a reflection of the internal instability of the Milesian state in this period, rather than its importance as a panhellenic centre.

The society of Miletos seems to have been a very broad mix of various groups of Greeks and non-Greeks, such as Karians, and one way in which Didyma could be politically useful to the city was by integrating alien groups into Milesian society (Morgan, C. 1989b: 19). For example, an inscription records a response by the Oracle admitting a group of Kretans to membership of the citizen body (*Milet* 1.3: 33; Fontenrose 1988: 182–3), although this inscription dates from the mid-third century BC and is therefore late in date. Miletos also introduced the Phrygian cult of the Kabeiroi (Nikolas of Damascus FGrH 90; Fontenrose 1988: 152–4). In this story an oracle, presumably Didyma (Parke 1985a: 8), predicts that two Phrygians will come to save Miletos from the despot Amphitres. The prophecy is duly fulfilled when two Phrygians arrive, bringing with them the sacred objects of the mystery cult of the Kabeiroi, which was then established in Assessos once peace had been restored (Fontenrose 1988: 152–3). This story is unlikely to be historically accurate but there may be some value in considering if oracles and myths such as this were a way in which new cults, and ethnic groups, could be introduced to the city.

Mostly Didyma followed Milesian policy and the Oracle's responses reflect Milesian feeling at the time. For example, during Kyrus' occupation of Ionia, Miletos was out of line with other Ionian states by adopting a pro-Persian

attitude, having received favourable terms from him, similar to those that they had enjoyed under Kroisos (Hdt. 1.143, 169). When Didyma was consulted by Aristodikos of Kyme as to whether the fugitive Paktyes should be handed over to the Persians, even though he was a suppliant of theirs (Hdt. 1.159), Didyma responded by saying that he should be handed over. This apparently impious act was in keeping with the Milesian pro-Persian position at the time (Parke 1985a: 15–18). However, Didyma did not always follow Milesian policy (Parke 1985a: 18–21) and there was clear division during the Ionian Revolt, when Didyma asserted its independence from Milesian control. Didyma's independence from Miletos was also emphasised by its location away from the city, although still within Milesian territory. Therefore, marginal groups and individuals within Milesia could consult the Oracle and use the sanctuary for worship and dedications without being seen to associate themselves too closely with Miletos itself (Morgan, C. 1988b: 21–3). In this respect Didyma is further from its city than the other two great Ionian temples at Ephesos and Samos are from theirs (16.4 kilometres as opposed to 4 kilometres in the latter two instances). Also, the Branchidai were an hereditary autonomous priesthood and were not necessarily answerable to the Milesian *demos* (people) and this may be the reason why they were slaughtered by Alexander in Baktria, to preserve the newly established Milesian democracy's authority over the recently revived oracle (Parke 1985b). Klaus Tuchelt, for a long time the director of excavations at Miletos, maintained that Didyma under the Branchidai was fully independent of Miletos in the pre-Hellenistic period (Tuchelt 1988: 427), but I feel that Didyma was always subordinate to Miletos (Rubinstein and Greaves, forthcoming).

Didyma played an important role in the religious life of the city of Miletos. In addition to the many different cults that are known to have existed in the city itself the *Didymeion* also housed sanctuaries and temples to many other gods and minor deities besides Apollo. The most important of these was the sanctuary of Artemis which dates from at least the third century BC, and is probably even earlier in origin (Tuchelt 1973: 116; Fontenrose 1988: 29; Tuchelt 1992: 25–34) but there were also many other minor cults represented here (Fontenrose 1988: 123–71). Such a large and diverse cult centre must have been an important element in the religious life of the region.

The Oracle itself also provided guidance on religious issues that arose within the established cults of the city. For example, an oracular response recorded on an inscription from the Delphinion in Miletos and probably dating to the late sixth century BC, states that women should be forbidden to enter the sanctuary of Herakles (*Milet* 1.3: 132a; Fontenrose 1988: 156, 180–1). The Oracle was also consulted when a problem arose regarding the selection of a married woman to the post of priestess for the cult of the virgin goddess Athena Polias in Miletos (Herrmann 1971; Drew-Bear and Lebek

1973; Fontenrose 1988: 199–202). Although this inscription probably dates from the second century AD it may provide us with an idea of how the Oracle could have been used to resolve issues of religious importance within Miletos. The Oracle may also have played an important role in the foundation of colonies, which was an important political decision for any Archaic *polis*, but especially Miletos (see below, pp. 127–8).

The Oracle may also have provided guidance to private individuals who consulted it concerning matters of personal blood-guilt or morality. An example of this may be an inscription from Didyma which it is suggested may relate to plundering or piracy, where the response from the Oracle was: 'do as your fathers [did]' (*Didyma* 2: no. 11; Fontenrose 1988: 180; Jackson 1995). However, it should be noted that in areas of morality Didyma appears to have been less active than other Greek oracles, such as Delphi which was famous for the moralising inscriptions on the temple there (Parke 1985a: 14).

Didyma also acted as a cultural centre for Miletos by acting as a centre for dedications, works which not only had an artistic, but also a religious and political significance. It is difficult to know the precise details of what dedications were made by Milesians at Didyma because of the destruction of the site by the Persians and because literary sources refer mainly to dedications by non-Milesians such as the Egyptian pharaoh Necho (Hdt. 2.159) and the Lydian king Kroisos (Hdt. 1.92). Even so, the statues from the Sacred Way, the Archaic *temenos* and the sculptural fragments from the temple building itself form one of the most important and informative statue groups in Archaic Ionia (Cook, J.M. 1962: 105–6). The aristocracy were an important element of Archaic Milesian society and impressive dedications at Didyma (or at places associated with it, such as the *tenemos* on the Sacred Way) would have been a public expression of their wealth and would have boosted their standing in society. In later history, Didyma also hosted athletic games and other cultural events (see pp. 136 and 142).

Didyma and other States

Didyma also played a role in Miletos' relations with other states. Herodotus tells us that Didyma was frequently consulted by Ionians and Aeolians (Hdt. 1.157) but as Catherine Morgan points out (1989b: 26): 'international recognition at a state level was rare and almost invariably had a particular political purpose'. This may be true of recorded consultations, but there may have been other instances when pro-Milesian states consulted the Oracle about matters that did not warrant inclusion in Herodotus. Klazomenai, Erythrai and Paros founded joint colonies with Miletos and may have used the Oracle for that, and other 'particular political purposes' and the net result may have been that Didyma was consulted by non-Milesians on a regular basis.

If one looks at the distribution of places consulting Didyma in the Archaic period all the regions of Western Asia minor are represented

