AN ARCHAEOLOGICAL SURVEY OF THE GOURNIA LANDSCAPE

A Regional History of the Mirabello Bay, Crete, in Antiquity

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A Regional History of the Mirabello Bay, Crete, in Antiquity

by

L. Vance Watrous, Donald Haggis, Krzysztof Nowicki, Natalia Vogeikoff-Brogan, and Maryanne Schultz

contributions by

John Hayes, Angeliki Kossyva, and Eberhard Zangger

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The Region

L. Vance Watrous and Eberhard Zangger

Mirabello Region

The Gournia survey area is located at the center of the Mirabello region (Map 1, middle area) in eastern Crete. At the heart of this area is the semicircular Bay of Mirabello, 17 km wide east–west and 10 km north–south. Five rivers run down from the mountains and extend through river valleys to the coast, emptying into the Mirabello Bay—at Hagios Nikolaos, Ammoudara, Istron, Pacheia Ammos, and Tholos (Kavousi). Each of these valleys has had a major settlement, either inland (as Neapolis, Kritsa, Kalo Chorio, Episkopi, and Kavousi) or coastal (as Mochlos), although tourism has swollen the coastal settlements at Hagios Nikolaos, Istron, and Pacheia Ammos. Finally, at the eastern edge of Mirabello Bay are located the island of Pseira as well as the village of Mochlos, which is based at the head of its own narrow coastal valley. Physically, each of these valleys is a separate area enclosed by mountains (Pl. 1C), but they are linked together via their only access to the outside world, Mirabello Bay.

This volume takes the geographical boundaries of the Mirabello region as its area of focus. The survey areas—around Vrokastro (Hayden 2003a, 2003b, 2004a, 2004b, 2005), Gournia, and Kavousi (Haggis 2005)—are naturally considered together. Geographically tangent, they each consist of a central river valley framed on both sides by extensive mountains. Geologically part of a karstic landscape, the mountains are limestone and the valley floors are a mixture of terra rossa and marl soils. Each valley has an extensive drainage system originating in the surrounding mountains, consisting of deeply incised valleys that empty into at least one river. The bedded limestone mountain slopes produce seepage and springs sought out by ancient and modern farmers and shepherds. Environmentally, these valleys are part of a single coastal Mediterranean ecozone, marked by similar soils and common vegetation: wild shrubs and grasses, planted trees (tamarisks, olive trees, carob), crops (principally grain and vines), and indigenous trees (mainly inland), such as pines, oak, and juniper. Hayden, Moody, and Rackham (2004b) and Haggis (2005, 9–22) provide a detailed description of the environments of the

Vrokastro and Kavousi areas. Some 50 years ago, before the advent of deep wells and mechanized irrigation, the basic local agricultural economy of each valley and its terraced slopes was similar, consisting of grains, olives, vines, almonds, and pears, complemented by shepherding (sheep and goat) and fishing.

The Mirabello region is encircled by mountains: the foothills (500–700 m) of the Dictaean Range on the west and southwest and the steep Thriphti Range (1,476 m) on the east (Map 1). To the west, the upland plain of Lasithi nestles between the Dictaean Range (2,148 m) and the valley of Neapolis, which connects the Lasithi region with the north coast of Central Crete and the towns of Malia, Chersonissos, and Herakleion (Map 5). To the south, the Isthmus opens up into a large coastal plain dominated by the seaside town (pop. 8,575 in 1981) of Ierapetra (ancient Hierapytna). West of Ierapetra, the coast is lined by villages, including Myrtos, which extend as far as the Mesara. To the east, the mountainous end of the island is settled by small coastal and inland villages, such Makrygialos, Zaros, Zakros, and Palaikastro, and their regional center, the north coast town of Siteia.

The largest valley within the Mirabello region is the Isthmus of Ierapetra (Pl. 2A), the main focus of the Gournia Survey. Throughout most of (pre)history, the Isthmus has been the heartland of the Mirabello region: the Minoan palace at Gournia, the large Early Iron Age town of Prophetes Elias, the powerful *polis* of Hierapytna, and the Christian bishopric at Episkopi were situated there. The importance of the Isthmus derives from its strategic location and areas of fruitful agricultural land. As Harriet Boyd recognized (Hawes et al. 1908, 20), the Isthmus, the narrowest north–south section of Crete, has always been a potential trade corridor linked to the north and south coasts of the island and to the Aegean and North Africa, beyond.

