

## 6

# Laconia and Messenia

The southern Peloponnese is bounded on the north by the high mountains of Arcadia, and by the sea on all other sides. Two lofty mountain ranges run parallel from north to south: Parnon, on the east, runs for more than 50 km, reaching a height of 1,937 m, and ends at the tip of the Malea peninsula; the Taygetos range runs down the centre and reaches a height of 2,300 m, the highest point of the Peloponnese. It separates Laconia in the east from Messenia in the west, ending at the tip of the Mani. Further west, the Messenian peninsula springs from the rather lower Mt Aigaleion. The Taygetos range also controls the climate: the rainfall in Messenia is double that of Laconia, which makes the former area more fertile than the latter. The land is rich in vines, olives, figs, cereals and pasture, and there are forests on the lower slopes of the mountains. There is, however, a scarcity of good harbours.

The history of Laconia, which we will consider first, is really the history of its principal city, Sparta (in antiquity Lacedaemon). Regular occupation started about 6000 BC, at the beginning of the Neolithic. The Late Bronze Age, 1600-1100 BC, is the period to which the Homeric poems look back. However, the city ruled by King Menelaus, husband of the beautiful Helen, seems not to have been near Classical Sparta, but may have been at the Menelaion, 5 km to the north-east, or perhaps at Amyklai, 8 km to the south.

Around 1000 BC, after the end of the Bronze Age, the area was settled by Dorian Greeks. At first rich and given to luxury, these Spartans gradually developed an austere way of life for which they became notorious. About 725 BC they conquered Messenia and reduced the inhabitants to a state of virtual slavery.

Henceforward, Sparta was always powerful but never popular. Their city was eventually destroyed by Alaric the Goth in AD 396. In 1248 it was succeeded by the city of Mistra.

To turn to Messenia, its early history runs parallel to that of Laconia. In the Late Bronze Age it was actually much richer than its neighbour, thanks to the greater fertility of their soil and closer contacts with Minoan Crete. Like Laconia, Messenia was occupied by Dorian Greeks about 1000 BC. But the Spartans always coveted this rich land; and when they conquered and absorbed it about 725 BC, that was really the end of Messenia for many centuries. In 369 BC, however, a new city, called Messene, was built as a capital for an independent Messenia. It remained important for many centuries, under Greek and Roman rule.

Laconia and Messenia, along with most of the Peloponnese, are dominated by rocks of the 'external' isopic zones of the Hellenides, the Ionian, Gavrovo and Pindos zones (Figs. 2.2, 6.1). Rocks of the Ionian zone were initially deposited in a deep-water trough, which became shallower as it filled with flysch sediments shed from an adjacent, rising mountain range. The Gavrovo zone was a region of shallow water, initially far from mountains, perhaps similar to the present Bahamas region. The Pindos zone was formerly a deep ocean basin. All these zones were stacked up against each other by the Alpine compressions during the Late Cretaceous to Palaeogene.

The overall topography of Laconia and Messenia is controlled by the Neogene stretching of the region. The Malea peninsula is a horst between two grabens. That on the east is the downthrown block of the Central Aegean; that on the west comprises the Vale of Sparta and

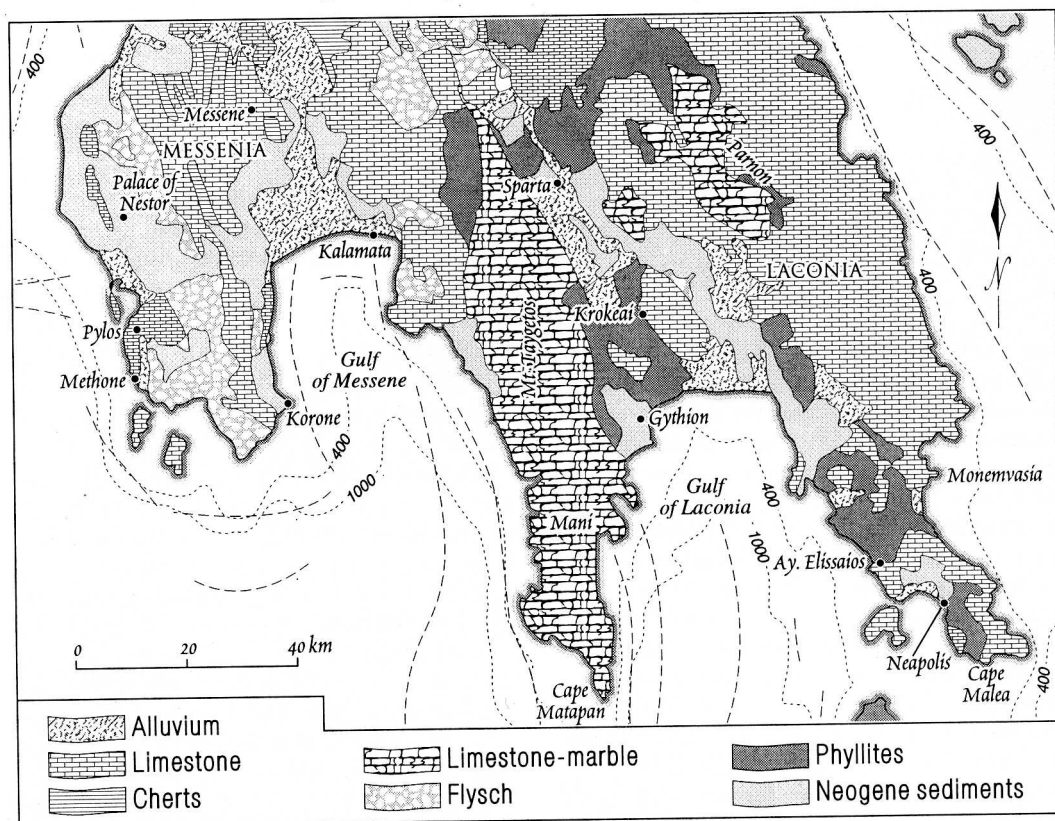


Fig. 6.1. Laconia and Messenia.

the Laconian plains and continues southwards under the sea. The Mani peninsula has a similar structure and is bounded on the west by a graben which starts in the Messenian plain and continues southwards under the sea.