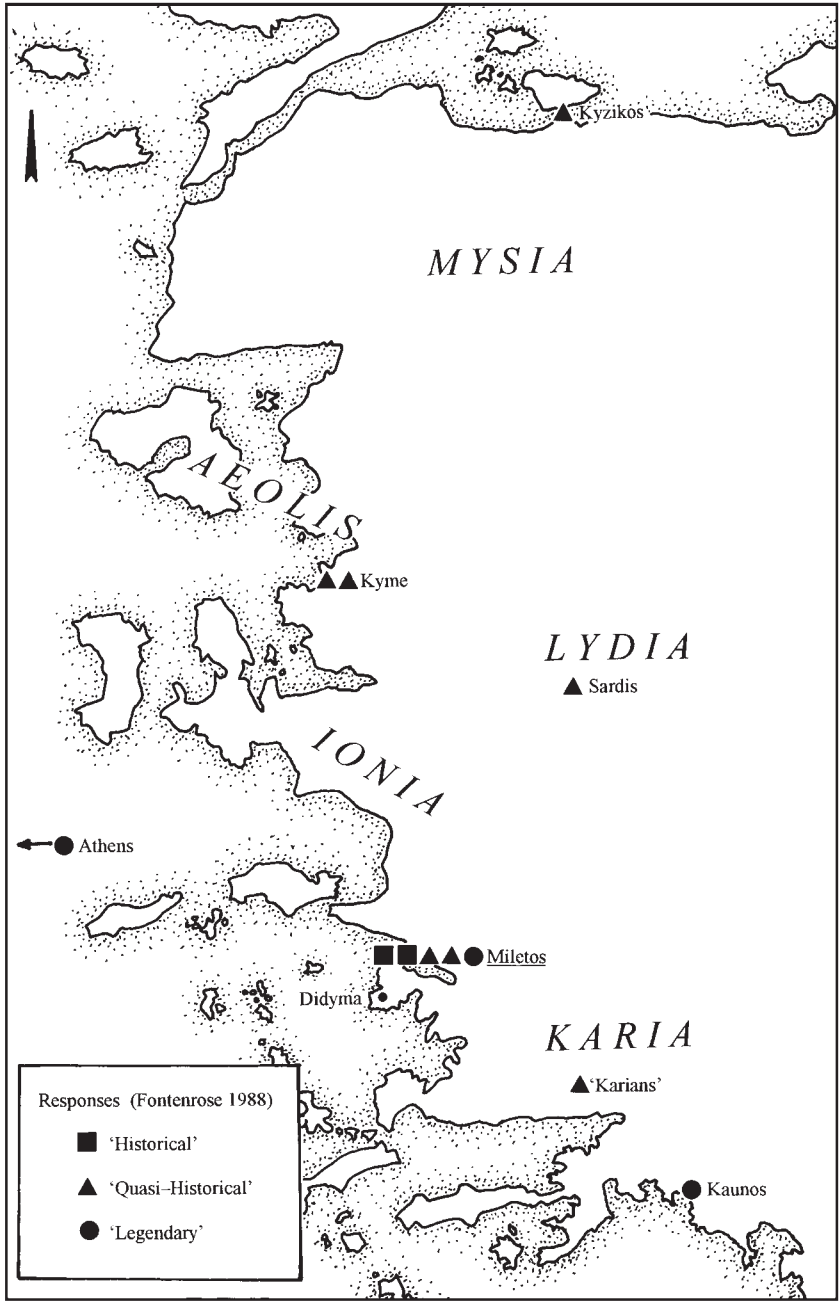


Figure 3.19 Recorded consultations of the oracle at Didyma in the Archaic period (based on Fontenrose 1988).

(Figure 3.19). Joseph Fontenrose (1988) classified as 'Historical' those oracular responses known from inscriptions from the Delphinion in Miletos; 'Quasi-Historical' those known from literary sources such as Herodotus; and 'Legendary' those based on myths and later sources. Of the twelve responses Fontenrose records for the Archaic period, five are from Miletos itself and the other consultations were from Aeolis, Karia, Lydia and Milesian colonies in Mysia. One could also add Apollonia-on-the-Rhyndacus to the list if one accepted that it was a Milesian foundation (see below, pp. 127–8). The Oracle could also have been consulted by individuals from the region who could not travel to Delphi to enquire about personal matters. The lack of monumental inscriptions, votives and inscribed dedications from the site means that it is not possible to rule out the involvement of states and individuals from the rest of Ionia. Herodotus' statement that the oracle was respected and used by many Greeks in the region therefore seems an accurate statement.

Didyma was one of the largest and most important of the monumental 'Ionian' temples and this elevated the status of Miletos among its peers and promoted the oracle as a major sanctuary of regional significance. Of the other monumental Ionian sanctuaries of this period the largest and most famous are the Temple of Hera on Samos and the Temple of Artemis at Ephesos, with other important temples being built at Khios and Lesbos (Cook, J.M. 1962: 102). This emphasis on large ornate temples in the sixth century BC is 'an indication of the commercial wealth of Ionian cities and their mutual rivalry' (Morgan, C. 1989b: 18). Thus, Didyma is an indicator of Miletos' commercial success and position within the 'pecking-order' of large Ionian states, with whom it competed and emulated by means of peer-polity interaction (Snodgrass 1986).

An inscription of the sixth century BC from Didyma records a response from the Oracle regarding the subject of raiding (*Didyma* 2: no. 11). Although we do not know the question that was asked, the interpretation recently offered by Alastar Jackson (1995) is that the Oracle had been consulted in order to ascertain that the target of a proposed raid was 'legitimate', that is to say not an allied state or under divine protection. In this way Didyma can be seen to be involved in decision-making that would affect Miletos' relations with other *poleis* and ensuring the observance of treaties and religious obligations to other states.

Beyond the Greeks of Ionia and Aeolis, foreign involvement with the Oracle can be seen to take place on two levels (Morgan, C. 1989b: 19–21). Firstly there are the dedications that reflect the involvement of Karians and other Anatolian groups, some of whom had been integrated into Milesian society. Secondly, large, high-status offerings were made by foreign powers. These offerings were gestures made to emphasise the power of the foreign state, rather than genuine acts of piety. The size of their dedications would impress the Greeks who saw them, presumably not just Milesians, but others who used the sanctuary. In the case of Necho's dedication (Hdt. 2.159), this

may have been a way of recruiting more Ionian and Karian mercenaries into his service.

Herodotus (1.92) recorded that the Lydian king Kroisos dedicated 20 talents of gold, 226 talents of electrum, 3,000 beasts for sacrifice, gold and silver couches, gold goblets and purple cloaks and tunics to the oracle at Didyma. Kroisos made a dedication of equal size at Delphi (Hdt. 1.50) and other large dedications at the oracular sanctuary of Amphiaraus (Hdt. 1.52), Ismenian Apollo at Thebes (Parke 1984: 212–3) and the Artemision at Ephesos (Jeffery 1961: 339). Only one of these sanctuaries (Ephesos) was not an oracle and Kroisos can be seen to be courting the oracles in search of favourable responses from the Hellenic gods for use as religious propaganda (Parke 1984: 223 ff.). As only Delphi and Amphiaraus correctly passed the test that Kroisos set the oracles prior to his attempted invasion of Persia (Hdt. 1.46 ff.), their importance to him did not really lie in their ability to provide accurate oracular responses at all and his motivations were clearly more political than pious.

When the pharaoh Necho dedicated his battle garment to Apollo at Didyma following his victory at the Battle of Megiddo in 609 BC (Hdt. 2.159), this was the first international recognition of the importance of Didyma (Parke 1985a: 14). The scale and grandeur of Ionian temples such as the Samian Heraion may have been inspired by Egypt (Shipley 1987: 73) and this was also true of the temple at Didyma. The temple was therefore a focus for, and a reflection of, the foreign influences and contacts of Miletos.

Didyma and colonisation

Oracular consent was an important element of the act of founding a colony because it provided the colonists with an *oikist* (colony leader) who would lead them and be worshipped as a hero after his death. Furthermore, the oracle sanctioned the potentially problematic political decision to colonise, giving it the seal of divine approval and emphasising the important religious connection that would be the main link between the colony and the mother-city. Finally, it boosted the morale of the colonists who might have a difficult and dangerous time ahead as they struggled to establish the colony (Pease 1917; Parke 1967: 44 ff.). With so many colonies and little literary or epigraphic evidence to connect Miletos with Delphi, it seems likely that Didyma would be the oracle of choice for Milesian colonists (Hammond states this probability as fact, 1967: 113; as noted by Malkin 1987: 17).

An inscription from the Delphinion in Miletos appears to prove the involvement of Didyma in the foundation of a Milesian colony at Apollonia-on-the-Rhyndacus (*Milet* 1.3: no. 155; Bilabel 1920: 45, 143; Parke 1967: 49). It records that in the second century BC the city of Apollonia wished to renew their links with Miletos. The inscription records their approach:

> The Milesians listened to the ambassadors with every good will, and after they had investigated the histories on the subject and other written records they replied that our city in truth had been founded as a colony of their own city. Their ancestors had accomplished this, at the time when they sent out a military expedition to the regions in the neighbourhood of the Hellespont and the Sea of Marmara. They had conquered in war the barbarian inhabitants and had settled our city among the other Greek cities. Apollo of Didyma had been the guide in the campaign
>
> (Translation Parke 1985a: 11)

The truth of this 'discovery' of ancient records by the Milesians has already been questioned (Ehrhardt 1988: 45). Taking it at face value, this appears to tell us that Didyma was involved in Miletos' colonising activity; that the Milesians kept records (probably inscriptions) of these colonies (presumably the oracular responses); and that links between the mother-city and the colony were such that within four centuries of the establishment of the colony they had forgotten it and an investigation had to be launched. For a number of reasons, this inscription is unlikely to be historically accurate but the three points made above must have seemed reasonable to those who made it. There is another instance when we are told that Didyma was consulted before founding a colony and that was when Neilus consulted the Oracle before founding Miletos itself (Fontenrose 1988: 229–30). Again, this is a later source, but it must have seemed reasonable at the time.

One Milesian colony is known to have consulted Didyma's rival oracle at Delphi and this was Sinope (Dunham 1915: 58; Parke and Wormell 1956: 81, no. 85). The founders of this colony were Koos and Kretines who had been exiled from Miletos. Presumably, as exiles they could not have consulted the Oracle at Didyma which was closely associated with Miletos and it seems only logical that they should turn to the Oracle at Delphi, which was a 'neutral' panhellenic sanctuary.