All east–west traffic along the north coast of Crete, whether by sea or land, had to pass along the coast of the Mirabello area; hence the maritime sites at the good harbors of Mochlos and on the island of Pseira. The Isthmus offered a short route between the Aegean world and points south, to Egypt, North Africa, and the southern Levant (Maps 6, 7). This is especially apparent during the Roman period. Sea routes passing through the area included those along Kasos, Karpathos, Rhodes, and along the Anatolian coast to Cyprus and the Levant, northward to Thera and to the other Cyclades, and westward along the western string to the metal-rich islands of Siphnos, Kythnos, and Lavrion on the Attic coast. The importance of the sea traffic to this area explains the existence of a settlement on the rocky, dry isle of Pseira.

The relative lack of water in the Mirabello region has, until recently, restricted the size of most local settlements—at Kalo Chorio (pop. 612 in 1981), Gournia (est. LM I pop. about 400), Vasiliki (pop. 245 in 1981), Kavousi (pop. 715 in 1981), and Episkopi (pop. 654 in 1951). Before the introduction of deep wells for irrigation and the construction of agriculture-producing greenhouses in the 1960s, the few exportable commodities of the area were, according to villagers, carobs, tomatoes, and olive oil. The northern Isthmus and its adjacent valleys of Vrokastro and Kavousi do not match the size of the coastal plain around the town of Ierapetra (pop. 8,575 in 1981) or the larger valleys elsewhere on Crete, such as the Mesara and the plain of Malia, where the first Minoan palaces arose. In this respect, the Mirabello region was secondary to the major urban centers of the island.

But the region is interesting in its own right, partly because it represents the majority of the Cretan (and Aegean) landscape, and partly because this small area has been more intensively investigated by archaeologists than any other area of the island, which allows us to trace its socioeconomic development in great detail.

Gournia Survey Area

The Gournia survey zone was partially defined by other, tangent survey projects (Map 1), and by the need to include an area of sufficient size to generalize about the entire Mirabello and Isthmus region. As a result, the survey covered the coastal plain on the Bay of Mirabello, the area between

Gournia and Kavousi, and the northern half of the Isthmus of Ierapetra, as far south as Episkopi, an area of about 24 km^2. Four kilometers to the west, the Kalo Chorio Valley, part of the Vrokastro survey region (Hayden 2003b, 2004a, 2005), is somewhat topographically similar to the Gournia area in that it runs down to the Bay of Mirabello. This area is separated from the Isthmus by a range of mountains that extends down to the coast. On the other hand, the area surveyed by Haggis (2005), the valley running from Kavousi to the north coast and surrounding mountains, represents a small northward branch or extension of the Isthmus.

Specifically, the western boundary of the survey was defined by the mountain ridge and the road to the Monastery of Hagia Phaneromeni at the western edge of the Gournia Valley. This was the eastern border of the Vrokastro survey area. Along the Isthmus, the survey ventured up the lower slopes of the Dictaean foothills west and north of the village of Vasiliki. The road from Vasiliki village to the main Pacheia Ammos–Ierapetra asphalt road was the southwestern border. Farther south, the Pacheia Ammos–Ierapetra asphalt road was our western border. The hilly area south of Vasiliki village, as far south as Episkopi, was surveyed by the 24th Ephorate in preparation for the construction of a proposed new airport (still unrealized). To the north, the survey extended from the sea at the small bay near the Gournia camping complex (about 1 km west of Gournia) to the promontory of Halepa (some 600 m east of Pacheia Ammos). The rocky isle of Konida, about 1 km offshore of Pacheia Ammos, was investigated, but no sign of ancient settlement was found. Farther east, the asphalt road leading to Kavousi, which was the southern edge of the Kavousi Survey (Haggis 2005), formed our northern boundary. The eastern border of the survey was along the base of the scree-covered slope (up to 200 m from the valley floor) of Thriphti. South of the Cha Gorge, the entire slope of Thriphti was walked, up to the very top of the ridge of Xylogournes, 824 m above the floor of the Isthmus, and as far south as the peak of Prophetes Elias, located some 2 km southeast of Episkopi. Between 2008 and 2011 Kostas Chalikias surveyed the island of Chryssi off-shore of Ierapetra as part of his Ph.D. thesis (Chalikias 2011).