### Sparta

Sparta is situated in the fertile valley of the Eurotas, a river which flows from the Arcadian mountains in a southerly direction for the entire length of Laconia. The Vale of Sparta was aptly described by the Greeks as 'Hollow Lacedaemon', and indeed the Eurotas flows through a rich, fertile plain from Sparta to the sea.

The Vale of Sparta, with the town of Sparta at its centre, is a Neogene graben (Fig. 6.2). The western side of the valley rises rapidly to the

Taygetos mountains along a steep normal fault, which has been active very recently. The topography along the edge of Taygetos is controlled by the nature of the underlying rock: steeper slopes south and west of Sparta are largely made of hard Cretaceous-Eocene limestone and marble, which is strong and resists erosion, whereas the gentler slopes north of Mistra are composed of phyllite, a rock with little resistance to erosion. Deep, but short, gorges have been cut into the mountain front by this rapid uplift. Large fans of alluvial sediments have spread out from the point where each gorge debouches into the Eurotas valley.

Modern Sparta lies on a part of a Pleistocene alluvial fan, now dissected by the Eurotas and Magoulitsa rivers. Ancient Sparta, 1 km to the north, was constructed on a low mound of Pliocene-Pleistocene marls and clays, origi-

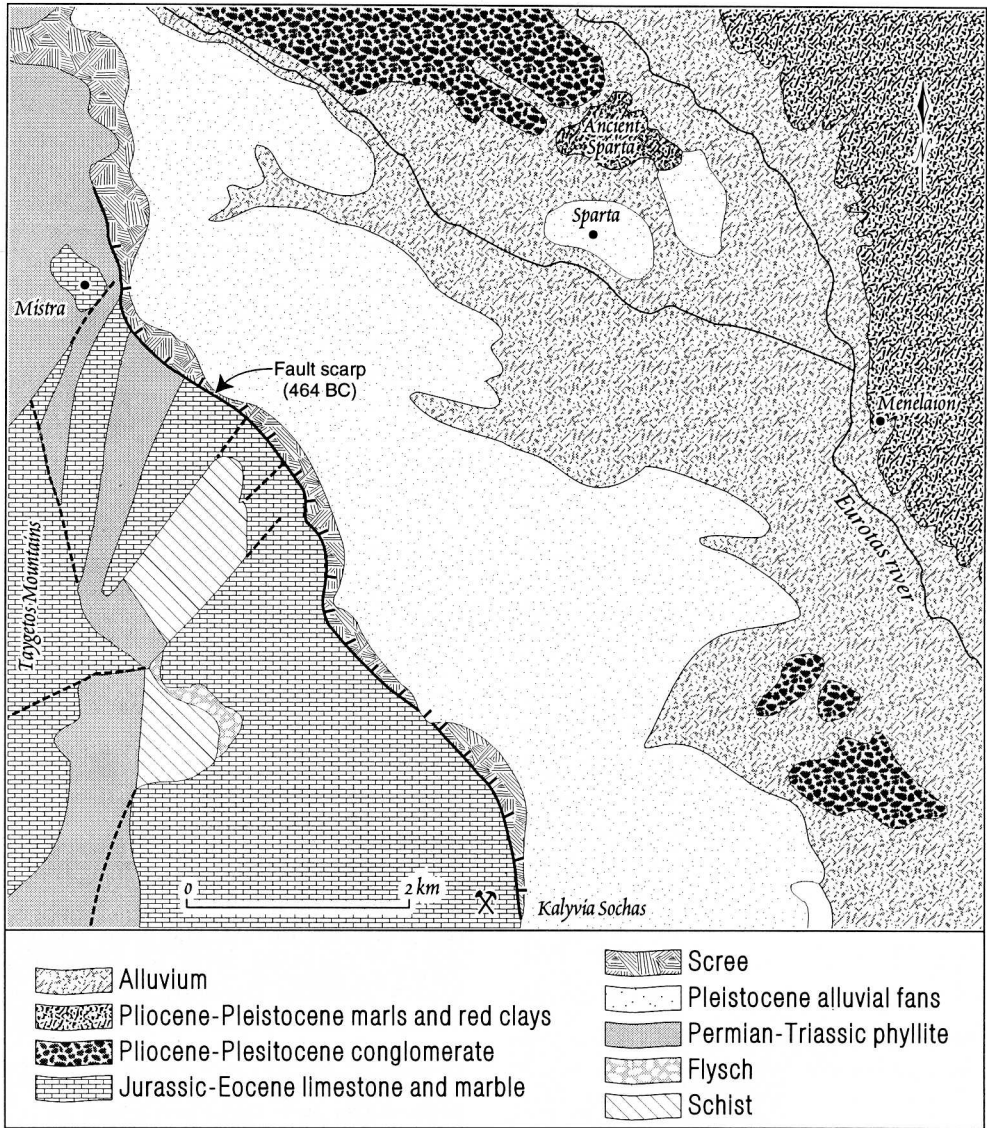


Fig. 6.2. Sparta and the Eurotas valley.

nally deposited in shallow lakes in the graben. As elsewhere the marls have provided a fertile soil, which may even be the origin of the name Sparta – ‘sown ground’. The mound is surrounded by steep bluffs 1-6 m high, that probably aided defence of the site.<sup>30</sup>

A grey marble, much used in Classical Sparta, was quarried from the lower slopes of

Taygetos, west of Kalyvia Sochas, about 6 km south of Sparta.

The Menelaion was constructed on a bluff of Pliocene-Pleistocene marls, clays and conglomerates, that rises about 50 m above the plain. The stepped topography of these hills reflects the underlying geology. Almost horizontal layers of conglomerate resist erosion and form the

steps, whereas the more readily eroded marls and clays form the risers. This type of topography undoubtedly aided the defence of the settlement.<sup>30</sup>

The earthquake of 464 BC that destroyed Sparta was an important historical event of the classical period. It was produced by vertical movement on the fault at the base of the Taygetos mountains and had a magnitude of about 7.2. A fault-scarp 10-12 m high that runs for 20 km along the base of the mountains was produced by this and possibly 2-3 earlier earthquakes (Fig. 6.2). Similar sized earthquakes can be expected every 3,000 years.<sup>15</sup>

### Mistra

In 1249 the Frankish Prince William de Villehardouin built a castle at Mistra in the foothills of Taygetos, 5 km west of Sparta. Ten years later he was forced to cede his castle to the Byzantine Emperor. A Byzantine town, adorned with splendid churches, soon developed here, and lasted until captured by the Turks in 1460. Between 1687 and 1715 it was ruled by Venice, and enjoyed a second bloom-

ing; but on the return of the Turks Mistra fell into a terminal decline.