Didyma was probably involved in colonisation, but we have no record of these consultations due to the lack of inscriptions from Archaic Didyma and the lack of systematic excavation in the colonies themselves (Morgan, C. 1989b: 26). It is assumed that because Milesian control of the Oracle at Didyma was so clear no other state would have used it in their colonisation because of the fear of being too closely associated to Miletos itself (Parke 1985a: 11; Morgan, C. 1989b: 26–7). Not every independent *polis* feared such associations; presumably the smaller *poleis* that participated in joint foundations with Miletos, such as those at Kardia (founded by Miletos and Klazomenai) and Parium (Miletos, Erythrai and Paros), stood to gain from an association with a large and influential state like Miletos. These and other pro-Milesian states may also have used Didyma for their own colonies and as

Miletos was an expert coloniser with extensive geographical knowledge, this information could have been accessed by other states through Didyma.

Conclusions

The fate of the Oracle at Didyma was inextricably linked to that of Miletos and it would be unwise to consider the history of one without the other. The two were linked physically by a road, along which were displayed some of the finest sculptures in the region, dedicated by leading citizens. The oracle played a key role in the religious, cultural and political life of the city of Miletos. It was useful to the Milesians for ratifying and promoting their policies (probably including colonisation), and provided a cultural, religious and artistic centre for the city and marginal groups associated with it. The Oracle was not only a mouthpiece of the gods, but also a mouthpiece of the Milesian *demos* (people) and yet was consulted by other Ionian and non-Ionian Greeks as well. It allowed for the assimilation of alien groups in Milesian society and foreign powers could make dedications and approaches to the Oracle as a means of courting Miletos. Nevertheless, its priesthood did maintain a degree of autonomy and the Oracle must have been perceived of as being at least semi-independent of Miletos to make it acceptable to all groups within the region. Finally, the temple building itself must have been a very impressive piece of architecture built to rival that of the great temples of Miletos' Ionian rivals Samos and Ephesos and was a testimony to the wealth and status of Archaic Miletos.

Chapter three: annotated bibliography

With the exception of Dunham's *The History of Miletus* (1915) there have been no general books on the history of Miletos in English. The most recent general work on Miletos in German is Kleiner's *Die Ruinen von Milet* (1968). Also important, for being a general work on Miletos that also includes Didyma, is Kobylina (1966), in Russian.

Summaries of recent discoveries from excavations at Miletos are given in English in the *American Journal of Archaeology* annual 'Archaeology in Turkey' reports by Mellink (1972, 1986, 1988–93), Gates (1994–7) and in *Archaeological Reports* by Mitchell and Nicholl (1978) and Mitchell (1990). Interim reports, usually in Turkish, are presented annually in the Turkish Ministry of Culture's *Kazı Sonuçları Toplantası*. More detailed interim reports appear in the German periodicals *Istanbuler Mitteilungen* (up to 1992) and *Archäologischer Anzieger* (after 1992), edited by Volkmar von Graeve (see Bibliography).

On Archaic Miletos in particular see *Milet* 1.8 and Kleiner's *Alt-Milet* (1966).

On the excavations on Kalabaktepe in general, see: *Milet* 1.8; von Graeve 1986, 1987, 1990a; von Graeve and Senff 1991; Heinrich and Senff 1992. On the east terrace of Kalabaktepe, see Kerschner and Senff 1997. On the settlement on the southern slopes of Kalabaktepe, see: von Graeve and Senff 1990; Senff, Hürmüzlü and Sorgu 1997a. On the summit plateau of Kalabaktepe, see von Graeve 1990b; Senff, Hürmüzlü and Sorgu 1997b.

The area around the Temple of Athena is described in: *Milet*, 1.8; Weickert, 1957, 1959/60; Mallwitz and Schiering, 1968, Niemeier *et al*. 1999 and Weber 1999. The interim reports on the excavations at Zeytintepe are given in Gans 1991: 137–40; Senff 1992: 105–8; Heinz and Senff 1995: 220–4; Senff and Heinz 1997: 114–18. Studies of the artefacts from these excavations include Gans 1991; von Graeve 1992; Herrmann 1995 (inscriptions); Peters and von den Driesch 1992 (faunal remains); Hölbl 1999 (the Egyptian material).

On Archaic Milesian coinage, see Head 1911: 584 ff. Other general works on Milesian coinage include Mastrocinque 1980/81; Thompson 1983; and Deppert-Lippitz 1984. The key work on Miletos' Archaic colonisation is Norbert Ehrhardt's *Milet und seine Kolonien* (1988). There is an enormous quantity of existing literature on the Greek colonies in the Black Sea, which included many that were founded by Miletos. A useful way into that literature is Tsetskhladze's *The Greek Colonisation of the Black Sea Area* (1998).

Key works on the oracle and temple at Didyma include: *Didyma* 1; Wiegand 1911: 35–71; Voigtländer 1975b; Haselberger 1980 and 1996; Pülz 1989; Freely 1990: 73–7; Haselberger and Seybold 1991; Höckmann 1996. There are also numerous works by Klaus Tuchelt, given in the Bibliography. For a full bibliography of Klaus Tuchelt's work to 1996, see Tuchelt 1996. A new book on the Sacred Way, *Didyma* 3, has recently appeared. The inscriptions from the site are given in *Didyma* 2, which should be used in conjunction with new readings and inscriptions presented by Günther (1969/70 and 1996). Useful works on the Oracle are given in English by Parke (1985a) and Fontenrose (1988), which should be read in conjunction with C. Morgan's review article (1989a).

Several important publications on Archaic Miletos can be expected to appear in print in the near future. These include a study of the city's temples in general by Reinhard Senff (forthcoming), contributions to the Neue Pauly encyclopaedia by von Graeve, Niemeier and Weber (new edition, 2001), and a study of the constitutional history of Miletos by Vanessa Gorman (2001).

4

POST-ARCHAIC MILETOS

The finest monuments visible in Miletos today all date from the post-Archaic period. In fact, there is little to be seen by the casual visitor of anything earlier than the Hellenistic period. The rebuilding of the city was on such a grand scale that the earlier temples and monuments of the city are completely obscured by later buildings, except for the Archaic ruins on Kalabaktepe and Zeytintepe, which lay outside the circuit of the post-Hellenistic city. These new buildings included the exceptionally fine theatre and colossal Baths of Faustina as well as numerous other temples and public buildings (Figure 4.1). However, as yet there have been no modern excavations of *insulae* (blocks) with domestic houses that might give us information

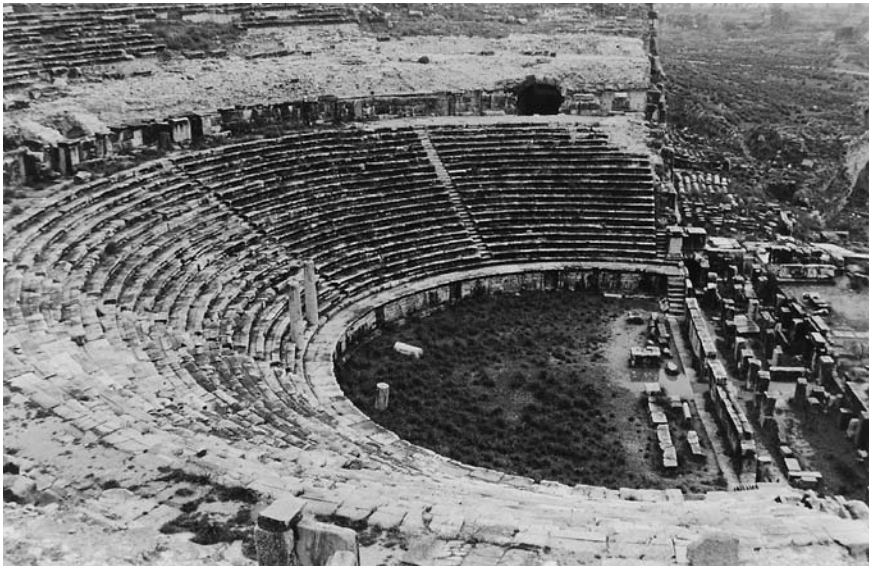


Figure 4.1 The theatre at Miletos.

about agriculture, diet and economy in this period. Therefore there is a limit to how much archaeology can tell us about this period in Milesian history and as this is principally an archaeological study, less attention is given here to these periods than the preceding chapters. Also, without recent archaeological work and the discussion and interest in key themes that this generates there is little that can be said about these periods beyond a description of the monuments themselves, which has been adequately done elsewhere.