Colluvium within our survey zone is largely concentrated in a 200-m mantle of light brown soil along the coast, at the base of the marly hill slope running between Pacheia Ammos and Vasiliki, and in the valley basin between the villages of Episkopi, Epano Chorio, and Kato Chorio. The remaining land surfaces are red paleosols visible south and west of Gournia, on the Isthmus floor between Pacheia Ammos, Kavousi, and Episkopi, and on the lower slopes of Thriphti. Hence, we would estimate that roughly 85% of the survey zone consists of ancient land surfaces, compared to roughly 2% for the recent Pylos Messenia Survey (E. Zangger, pers. comm.).

Until the drilling of deep wells in the 1960s, the life and economy in the northern Isthmus was severely restricted by lack of water. Available water in the area came from the perennial river at Gournia, seasonal streams that run from Vasiliki to Pacheia Ammos and from the Cha Gorge to Halepa, numerous small springs along the slope of Thriphti, and traditional shallow wells. Limited to December through March, rainfall is relatively low. Aside from kitchen gardens located on the outskirts of Vasiliki, Monastiraki, Papadiana, and Episkopi, the rest of the bottomland is dry most of the year and suitable only for growing grains, primarily barley, and for grazing.

Field-walking for the survey began in the coastal valley of Gournia (Pl. 2B). This small area is transected by the Gournia River, which flows from the uplands of Asari (near the Vrokastro survey area) some 5 km northward toward the coast. The Gournia Valley is defined by a steep mountain ridge to the west and south. A tributary streambed from this western slope flows past the Venetian-period Church of the Panagia down to the river. The gentle marly slope of the valley west of the river is said by locals to be especially good farmland for grain and is heavily terraced with walls that probably date to the Venetian period. The valley slope runs down to the coast, opening between the ridge of Palaiobarda on the west, and the slope of Sphoungaras and marl ridge of Pera Alatzomouri on the east (Pl. 2C). Portions of the coast are formed by 10- to 30-m high cliffs that drop into the sea. Recent research (Watrous, forthcoming) has shown that the present coastline of this valley has subsided several meters since antiquity. East of the river, the Minoan settlement of Gournia, excavated by Harriet Boyd during 1901–1904 (Boyd 1904, 1904–1905), occupies a low ridge that runs parallel to the river down

to the coast. South and east of Gournia, the twin Cretaceous limestone hills of Selli and the ridge of Pera Alatzomouri close off the valley. The Church of Hagia Pelagia is located at the southern edge of the Minoan site of Gournia. A settlement dating to the Roman period was found near the church. It was fed by a small aqueduct built of cement and stone, which runs up the slope of the valley toward Asari.

To the east, a small ravine separates Alatzomouri from the next promontory of Phylakeion (with its chapel of Hagios Dimitrios) and the village of Pacheia Ammos. The village is at the western end of a kilometer-long sandy coastline that forms the northern mouth of the Isthmus of Ierapetra. Pacheia Ammos, only recently grown to a village, is situated on the slope and base of Phylakeion, west of a small valley and stream that run down from the village of Vasiliki, approximately 3 km to the south. Fifty years ago, Pacheia Ammos was mainly seasonally inhabited. Fishermen and farmers used shallow wells and cisterns to water their fields. Roman and Minoan settlements lie under Pacheia Ammos. The Minoan community buried its dead along the coast in a cemetery excavated by Richard Seager in 1914–1915 (Seager 1916). The eastern end of the coast, called Halepa, is marked by the new Church of Hagia Eirene and the mouth of a stream that runs from the Cha Gorge. A small boat harbor was recently dug on the coast at the base of Mount Halepa. Freshwater springs surface around Halepa and the EM I–IIA site on the coast, currently under excavation by the 24th Ephorate. Rising immediately east of Halepa, a ridge formed by Mount Halepa and Mount Schinias (Haggis 2005, fig. 2) separates the Bay of Pacheia Ammos from the smaller north–south valley of Kavousi, which was the focus of Haggis's survey (Haggis 2005).