Mistra stands in a dramatic position at the base of the Taygetos mountains, which rise in steps from the plains (Fig. 6.2). The Kastro hill is a block of hard Triassic-Jurassic dolomite, which is much more resistant to erosion than the phyllites to the north of the site and in the rounded hills to the west (Fig. 6.3). This block has been cut off to the south by a fault running at right-angles to the main graben fault. A steep gorge has been cut here, exploiting both the line of weakness associated with the fault and the phyllites immediately south.

### Krokeai

Leaving the modern Krokeai (formerly Levetsova), you take the new road to Skala via Stephanina. About 3 km beyond Pharos (formerly Alai Bey), at Psephi, on both sides of the road are lumps of a green porphyritic rock. This is the stone known to the Romans as Lapis Lacedaemonius (Spartan stone), to Italian masons as Porfido Verde Antico (ancient green porphyry), and to us as Spartan porphyry, basalt or andesite.

This rock is a porphyritic andesite and comes from a lava dome 2,000 m long by 500 m wide of Mid-Triassic age (Fig. 6.4).<sup>211</sup> Such domes form when viscous lava erupts quiescently onto the surface. This dome was a small, isolated eruption, with no large volcano nearby. However, there are small amounts of similar rocks scattered throughout the Peloponnese.

The prominent phenocrysts of the lava are plagioclase, now metamorphosed to a fine-grained mixture of albite feldspar and green epidote. In some parts of the lava several plagioclase crystals started to crystallise from the same point, to give rosettes of crystals. In parts of the dome the fine-grained matrix of the rock has been reddened by the oxidation of iron minerals to haematite.

Most of the blocks of this lava are small, less than 0.5 m across, as the rock has closely spaced joints which probably formed during deformation and uplift of the rock. Indeed, Pausanias, writing in the second century AD,

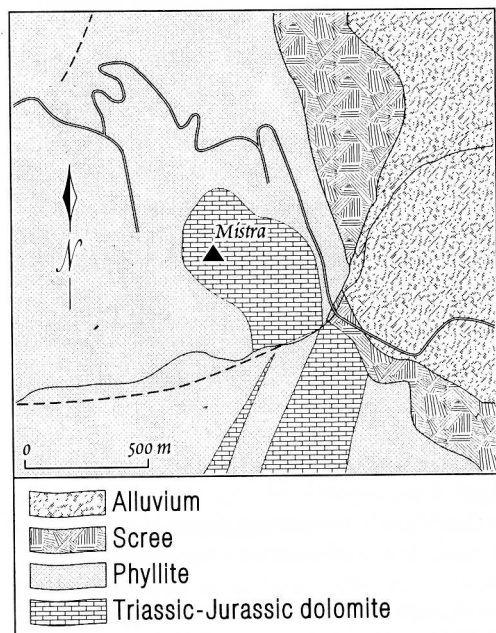


Fig. 6.3. Mistra.

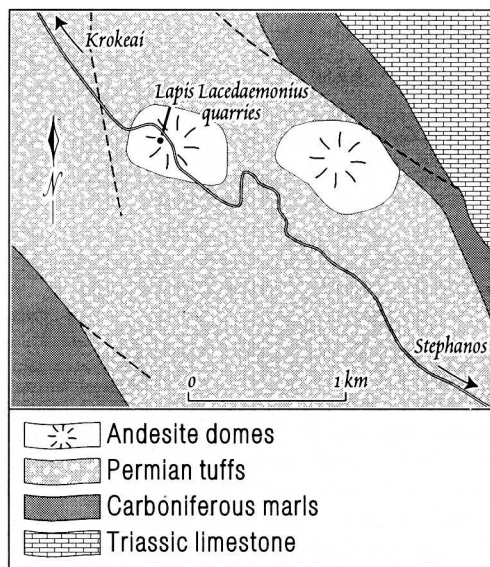


Fig. 6.4. Krokeai and Lapis Lacedaemonius quarries (after 211).

says: 'this is not a continuous mass of rock, but they dig out stones shaped like river pebbles, [which are] very hard to work'. Certainly, only comparatively small pieces seem to have been worked in Mycenaean and Roman times, although the Byzantines evidently had access to larger pieces (see below) probably from deeper quarries. Ancient quarry-pits, probably Roman, have been identified beside the road; the Mycenaean quarries were probably higher up the hill, where outcrops have been completely mined away.

Spartan porphyry was popular in Minoan Crete and Mycenaean Greece between approximately 1450 and 1300 BC, for stone vases and sealstones. In the Lapidary's Store at Knossos, Evans found a number of unworked blocks of this stone, and a partly worked block was also found at Mycenae. About 1300 BC the taste for such stones vanished, and did not return until the Roman Empire, in the early first century AD; this time for the decoration of walls and floors. Pausanias says that 'these stones were used for decorating temples, swimming pools and fountains'. The Byzantines made good use of Spartan porphyry. In the

Neonian Baptistry at Ravenna, of the early fifth century, are wall-slabs measuring as much as 1.5 by 0.5 m. Later, Roman and Byzantine stones were re-used on church floors, as in St. Mark's, Venice (twelfth century and later) and even Westminster Abbey (1268). Spartan porphyry was used by Renaissance architects and their successors as late as the eighteenth century.

## Gythion

Gythion was the port of Classical Sparta, as it is of modern Sparta. South of the harbour, to which it is joined by a causeway, is a small island, the ancient Kranai, celebrated by Homer as the place where Helen and Paris spent the first night of their journey from Sparta to Troy.

Gythion is situated in the western side of a broad graben that extends north to Sparta and south into the gulf of Laconia (Fig. 6.1). The Kastro hill behind the town and the island of Kranai are made of Late Triassic, pale grey marbles, their age indicating that they predate the graben. The surrounding sedimentary rocks are Pliocene in age, deposited when the floor of the graben was below sea-level. Parts of the ancient city have been submerged below sea-level by movements of a fault, thus partly preserving the ruins that were created by the earthquake.<sup>150</sup>

## Monemvasia

Monemvasia stands up, looking like the Rock of Gibraltar, off the barren east coast of the Malea peninsula. The name means 'single entrance', because it can only be reached from the mainland by a narrow causeway. In the sixth century AD, the rock became a refuge for Greeks from Laconia fleeing from the Slav invasions, and it soon became an almost impregnable fortress and a prosperous trading centre. By the thirteenth century it was the commercial capital of the Peloponnese. The English name for Monemvasia was Malmsey, and the wine shipped from here was the famous Malmsey wine. In 1464 Monemvasia fell to Venice, and in 1540 to the Turks.