Classical period (494 BC–334 BC)

Following defeat in the Battle of Lade in 494 BC, Miletos was besieged by the Persians, its walls were breached and the city was sacked and razed. The survivors were enslaved and taken away to Susa (Hdt. 6.19). The Persians appear to have been intent on taking the great wealth of Miletos for themselves, perhaps to provide booty for their soldiers or to compensate for the damage caused by the Ionian Revolt that Miletos had instigated. Following the sea battle at Lade it would have been possible for the assembled Persian fleet to take Miletos from the sea, but they chose not to attempt this and decided to besiege the city instead. Finally it was taken when sappers undermined the walls. This approach was probably taken because the Persian fleet consisted of ships from allied states and the Persians did not want the spoils of Miletos to fall into their hands, but preferred to keep it for themselves (Greaves 2000a: 53). Didyma and the many treasures housed there (Hdt. 1.92) was almost certainly also plundered and destroyed as part of this action (although see Tuchelt 1988: 427–30 on the date of this event). The colossal bronze *astragalos* found at Susa is probably evidence of booty from the sack of Didyma being taken back to the Persian homeland (see Chapter one). Bearing this in mind, it is interesting to note that when dividing up the territory of Miletos, the Persians kept the lowlands for themselves and gave the highlands to the Karians (Hdt. 6.19). This is an indication of how valuable the lowland territory was considered to be and that it was one of the true 'treasures' of Miletos (see p. 35).

Herodotus tells us that the destruction of Miletos and its population was total but just fifteen years later Milesians were fighting at the Battle of Mykale (Hdt. 9.99), implying that some significant population had survived the destruction, despite what Herodotus himself had said earlier. Following the failure of the Ionian Revolt and its subsequent destruction, Miletos lost a lot of the power and influence that it had once held. Whereas when Athens was destroyed by the Persians the Athenians were quick to rebuild their city, the Milesians had to wait until their liberation from Persia following the Battle of Mykale in 479 BC. This created a vacuum that Athens had filled by extending its commercial interests into the Black Sea, an area that had traditionally been Miletos' sphere of influence. There was a wave of colonisation in the Black Sea following the upheavals in Ionia caused by the

Persian assault (Tsetskhladze 1994) and many Milesians may have fled there at this time, but these new colonies did not benefit Miletos and Athens became the dominant power in the region. The Athenian colony at Thurri was established to replace Sybaris, in 443 BC, and Athens also colonised the Strymon, denying Miletos that part of Thrace where it had shown interest just before the Ionian Revolt. Athens also used colonies to secure the Hellespont for itself as the need to protect its grain supplies from the Black Sea increased. Miletos would continue to have very real commercial and political influence in the Back Sea, but from now on it was to be secondary to that of Athens.

The Classical period saw the traditional role of the independent *poleis* replaced with large power-blocs, hegemonies and alliances. Throughout this period, control of Miletos was to shift between Athens, Persia and Sparta. Except for brief periods, such as when Miletos is presumed to have been in revolt from Athens in 454 BC, Miletos remained a part of larger military–political entities such as the Delian League/Athenian Empire or Persian Empire and was never again a truly independent *polis*.

Athens was now a vital factor in Miletos' history. One might expect that two such similar states would have been rivals in the Archaic period, but on the contrary they appear to have had very friendly relations (Hdt. 6.21), which endured. By becoming a member of the Delian League Miletos gained protection from Persia, which was to remain a threat until the conquests of Alexander, and the League also worked to reduce piracy in the Aegean.

The Delian League also intervened in a dispute between Miletos and its arch-rival, Samos, when in 440 BC Samos laid claim to Priene, which had traditionally been considered to be Miletos' (Thuc. 1.115.2). Athens acted to support Miletos and Samos went into revolt from the League. The Samians fielded a fleet of 50 triremes and 20 transports with an estimated fighting force of 11,000, comparable in size with its fleet at Lade 50 years before (Thuc. 1.116.1; Shipley 1987: 14). However large Miletos' forces were at this time, they must have been considerably less than this for the Samians to consider taking Priene so audaciously. This episode highlights how weakened Miletos had become but also shows that it was still considered important enough to Athens for the Athenians to intervene on its behalf against a large state such as Samos. In 412 BC Miletos revolted from Athens again and became the principal Peloponnesian (Spartan) base in Asia Minor during the Ionian War prior to the Peloponnesian fleets' move to the Hellespont (Rodgers 1964: 173–7).

Following the victory of the Peloponnesian League over Athens, control of Ionia was conceded to Persia. It can be assumed that when Miletos was under Persian control its masters kept a close eye on the city to pre-empt any further attempts at revolt, which had occurred previously under Persian control and twice under the Athenians. The Persians must have placed a garrison of some description at Miletos, but no archaeological trace of it has

yet been found. This may be because it was located on the summit of Kaletepe, which was later levelled and built over (Kleiner 1968: 16).

It is to be expected that Miletos would experience some decline in influence as a result of the resounding defeat at Lade and its aftermath. Miletos not only lost its dominance of trade routes and overseas markets to Athens but was also under threat from Samos in the Gulf of Latmos, traditionally its undisputed sphere of influence. Its actions must have been closely monitored by its Persian and Greek masters and Miletos largely ceased to be an independent force, although it clearly retained significant importance for its strategic location. Miletos had never been the only major settlement on this important coastline, but its traditional position of preeminence was now beginning to be lost to Ephesos and Pergamon to the north and Halikarnassos to the south. Despite the division of Miletos' territory between the Persians and Karians following the Battle of Lade, the attempted incursion of Samos into the Gulf of Latmos, and the temporary division of Miletos from Teichioussa and Leros during the revolt of the 440s, Miletos appears to have retained the core of its territory largely intact. The reasons for this include the fact that the territory is geographically distinct (a peninsula) and separated by mountains, open sea, and distance from any sizeable neighbours with expansionist ideas. The Classical period therefore sees a considerable decline for Miletos from its golden days in the Archaic period but it nevertheless retained a sizeable territory and considerable regional importance.

Hellenistic period (334 BC–31 BC)

In 334 BC, Miletos, then under Persian control, resisted Alexander the Great on his march through Asia Minor and he was forced to take the city by force, following a sea battle off Lade (Arrian 1.18.3–1.19.11; Diodorus 17.22). In this battle, Alexander and a small fleet of 160 allied Greek ships succeeded in fending off a much larger Persian fleet of 400 ships. They were able to do this because they had earlier taken control of the island of Lade and the entrance to the harbour, demonstrating the continuing importance of Lade to the defence of Miletos (Morrison 1996: 4; Greaves 2000a: 55–6). In 200 BC Lade was the site of another battle, this time between Phillip V and the Rhodians who had control of Miletos at that time, but who lost it following this defeat (Polybius 16.14–15; Morrison 1996: 85–6; Greaves 2000: 55–6). The fact that Miletos was fought over in this way is evidence of its continuing importance due to its strategic location.

Alexander also visited the then dormant Oracle at Didyma, which although ransacked and destroyed by the Persians had maintained its cultic significance but had ceased to operate as an oracle. This was to be a key turning point in the history of Didyma, as the oracle was revived and began pronouncing prophecies again. With the traditional priestly family, the Branchidae carried