The Gournia survey area continues southward from the coast into the Isthmus of Ierapetra. At its northern end, the Isthmus is a 2-km-wide corridor (Pl. 1C) flanked by the mountain ranges of Thriphti on the east and Mount Dicte on the west. Moving south from the coast the ground rises gently, leading into a flat, open plain consisting of dry red Pleistocene soils mixed with limestone, conglomerate, and sandstone. Today this area, called Evraika and Kamina, is covered with new, miniature Italian olive trees (*morelia*) and is divided in half by the north–south asphalt road that connects Pacheia Ammos to Episkopi and Ierapetra. The dry, steep limestone slopes of Thriphti define the eastern edge of the plain. On the west, the border is marked by the stream that runs past Vasiliki and adjacent marl foothills of Mount Dicte. The old village of Vasiliki, with its locally spring-fed gardens and natural clay beds, is located on the western edge of this plain. Moving farther south, the valley floor begins to rise and narrow, merging with the surrounding gentle Pliocene marl hills, called Kazarma and Papadiana on the east and Tourloto Kephali on the west. At the base of Thriphti, the slope from Monastiraki to Prophetes Elias consists of a series of natural flysch shelves from which small springs leak. In antiquity, these locations were favored for settlement. Across the valley, south of Vasiliki (surveyed by the 24th Ephorate), marly foothills alternate with small valleys.

Nearing Episkopi, the valley floor reaches its narrowest and highest point (elevation 100 m). Around Episkopi, several hills, notably Kazarma and Prophetes Elias, jut out to create a small, semi-enclosed valley basin (Pl. 3A), ringed by the villages of Episkopi, Papadiana, Epano Chorio, and Kato Chorio. These villages sit on slopes overlooking the confluence of mountain streams in the valley below. With springs, natural runoff, and heavily colluviated marl soil, this basin is rich farmland, hence the local density of settlement. South of Episkopi, the valley opens into a large coastal plain that gradually slopes down to the coast and Ierapetra. Our survey stopped at the northern edge of this coastal plain.

The Gournia survey area contains several distinctive micro-environments that have influenced the ancient pattern of settlement. The sea is the first such zone. It links the villages of Mirabello by providing a common transportation route and sustenance. All of the Mirabello villages—Hagios Nikolaos, Kalo Chorio (Istron), Vasiliki (Pacheia Ammos), Kavousi (Tholos), and Mochlos—had and continue to have coastal harbors used by local fishermen. Despite the influx of cash-generating tourism, villagers still find it worthwhile to fish in the bay. According to Zangger, the coastline at Ierapetra has also changed little. Beach rock, along the Ierapetra coastline, dates to 7000 B.P., again suggesting little change.

The second environmental zone includes the mountain slopes, which are situated at the edges of the Gournia survey area. These slopes would

have been forested in the Bronze Age. Both the Thriphti and Dictaean mountain ranges possess upland slopes and plateaus used by shepherds from local villages who graze their flocks of sheep and goats during the warmer months. In the early 20th century, summer settlements existed at Asari, Thriphti, and Melises (Hayden 2004a, 3, 18, 36, 88; Haggis 2005, 21). During the months of December through March, these flocks, a valuable source of wool and meat, were pastured in the lowland valleys. The mountains and upper slopes could also have produced wood (e.g., oak, pine), acorns, grapes, almonds, and pears.

Stream-fed valleys are the third environmental zone, which includes the small agricultural streambeds near Gournia, Vasiliki, and Episkopi. Soils there are a mixture of red Pleistocene paleosols and colluvial marl eroded from the slopes. Streams are lined with lush green vegetation, including reeds, rush, platanos, and fruit trees. Not surprisingly, the greatest density of ancient settlement was tangent to this zone.

The fourth zone is the plain on the floor of the Isthmus. Although large in area, this zone was, until the introduction of deep wells and mechanized irrigation in the 1960s, limited in its potential because of its dryness and the fact that the red soil does not retain water well. Older villagers who can remember the area in the 1920s recall that the red soils in the middle of the valley floor were not farmed, but were used primarily for grazing.