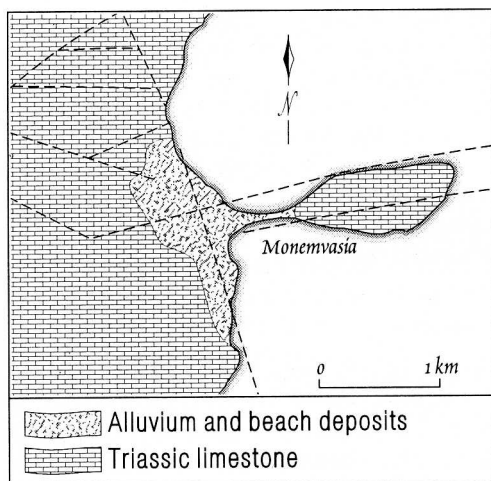


Fig. 6.5. Monemvasia.

Monemvasia is a steep-sided block of Triassic grey dolomite similar to the adjacent hills of the mainland (Fig. 6.5). The coastline here follows a steep north-north-west trending fault, part of a set that defines the grabens and horsts of the southern Peloponnese. A second set of faults, at right angles, has defined the block on which Monemvasia stands. The location of some of these faults can be seen, for example as a dolomite breccia cemented with brown silt, that crops out in the path at the base of the castle hill.

### Cape Malea

The Malea peninsula is dominated by Triassic dolomites and phyllites, within which lie several economic deposits. A number of small iron deposits lie around Neapolis, in the phyllites or associated with the overlying thrust fault (Fig. 6.1). These deposits are dominated by haematite and limonite, and were probably deposited from hot, watery solutions that followed the fault. Ancient shards and other remains associated with slag heaps at Ayios Elissaios (10 km north-west of Neapolis) and at Neapolis itself indicate that they were exploited in antiquity.<sup>25</sup> Limestone, probably of Pliocene age, was also exploited here from Classical to Byzantine times.<sup>287</sup> It was extracted from a number of quarries around Neapolis.

### Mani

The Mani peninsula comprises the highlands which make up the southern 50 km of the Taygetos range, from opposite Gythion to Cape Matapan (Fig. 6.1). It takes its name from a Frankish castle built in 1248 and named Le Magne (the great). It is divided geographically into two regions. The general bleakness of the northern, or Outer Mani, is relieved by fertile gullies and small plains. The Deep Mani (the real Mani, as many would say) lies further south and occupies the Matapan peninsula. The coast is rocky and inhospitable. Inland, this hot and arid landscape grows nothing but olives and prickly pears, but is rich in good quality limestones and marbles.

The Maniots have long been famous for their warlike qualities; their boast is that they were never subdued by the Turks. Blood-feuds have long been endemic, and their tower-houses were built as a defence against each other.

Much of the Mani peninsula is underlain by Late Cretaceous to Late Eocene limestones (Fig. 6.6), parts of which have been metamorphosed to produce marbles with a wide range of colours: although commonly grey, the upper parts of the unit may be coloured red, green or grey (see below). Within these limestones and marbles there are layers of clastic sediments, some now metamorphosed into schists.

North/south faults parallel to the main graben structure are common and still active. Fault scarps are easily observed in many locations, such as the peninsula near Kounos (Plate 6B). There is a particularly spectacular example on the west side of the Bay of Gerolimena: here, towards the base of the cliff, there is a fault scarp 3-4 m high.

Pauses in the tectonic uplift of the area, or times when uplift and sea-level rise kept step, have produced plains or steps in the topography. The most extensive is at about 220 m and forms most of the arable land along the west coast of Mani and the valley west of Areopolis that transects the peninsula. The main road follows this level for much of its length, as many settlements were built at this level.

In other places three or four other steps can

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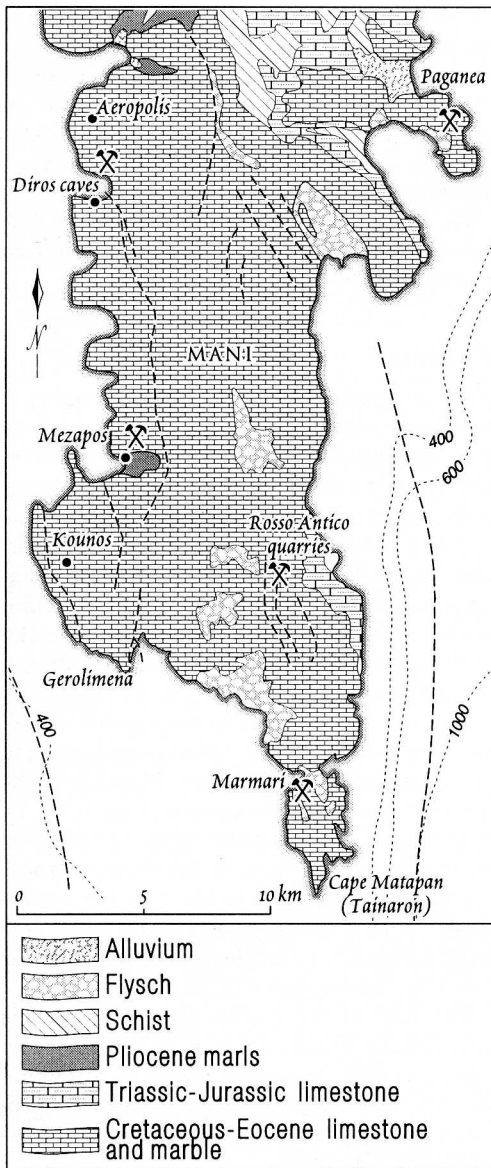


Fig. 6.6. Mani.

be distinguished below this level. North of Areopolis the lowest step is about 5 m above sea-level. The uplift can also be identified by the location of the old marine cliffs, which are now set back from the sea. The 5-m level is not seen south of Areopolis, indicating that each

fault-bounded block moves independently on a short time-scale.