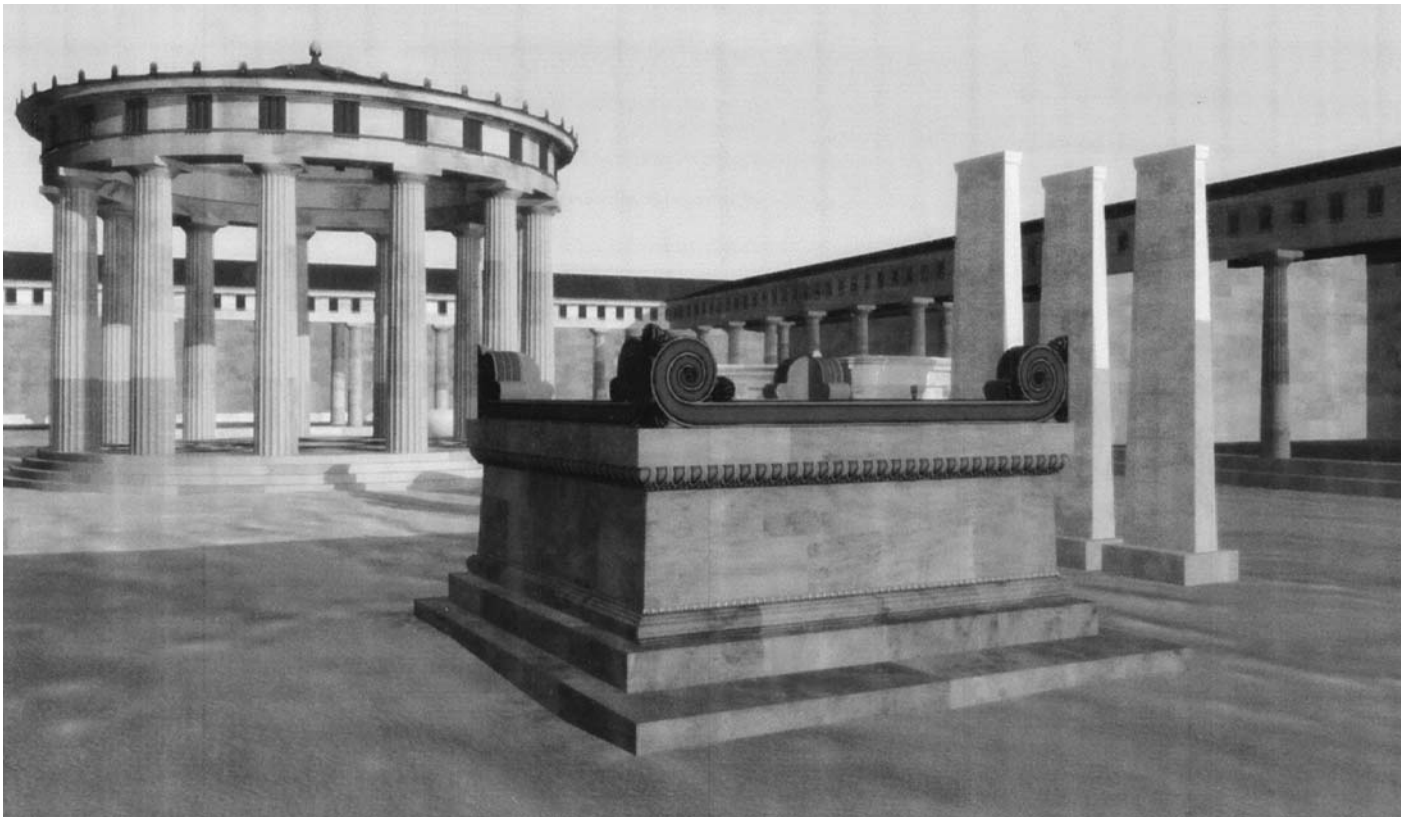


Figure 4.2 3D reconstruction of the Delphinion (© Foundation of the Hellenic World, Athens).

off by the Persians, the revitalised Oracle at Didyma was re-modelled along lines similar to Delphi. Didyma was to play an important role in Alexander's propaganda machine and when the descendants of the Branchidae were found, he had them slaughtered for their alleged betrayal of the Oracle to the Persians (Parke 1985a). The new Oracle also had very close ties to the city of Miletos, its people and politics and was richly patronised by post-Alexander successors such as the Seleukids, who wished to curry favour with Miletos. Didyma had become a flourishing cultural centre, hosting poetry competitions and becoming a centre for the worship of the Muses by the third century BC (Mitchell and Nicholl 1978: 158). The rebuilt temple at Didyma is still one of the most outstanding monuments of the ancient world, even though the ambitious blueprints for its full reconstruction were never completed (see Figure 3.13c). The ambitious design was a reflection of Miletos' pretensions to becoming a great power again, and although it was always to remain an important city, like the Temple at Didyma itself, the attempt to rebuild Miletos' standing was never completed.

It was in this period of history that some of the most pleasing and outstanding monuments of the city of Miletos itself were built, as it was adorned with new temples (Figure 4.2), *Heroa* (tombs of dead heroes) and a finely decorated theatre (Kleiner 1968; *Milet* 4.1; Altenhöfer and Bol 1989). It has long been known that the city was laid out on a grid plan, but the precise details of that plan have recently been significantly reassessed (Weber, forthcoming). The lack of detailed modern excavations of domestic houses within the *insulae* again limits what can be said about the economy of Hellenistic Miletos. The great wealth of inscriptional evidence from this period does compensate for this lack of archaeological evidence, with the inscriptions deposited in the sanctuary of Apollo Delphinos being a particularly valuable source of evidence (*Milet* 1.3; *Milet* 6.1). Agriculture must have remained the mainstay of the city, and a papyrus records Miletos and Samos exporting large quantities of olive oil to Egypt (Casson 1971: 162–3, see Chapter one). The production of wool, weaving and dying also remained important economic activities. The construction of large market buildings in Miletos is a more visible sign of the city's interest in trade.

New methods of warfare and the altered political environment of the Hellenistic world necessitated changes in the way that Miletos was defended. Changes in land warfare meant that the extensive city walls of Miletos could no longer be secured and in the third century BC new walls, two metres thick, were built (*Milet* 2.3). These walls followed a stronger defensive line, thereby reducing the total length of the walls and also considerably reducing the size of the city (Greaves 1999). The mouth of the Lion harbour was defended by two colossal marble lions, each weighing 23 tons, between which a chain probably hung to protect the harbour from enemy craft (*Milet* 2.3: 112–14; Greaves 2000a: 55, figs 4 and 10). Despite its decreasing area, more people were moved into the city when the small neighbouring towns of

Pidasa and Myous *synoikised* (merged) with Miletos. Pidasa is estimated to have had a population of 2,000 (Radt 1973/4) and Myous may have been about the same, so this represented a significant, if not really massive, increase in population for the city at that time. At about the same period a large number of Milesian citizens are recorded on gravestones in Athens, perhaps suggesting a migration of population from this region to Athens (Vestergaard 2000). Despite a decrease in size from its height in the Archaic period, Miletos remained a settlement of considerable size and population, although it is not possible to say how large that population may have been.

With regard to the relationship between Miletos and its landscape there are two processes at work in this period which should be noted. One was the continuing progradation of the Gulf of Latmos and the other was the development of other Greek communities inland from Miletos. It is in this period that the slow process of alluviation by the Meander/Büyük Menderes River really began to affect Miletos. This happened indirectly, as Miletos was to continue to function as a harbour for a long time to come. Instead, it affected the neighbouring towns on the Gulf of Latmos whose harbours became clogged, one by one (Greaves 2000b); for example Myous, where swarms of mosquitoes forced the city to be abandoned (Strabo 14.1.10; Pausanias 7.2.11). Also, the Greek presence on the coast of Asia Minor was by now long-established and had extended inland so that by the Hellenistic period major Greek settlements existed higher up the Maeander valley, to rival Miletos. For example, Tralles (now the site of the modern regional capital of Aydın) where a monumental Hellenistic arsenal has only recently been discovered must have rivalled Miletos as a major player in the lower Maeander valley (Marchese 1986). Settlements such as this, ongoing disputes with Heraklea over territory and the growth of Ephesos, Pergamon and Halikarnassos as major trading and political centres along the western coast of Asia Minor, were to ensure that Miletos never developed beyond being just another one of several regional centres.

Roman period (31 BC –AD 337)

The size and shape of the Roman city of Miletos had been established in the Hellenistic period and its focus remained the Lion Harbour and the Sacred Way that led from here to the South Market. Most of the major Hellenistic public buildings remained in use and the established orthogonal grid continued to be adhered to, with the exception of the colossal Baths of Faustina which were not aligned with this plan (see Figure 4.4). These baths were the largest addition to the city in the Roman period, built on a grand scale and adorned with many fine sculptures (see Figure 4.3). The Empress Faustina, the daughter of Antoninus Pius and consort of Marcus Aurelius, sponsored the building of these baths, although the precise reason for her high level of interest in Miletos is not clear. Miletos in the Roman period

must have been a splendid sight, with its regular streets and fine monuments (Figures 4.4 and 4.5), such as the elaborate gate of the South Market. The emperor Trajan had also visited Miletos and instigated building works in the city, most notably on the Sacred Way from Miletos to Didyma and in 263 AD a new wall was built to repel the rampaging Goths.

The theatre was enlarged so it could seat 15,000 spectators (Kleiner 1968: 69–75). This is an indication of the size the city's population as a whole, which may have been as much as four times this number. Miletos was therefore still a sizeable city and inscriptions for the theatre attest the presence of a Jewish community (Hommel 1975), showing that its population was also still ethnically diverse. That the city was still able to sport such monuments and attract the patronage necessary for their construction is a testimony to its continuing importance, although it was becoming eclipsed by the developing Roman centres of Ephesos to the north and Aphrodisias further up the Maeander valley to the east. Both Ephesos and Aphrodisias have better preserved and presented ruins than Miletos and they often loom larger in the popular imagination because of this, but this should not lead us to overlook Miletos as still being a centre of importance in this period.