### *Rosso Antico quarries*

Thirteen km north of Cape Matapan, near the abandoned village of Profitis Elias, are some of the ancient quarries of Rosso Antico (Fig. 6.6).<sup>74, 105</sup> This marble was first employed in Minoan-Mycenaean times, between 1700 and 1300 BC, in architecture and for stone vases. It was not in regular use again until about AD 50, when it is found in Roman and Early Christian buildings, decorating walls and floors. The Romans knew it as Lapis Taenarius (Stone of Tainaron). Re-used pieces were popular in the Middle Ages and later for floor decorations, and were frequently mistaken for Imperial Porphyry (an igneous rock) from Egypt. The quarries were re-opened by an Italian company for a short period in the early twentieth century.

Rosso Antico is a fine-grained, red to purplish red marble, with some varieties streaked with white veins and patches. It occurs in the upper part of the main limestone unit of the Mani, where low-temperature metamorphism has converted the rock to marble. The red colour is due to the presence of minute haematite crystals, and the purple tinge indicates the presence of manganese. The white areas are pure calcite, produced by the solution of calcite in the original red rock and recrystallisation in cracks.<sup>160</sup>

The Profitis Elias quarries also yield white, grey and green marble, which were also exploited in antiquity.<sup>105</sup> In the green variant the iron has been reduced by organic matter in the limestone so that greenish iron-bearing silicates have formed in place of haematite. This stone was used by the Mycenaeans (e.g. in the Treasury of Atreus at Mycenae), but not subsequently. Ancient quarries of Rosso Antico have also been found Paganea, on the east coast about 16 km to the north.<sup>160</sup>

### *Cape Matapan and Marmari*

The ancients regarded the large cave near the Temple of Poseidon on Cape Matapan (Tai-

naron) as one of the gates of the Underworld, through which Heracles descended to capture the three-headed dog Cerberus. The cave was excavated by waters following a fault that extends to the north in the limestone.

The Romans knew of a dark grey marble from the tip of the Cape, which they called, like the red, *Lapis Taenarius* (Fig. 6.6). The ancient quarry has been identified with a fair degree of probability on the west side. This marble was apparently known to Italian masons as *Bigio Morato* (dappled grey).

Six km north of the Cape, on the west coast of the Mani, is the bay of Marmari. Here ancient quarries of white marble have recently been discovered.<sup>45, 113</sup> It is virtually certain that the marble for the sculptures of the Temple of Apollo at Bassae came from these quarries. Nearby ancient quarries also produced a variegated marble with folded and deformed green, white and grey layers. All these different marbles are from the upper part of the main limestone formation of the Mani. Ancient mines of pure white marble have also been found near Mezapos, on the west coast of the Mani.<sup>105</sup>

### *Diros*

At Diros, 10 km south of Areopolis, two well-known caves occur in Cretaceous-Eocene marble (Fig. 6.6). The Glyfada cave has a substantial flow of water (0.5 cubic metres per second) and can be toured by boat.<sup>216</sup> It was not used by ancient people, but must originally have had easier access as animal remains have been found. The adjacent cave of Alepotrypa was used by people in the Late Palaeolithic and Neolithic (25,000-3,000 BC). Finds include stone, bone and metal tools, jewellery, figurines and bones. There are also rock paintings and the remains of a potter's workshop.

Both caves have been excavated by the passage of groundwater that originally fell on the mountains to the east. This water was guided by a north-north-east fault towards the bay of Diros. The caves do not now exactly follow the fault as the waters have enlarged adjacent joints in the rock.

Rising sea-levels have caused an influx of

seawater into both caves, so that the water is stratified, with lighter fresh water floating on denser seawater. This stratification continues out into the bay in front of the cave, where in summer, cool fresh water floats on warm seawater. Part of the fresh water in the cave of Alepotrypa is now pumped out for irrigation.

White marble is now produced nearby, but there is no evidence that it was exploited here in antiquity.<sup>105</sup>

### **Kalamata**

Kalamata, under its original name of Pharai, is mentioned several times by Homer, and its antiquity is confirmed by the presence of Mycenaean walls on the acropolis and contemporary tombs nearby. In Classical times Pharai was used as an anchorage, but only in the summer. After Greek, Roman and Byzantine domination Kalamata fell to Geoffrey de Villehardouin in 1208, who built the imposing castle on the old acropolis. It is now the capital of Messenia and an important port.

Kalamata is situated on the eastern side of the Neogene Kalamata (Messenian) graben, which extends from the Gulf of Messene to the south into the Messenian plains (Figs. 6.1, 6.7). To the east the Taygetos range is made of limestones and marbles of the Gavrovo zone, whereas the lower hills to the west are underlain by many different sedimentary rocks (see Ancient Messene). The steep sides of the valley show that movements still continue.

The floor of the graben near Kalamata is underlain by Pliocene marls, sandstones and conglomerates, covered in places by alluvium. The conglomerate is the most resistant to erosion, and forms low, steep-sided hills, such as that of the Kastro.<sup>143</sup>

The Pamisos river proper rises from two large, perennial springs, Ayios Phloros and Pidima, at the foot of the Taygetos range. Surface water and springs are rare in these hills, hence much of the precipitation in the region must be channelled to these springs.<sup>164</sup>

Much of the present Messenian plain was the site of erosion during the height of the Ice Age, when sea-level here was more than 100 m lower than at present. As the glaciers melted

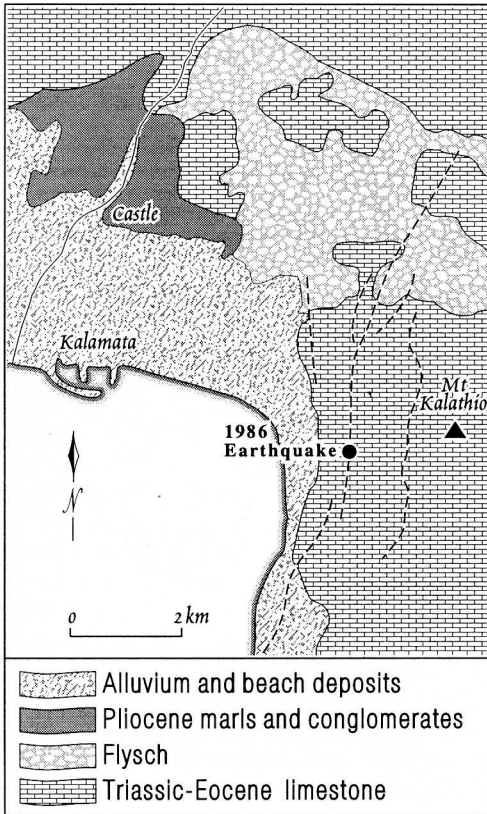


Fig. 6.7. Kalamata.

sea-level rose rapidly until the shoreline was up to 3 km further inland.<sup>166</sup> At this time the Early Helladic sites of Bouxas and Akovitika were on the sea. Since then sea-level has remained approximately stable and the valley has been filled with sediments washed in by the rivers. Large areas of the river valley were covered by swamps until recently when they were drained to provide agricultural land.

The destructive earthquake that struck Kalamata in 1986 had a magnitude of 5.8 and occurred on the Kalamata fault, 4 km east of the town, at a depth of only 5 km. The proximity of the epicentre and the presence of young, poorly consolidated sediments under the town both contributed to the severity of the destruction. Paradoxically this area has a low incidence of earthquakes, as compared to nearby regions, such as the Gulf of Corinth.<sup>165</sup>

### Korone

The site of Korone was briefly occupied in Classical times by a colony named Asine. In the Middle Ages the inhabitants of Korone (now Petalidi) transferred their city, and its name, 15 km southwards to this spot. The Venetians took it in 1206 and built one of their finest castles. Korone and its twin, Modon (Methone), were important military and commercial ports and were known as 'the principal eyes of the Venetian Republic'.

Steep hills of Jurassic to Cretaceous cherts and limestones descend to the north-east into a broad valley, floored with rolling hills of Pliocene marls, with minor sandstone, conglomerate and lignite beds (Fig. 6.8). This valley is now merely a step in the side of the Messenian graben to the east, but the area was below sea-level in Pliocene times and now has been lifted up. On the eastern side a north/south fault delineates a block that has been raised further from the valley floor to form the peninsula of Korone. The Castle of Korone was built on an outcrop of Pliocene conglomerate.

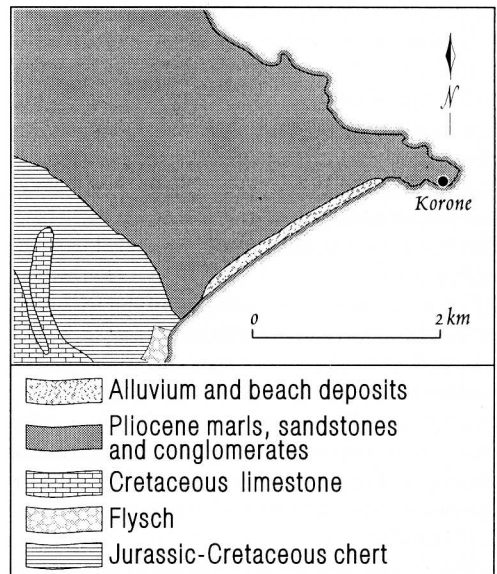


Fig. 6.8. Korone.

## Methone

Methone was originally known as Pedasos, and, according to Homer, was one of the seven cities promised by Agamemnon to Achilles. The city was refounded about 700 BC under the name of Methone. In 1206 the Venetians occupied it under the name of Modon and built an enormous castle, matching Coron. In 1500 it fell to the Turks and mostly remained under their domination until 1828, when the French liberators of Modon evacuated the castle and rehoused the inhabitants at the present location of the town.

A narrow fault-bounded ridge of hard, grey Cretaceous-Eocene limestone runs south into the Methone peninsula (Fig. 6.9). From here the limestone continues as a series of shoals, before cropping out on the island of Sapienza, 7 km to the south. To the east of the Methone ridge lies a river valley, down which sediments are transported into the bay of Methone. The eastern side of the bay of Methone is also rocky, but it comprises a series of soft Tertiary flysch sediments: silts, unconsolidated sands and sandstones.<sup>149</sup>

At the climax of the last glaciation the bay of Methone did not exist and the coastline was about 4 km to the east of its present position. By Neolithic times the bay had formed, but it opened out to the sea south of Sapienza. Sea-level was probably only a few metres below the present level by 2100 BC, but the coastline was rather different: the sea had broken through the limestone barrier to the west, the bay of Methone continued about 5 km to the north and the east coast extended several kilometres further east.

Since that time the coastline of the Methone peninsula has changed little as these rocks are resistant to erosion and currents remove the sediments. However, the head of the bay has been filled up by sediments washed in by the river and transported along the coast from the east. The soft rocks of the east coast have been exposed to the full force of the waves and severely eroded.

The harbour now has considerable problems with siltation, partly as a result of the construction of a mole at the end of the nine-

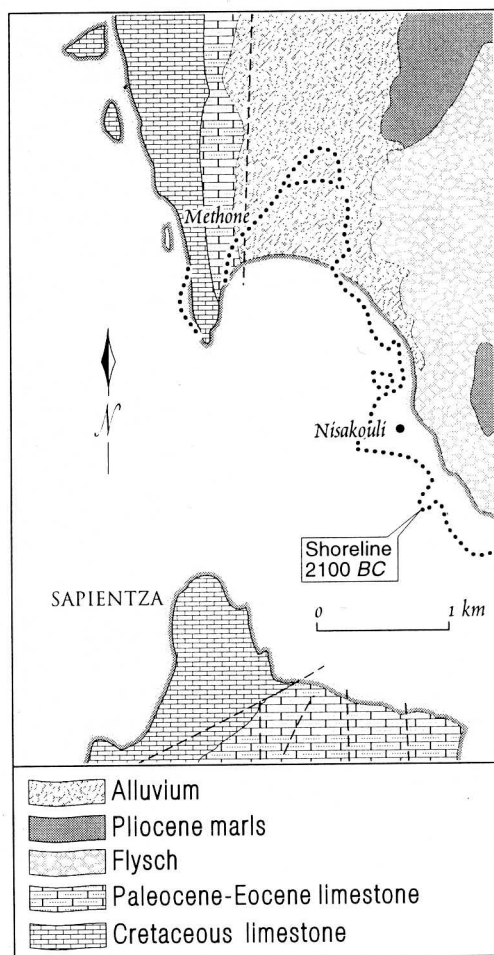


Fig. 6.9. Methone.

teenth century. Earlier moles had a hook shape, parallel to the shore, which limited the amount of sediment, transported from the eroding coast to the east, that was intercepted. The new mole stretched out 200 m directly east from the fortress and trapped much larger amounts of sediment.