An inscribed copy of the Diocletian price edict found at Aphrodisias lists Milesian purple as a valuable commodity (Erim and Reynolds 1970; Herrmann 1975). This would appear to indicate that the long-established

Figure 4.3 The Baths of Faustina.

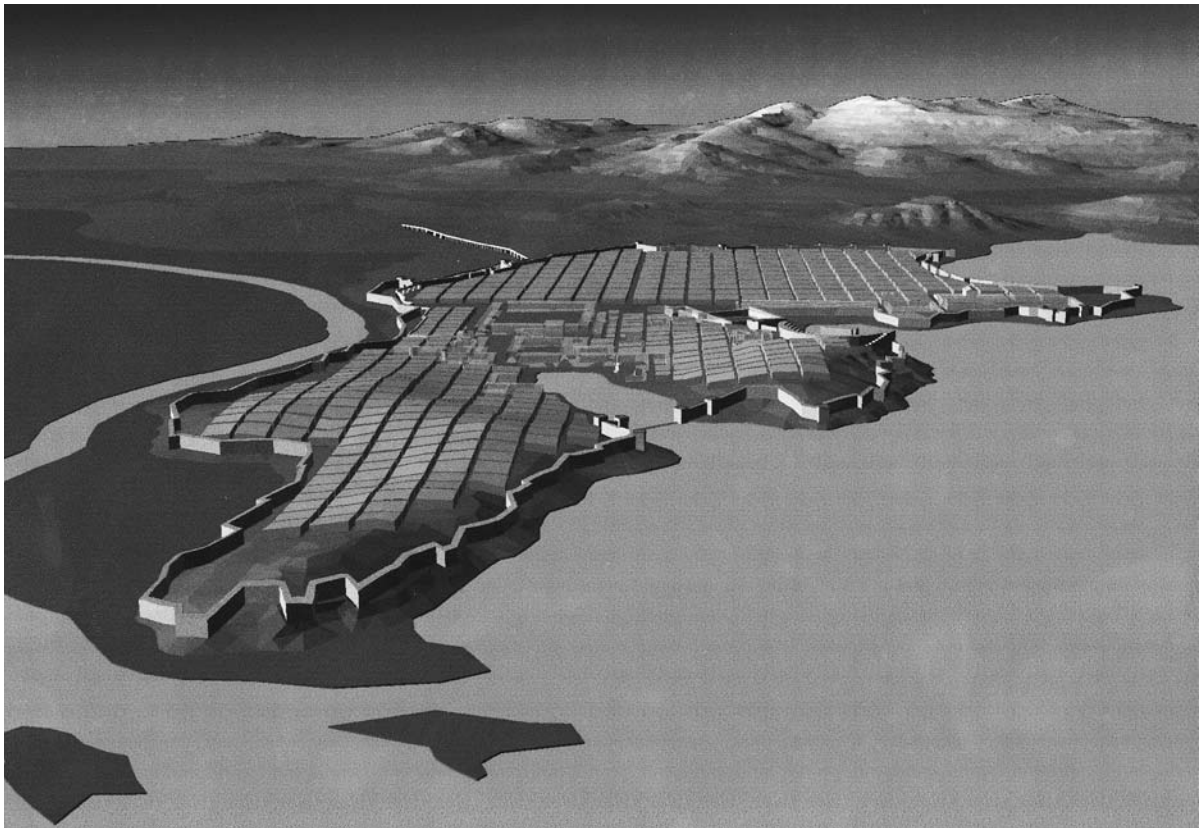


Figure 4.4 3D representation of the city of Miletos in Roman times (© Foundation of the Hellenic World, Athens).

Figure 4.5 The Market Gate from Miletos (© Copyright Bildarchiv Preussischer Kulturbesitz, Berlin).

economic activities associated with textiles and the sea were still important to the Milesian way of life. It may have been at this time that the cultivation of cotton was introduced to the region, which was to come to replace wool as the main commodity of the region (Wild 1997). Trade through the city and its harbours and impressive markets may appear to be a more prominent activity than local agricultural production because of the physical remains of these market buildings. The markets were focused mostly around the Lion Harbour (*Milet* 1.6), but the West Market by the Theatre Harbour shows that this harbour too continued to be used. A number of Roman houses have been excavated at Miletos, for example the villa near the temple of Athena (*Milet* 1.8: 96), but these are still insufficient to be able to discuss domestic life in the city in any detail (Kleiner 1968: 122–3). The wealth of mosaics found in these houses though suggests a high standard of living, as one would expect in a successful city such as Miletos (Figure 4.6).

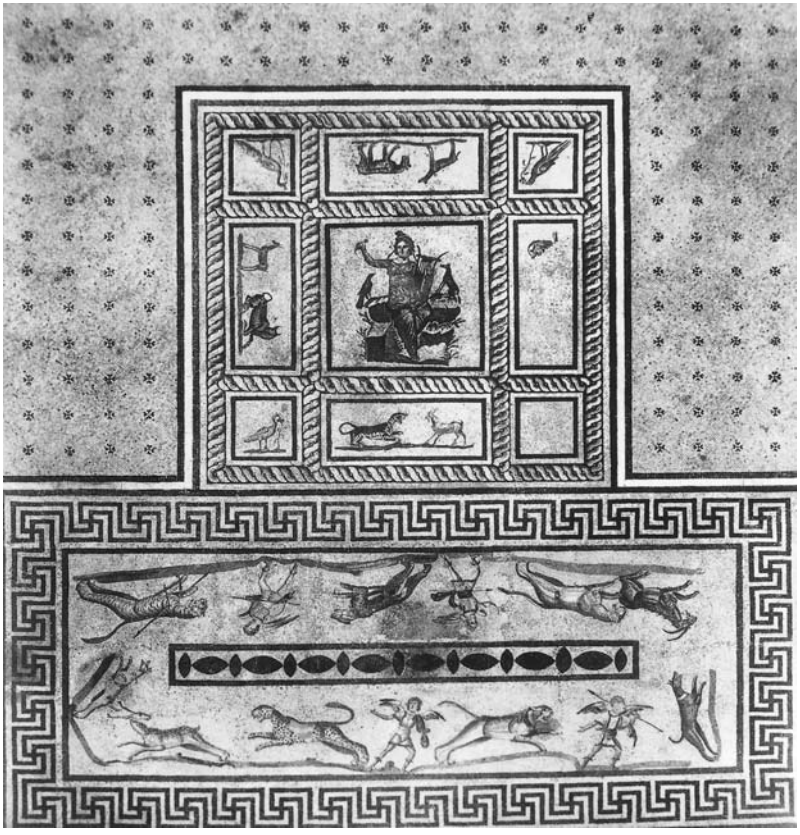


Figure 4.6 The Orpheus Mosaic from Miletos (© Copyright Bildarchiv Preussischer Kulturbesitz, Berlin).

Julius Caesar was captured and held to ransom by pirates based on the small island of Pharmakoussa near Miletos, in the first century BC, but the ransom and ships to retaliate with were supplied by Miletos (Plutarch, *Caesar*: 1–4). The pirates were probably operating in this area in order to prey on pilgrims to the Oracle at Didyma and are symptomatic of the declining security of the seas around Miletos at that time (Greaves 2000a: 56). Pompey did much to clear the Mediterranean of pirates and for this he was honoured with the dedication of the Large Harbour Monument beside the Lion Harbour at Miletos in 63 BC (Wiegand 1905: 5; Kleiner 1968: 56–8). In addition to a renewed Sacred Way and a continuing flow of pilgrims, Didyma also received special status as a sanctuary site from Rome, and was clearly held in high regard, despite the fact that the main temple building was still not completed. Athletic games were also now staged at Didyma, established in competition to those of Magnesia-on-the-Maeander (*SIG* 590; Fontenrose 1988: 185–7; Cook, B.F. 1987: 15, plate 21). Didyma continued to be a centre of the arts and a focus for dedications, including some very fine sculpture and portrait busts (Schattner 1996b) and, like any good Roman enterprise, came equipped with a bath-house (Tuchelt 1992).

Byzantine period (395–1261 AD)

Archaeologically, the Byzantine period is one of the hardest to understand at Miletos. No large-scale excavations or recent research have been carried out into Byzantine Miletos, largely because of the lack of evidence. Some major new buildings were constructed, such as the Episcopal Palace, with its fine recently-restored mosaics, beside the Church of St. Michael. However, often Hellenistic and Roman buildings continued to be used or were converted to new uses in the Byzantine period. For example, the Roman South Market gate still stood and was rededicated with the addition of a new inscription. The church of St. Michael itself had been the Hellenistic Temple of Dionysos and was converted into a church on a basilica plan with an east–west orientation, three apsidal naves and a baptistry. The city must therefore have remained an impressive place, as most of its earlier public buildings remained in use, albeit designated with new functions. From the thirteenth century AD onwards, Miletos came to be known as Palatia, 'The Palaces', although this is probably a reference to the 'palaces' of an earlier era that could be seen all around it, rather than to new palaces of the Byzantine period itself.

The Byzantine castle, situated directly on top of the theatre that now dominates the site of Miletos was built in the sixth century AD (Figure 4.7). With ten towers and centred around a courtyard, it has commanding views over all of the city and harbours below it. Incorporated into its stonework are numerous *spolia* (re-used stones and architectural fragments) from classical

buildings. In 538 AD, a new city wall was built that further reduced the size of the enclosed settlement. This is the so-called Justinian Wall. Also in the Byzantine period, a wall was constructed across the mouth of the Lion Harbour that by now had become completely clogged with silt and was unusable (Greaves 2000a: 56–7). The Theatre harbour probably remained a serviceable harbour but Miletos was rapidly losing ground as a port. The change in harbours must have created a new dynamic in organisation and planning of the settlement and it contracted to a more defended position centred around the new castle built on Kale Tepe (Greaves 1999).

Miletos (now Palatia) was increasingly on the periphery of the Byzantine world as the empire contracted towards Constantinople in face of the advancing Muslim forces of Anatolia. In 655 AD the new Islamic fleet defeated the Byzantine fleet in the Battle of the Masts off the coast of Lykia, thereby marking the end of Byzantine naval power in the eastern Mediterranean. This greatly affected Miletos' traditional trade routes although it remained under Byzantine control until the thirteenth century AD.

Islamic period (thirteenth century AD onwards)

The architectural remains of Islamic Miletos are the most pleasing of any that can be seen at the site today. Unfortunately, it is likely that many buildings, especially domestic and industrial structures of this period, were dug away by earlier generations of archaeologists intent on reaching the classical remains below them (Durukan 1982: 27).

Figure 4.7 The Medieval Castle at Miletos.

Miletos (now called 'Balat', a derivation of the Byzantine name Palatia) was taken by the Menteşe emirate in 1261 AD, in a region that was hotly disputed between competing emirates. In 1305 AD it was taken by Sasan (who had defected from Menteşe) but in 1340 AD it was taken by the emirate of Aydın and remained under their control until the formation of the Ottoman Empire in 1425 AD. This was an unenviable position – on disputed borders between the Christian world of the Aegean and Muslim Anatolia as well as being fought over between the warring emirates. Nevertheless, the size and great beauty of its Islamic monuments are testimony to a thriving community here in the Emirates period. The wealth of this community was based, as before, on both trade and agriculture.

The remains of karavansarays at the site are evidence of continuing trade and by 1355 those great traders of the Mediterranean, the Venetians, had established a church and consulate here (Gibb *et al*. 1960: 988). From the seventh century AD onwards, Miletos was a natural anchorage for caravans heading inland (von Salis 1910: 117) and in the thirteenth century, under the Emirate of Menteşe, a karavansaray was built. The Büyük Menderes was to remain an important communications route throughout the Ottoman period (Luther 1989) to the present day. The harbour must have still been in use until the early Ottoman period, when historical records show Palatia was importing wool from Dubrovnik in Croatia and tin from England (Belli 1991). In a 1670 account of his journey through this area the Turkish traveller Ewlijã described Balat as being near to the beach and with a harbour from which the local people traded to the islands, especially İstanköy (modern Kos), 100 miles to the south (*Milet* 3.4: 7–9). Ewlijã mentions trade in *pekmez* (grape must) and *şap* (alum), produced near Denizli in the upper Büyük Menderes valley. By this time the settlement was reduced to just 200 houses, one *khan* (karavansaray) and a small market.

In the thirteenth century Miletos (Balat) acted as a base for raids by the forces of Menteşe into the Aegean. When the emirate of Aydın gained control of part of the western coast of Asia Minor (including Balat) Umer Bey was able to develop maritime supremacy, used for piracy and to levy tribute (Pitcher 1972: 31). In the winter of 1351/2 a part of the Venetian fleet had overwintered at Palatia (*Milet* 3.4: 3) so it must still have had a serviceable harbour of reasonable size. In 1508 AD this was used as a base for an attack against the island of Leros (*Milet* 3.4: 7). All these events show the continuing strategic importance of this maritime site.

By far the most important and impressive of the ruins of Islamic Miletos is the İlyas-bey mosque (Figure 4.8) and the associated complex of buildings – a *şadırvan* (fountain for ritual ablutions), a *madrasa* (Islamic theological college) and two *hammams* (bath-houses) (*Milet* 3.4; Müller-Weiner 1986b: 52–7). The fall of Constantinople in 1453 AD and the subsequent conversion of Hagia Sophia into a mosque greatly influenced Ottoman architecture, introducing grandeur, spacious interiors and large domes and semi-domes

into the architecture of the period (Kühnel 1966: 170–1; Petersen 1996: 255). However, the İlyas Bey mosque pre-dates the fall of Constantinople by 50 years and therefore bears none of the hallmarks of later Ottoman mosque-building, being a rare and important example of earlier architectural tradition, albeit smaller and more understated that its successors.

The İlyas-bey mosque itself is square in plan with a single large dome. Although the minaret is now completely missing, photographs and drawings from the early twentieth century show that it was situated on the western corner of the building and was of decorative brick construction. The building is almost plain on the outside except for a highly elaborate façade around the door on the north-west side.

Carved stone was widely used in Muslim Anatolia (Hill and Grabar 1964: 77– 8) and at Balat there are some extremely fine details in carved stone on the main façade of the mosque, lattice-work over its windows and around the *mihrab* (the focus of the interior of a mosque). However, the most outstanding decorative feature of many of the Islamic buildings of Miletos is the extensive use of stucco (decorative plaster relief, Hill and Graber 1964: 78–9), which can now be seen in the *hammams* and the İlyas Bey mosque. In the *hammam* next to the İlyas Bey mosque the plain plaster surfaces of the walls are decorated with impressed blocks of floral and geometric design, forming a dado at waist height; elsewhere it is formed into stalactite patterns above arches and in corners. The İlyas Bey mosque is remarkable for its

Figure 4.8 The İlyasbey Mosque.

almost total lack of ceramic tile decoration, or 'mosaic faience', which is so much a part of Muslim, particularly Turkish, architectural decoration (Hill and Grabar 1964: 79–81). There are some traces of blue ceramic tile decoration on the underside of the arches on the mosque's main façade, but these areas are extremely small, given the size of the building.

The *madrasa* attached to the İlyas Bey mosque at Balat is an Anatolian 'open' courtyard *madrasa* (Hillenbrand 1994: 212–15; Petersen, 1996: 168). In common with other Anatolian courtyard *madrasas* it is rectangular in form with the student rooms on the long sides and function rooms at the ends. In the square in front of the mosque are the remains of a *şapdırvan* incorporating a re-used sarcophagus, next to a well.

There are two *hammams* in the İlyas Bey complex of buildings. The larger, northern *hammam* is finely decorated on the inside with stucco and has a marble forecourt in front of the main entrance (*Milet* 3.4: 43–7). The central room is T-shaped with two side chambers decorated with stucco stalactites around the doorways and impressed patterning on the walls. Heating was by means of a raised hypocaust floor and water was piped to the basins through terracotta pipes in the walls that empty into *kurnas*, bowls made of a single block of stone. The smaller, southern *hammam* was similar in construction but is not as well preserved (*Milet* 3.4: 47–8). Other than the İlyas Bey complex, there is a well-preserved Menteşe period *hammam* close to the classical Delphinion and the so-called Lion Harbour mosque (*Milet* 3.4: 48–53). This *hammam* is the largest and best preserved in Miletos/Balat, with a long central chamber and two side chambers. As the walls survive to a greater height here than in the other *hammams* it is possible to see how the walls would originally have curved to create a vaulted roof. The interior was elaborately decorated with plaster relief and the walls were constructed of re-used stone. There was also a third small private *hammam* by the theatre (*Milet* 3.4: 53–4) and another one near the ruins of the Kırk Merdiven Cami ('Forty Steps Mosque'), but nothing remains to be seen of either of these (*Milet* 3.4: 43).