## Pylos and the Bay of Navarino

The Bay of Navarino, on the west coast of Messenia, is protected by the long island of Sphacteria, which makes it the safest harbour in Greece (Fig. 6.10). It is about 5 km long, 3 km

wide and relatively deep. Classical Pylos (Palaiokastros) stood at the north end of the bay. However, the modern town of Pylos (formerly Navarino), is south of the bay. This site not inhabited in antiquity, but grew up around the Turkish castle on Mt Ayios Nikolaos.

The bay is celebrated for two battles. The first took place in 425 BC in the course of the Peloponnesian War. The Athenians made a sort of commando raid on the island of Sphacteria and succeeded in killing or capturing over 400 Spartan warriors. The second, the Battle of Navarino, was fought at sea in the Bay of Navarino in 1827. A force of 26 ships, British, French, and Russian, utterly defeated a Turco-Egyptian fleet of 82 ships and virtually ended the Greek War of Independence.

The western side of Messenia is dominated by a series of low, north/south ridges of Upper Cretaceous to Palaeocene grey limestone (Fig. 6.1). Towards the south these ridges protect from erosion the softer flysch sediments that lie inland. Near the Bay of Navarino these limestones have been breached by faults of the broad graben that extends to the east across the Messenian peninsula. Depression of the graben floor and erosion of the sediments have created an embayment about 10 km long and 4 km wide, and up to 60 m deep (Fig. 6.10). At present about 60% of this area is underwater, including the Bay of Navarino and the Osmanaga lagoon.<sup>157</sup>

Around the bay hard limestones form the hills to the south, and continue north as the island of Sphacteria and the smaller ridges of Palaiokastros, Profitis Elias and Petrochori. The eastern side of Sphacteria is very steep and plunges into deep water: it is a fault, parallel to the faults that shaped the hills and valleys to the south of the bay.

The plateau to the north-east is the 'Kampos', a Pliocene erosion surface and former coastal plain, which has been uplifted by about 400 m during the Pleistocene, and deeply incised by streams. To the east and south-east the bay is bordered by Miocene flysch.

Just after the end of the last glacial period, about 7000 BC, sea-level was 20 m below its present level and the bay extended all the way north to the head of the present plain, about 2

km north of Petrochori. The bay had three entrances: in the south and on either side of Palaiokastros, then an island. Rising sea-level and deposition of sediment from the Amoudheri and other rivers caused the shoreline to migrate southwards. By about 2500 BC it stood 2 km further south. Sea-cliffs to the north-east were probably formed at this time. The Hellenic shoreline lay east of the present Bouchras bay, which may have remained an open channel at this time. It is possible that a port existed at this time on the northern shore of the bay. A sandy shore extending about 5 km to the north-west, and an inland dune-field west of Petrochori, were present at this time and could have been responsible for the Homeric epithet 'Sandy Pylos' (but see below). Certainly there were no other comparable areas in the southern or western Peloponnese. By Hellenistic or Roman times transport of sediment along the coast formed a sand-spit from Yialova to the Palaiokastros ridge, cutting off part of the bay to become the Osmanaga lagoon. Since then there has been little change in the position of the coastline.

The Sikia channel remained open until the battle of Lepanto in 1571. At that time the Turks blocked the channel with a line of sunken ships, which acted as a baffle for sediments transported along the coast. Accumulation of sediments has continued and the channel today is very shallow.

Coastal plains, such as that north of the bay, are generally very fertile as the fresh sediment is rich in nutrients and the water-table is close to the surface. It is no surprise that many efforts have been made to drain these areas for agricultural use. The first efforts may have occurred in Hellenic times, as revealed by the route of the Amoudheri river. This river descends from the north, but instead of flowing onto the alluvial plain, it makes a sharp bend to the west and runs through a deeply incised valley to the Ionian sea. This diversion could have occurred naturally as a valley advanced by erosion eastwards from the coast, or it could have been diverted on purpose.<sup>157</sup> Certainly it removed major flood problems on the plain, and hence aided settlement. Diversions of this sort in antiquity are known elsewhere – a clear