Other Islamic period ruins at Miletos/Balat include a *tekke* (dervish lodge), two *khans* (karavansarays) and two mosques. The *tekke* (or *dergah*, a lodge for dervishes, members of Turkish mystical sects) (*Milet* 3.4: 39–40) is located near the Lion Harbour on the slopes of Humma Tepe hill. This building has thick (69 centimetre) walls and has therefore survived better than many of the other buildings of the Islamic period, but its precise function remains unclear. Miletos/Balat's position on important trade routes meant that it was an ideal location for a *khan* and Balat had two, probably dating to the fifteenth century AD (*Milet* 3.4: 40–1). The best preserved of the two *khans* is in the area of the Theatre Harbour, now heavily restored. The building is rectangular with a single heavily gated entrance on the north side, thick (110 centimetre) walls and no external windows as protection for the valuable caravans and their goods against banditry. Inside is a single open

courtyard from which stables and accommodation rooms would have opened off. The second *khan,* near the Lion Harbour, is poorly preserved. The two other mosques at Miletos/Balat, the Kırk Merdiven Cami and the 'Mosque-with-four-columns' (*Milet* 3.4: 38), were both situated on Kaletepe. Nothing remains to be seen of the Kırk Merdiven Cami and the 'Mosque-with-four-columns' was built out of an earlier Byzantine period structure to which a *mihrab* was added. There are several small Islamic graveyards around the site, some of which are still tended, although no new burials are made here.

Medieval Miletos/Balat was an important pottery production centre. The majority of the pottery excavated at the site is unglazed with plain, painted, incised or moulded decoration, made of red or buff fabric with much fine mica, which is typical of locally made Milesian pottery in all periods (Durukan 1982). The glazed pottery can be divided into three types: 'Green-glaze' (yellow, brown or green painted decoration on a white slip, usually covered with a green glaze); 'Slip-technique' (underglaze decoration on a white slip with a monochrome glaze in blue, green or brown); and 'Miletos-ware' (white slip on a red fabric with cobalt blue decoration under a transparent or turquoise glaze).

Miletos-ware is dated to the fourteenth and fifteenth centuries AD and was presumed to have been made in Miletos because of the large quantity of it that was found there (*Milet* 3.4: 69–88). However, excavations at İznik, a recognised major centre for tile and pottery production, uncovered evidence of kilns producing exactly this kind of pottery and it was claimed by some that İznik was the sole production centre of Miletos-ware (Köşk 1991: 29–30; Carswell 1998: 29; Gates 1997: 305, fig. 5). It has also been suggested that Miletos-ware should be called 'slip-painted pottery of the early Ottoman period', as it was made in İznik, not Miletos (Fehervari 1973: 146). However, pottery wasters, including ones with fused tripod kiln spacers, and moulds for unglazed moulded-wares were found 'in their hundreds' during excavations at Miletos, and this proves that Miletos and not just İznik was producing Miletos-ware (*Milet* 3.4: 69–88; Otto-Dorn 1957: 88; Durukan 1982).

The artistic influences of Miletos-ware are extremely interesting. The main artistic inspiration for this pottery was imported Chinese porcelain, particularly the use of dark blue monochrome designs on a white ground. In fact, it so closely imitates contemporary Chinese blue-and-white glazed ceramics that art historians have mistaken the two for one another. Miletos-ware has a number of decorative motifs (Aslanapa 1965: 29–30; Fehervari 1973: 146), of which those with radiating lines closely parallel one particular form of Chinese vessel – the celadon. Many Miletos-ware vessels of this kind have a central rosette or 'fleshy' leaves surrounded by characteristic rings of narrow radiating petals. This closely parallels the Chinese celadon that has a central rosette, surrounded by radiating petals, although these are moulded and not painted decoration (Carswell 1998: 29–31). Celadons were exported from China to Turkey via the Silk Road (Mikami 1988).

As Chinese ceramics were an influence on the pottery of Miletos, so too was that of Miletos an influence on places even further to the west. In particular Miletos-ware's cobalt blue colour is thought to have inspired the decorated majolica wares of fifteenth century Tuscany (Otto-Dorn 1957: 88). Again Miletos' geographical position made it an important point of contact between East and West, imitating oriental pottery styles and exporting this to the West, from which it was in turn receiving tin and wool (see p. 144).

In the Ottoman period, Balat appears to have been a small and unimportant hamlet, although it still had its great mosque, at least until the earthquake of 1955, which flattened the village. Continuing alluviation by the Büyük Menderes created lagoons in which mosquitoes and malaria thrived and this must have severely affected life in the town. One of the hills of the old town is called Humma (Humei) Tepe (see Figures 1.3 and 3.5). *Humma* is a Turkish word meaning any kind of high-fever, including that associated with malaria and typhoid. In its new role as an agricultural centre, Balat lost importance to the malaria-free market towns further inland, such as Söke, Aydın and Didim-Yenihisar. Following 1955, a new town (Yeni-Balat) and mosque were built on slightly higher, drier land, away from the ruins and swamps and closer to the main roads which were more important than harbours in its new role as a purely agricultural town.

Miletos' importance had always lain in its geographical location on important trade routes and fine harbours, but in the later Islamic period with reduced harbours and trade frequently disrupted due to its location on disputed borders, the settlement could no longer be the important place it once had been. Nevertheless, it remained a lively trading centre and its extremely rich pottery tradition shows wide influences. In particular the pottery produced at the site demonstrates a familiarity with Chinese ceramics and was in itself very influential and widely traded. The trade that passed through the town attracted the attention of the Venetians, who established a consul here. Miletos' location made it not only an important site for trade, but also warfare, and it was used as a base for military campaigns into the Aegean.

Case-study: Miletos as a centre of philosophy and learning

This book has been almost exclusively archaeological, yet the city is perhaps most famous for its ancient philosophers, a subject that is about as far away from archaeology and archaeological sources as one can get. Yet there is some connection to be made between the two. This summary of the archaeology of Miletos has shown that the city was in all periods wealthy and well connected. This wealth meant that the citizens of Miletos had the time to sit and contemplate philosophical questions rather than engaging purely in subsistence activities. Philosophers such as Thales were the first 'blue-skies' researchers (E. Hunt, *pers. comm.*) and this was possible only because they did

not have to work every day in order to support themselves. The wide-ranging contacts that Miletos had made, brought it into contact with new cultures and ideas, in particular those of the ancient cultures of the Near East. It is probably from sources here that Thales was able to predict a solar eclipse on 28 May 585 BC (if this story is to be believed, that is).

So what was so great about these Milesan philiosophers? In the numerous tales surrounding him Thales is credited with many shrewd actions, such as the bridging of the River Halys and buying up oil presses just before an oil glut. Thales was considered to be one of the Seven Sages, the wisest men in ancient Greece, and was clearly a great pragmatist, but none of these events are particularly exceptional and their basis in truth is often questionable. However, it does appear certain that it was Thales who proposed that the Universe is made entirely of water in its various forms and states of flux. Although this may sound a bit odd to us, in fact this laid the cornerstone for all western philosophy because it was a unifying theory that found a single explanation for all phenomena within the natural world. The nature of the post-Thales Universe was no longer unknowable to mortal men as his theory allowed it to be explained by reference to natural, observable phenomena and not the will of gods. Such theories in themselves did not remove the gods/God from the Universe but they do draw a dividing line between the physical world, which could be understood and explained by humans, and the sphere of the divine. This division between the natural and the divine, without denying the existence of the latter, was to be a key development in western philosophy and established Miletos' place in world history.

Another key theme of this archaeological study has been the continuity of settlement at Miletos. Once Thales and his generation had passed away, Athens and other places came to be the new centres of philosophical thinking in the Greek world and Miletos was largely forgotten. Yet Miletos did not simply cease to exist as an intellectual centre and the factors that had made it such a centre of learning in the Archaic period still remained. Numerous post-Archaic thinkers are known to have come from Miletos. These include (among many others) the second century AD philosopher Dionysios Claudius and the sixth century AD mathematician Isidoros (for more see Tulay 1999).

In the Islamic period Miletos was a centre for Islamic theological learning. As noted above, the Islamic town had a *madrasa*, an Islamic university for the learning of scriptures and theology. An inscription in the arch above the door of the İlyas-bey mosque includes the following words (second line): 'Sultan Şuça, the spreader of the lofty word "God" on the Earth and great supporter of the learning of science, the biggest of the biggest of God's orders.' This is dated to 1404 AD. The inscription also says that the sultan paid for an *imaret*, a soup kitchen for the poor, students, travellers and dervishes. *İmarets* are often found attached to a complex which includes a mosque, *madrasa* and *hammam*, as it is here (Petersen 1996: 115).

It can be seen therefore that the wealth of Miletos, based largely on its agriculture, and its extensive overseas contacts, associated with its trade, made it a natural centre for learning; a role which it maintained throughout its history.

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