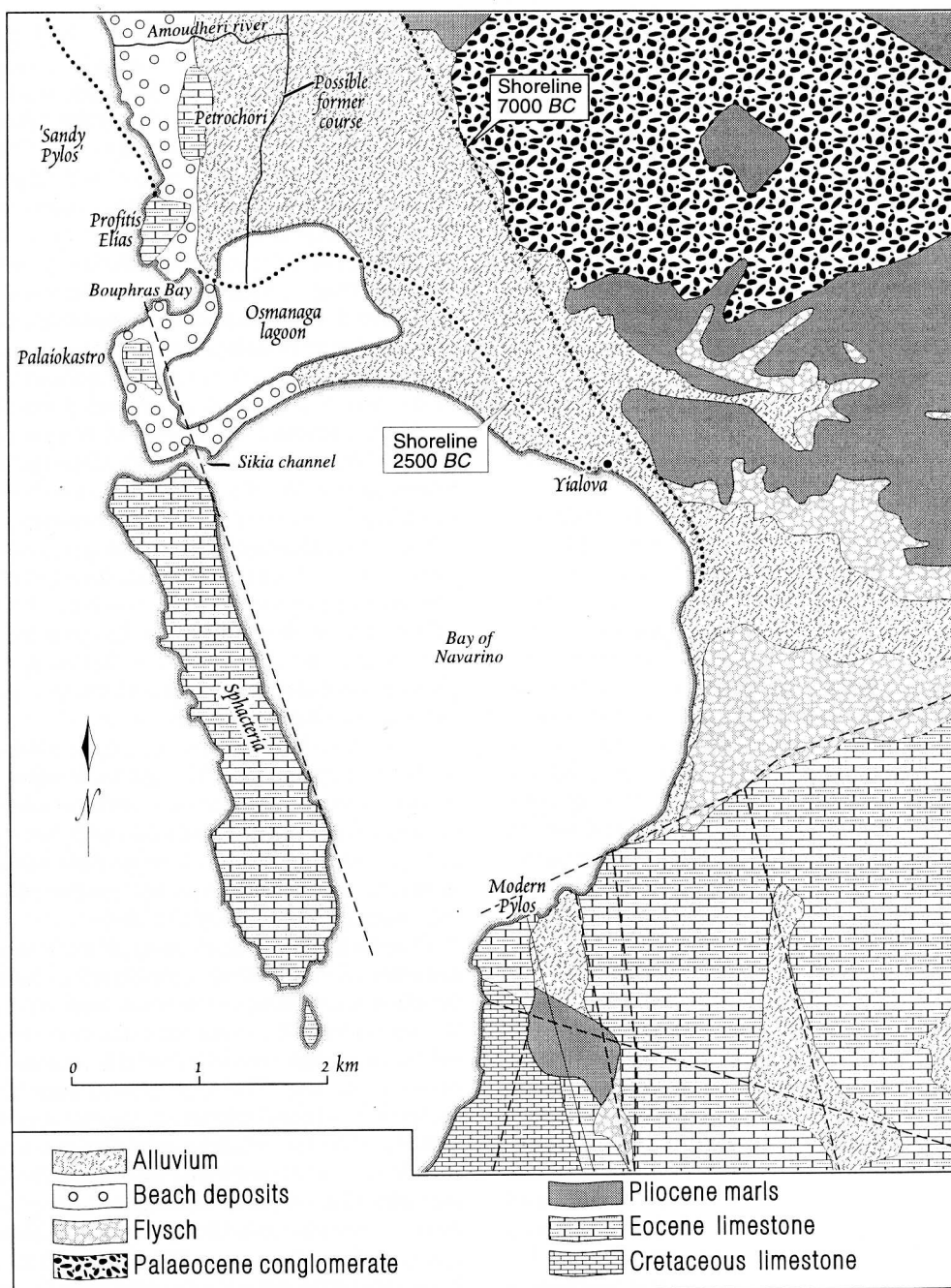


Fig. 6.10. Pylos and the Bay of Navarino (after 157).

## 6. Laconia and Messenia

example occurred during Mycenaean times near Tiryns.

### Pylos

The modern town of Pylos is at the southern end of the Bay of Navarino (Fig. 6.10). It was largely constructed in a small north/south graben, between low hills of grey Eocene-Palaeocene limestone which support two castles. The coastline to the north of the town is a fault, an extension of a graben fault that cuts right across the peninsula.

### The Palace of Nestor (Englianos)

The hill of Englianos lies 17 km north of modern Pylos, in the midst of a number of Mycenaean royal tombs (Fig. 6.1), where a magnificent Mycenaean palace may have been the home of that garrulous old man, the Homeric hero Nestor. It was built about 1300 BC, burnt down a hundred years later, and never reoccupied. Apart from its unwallled condition it is comparable in every way with the contemporary palaces at Mycenae and Tiryns.

This hill is a part of the Pliocene erosion and depositional surface known as the 'Kampos'. At that time this area was close to sea-level, and sands and silts, derived from the erosion of the Kyparissia mountains, were deposited here on a coastal plain. During the Pleistocene period the area was uplifted and the Kampos was dissected by streams that cut down into the weak sediments, creating steep-sided valleys. The Palace of Nestor was constructed on the Kampos, just above the geologically recent valley of the Amoudheri river. At the time of construction, the Bay of Naverino would have extended further north than at present, to within 7 km of the palace.<sup>157</sup> It has been suggested that the Homeric epithet 'Sandy Pylos' may not refer to the nearby beach, but instead to the sandy soils around the palace.<sup>30</sup>

### Ancient Messene

The city of Messene was founded in 369 BC by the Theban general Epaminondas as a defence against the Spartans. The city stood on the

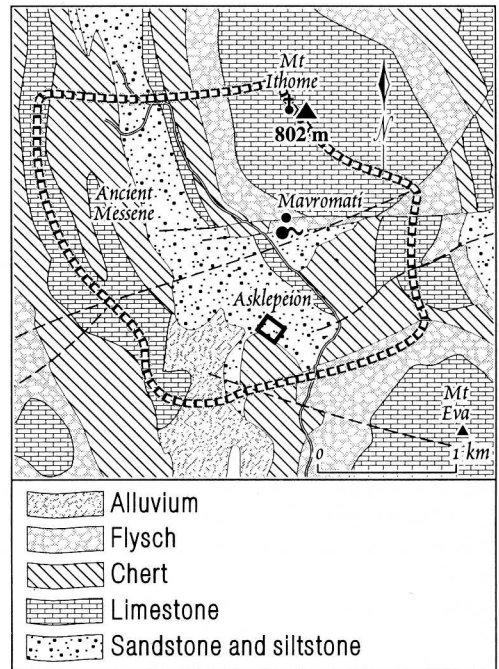


Fig. 6.11. Ancient Messene.

southern slopes of Mt Ithome above the fertile Messenian plains. The fortifications, of the fourth century BC, are excellently preserved; they guaranteed its independence until the Roman conquest of 146 BC.

Both Mt Ithome, above Ancient Messene, and Mt Eva to the south are made of hard Late Cretaceous limestone that has resisted erosion (Fig. 6.11). These blocks are the core of a syncline that runs north/south, hence the overall structure is the inverse of the topography. This limestone was quarried from the side of Mt Ithome facing Mt Eva for the construction of the walls of the city and most of the buildings.

A variety of different Jurassic and Triassic sedimentary rocks, including sandstone, limestone, red and green chert and red shale, occur underneath the limestone of Mt Ithome and are exposed throughout the ancient city. Most of these rocks, including the limestone, were deposited in the deep ocean.

A large spring issues from limestone in the centre of the village of Mavromati, on the north side of the main street, and flows into a modern

fountain-house, which contains traces of classical construction. The spouts and water channels of the Arsinoe fountain-house, about 100 m south of the village, are thickly encrusted with travertine. These deposits are not present around the spring in the village, suggesting that a different spring, now extinct, once supplied this fountain. The presence of these springs was probably the reason for the cult of Asklepios here.

Both these springs are associated with east/west vertical faults. Some of the rainwater falling on the limestone of Mt Ithome descends into the mountain until its passage is blocked by the impermeable underlying sediments. The water then accumulates until it has sufficient pressure to rise to the surface along the faults, appearing as springs.